

Technical Consultation

Hepatitis C Virus Infection in Young Persons Who Inject Drugs

February 26–27, 2013
Consultation Report



Combating the Silent
Epidemic of Viral Hepatitis
**Action Plan for the Prevention,
Care & Treatment of Viral Hepatitis**

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Photographs in this report are for illustration purposes only. The people are models.

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I. Executive Summary

On February 26–27, 2013, the U.S. Department of Health and Human Services (HHS) Office of HIV/AIDS and Infectious Disease Policy, in partnership with the National Institutes of Health, the Centers for Disease Control and Prevention, the Substance Abuse and Mental Health Administration, and other federal agencies, convened a 2-day consultation to address the emerging epidemic of hepatitis C infection among young persons who inject drugs.

The meeting brought together federal partners, health department officials, researchers, staff of community-based organizations, and other stakeholders to explore the complex factors influencing this epidemic and to prioritize surveillance initiatives and epidemiology, prevention interventions, and research questions to more effectively target efforts to reduce new hepatitis C infections among young persons who inject drugs in the United States.

The first day of the consultation consisted of presentations by researchers, federal agency representatives and community leaders to ground the meeting in key facts about the epidemiology, the state of current research, and examples of innovative community initiatives.

On the second day of the consultation, participants were divided into four breakout sessions: (1) Epidemiology and Surveillance, (2) Hepatitis C Virus (HCV) Prevention Interventions With Injection Drug Users (IDU), (3) Drug Abuse Treatment/Preventing HCV, and (4) Research. Each group discussed successes, challenges, and gaps and proposed strategies to address the issues that emerged.

The consultation participants engaged in robust, highly interactive discussions about young persons who misuse prescription opioids and inject drugs and thus are at risk for or living with hepatitis C infection. A summary of the presentations, discussions, and priorities identified in the breakout sessions are outlined within this report. The top-line strategies and themes that emerged throughout the consultation follow.

Topline Strategies Identified

- Create community-led education and messaging strategies on hepatitis C risks, injection transmission risks (e.g., sharing ancillary injection equipment), and HCV testing resources.
- Improve and increase infrastructure for HCV surveillance and data collection.
- Create age-appropriate (e.g., young adult) substance use and hepatitis C interventions and prevention strategies that are evidence based and effective.
- Expand both community-based and basic science research activities to better understand how to effectively address the emerging crisis of hepatitis C infection among young IDUs.

Meeting Themes

- Understand the influence of family.
- Use adolescent- and youth-appropriate strategies.
- Include the voices of young people.
- Address social networks.
- Expand access to sterile preparation and injection equipment for drug users who cannot or will not stop injecting.
- Leverage opportunities related to advances in HCV treatment.
- Address HCV surveillance gaps.
- Use community-level interventions to address systems barriers to prevention, treatment and care services.
- Foster a coordinated federal and private sector response to this public health issue.



II. Meeting Opening and Purpose

Ronald Valdiserri, M.D., M.P.H., Deputy Assistant Secretary for Health, Infectious Diseases; and Director, Office of HIV/AIDS and Infectious Disease Policy (OHAIDP), opened the meeting and thanked the participants for attending. He outlined the purpose of the meeting and introduced Howard Koh, M.D., M.P.H., Assistant Secretary for Health. Dr. Koh described the increasing epidemic of hepatitis C virus (HCV) infection among young people aged 15–30 throughout the country.

Dr. Koh called on the participants to use the technical consultation as an opportunity to apply the expertise in the room to work toward the fifth goal outlined in the *Action Plan for the Prevention, Care, and Treatment of Viral Hepatitis*, which includes among its priorities “reducing viral hepatitis caused by drug use behaviors.”¹

He urged the participants to consider the issues within the context of health reform and the implementation of the Patient Protection and Affordable Care Act. Dr. Koh closed by describing his excitement about the consultation as an important step toward addressing HCV transmitted by drug use and the interrelated issues associated with this emerging epidemic: viral hepatitis, injection drug use, and factors influencing at-risk young adults.

Following Dr. Koh’s opening, Dr. Valdiserri described the purpose of the consultation as a means of identifying and defining priorities in the development of a federal response to the emergence of an epidemic of hepatitis C infection among young injectors, primarily in rural and suburban settings. Dr. Valdiserri emphasized the need for research and surveillance as well as the importance of interrupting transmission dynamics in order to curb the rising incidence rates. Dr. Valdiserri closed by introducing Corinna Dan, R.N., M.P.H., Viral Hepatitis Policy Advisor, OHAIDP, who outlined the agenda for the day and described the format of the consultation before transitioning to the first presenter.



III. Presentations

A. Emerging Epidemic of Hepatitis C in Young Nonurban Injection Drug Users (IDU)

Scott Holmberg, M.D., M.P.H., Centers for Disease Control and Prevention (CDC) Division of Viral Hepatitis

Dr. Holmberg provided a brief discussion of the surveillance data associated with the emerging epidemic of hepatitis C among young injectors in nonurban areas.

Hepatitis C Overview

Hepatitis C is a serious health concern, with up to 3.9 million people living with chronic hepatitis C infection in the United States.² As of 2007, deaths associated with HCV have surpassed deaths associated with HIV in the U. S.³

Hepatitis C Surveillance Issues

National surveillance of hepatitis C infections is not complete, hampered by a number of factors. Most public health reporting consists of a single laboratory report of HCV antibody positivity, which does not differentiate among acute, chronic, and resolved hepatitis C infection. While all states are required to report acute HCV infections, not all actually report due to understaffing and lack infrastructure and resources. Only 42 states report chronic HCV cases to CDC, and state and local health departments face administrative challenges keeping up with the reporting for these cases. Based on the limited surveillance data available, there has been an overall decrease in HCV prevalence rates attributed, in part, to mortality due to HCV infection. Also, there has been a dramatic decline in reported acute HCV in the 15 years up to 2006, with a plateau of low incidence (fewer than 1,000 new cases per year reported to CDC) from 2006 to 2010.

Emerging Epidemic

Massachusetts surveillance data changed the epidemiological picture of hepatitis C infection in this country. In 2010, the Massachusetts Department of Public Health (MA DPH) analyzed chronic hepatitis C infection data and observed an increase of HCV among persons aged 15–24 between 2002 and 2009. The young people being

reported were from all over the state, almost all outside of metropolitan Boston, primarily White, and equally male and female. In-depth interviews with a number of these HCV-positive people uncovered that most were IDUs who had started opioid use with oral oxycodone around 1–1.5 years before transitioning to injection of heroin. In nearly all cases, drug use began with alcohol or marijuana use before the age of 13. Among these young persons, drug use was often a “family affair,” with many young people reporting that their parents or grandparents also had histories of drug use.

National Trends

Following the release of the MA DPH findings in a number of published articles in 2010 and 2011,^{4,5} other jurisdictions across the country, some with CDC funding and assistance, began to report similar findings: ***rising rates of hepatitis C infection among young injectors, both male and female, primarily White, found in suburban and rural settings, who started prescription opioid use (e.g., oxycodone) before transitioning to heroin injection.***

In addition to the establishment of enhanced surveillance sites in some states (Massachusetts, Wisconsin, Florida, and Pennsylvania), there has also been a reporting increase from states and counties not funded to do more active surveillance. Plotting the geographic distribution of these incident cases of hepatitis C infection shows that the cases follow the spine of the Appalachian Mountains, running from the Southeast through the eastern Midwest before terminating in New England and upstate New York.

Barriers to Responding to the Emerging Epidemic

The changing epidemiology of this new emergence of hepatitis C infection represents some barriers to intervention, including the following:

- Acute HCV infection is often asymptomatic, and young injectors tend not to seek medical care.
- Young and nonurban injectors are some of the most difficult groups to engage in prevention and care activities.

- There is a dearth of available and culturally appropriate drug treatment programming, especially in the suburban and rural areas most affected.
- Similarly, there may not be HCV treatment available in these areas.
- There may be limited interest among young injectors in either drug or HCV treatment.

B. Prescription Opioid Misuse, Injection Drug Use, and HCV Among Young Adults

Stephen Lankenau, Ph.D., Drexel University School of Public Health

Dr. Lankenau presented an overview of the epidemiological information available on the increased rates of and linkages between prescription opioid misuse, injection drug use, and hepatitis C virus infection among young persons across the United States.

National Opioid Epidemic

Prescription drug misuse in this country has increased as the volume, variety, and availability of prescription opioids have increased. There has been a corresponding increase in overdose deaths, leading Dr. Susan Okie to remark on “A Flood of Opioids, A Rising Tide of Death” in the *New England Journal of Medicine*.⁶ The market for prescription opioids varies regionally, which contributes to local variations in prescription opioid misuse.

Prescription Opioid Misuse and Young Adults

Prescription opioid misuse, defined as use of an opioid not as recommended by a medical professional, has reached a significant level among young persons, with almost one-fourth of 18- to 25-year-olds (22.3 percent) reporting lifetime misuse of prescription opioids, a rate 10 times that of the lifetime use of heroin in the same age group.⁷

There has been a parallel increase in injection drug use, especially of heroin, among young adults. This upturn in use of opioids has been accompanied by similarly high rates of drug treatment admissions for heroin and prescription opioid use among persons aged 12 and older. Data from the Community Epidemiology Work Group, representing

20 states and regions, show that the majority of people in drug treatment for heroin and opioids are aged 18–34.⁸

Opioid Misuse and Young Injectors

Dr. Lankenau presented the findings from the Prescription Drug Misuse Study,^{9,10} which categorized opioid injectors into three mutually exclusive typologies: primarily heroin injectors, primarily prescription opioid injectors, and poly-opioid-heroin injectors. Exclusive heroin injectors and exclusive opioid injectors were both uncommon in the study. The third typology, poly-opioid-heroin injectors, is seen mainly in younger injectors in heroin- and opioid-rich environments (e.g., urban locations), whose drug use commences with prescription opioids before transitioning to heroin use and injection while continuing use of prescription opioids after heroin initiation for a variety of reasons.

The study explored the rationale for the transition from prescription opioid misuse to heroin injection. Results indicate that the development of tolerance to prescription opioids, cheaper cost and higher potency of heroin in some locations, ease of snorting or injecting heroin, and stigma against injecting prescription opioids all served as reasons to transition to heroin injection.

C. Strategies for Preventing Hepatitis C Among Young Persons Who Inject Drugs

Jon Zibbell, Ph.D., CDC Division of Viral Hepatitis

Dr. Zibbell provided an overview of an investigation of an outbreak of hepatitis C cases among young injectors in upstate New York and how the findings can be used to design prevention interventions.

HCV Outbreak in Upstate New York

In 2007, a cluster of hepatitis C cases was identified in Buffalo, reported in the *Morbidity and Mortality Weekly Review* the next year.¹¹ A rise in reported cases was also seen in other nearby areas of upstate New York. An investigation by the Cortland County Health Department identified these cases as occurring primarily among White males with a median age of 27 who were injecting Opana® (oxymorphone). A subsequent survey of persons who inject drugs in the county, conducted by the CDC Division of Viral Hepatitis in conjunction with county

and state health departments and a local syringe access program, yielded additional information on risk factors related to HCV infection. Survey results uncovered an inverse relationship between sharing needles and sharing preparation equipment, with most respondents who were HCV antibody positive reporting that they did not share needles but that sharing drug preparation equipment (e.g., drug cookers, filtration cotton, rinse water) was common. Other factors associated with HCV positivity included use of Opana®, “fishing for a vein” (e.g., multiple injections to find a vein for injecting drugs, an indicator of low injection competency), and attendance at a syringe exchange program. The latter demonstrates how syringe exchange programs are an important point of contact to engage those young injectors most at risk for hepatitis C infection.

HCV Infection Through Drug Preparation Equipment

Various researchers have demonstrated that, due to differences in viral morphology, the viral infectivity of HCV outside an infected person endures much longer than that of HIV. HCV can survive outside the body, under certain conditions, for days in dried blood on inanimate surfaces, cookers and filters (e.g., cotton or a cigarette filter used to strain particulates from a drug solution); and for even longer under favorably moist conditions, like the barrel of a syringe.^{12, 13, 14}

With limited options for disinfecting syringes and other drug preparation equipment, the persistence of HCV infectivity after the initial injection event underscores the importance of developing interventions focused on reducing sharing of drug preparation equipment and surfaces. Drug type determines the preparation process and consequently the degree of HCV risk if equipment is shared. Injection of prescription opioids requires more processing to break down the drug from pill form into an injectable solution. However, the injectable solution is still very thick and viscous, requiring a large barrel with a high-dead-space syringe (HDSS) that can more readily transmit HCV (see below).¹⁵

All syringes retain small amounts of fluid when the plunger is fully depressed; the space where this fluid remains has been referred to as “dead space.” The amount of dead space in a particular syringe is contingent on whether the

syringe has a fixed or detachable needle. Syringes with detachable syringes contain a high degree of dead space, because the locking mechanism provides three hollow places for fluid to be retained when the plunger is fully depressed: the tip of the syringe, the hub of the needle, and the needle itself. Low-dead-space syringes (LDSS), by contrast, have a permanently attached needle that extends through the tip of the syringe to the base of the syringe barrel, allowing fluid to remain only in the needle itself when the plunger is fully depressed. Therefore, HDSSs have been shown to substantially increase a person’s chance of becoming HCV infected due to their capacity to retain more than 1,000 times more solution after rinsing than LDSSs.



Features of Prescription Opioids

Examining some of the features of prescription opioids provides useful insight into the injection practices and drug use patterns of young injectors. The bioavailability of prescription opioids varies dramatically depending on route of administration. For example, the oral bioavailability of Opana® is 10 percent, compared to 100 percent when injected. This helps explain the route of transmission and the increase in prescription opioid injection among young people. Abuse-deterrent formulations (some oral medications are purposefully made difficult to solubilize in order to deter injection) in many prescription opioids may contribute to HCV risk, because they require more steps in the drug preparation process when people attempt to circumvent the diversion formulations, resulting in more opportunities for HCV contamination of drug preparation equipment.

Safer Injection 2.0

Because of the differences between HIV and HCV, persons who inject drugs and those who work with them require specific information on effective HCV prevention in order to reduce risks associated with injection. Risk reduction

and safer injection efforts should also take prescription opioid injection practices into account:

- New injectors especially need prevention information because of their lack of injection competency.
- Effective strategies for HCV prevention messages for people who are injecting can vary based on the drug that is being used.
- Attention should be paid to drug preparation equipment in addition to syringes and needles.
- HCV viral infectivity on injecting surfaces can persist for days or longer given favorable conditions.
- Safe use of filters is a key component of safer injection, considering the increasing granulation of deterrent-proof formulations of prescription opioids and the associated non-HCV health risks.
- Educate on the differences between LDSSs and HDSSs.

In closing, it is important to focus on the injecting process when developing HCV prevention interventions for young people who inject drugs (PWID), since injection drug use is the primary route of viral hepatitis transmission. More specifically, given that drug preparation equipment (e.g., cookers, filters, water, swabs, tourniquets) and surfaces (e.g., tabletops) where drugs are prepared are capable of transmitting hepatitis C from an infected person to another person, prevention interventions should include both safer injection education and increased access to information on how long HCV can survive on surfaces, in drug preparation equipment, and in drug injection equipment, including how to disinfect these items. This way, PWID who are either unable or unwilling to stop injecting drugs will have the knowledge and ability to protect themselves and their injecting partners from acquiring or transmitting HCV (see below).

D. Injection Drug Use and HCV in Young Adults

Kimberly Page, Ph.D., M.P.H., University of California, San Francisco

Dr. Page presented an overview of the drug injection practices of young adults, providing an overview of some findings from the U Find Out (UFO) Study, a series of community-based studies examining the epidemiology of HCV infection in young adult injectors in San Francisco.

Young Persons and Injection Drug Use

An analysis of data from the National Household Survey on Drug Abuse between 1979-2002 (now the National Survey on Drug Use and Health) estimated that 590,000 young adults aged 18–29 had ever injected drugs.¹⁶ As the surveys do not include homeless, incarcerated, or otherwise institutionalized individuals, it is likely that these figures are underestimates. Of these young injectors, it is estimated that nearly 45 percent (265,500) are infected with HCV.¹⁷ Since HCV incidence is highest among new injectors, HCV prevalence is rapidly growing within this population. Reinfection with hepatitis C may exacerbate existing surveillance challenges, clouding the full picture of HCV prevalence among young injectors.

Risk Factors for HCV Infection

The UFO Study provides insight into HCV transmission among young injectors. HCV transmission in this group is highly efficient, with young injectors frequently acquiring HCV soon after transitioning to injection. This indicates that the window for HCV prevention interventions targeting this population is small. Receptive needle/syringe sharing (RNS)—using a needle and syringe after another person has used them—has been identified as a major risk behavior associated with HCV infection. Young injectors who engage in RNS experience a 35 percent HCV incidence rate, compared with a 17 percent HCV incidence rate for those who do not. RNS is not the only challenge: A meta-analysis of pooled estimates of risk found that the risk of acquiring HCV through sharing of drug preparation equipment was identical to the risk associated with RNS.¹⁸ Additionally, the UFO Study showed that young injectors who contracted HCV were more likely to inject heroin or other opioids (30 percent) than stimulants (17 percent).



Social Contexts of Injection

Young persons inject within a particular social context. Young injectors are more likely to pool money to purchase

drugs, resulting in concomitant obligations to inject together. Within these social environments, awareness of the HCV status of injecting partners is an important factor influencing the likelihood of engaging in RNS. Researchers found that young injectors decreased their RNS rate when they perceived one of their injecting partners to be HCV infected.^{19,20}

Young female injectors face additional factors related to HCV risk. One study found that young women who reported that an injecting partner was also a sexual partner experienced the highest hazard ratio for HCV infection, even after controlling for injection frequency and use of nonsterile injection equipment. The adjusted odds ratio increased significantly if the women had known their partner for a year or longer. This risk differential is likely associated with social norms in which women are more likely to be receptive needle/syringe users.

Impact of HCV Counseling and Testing

Another study explored the impact of HCV testing and counseling on behavior. The study observed no change in injection behaviors; declines in alcohol use and other noninjection behaviors have been observed but were not sustained beyond 6 months.^{21,22,23}

Injection Cessation

Injection cessation eliminates risk for hepatitis C infection. Of the 362 young injectors in the UFO Study, 29 percent (105) reported having stopped injection for three months or more during follow-up, yielding an injection cessation incidence of 16.4 per 100 person-years. Factors associated with injection cessation include attendance in any kind of drug treatment during the previous 3 months and not injecting every day. History of incarceration, recent heroin injection, and alcohol or benzodiazepine use were inversely associated with injection cessation.

HCV Prevention Models

Exploring various HCV prevention models revealed the need to ramp up existing prevention interventions and develop new interventions. These interventions need to address preventing both the acquisition as well as the transmission of HCV.

Access to sterile injection equipment would likely reduce HCV transmission but current access has not reached the

level necessary to affect the HCV epidemic, and support is scarce in those areas where access is most limited. Since other drug preparation equipment is as likely to transmit HCV as needles are, syringe access programs should consistently distribute ancillary injection equipment along with syringes.

The changing HCV treatment landscape, marked by the advent of direct-acting antivirals (DAA), has the potential to decrease HCV prevalence and raise questions about the possibility of a “treatment as prevention” model. Other biomedical interventions, such as vaccines and virucidal agents, also need to be explored as possible opportunities for effective HCV prevention.

E. Community Response to Opioid Drug Abuse in Young Adults in Rural America

*Fred W. Brason II, Founder and CEO,
Project Lazarus*

Mr. Brason discussed Project Lazarus, a community response to overdose deaths in Wilkes County, NC. In his role as a hospice chaplain, he works with patients who are in severe, chronic pain and often require high doses of prescription opioids. The issues of safe use and opioid diversion began to affect the patients who he was seeing. The Project Lazarus program model provides a framework for a culturally appropriate, effective, community-level intervention to address prescription opioid misuse. The model could be adapted to address HCV among young injectors.

Overdose in North Carolina

Project Lazarus began in response to rising drug overdose deaths in Wilkes County. In 2007, North Carolina had the third-highest overdose mortality rate in the country;²⁴ the vast majority of these overdoses were attributable to prescription drug misuse in rural settings. The estimated costs of hospital admissions in North Carolina in 2008 for overdoses totaled nearly \$100 million. The state’s primary overdose prevention responses through law enforcement and medical prohibition were ineffective and resulted in drug users seeking prescriptions for opioid pain killers in neighboring counties.

Project Lazarus

Project Lazarus arose out of the recognition of the need for a community response to the overdose and prescription drug misuse epidemics in Wilkes County and North Carolina overall. North Carolina is home to various communities including military, industry, agriculture, academic, and tourism.

The Project Lazarus model relies upon building a coalition of local leaders who then mobilize community action after research and evaluation of the issues. Project Lazarus employs an integrated approach that includes public awareness, community and provider education, harm reduction, drug diversion control, drug treatment, and appropriate pain control for patients.

The Impact of Project Lazarus

The Project Lazarus coalitions had a considerable impact on drug overdose rates in the state. Between 2008 and 2010, counties that had coalitions experienced a 6.2 percent reduction (compared to state averages) in emergency room visits for substance abuse; this rate increased to a statistically significant 23 percent reduction (compared to state averages) in ER visits in those counties where the health department played an active leadership role within the coalition. Wilkes County observed a 69 percent drop in overdose rates between 2009 and 2011, after the start of Project Lazarus and maintenance of this decrease has been sustained. It is important to note that these decreases were observed despite the fact that opioid prescription

levels remained relatively the same and that the number of residents who were prescribed opioids was higher in the counties with coalitions than in other counties without coalitions.

Project Lazarus Next Steps

In recognition of the success of the Project Lazarus approach, the North Carolina Office of Rural Health and the Kate B. Reynolds Charitable Trust have joined forces to offer \$2.6 million to form coalitions in each county in the state as well as a statewide collaborative that includes Community Care of North Carolina, Governors Institute for Substance Abuse, and Project Lazarus to coordinate the efforts of these coalitions and provide statewide training in evidence-based approaches to pain management, including provider toolkits and a thorough process and outcome evaluation by the University of North Carolina's Injury and Prevention Research Center. Tribal councils and Fort Bragg have implemented the Project Lazarus model to address overdose rates within tribal and military communities, respectively. Additional funding by the Centers for Medicare & Medicaid Services (CMS) Innovations Grant through the Mountain Area Health Education Center in western North Carolina provides for Project Lazarus implementation there. Once prescription drug overdose has been addressed, the Project Lazarus model could be used to coordinate responses to other drug user health issues, including hepatitis C, and replicated in other states across the country.

IV. Breakout Sessions: Successes, Challenges, Gaps, and Priority Strategies

A. Epidemiology and Surveillance

Moderated by Scott Holmberg, M.D., M.P.H., CDC Division of Viral Hepatitis

The epidemiology and surveillance breakout group discussed a number of successes and challenges before developing a list of priority strategies to better address the emerging epidemic of hepatitis C infection among young PWID.

Successes

The group identified successes related to HCV surveillance and HCV epidemiology.

- **Integrated, automated infectious disease reporting system**—The use by some states of an integrated, automated infectious-disease-reporting system offers significant support to viral hepatitis surveillance and reporting. The highly automated systems can cut down on labor, interface well with electronic lab reporting, and result in better case counting.
- **Epidemiologic investigation strategies**—Local successes in Florida and Massachusetts include conducting epidemiologic investigations with young injectors via telephone surveys. Both states also experienced success in conducting in-person interviews with young injectors in jails. Sound relationships between local public health departments and corrections agencies are essential when employing the latter strategy for epidemiologic investigation.
- **Clinical practice guidelines**—The HHS HIV treatment guidelines²⁵ call for HCV screening for all persons with a positive HIV diagnosis. As a result, the Ryan White Program has very high rates of HCV screening among its patient population.
- **Mixed-methods approaches**—The use of mixed-methods approaches has worked well in several smaller studies exploring different HCV transmission risks for IDUs (e.g., risks associated with

drug preparation equipment). Targeted, community-based studies especially have yielded important insight into the HCV epidemic.

Challenges and Gaps

Below are some of the key gaps, challenges, and barriers identified by this group:

- **Insufficient resources.** Limited resources available for HCV surveillance generally and for this specific at-risk population in particular serve as major challenges. Without integrated, automated infectious-disease-reporting systems, most states lack the capacity to deal with the existing volume of hepatitis C cases.
- **Absence of a standard approach to viral hepatitis surveillance.** State-level differences in HCV surveillance persist. Not all states report HCV data to CDC, since reporting is governed by public health statutes at the state level and not currently required in every state. This results in variable, inconsistent reporting across the country. While new Substance Abuse and Mental Health Services Administration (SAMHSA) funding will increase rapid HCV screening in opioid treatment centers, this effort is not likely to yield useful epidemiologic data, since not all states make rapid HCV testing reportable.
- **Public and professional attitudes.** The stigma against drug users, especially injectors, serves as a barrier to HCV testing, limiting data for surveillance systems and impeding linkage to treatment for HCV or drug abuse. The stigma surrounding HCV infection and the belief, by some medical providers, that young people will continue to inject drugs and become re-infected exacerbate the issue even further.
- **Federal and state statutes.** Some processes can create unintended roadblocks to timely hepatitis C surveillance and epidemiologic research. The Office of Management and Budget (OMB) timeline for survey design approval can take considerable



time and needs to be taken into consideration in planning. Surveillance would be enhanced if there were state-level statutes that made chronic HCV reportable and established authority for the health department to collect this information. Finally, confidentiality requirements for drug treatment facilities can limit their involvement in surveillance.

- **Attributes of young IDUs.** Fatalism about contracting HCV among some young IDUs can serve as a challenge to encouraging testing within this population. The high mobility of young IDUs at risk for or living with HCV also makes it difficult to track them for surveillance purposes or to engage in treatment and secondary prevention programming.
- **Acute case definition.** There is a challenge in identifying acute cases, given CDC's requirement of a four-part laboratory testing criteria to meet case definition requirements. States may not have the access or capacity to collect these laboratory tests, resulting in very few acute cases being reported to CDC.

Priority Strategies

This breakout group discussed several possible strategies to address the issues raised above:

- **Encourage and support adoption of integrated, automated infectious-disease-reporting systems.** In this suggested approach, costs are spread across all infectious-disease programs in order to make it more affordable. This was deemed a highly feasible strategy that could tap into support from various CDC programs and divisions.

- **Continue to support state surveillance projects and epidemiological investigations.** To improve state and local understanding of characteristics of the emerging epidemic among young IDUs, funding could go to specific localities to aid in determining high-risk groups and modes of transmission, identifying cases, localizing epidemics, estimating drug injector population sizes, and more. Continued, if not expanded, support of CDC's Emerging Infections Program and Epidemiology and Laboratory Capacity cooperative agreements is essential. Given the population's age and transience, consideration of innovative approaches, such as the use of social media for these investigations, may be warranted. Exploring the piloting of integrated epidemiology projects across federal agencies could help overcome some of the barriers that have prevented the participation of drug treatment programs.
- **Leverage existing datasets to improve understanding of HCV incidence and prevalence in this population.** In the absence of more and better state-level data, stakeholders at all levels can leverage other large datasets that may be helpful in better characterizing the nature and extent of HCV infection among the population of young IDUs. Proposed data sources include CMS data, state mortality data, cancer registries, hospital or insurance company EMR data, data on drug use (e.g., SAMHSA's Drug Abuse Warning Network) and drug treatment, state prescription drug-monitoring program databases, and HIV and other infectious-disease databases. While these are

all potentially valuable data sources to analyze, the infrastructure and capacity to conduct analysis must exist at the state level, which may require capacity building efforts. Concerted efforts to build additional datasets by inserting hepatitis-related measures into ongoing large studies on other topics, such as Add Health (National Longitudinal Study of Adolescent Health) and the National HIV Behavioral Surveillance System would be a relatively low-cost solution that could yield valuable data.

- **Monitor pediatric HCV cases.** Some states are seeing increases in perinatally acquired HCV infection; monitoring these cases at the state and local levels is another means of tracking trends among young women of childbearing age who fall into the cohort of interest.
- **Improve public and professional education about HCV.** Increasing both public and health care professional awareness about HCV generally and the rising incidence among the population of young injectors specifically is necessary. Both groups remain under-educated on basic viral hepatitis facts and the importance of surveillance activities.
- **Work with OMB to streamline processes that slow approval of research questionnaires.** The current OMB requirements challenge timely population-based research activities. Given the high mobility of the populations affected and the rapid spread of infections across drug-using cohorts, there is a need to be able to field federally supported epidemiology and surveillance studies as quickly as possible.
- **Explore implications of the new rapid HCV test.** Requiring the reporting of rapid hepatitis C test results could be a new way to measure incidence and prevalence, particularly in settings and venues where the population of young IDUs can be intercepted.

B. HCV Prevention Interventions With IDUs

Moderated by Jon Zibbell, Ph.D., CDC Division of Viral Hepatitis

Members of this breakout group shared reflections on the successes, challenges, and gaps in HCV prevention interventions targeting drug users.

Successes

- **Structural interventions.** Structural interventions, such as access to sterile injection equipment and opioid substitution therapy (OST), have successfully addressed many of the health issues of active drug users. Secondary or satellite syringe exchange (i.e., when a participant visits a syringe exchange program, obtains injection supplies, and then distributes some portion of these new and sterile syringes to other IDUs who do not visit the syringe exchange program themselves) is an effective strategy in rural and exurban regions.
- **Community-level responses to drug use.** Project Lazarus (see page 9) serves as an excellent model for a community-level response to prescription drug misuse and hepatitis C among young adults.
- **Protective factors.** The Staying Safe Project in New York City has explored how long-term injectors remain HCV negative. The lessons and methods from this project can be adapted for young injectors.
- **User involvement.** Involving drug users in the design of programming creates programs with the proper incentives to engage young injectors and address their concerns.

Challenges and Gaps

- **Infectious disease integration.** Before integrating HCV prevention services into existing HIV prevention services it is important to fully understand the differences between the two.
- **Behavioral interventions.** Education and behavioral interventions have limited impact on HCV rates. They are necessary but not sufficient for effective HCV control.
- **Local response to drug use.** While effective programs are based on evidence, laws and policies are not always based solely on evidence; the rural areas most affected by this emerging epidemic of HCV also often demonstrate the least public and political support for sterile syringe access, OST, and other effective interventions. Generally, the exurban areas most affected by the emerging HCV epidemic have done little to address drug user health issues and have often enacted policies that drive drug use underground, making it more difficult to effectively engage with young drug users in these areas.

- **Prioritization of HCV.** Young persons who use drugs, experiencing a vast spectrum of other needs and desires, do not prioritize hepatitis C prevention. Prevention interventions must be integrated into other points of contact or promoted through social networks.
- **Inadequacy of existing prevention messages.** New prevention messages should focus on the risks of transmission of HCV through drug preparation equipment. Syringe exchange programs and other programs serving drug users need additional education on HCV risks (e.g., at different stages of the drug injection process) in order to disseminate accurate messages to young IDUs.
- **Lack of awareness of HCV.** Interventions should raise awareness of prescription drug misuse among young adults, especially in rural areas. Awareness raising should focus on the risks and associated costs of HCV infection. Education and awareness raising need to occur at the individual and community levels with service providers, policy makers, and other stakeholders.
- **Network-level interventions.** It is important to explore the influence of social network dynamics on HCV risk as well as the role of social networks in preventing HCV infection. Interventions should utilize existing networks through which young drug users share information and resources. These networks may include older injectors as well as non-injecting drug users.
- **Federal guidance and support.** While federal funding cannot be used to support access to sterile injection equipment, updated federal guidelines around sterile syringe access for IDUs would be useful. The infrastructure for HCV prevention interventions needs to be fortified at the local and state levels.
- **Existing testing technology.** The absence of a convenient rapid test for HCV that distinguishes between acute, chronic, and resolved HCV hampers prevention efforts and dissuades HCV testing among young injectors.

Priority Strategies

The strategies developed within this breakout group were organized into three categories: federal leadership, programmatic tools and resources, and meaningful education messaging for young people at risk.

Federal Leadership

Recognizing the importance of federal leadership as a critical element in coordinated and sustainable prevention interventions, there are many ways in which federal stakeholders can support the development and implementation of effective HCV prevention interventions:

- **Fulfill the role of federal partners in guideline development and framing of the problem.** CDC should develop new HCV prevention recommendations that could be useful for coordinating the responses of health departments, drug treatment programs, syringe access programs, and other stakeholders.
- **Access to sterile injection equipment should be a component of a comprehensive HCV prevention approach meriting federal resources.** Syringe access programs would benefit from multiple advocacy groups that can share best practices across programs and provide guidance on changes in HCV prevention messaging and intervention approaches.
- **Support untapped opportunities for interagency collaboration.** Include federal partners beyond those at the consultation in ongoing discussions or work to help expand reach, increase collaboration at the federal level, and promote integration of HCV prevention and education into infectious-disease and drug treatment services.
- **Institutionalize coordination to support development of local initiatives.** Community transformation grants provide an excellent example of how federal coordination of HCV initiatives can yield structural change to lower rates of both drug use and HCV.

Programmatic Tools and Resources

There is a need to develop programmatic tools and resources that build off the existing research that has been done on the emerging HCV epidemic. These tools and resources may be developed nationally but will require local adaptation and tailoring to address regional variations.

- **Develop HCV prevention training tools.** There is a need to develop trainings on hepatitis C prevention in order to disseminate counseling and education messages among professionals, including staff of syringe exchange and drug treatment programs as

well as corrections and parole officers and medical providers.

- **Aggregate existing hepatitis C resources.** While there is a definitive need to develop new resources, many existing resources can prove useful if they are easily found and accessed. An online clearinghouse of existing hepatitis C resources would benefit stakeholders nationally and provide useful updates about new resources.
- **Develop resources for technical assistance provision.** Stakeholders conducting HCV prevention interventions will require technical assistance resources in order to implement them effectively with young injectors. They will also need resources related to rapid HCV antibody testing and linkage to care.
- **Comprehensively address the needs of people infected with and affected by HCV.** Since young injectors do not prioritize hepatitis C, interventions will need to holistically address their other priorities, focusing on basic needs and age-appropriate health care and drug treatment, integrating HCV prevention interventions into these points of contact.

Meaningful Education Messaging for Young People at Risk

As they face a risk environment markedly different from older drug users, different messages need to be developed to effectively reach and engage young adults who misuse prescription drugs:

- **Develop culturally competent messaging.** The main strategy in this category is to develop culturally competent and age-appropriate risk reduction messages for young people who are at risk of transitioning to injecting or are currently injecting.
- **Develop a multimedia messaging framework.** It is critical to recognize the multiple ways in which young people communicate today and to ensure that messaging engages them in these venues (e.g., social media and mobile phones versus posters and brochures).
- **Conduct qualitative research to support media choices.** There is a dearth of information on the dissemination of HCV prevention messages through

social media outlets. Qualitative research should engage young injectors to inform the development of messages.



- **Utilize existing communication networks.** Young injectors already have established networks through which information passes. Exploring the ways in which information on drugs and injection practices is disseminated can provide effective avenues for prevention messaging.
- **Determine existing institutional points of contact.** Young injectors are not completely disconnected from institutions. Assessing existing points of institutional contact may yield important insights into intervention design and implementation.
- **Assess and test messaging practices at the local level.** While a national campaign to raise awareness about HCV may be effective, it is essential to pilot messages at the local level to determine the need for translation to better achieve linguistic appropriateness.

C. Drug Abuse Treatment and Preventing HCV

Moderated by Robert Lubran, M.P.A, M.S., SAMHSA Center for Substance Abuse Treatment

The overarching goals of the this breakout session were to identify HCV prevention efforts that could be implemented within drug abuse treatment facilities in the near term and to identify HCV information dissemination efforts that could be implemented for patients and health care providers.



Successes

- **Integrated health services.** There has been a concerted effort to incorporate a wider net of health services within drug abuse treatment facilities. For example, in West Virginia all health home applicants have to take the CDC hepatitis risk assessment prior to admission. In Tennessee, much effort has been made to ensure that all HCV cases identified within treatment facilities are recorded in a centralized public health database.
- **Comprehensive drug treatment and recovery supports.** When young injectors can access drug treatment and recovery supports, they can greatly decrease their risk of HCV transmission, because they have stopped injecting practices.

Challenges and Gaps

- **Access to substance use treatment.** Inability to pay for services was cited as a major barrier to client retention within drug treatment facilities. Those who are in need but ineligible for Medicaid undoubtedly fall through the cracks. This results in missed opportunities to address high-prevalence conditions such as hepatitis C within this population.
- **Limited resources for HCV integration.** Limited resources have generally restricted the ability of drug treatment clinic staff to go beyond what they have been charged to do primarily. This has made the integration of ancillary services like HCV screenings challenging. Some drug treatment programs are reluctant to test for conditions that they could be obligated to treat. This challenge also highlights a possible gap in HCV linkage to care.

Priority Strategies

Breakout group participants organized their recommendations into two tiers based on feasibility and impact. The following strategies were described as high priority, because they are perceived as potentially having more impact:

- **Promote HCV testing and education.** Promoting HCV testing and education in drug treatment facilities and physician practices (e.g., buprenorphine providers) provides an opportunity to engage with drug users when they are amenable to such messaging.
- **Promote the adoption of the existing CDC risk assessment tool.** The hepatitis risk assessment tool, available through the CDC website, is an important resource to promote that can be used by both patients and providers to assess viral hepatitis risk. Integrating the assessment tool into primary care settings and drug treatment programs can identify individuals who should be referred for HCV testing and education.
- **Establish training and education of primary care physicians and drug treatment providers.** Educating primary care physicians on the significance of HCV screenings and the impact of ever-evolving treatment regimens is a core strategy to promote evidence-based models of hepatitis C prevention. While CDC has effectively relayed its recommendation to the medical community that “Baby Boomers” be screened for HCV, primary care physicians may not know how to proceed once they identify a patient infected with hepatitis C. This is particularly problematic in remote communities, where specialized care is not readily accessible.

The following strategies were described as important but

lower priorities than the above:

- **Identify and use available data and improve data collection methods.** Data collection and analysis is an essential step in the design of evidence-based interventions. Strengthening surveillance systems and program evaluation infrastructure strengthens interventions.
- **Create awareness of federal resources available for multiple chronic conditions.** Promoting the use of health home projects to promote integrated approaches could reach young injectors by addressing other health concerns in addition to hepatitis C.
- **Capitalize on drug courts as a point of contact for education.** Drug courts are a point of contact for many young injectors and could serve as a venue for HCV intervention and education.
- **Develop programs for pregnant, drug-using women.** Designing programs that meet the needs of drug-using women, especially those who become pregnant, can ensure that these women receive needed prenatal care as well as testing for HCV, preventing both perinatal transmission of HCV and neonatal abstinence syndrome.
- **Promote education on HCV risk.** Both service providers and consumers require continuous education on hepatitis C. Recent updates in drug use trends and new research on HCV transmission and treatment have expanded the knowledge base related to HCV. Service providers especially need to keep abreast of new developments in order to be prepared to address the questions and concerns of the consumers to whom they provide services.
- **Develop community coalitions.** Community coalitions such as the ones modeled by Project Lazarus in North Carolina have already demonstrated success in addressing drug overdose. This model also can be used to address HCV and prescription drug misuse.

D. Research

Moderated by Jag Khalsa, Ph.D., M.S., National Institutes of Health (NIH)

The research breakout group discussed a number of successes, gaps, barriers, and ideas for research priority strategies that would make an impact on learning how best to serve young people at risk for opioid use,

injection, and hepatitis C infection. Outlined in this summary are the topline discussion points and the priority strategies for research.

Successes

- **Hepatitis C vaccine clinical trial.** The current phase I and II hepatitis C vaccine clinical trial targeting IDUs not infected with hepatitis C (A Staged Phase I/II Study, to Assess Safety, Efficacy and Immunogenicity of a New Hepatitis C Prophylactic Vaccine Based on Sequential Use of AdCh3NSmut1 and MVA-NSmut, <http://clinicaltrials.gov/show/NCT01436357>) was noted as being successful at recruiting and retaining young injectors, which shows that research can be conducted with this population.
- **Recruitment strategies.** Successful recruitment and retention of young injectors requires considerable labor because of the transient and sometimes chaotic lives that they live. Using outreach workers and engaging closely with the community have been identified as successful strategies. Other recruitment models that have worked well with this population include respondent-driven sampling and snowball sampling. These are the same strategies that ethnographers, public health workers, and community based-organizations use to reach marginalized populations.
- **Characterization of HCV transmission risks.** Considerable progress has been made around characterizing the transmission risks for hepatitis C (though more could be understood about the risks related to sharing water, cottons, and other ancillary equipment).
- **Engagement of individuals with acute HCV infection.** Since there are current research studies working with young injectors who have HCV (e.g., NCT00244374—UFO Study, NCT01717560—Hepatitis C Treatment in Underserved Populations), these researchers are engaging people during acute infection with hepatitis C and could provide important information on transmission and treatment.

Challenges and Gaps

- **Engagement of young adults before transition to injection.** Young people need to be reached before they transition from using oral opioids to injecting drugs. Surveillance systems need to be nimble enough to identify these newly emerging populations more quickly.



- **Distinction of the stage of HCV infection.** In order to understand HCV transmission better, it is essential to detect infections and to distinguish among acute, chronic, and resolved infections.
- **Development of prevention strategies.** More research needs to be done on effective strategies for preventing hepatitis C transmission and for understanding how individuals can prevent HCV transmission in their injecting networks.
- **HCV treatment barriers.** With the advent of direct-acting antivirals to treat HCV, it is essential to explore and understand better the HCV treatment barriers for this population. There is inadequate understanding of how best to engage young injectors in HCV treatment.
- **Involvement of the criminal justice system.** Another critical gap is in how to involve criminal justice systems in research to support the timely detection of localized epidemics and provide effective prevention and care services. The criminal justice system serves as a major point of contact with young injectors, and there is a need to capitalize on its prominence as point of engagement.
- **Participatory methods.** The issue of how to involve communities and create community-based research initiatives is an area where there is some success, but many gaps remain in identifying which models are successful when used with young adult drug users.

- **Absence of published articles in peer-reviewed journals.** The lack of published articles in peer-reviewed journals about young IDUs and HCV has affected funding opportunities, because reviewers of clinical trial proposals do not understand fully the lives and experiences of young opioid users and IDUs at risk for or living with hepatitis C infection.

Priority Strategies

The following priority strategies were identified by participants after a robust discussion about the successes and challenges. Priorities are categorized as “near term” (within 1 year) and “intermediate term” (in 1–2 years).

- **Emphasize research studies on implementation science (near term).**
 - *Research priorities:* What combination of drug treatment, syringe access, and HCV care would be effective in reducing HCV rates among young injectors? At what scale?
 - *Research approaches:* Simulation community trials; cost-effectiveness studies.
- **Conduct incidence and prevalence research on HCV among young IDUs (near term).**
 - *Research priorities:* How do we identify and reach the communities at highest risk before HCV infection?
 - *Research approaches:* Revival of cohort studies as an approach to better define HCV reinfection and relapse in this population; harmonization of

outcomes and measures to facilitate creation of large datasets to maximize use.

■ **Comprehensively involve community as a whole in research (near term).**

- *Research priorities:* What features of treatment and recovery programs are successful with young people? How do we develop community-level coalitions to foster action? What do we know about emerging populations like rural, suburban, and other communities?
- *Research approaches:* Work with families, schools, churches, and more.

■ **Conduct research on new and existing HCV treatment (near term).**

- *Research priorities:* What is the effectiveness of new HCV treatments for young IDUs in “real world” settings? What is the feasibility of a therapeutic vaccine? What effect will the Affordable Care Act have on HCV treatment rates in young IDUs? What is the effectiveness of a “treatment as prevention” model for hepatitis C? How can we best understand acute infections, and what can we understand better during this period to address treatment and prevention of HCV among young injectors?
- *Research approaches:* Engagement of high-risk populations; increased point-of-contact rapid testing and counseling; improved access to RNA testing; integration of HCV testing into health care and substance abuse treatment

■ **Involve criminal justice stakeholders more within the prevention arena (near term).**

■ **Increase prevention research (intermediate term).**

- *Research priorities:* What is the feasibility of various prevention interventions? What does vaccine preparedness look like in rural areas? What is the possible impact of middle school education on drug use and hepatitis C? What community-based strategies might prevent transition to injection drug use?

■ **Conduct basic science research that can yield development of new technologies to prevent hepatitis C transmission (intermediate term).**

- *Research priorities:* Are people more infectious during the acute HCV infection period? Can we develop a biocide that can clean injecting equipment? Can we develop new syringes that inhibit transmission of HCV (e.g., LDSSs)?

community, help, Hepatitis C
community, family, injection, young people, virus
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virus, prevention, education
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injection drug users, epidemic, young people, non-urban
messaging, epidemic, Young
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people, non-urban, HCV-posit
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interventions, Project Lazarus, clinical, hepatitis C,
hepatitis C virus viral hepatic

V. Themes

Participants engaged in a robust, problem-solving dialogue throughout the 2 days. Several themes emerged during the discussions suggesting future directions in addressing hepatitis C among young injectors. These themes are outlined below.

Understand the influence of family. Many young injectors start drug use at an early age before transitioning to injection. Drug use is a “family affair”, with many young injectors reporting family histories of drug use. As such, early and family-centered interventions targeting at-risk youth before they commence drug use and injection could serve as important bulwarks against the rising rates of hepatitis C infection.

Use adolescent- and youth-appropriate strategies. In order to address rising hepatitis C rates among young injectors, there is a need to develop age-appropriate models of hepatitis C treatment. Adult models of health care fail to address the developmental needs of young injectors with hepatitis C, as well as the specific barriers that young persons face in accessing health care and health-related services.

Include the voices of young people. Consultation attendees felt that the inclusion of young people, particularly young injectors, in developing strategies and assessing feasibility is extremely important. The significance of involving injectors was reiterated in discussions of the need to explore the strategies used by long-term injectors who have not contracted hepatitis C virus.

Address social networks. Many attendees expressed concern that existing models for preventing the spread of hepatitis C focus on the individual level while the virus spreads through social networks, indicating a need for social network-level interventions and strategies. Establishing and implementing social network strategies necessitates raising awareness of hepatitis C among key stakeholders at all levels.

Expand access to sterile preparation and injection equipment for drug users who cannot or will not stop injecting. Consultation attendees referenced research indicating that expansion of access to sterile injection

equipment could be an effective strategy for curbing the epidemic of hepatitis C. However, challenges remain as syringe access in rural settings is limited and political and community-level support often remains elusive. Syringe access programs and opioid substitution programs continue to be an important point of contact with young injectors, but most programs have limited resources. Additionally, access to sterile syringes does not always include access to sterile drug preparation equipment, such as filtration cottons, drug cookers, and rinse water. Access to sterile preparation and injection equipment is necessary to effectively prevent blood contamination and hepatitis C transmission during the injection process.

Leverage opportunities related to advances in HCV treatment. Advances in hepatitis C testing and treatment, including the development of rapid antibody tests and the advent of improved HCV treatment (e.g., DAAs), provide important opportunities for intervention. The arrival of rapid HCV testing provides an opportunity for enhanced screening based on portability for mobile use (especially in rural settings) and preferences among young injectors for a quicker test. Questions remain about the potential impact that DAAs will have on HCV rates in this population, prompting interest in the exploration of a “treatment as prevention” or “test and treat” framework.

Address HCV surveillance gaps. Difficulties persist in assessing the stage of hepatitis C infection (e.g., acute, chronic, resolved) during HCV testing, and most reporting sites are overwhelmed with the burden of surveillance. As such, researchers consider current rates of HCV infection among young injectors to be underestimates further skewed by low testing rates among young injectors. The dearth or outright absence of HCV treatment access in rural areas may discourage young injectors from testing and provides its own challenge in stemming the tide of this epidemic. There is a need to address these significant

gaps in surveillance and epidemiology, as well as gaps in access to HCV treatment, at the state level.

Use community-level interventions to address systems barriers to prevention, treatment and care services.

Injection cessation is an important risk reduction strategy that has been positively associated in the UFO Study with attendance at drug treatment of any kind. ***Drug treatment is an effective intervention; however, it presents many challenges, including availability, and appropriateness for young injectors.*** Community-based frameworks for addressing prescription drug overdose, as exemplified by Project Lazarus, could be adapted to develop a coordinated and comprehensive response to hepatitis C in young injectors.

Foster a coordinated federal and private-sector response to this public health issue. A final major theme running through the consultation was the contrast between the need for a multilayered integrated response to rising rates of HCV among young injectors and the challenge of coordinating such a response across the many offices and agencies that work on prevention, testing, linkage to care, and other important issues (e.g., criminal justice, housing).

Endnotes

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Appendix A: Agenda

Technical Consultation: Hepatitis C Virus Infection in Young Persons Who Inject Drugs

Office of HIV/AIDS & Infectious Disease Policy

February 26–27, 2013

Hall of States, Suites 283–285

444 North Capitol Street NW.

Washington, DC 20001

Agenda

Day 1

- 1:00–1:15 p.m. Welcome/Introductions Howard Koh, M.D., M.P.H.
- 1:15–1:30 p.m. Purpose and Format of the Consultation Ron Valdiserri, M.D., M.P.H.
- 1:30–2:00 p.m. Prescription Opioids, Injection Drug Use, and HCV Among Young Adults
Stephen Lankenou, Ph.D., Drexel University
- 2:00–2:30 p.m. Emerging Epidemic of Hepatitis C in Young Nonurban Injection Drug Users
Scott Holmberg, M.D., M.P.H., Centers for Disease Control and Prevention
- 2:30–3:00 p.m. Injection Drug Use and HCV in Young Adults: What We Know That Can Inform Prevention
Kim Page, Ph.D., University of California, San Francisco
- 3:00–3:30 p.m. Strategies for Preventing Hepatitis C Among Young Persons Who Inject Drugs
Jon Zibbell, Ph.D., Centers for Disease Control and Prevention
- 3:30–4:00 p.m. Community Response to Opioid Drug Abuse in Young Adults in Rural America
Fred W. Brason II, Chaplain, Project Lazarus
- 4:00–5:30 p.m. Moderated Group Discussion Ron Valdiserri, M.D., M.P.H.
- 5:30 p.m. Adjourn

Day 2

- 8:30–8:45 a.m. Recap of Day 1 and Charge to the Breakout Sessions
Jag Khalsa, Ph.D., M.S.
- 8:45–11:00 a.m. Breakout Sessions by Topic (individuals will be assigned)
- HCV Prevention/Interventions With Drug Users
 - Moderator: Jon Zibbell, Ph.D.
 - Research
 - Moderator: Jag Khalsa, Ph.D., M.S.
 - Epidemiology/Surveillance
 - Moderator: Scott Holmberg, M.D., M.P.H.
 - Drug Abuse Treatment/Preventing HCV
 - Moderator: Bob Lubran, M.P.A., M.S.
- 11:00–11:30 a.m. Epidemiology/Surveillance Breakout Report
- 11:30 a.m.–noon HCV Prevention/Interventions With Drug Users Breakout Report
- Noon–1:30 p.m. Lunch (on your own)
- 1:30–2:00 p.m. Drug Abuse Treatment as HCV Prevention Strategy Breakout Report
- 2:00–2:30 p.m. Drug Abuse Research Breakout Report
- 2:30–3:00 p.m. Next Steps and Wrap-Up Ron Valdiserri, M.D., M.P.H.
- 3:00 p.m. Adjourn

Appendix B: Participant List

Technical Consultation: Hepatitis C Virus Infection in Young Persons Who Inject Drugs

Office of HIV/AIDS & Infectious Disease Policy

February 26–27, 2013

Hall of States, Suites 283–285

444 North Capitol Street NW.

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Combating the Silent
Epidemic of Viral Hepatitis
**Action Plan for the Prevention,
Care & Treatment of Viral Hepatitis**