



Shifting Epidemics: HIV and Hepatitis C Infection among Injection Drug Users in Massachusetts



Fifth in a Series of Reports on the Status of
the HIV/AIDS Epidemic in Massachusetts

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Deval L. Patrick
Governor

Timothy P. Murray
Lieutenant Governor

JudyAnn Bigby, MD
Secretary of Health and Human Services

Lauren A. Smith, MD, MPH
Interim Commissioner, Department of Public Health
(DPH)

Kevin Cranston
Director, Bureau of Infectious Disease (BID), DPH

H. Dawn Fukuda
Director, Office of HIV/AIDS, BID, DPH

Daniel Church
Viral Hepatitis Coordinator
Division of Epidemiology and Immunization
BID, DPH



Massachusetts Department of Public Health
Bureau of Infectious Disease



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Special thanks to the following individuals for their contributions to this report:

Alfred DeMaria, Jr., MD, Bureau of Infectious Disease

Maura Driscoll, Office of HIV/AIDS

Michael Gaucher, Office of HIV/AIDS

Tammy Goodhue, Office of HIV/AIDS

Maile Beatty, Office of HIV/AIDS

Gillian Haney, Office of Integrated Surveillance and Informatics Services

Betsey John, HIV/AIDS Surveillance Program

Kimberly Harris-McCoy, HIV/AIDS Surveillance Program

Patricia Kludt, Division of Epidemiology and Immunization

Shauna Onofrey, Division of Epidemiology and Immunization

Franny Elson, Division of Epidemiology and Immunization

Virginia Lijewski, Division of Epidemiology and Immunization

Kerri Barton, Division of Epidemiology and Immunization



I. Executive summary

Injection drug users (IDUs) face significant health risks, many of which are increasingly preventable or treatable. The experience with human immunodeficiency virus (HIV) infection among IDUs in Massachusetts has demonstrated that, with a commitment to addressing drug user health, it is possible to reduce drug use-related harm in this population. In Massachusetts and nationally, rates of HIV infection among IDUs have dramatically decreased over the past 10 years. This is largely attributed to effective prevention and treatment programs available in the Commonwealth. In fact, HIV rates among IDUs are at such a low level that eliminating HIV transmission in this population is a feasible goal. This is a remarkable shift given the state of the HIV epidemic 15 years ago, when injection drug use was a leading mode of HIV transmission.

However, there has not been a similar decrease in hepatitis C virus (HCV) transmission in this population. This report describes evidence that many of the public health gains resulting from progress in fighting HIV infection among IDUs may be offset by a growing number of cases of HCV infection in this population, and in particular among young people age 15-24. Infections among adolescents and young adults represent more recent exposures than their older counterparts, who may have been living with HCV for years. This change follows a documented increase in opiate use in younger populations which combined with screening and treatment challenges in the health care sector have led to a newly growing epidemic of HCV infection among IDUs.

This report finds that:

- HIV prevention efforts in Massachusetts have been successful at reducing HIV infections attributed to injection drug use by 92% over the past decade.
- There is a significant increase of HCV infection among young IDUs in Massachusetts that may well be a marker for the future direction of the HIV epidemic. Annual reports of HCV diagnoses in the 15-24 age group increased by 74% between 2002 and 2009.
- Treatment can cure some individuals of HCV infection, but IDUs often do not get timely or successfully managed treatment.
- Despite legalization of over-the-counter syringe sales in Massachusetts pharmacies, there are still major challenges to syringe access for some IDUs.
- Expansion of multi-component prevention programs tailored for IDUs is greatly needed statewide.
- Education of medical and social service providers is critical to ensure that the prevention needs of IDU populations are adequately addressed and that the stigma surrounding injection drug use does not contribute to health disparities.
- Expanded and enhanced surveillance data on HCV infection are needed to better understand emerging trends among IDUs.



II. Introduction

Injection drug use plays a significant role in the transmission of viral and bacterial disease and is long recognized as an important public health issue. While there has been progress in addressing some of the health issues confronting injection drug users (IDUs), there remains a broad range of unmet needs and strong evidence that some critical health risks are worsening. The threats to health that confront IDUs include:

- Bloodborne infections such as with HIV, hepatitis C virus (HCV) and hepatitis B virus (HBV)
- Skin and soft tissue infections such as abscesses and staph infections
- Endocarditis, a life-threatening infection of the heart
- Drug overdose
- Violent victimization
- Sexual health, including sexually transmitted infections
- Mental health issues

A range of bloodborne pathogens are efficiently transmitted via injection drug use. The risk of transmission, however, does not stem from the drug itself, but from exposure to another person's blood through the sharing of contaminated drug injection equipment. This report will focus primarily on HIV and HCV risk that IDUs face based on the most complete disease surveillance data that are available in the Commonwealth, the particular risk of sub-populations of IDUs, and the status of prevention and treatment programs addressing HIV and HCV infection.

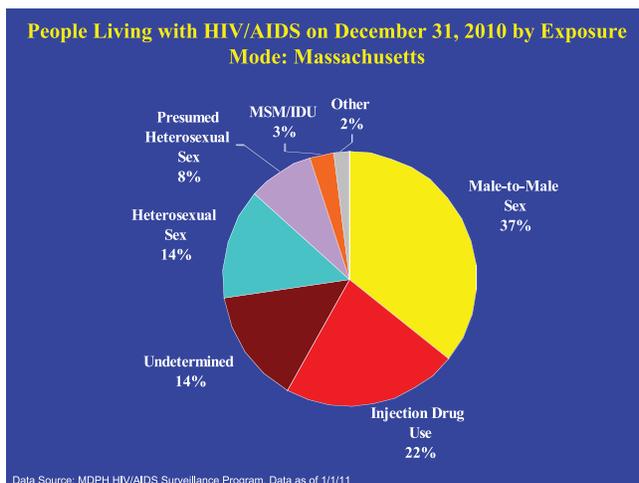


III. HIV infection among IDUs

HIV Infection

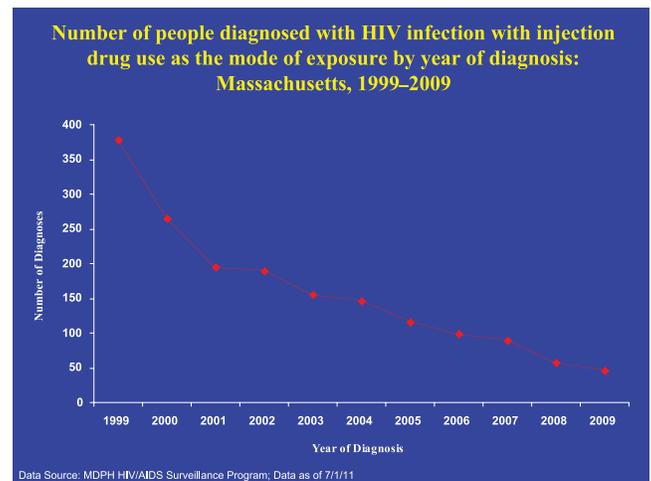
As of December 31, 2010, there were 17,938 people living with HIV infection in Massachusetts who were first diagnosed in Massachusetts. Twenty-two percent of individuals living with HIV/AIDS in Massachusetts were infected through injection drug use. (Figure 1).

Figure 1: People living with HIV/AIDS on December 31, 2010 by exposure mode: Massachusetts



However, most persons living with HIV/AIDS exposed via injection drug use were reported more than ten years ago. Great strides have been made in HIV prevention among injection drug users in Massachusetts, reflected in the decline of new HIV infection diagnoses among IDUs since 1999. Between 1999 and 2009, the annual number of new cases of HIV infection reported among IDUs declined 88% from 379 to 47 (Figure 2). Proportionally, IDUs made up 29% of new HIV diagnoses in 1999, compared to 8% in 2009.

Figure 2: Number of people diagnosed with HIV infection with injection drug use as the mode of exposure by year of diagnosis: Massachusetts, 1999-2009



The proportion of male versus female IDUs diagnosed with HIV infection remained steady between 1999 and 2009, at approximately 66% male. The racial/ethnic distribution has not changed significantly over time. Hispanic/ Latino IDUs comprise the largest proportion of cases diagnosed between 1999 and 2009, representing on average 41% of new diagnoses, while white non-Hispanic IDUs comprised an average of 36%. The proportion of black non-Hispanic IDUs fell from 27% in 1999 to 21% in 2009.

While the total number of new HIV diagnoses decreased by 34% between 2001 and 2010, the largest decrease of reported cases was among IDU (64%), compared to the other behavioral risk categories which ranged from 22% among those reported as men who have sex with men (MSM) to 53% among those reporting heterosexual risk. A combination of effective prevention programs and sound public policies coupled with widespread availability of HIV treatment in Massachusetts are likely responsible for the dramatic decline in new infections among IDUs. These programs and policies are explored in more depth later in this report.



IV. Hepatitis C among IDUs

Unfortunately, the progress made controlling HIV among IDUs is not reflected in their ongoing risk for acquiring the hepatitis C virus (HCV). HCV infection is the most common bloodborne infection in the United States. Conservative estimates suggest that there are 2.7- 5.3 million people living with HCV in the US^{1,2}, and there are at least 100,000 HCV-infected Massachusetts residents. Nationally, up to 90% of IDUs have been exposed to HCV in the past³, and 70-85% of these are estimated to be chronically infected and able to transmit HCV to others⁴. HCV is responsible for significant illness and death due to liver disease, notably cirrhosis and primary liver cancer (hepatocellular carcinoma)^{1,5,6}.

Since 2002, the Massachusetts Department of Public Health (DPH) has received annually an average of 8,744 new reports of probable and confirmed HCV infection. Between 2002 and 2010^a there were 78,693 newly diagnosed HCV infections reported in Massachusetts; this is eleven times the number of HIV infections reported during the same time period. Risk history data on HCV cases are not reported uniformly, and only 25% of reported cases have information on IDU history. Among HCV case reports from this period containing risk behavior data (N=19,683), 68% indicate injection drug use as a risk.

Similar to HIV infection among IDUs, males (63%) are more likely than females (37%) to be reported with HCV infection. The average age of cases at the time of report to DPH was 43 years. Information on race and ethnicity is missing for a majority of these cases, but among those cases for which race/ethnicity information is available (N=25,629, 32% of all cases reported between 2002 and 2010), 64% were white non-Hispanic, 23% were Hispanic/Latino, 8% were black non-Hispanic, and 5% were classified as “other race/ethnicity”. The cases occurred across the state in metropolitan, suburban, and rural areas, and did not differ geographically by age group.

While both HIV and HCV can be transmitted via the injection of drugs, HCV infection is more likely to be acquired by injection drug users for a variety of reasons, including:

- HCV is almost 10 times as infectious as HIV.⁷
- HCV has spread so widely among injection drug using populations that exposure through shared drug injection equipment (syringes, “cookers,” “cottons,” and rinse water) to an infected individual is more likely than other infections.^{1,8}
- IDUs’ awareness of ways to prevent HCV infection is typically low¹ and concern about the consequences of HCV infection may also be low.⁹
- Bleaching used syringes has not been demonstrated to be an effective HCV prevention method^{10,11}, although there is evidence of the efficacy of this practice for HIV prevention.¹⁰
- While treatment of HCV can be curative, uptake of HCV treatment among IDU is typically low,¹² therefore reducing the prevention benefit of successful anti-viral treatment.
- Stigma and marginalization related to drug use not only create barriers to care for an IDU, but can also have an impact on the individual’s ability to prevent transmission of HCV.



V. HCV treatment and prevention

Treatment of HCV infection can lead to a “sustained virologic response” (SVR), which is medically equivalent to a cure. Successful treatment of people with an injection drug use history has been shown to be feasible and they have similar SVR rates compared to non-IDU counterparts.¹² Current treatment employs pegylated interferon (an immune system stimulant) and ribavirin (an anti-viral medication). Both of these drugs can cause considerable side effects and not all people living with HCV infection are able to complete the treatment due to these side effects. The National Institutes of Health consensus recommendations¹³ do not recommend exclusion of active IDUs from HCV treatment, however, interferon-based treatment uptake in the injection drug using population is generally low, perhaps due in part to the reluctance of medical providers to treat those with more recent or current drug use history.¹² Limited data are available on the efficacy of HCV treatment with active IDUs. A recent study of 597 IDUs living with HCV infection, found that only 6% had initiated interferon-based treatment.¹⁴

HCV treatment options have improved recently with the availability of newly developed medications which when used in conjunction with the standard-of-care, interferon-based therapy, increase the likelihood that an SVR can be achieved.¹⁵ Numerous other medications to treat HCV are being developed and tested. While new treatment options represent a promising opportunity, IDUs may be more likely to receive a late diagnosis and less likely to access treatment.^{3,16} Unless the marginalization of IDUs in the health care system is addressed, the impact on the highest risk patients will be limited. Failure to provide equal access to HCV treatment will complicate HCV prevention efforts that rely on antiviral therapies that have been successful preventing HIV infection in this population.



VI. Adolescent and young adult IDUs and HCV infection

There has been a slight overall downward trend in newly diagnosed cases of HCV infection in recent years. However, since 2007 there has been an increase in the number of HCV cases observed among persons aged 13-29 years. The annual incidence of reported cases among 13-29 year olds has increased from 79 to 136 per 100,000 population from 2002 to 2010. In contrast, the cumulative incidence of reported cases among those aged 30 and older decreased from 243 to 150 per 100,000 population in that same time period.

The change in the age distribution of HCV cases is shown in Figures 3 and 4. The largest number of cases between 2002 and 2004 was among individuals aged 44-52 years. In comparison, between 2008 and 2010 there was a second peak in cases among people in a younger age cohort. This clustering of cases suggests a second wave of IDUs acquiring HCV, and at a relatively early age. Also, the proportion of females and males are more equally impacted in the younger age groups. This suggests that young women and girls may be adopting behaviors that place them at risk for HCV infection, in particular injection drug use.

Figure 3: Total reported confirmed, probable, and suspect Hepatitis C infections by age and gender, Massachusetts, 2002-2004

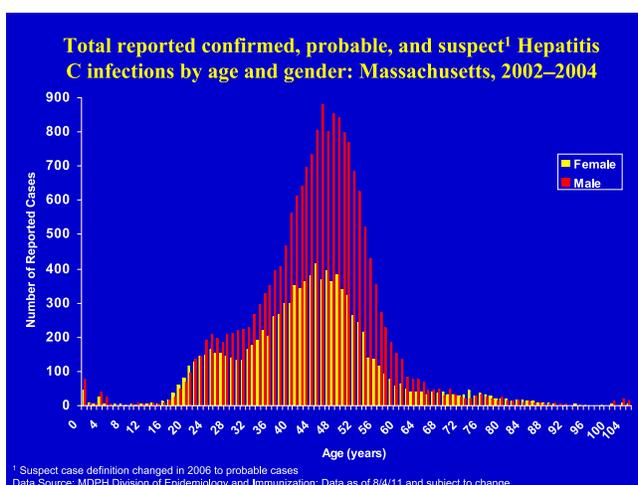
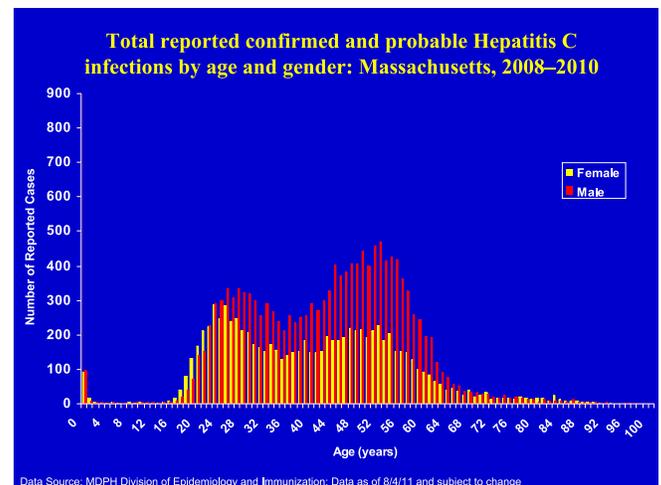


Figure 4: Total reported confirmed and probable Hepatitis C infections by age and gender, Massachusetts, 2008-2010



Racial/ethnic distribution appears to vary across age groups. Seventy-four percent of cases from 2002-2010 in those ages 13-29 were white (non-Hispanic) versus 62% of cases age 30 and older. Given the limited data available on race/ethnicity for this population, more information is needed to better understand the populations at greatest risk of HCV infection in the younger cohort.

Data indicate that the increase in reported cases of HCV infection among young people can be attributed to injection drug use. From 2007 to 2009, 72% of completed case reports indicated current or past injection drug use among 15-24 year olds. Of these, 84% reported injecting drugs within the previous 12 months. The data are limited in that they reflect those individuals that have been seen, tested and reported by a medical provider. People who use injection drugs, and are not in care or have not been screened, will not be represented in these surveillance data.

Cases of HCV infection among young people are spread throughout the state, with clustering in some urban areas. The distribution of older cases is similar and indicates that while certain areas have a particularly high burden of disease, the scope of the epidemic is statewide and involves rural, suburban and urban jurisdictions. Figures 5 and 6 demonstrate the geographic distribution of HCV cases in people ages 13 to 29 years and those 30 years and older over a 5 year period.

Figure 5: Five-year incidence of HCV infection among 13-29 year olds by town

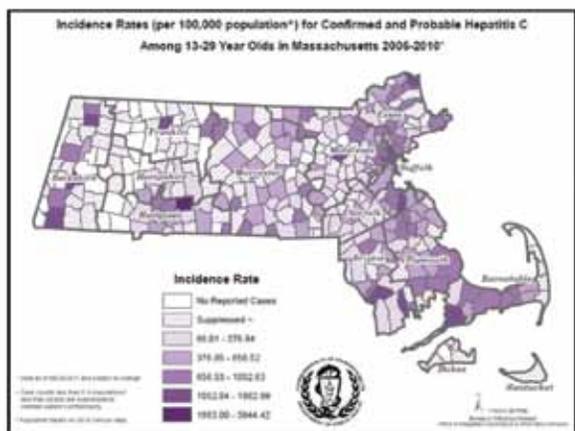
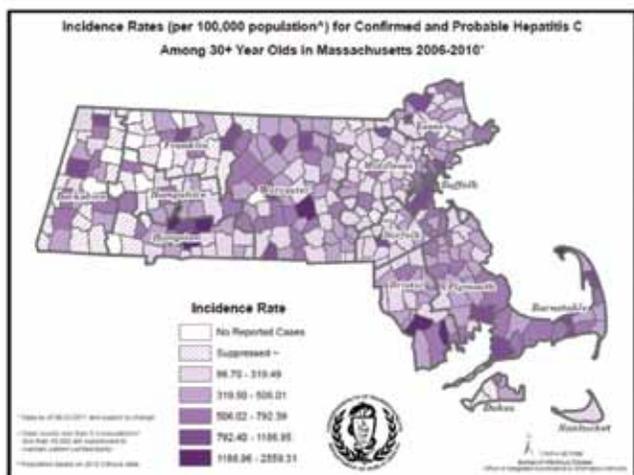


Figure 6: Five-year incidence of HCV infection among those aged 30+ by town



Young people who inject drugs may also be at increased risk of premature injury or death due to a variety of causes, including violence, suicide and overdose.¹⁷ Younger IDUs also tend to have higher levels of unsafe injection practices and sexual risk behaviors and decreased likelihood to participate in drug treatment than their older counterparts.¹⁸ Due to more limited engagement in prevention and screening services, case report data may under-represent the actual impact of HCV infection in youth populations. DPH has prioritized the collection of more detailed data, including enhanced HCV surveillance and more complete ascertainment of race/ethnicity and behavioral risk information. Research suggests that HCV infection in IDUs may assist in anticipating new HIV infections¹⁹ and be used as a means of evaluating outcomes of HIV prevention programs.⁹ Collection of enhanced data on these cases may serve to inform HIV prevention efforts.

DPH has prioritized the integration of services for people at risk for both HIV and HCV infection. At the 15 integrated prevention and screening programs that were operational during all of 2010, 3,486 people were tested for HCV with 6.3% testing newly positive. People under the age of 30 represented the highest proportion of those opting to test for HCV at these sites, indicating that these programs may be particularly useful at identifying young IDUs living with HCV infection and linking them to care. The recent FDA approval of rapid HCV tests may help to further engage IDU in these services, especially now that the test has received the Clinical Laboratory Improvement Amendments (CLIA) waiver required for utilizing it in point-of-care non-clinical settings.

In early 2011, DPH hosted a team of investigators from the CDC in order to conduct more detailed interviews with a subset of HCV cases aged 18-24 reported to the DPH in the previous year. Twenty-seven interviews were conducted and of the cases interviewed, 86% percent reported injection drug use. Among the cases interviewed, 83% had been in a drug treatment program and 67% reported having been incarcerated four or more times (five of the cases were interviewed in a correctional facility). Almost all (95%) of respondents reported using prescription opioid analgesics before switching to heroin. Of those reporting injection of drugs, 70% also reported sharing injection equipment including syringes.²⁰ These data suggest more intensive prevention and intervention efforts need to be directed to young IDUs in Massachusetts.



VII. HCV infection and the correctional system

Prior studies have revealed high rates of HCV infection among incarcerated people and that between 12% and 35% of inmates may have chronic HCV infection.²¹ In Massachusetts, approximately 11% of cases reported with HCV infection between the ages of 18 and 25 have been documented as having been incarcerated at some time in the past.

A recent project funded by the DPH at the Barnstable County Corrections Department demonstrated both the feasibility of providing integrated testing services in the correctional setting, as well as the positive impact it can have on reaching people with a history of IDU. For example, at Barnstable County Correction, a site which typically has an inmate population of 500 and processes 2,800 unduplicated bookings annually, in an eighteen-month period ending on December 31, 2010:

- 453 inmates tested for HIV with two (0.4%) testing newly positive for HIV infection
- 405 inmates tested for HCV with 90 (22%) testing newly positive for HCV infection
- The offer of HCV testing appears to increase inmates' acceptance of testing for HIV
- 40% of the inmates testing HCV positive reported injection drug use in the 12 months prior to incarceration

Both prior research²² and the Institute of Medicine's (IOM) report on viral hepatitis and liver cancer (2010) recommend that correctional facilities be prioritized by state and local health departments as ideal sites for comprehensive HCV services. Given the prevalence of HCV in the inmate population and the opportunity to implement prevention and provide care to those who test positive, these settings are critical in providing services to IDUs. It is important to ensure that education and screening programs are more widely available at correctional facilities throughout the state, and that there are close links with clinical care sites that can provide care to inmates upon release. Provision of HCV treatment in this population, particularly for those in Department of Correction facilities who tend to have longer sentences, may be a useful way to reduce the prevalence of HCV among injection drug using populations in the state. DPH participates in the Hepatitis C Task Force with DOC on the detection and treatment of hepatitis C among DOC inmates. DPH also contracts with numerous community-based organizations to provide HIV, STD, and viral hepatitis screening and treatment coordination services to inmates in the county Houses of Corrections.



VIII. HIV and HCV co-infection and IDU

Co-infection with HCV is common among HIV positive IDUs. An estimated 50% to 90% of HIV-infected IDUs are also infected with HCV.²³ Co-infection with HIV and HCV has significant clinical implications and often leads to a more rapid progression of HCV disease.^{24,25} HCV infection has been noted as the leading cause of death among people with HIV infection who were exposed through injection drug use.^{24,26} Complications of liver disease caused by HCV can also limit treatment options for persons with HIV, given the liver toxicity of some anti-HIV medications.

In order to determine HIV and HCV co-infection in the state, confirmed, probable and suspect^b HCV cases (cumulative through 2010) were matched to all reported adult (aged 13 years or older at diagnosis) cases of HIV/AIDS (cumulative through 2010). During this time, there were 4,396 reports of HIV/HCV co-infection in Massachusetts out of a total 32,380 adult HIV/AIDS cases.^c Overall, co-infected patients made up 14% of HIV/AIDS diagnoses. For the past five years, the proportion of co-infected patients has remained steady at between 10% and 14% of new HIV infection diagnoses. In comparison, HIV co-infected patients made up 5% of all reported HCV infections (n=96,143) between 1992 and 2010. The proportion of HIV/HCV co-infected cases has decreased from a high of 14% of HCV infections between 1992-1996 to 3% between 2005 and 2010.

Race/ethnicity data are available for all HIV/HCV co-infected cases, and of these cases, (Figure 7), 42% were white, non-Hispanic (N=1,834), 36% were Hispanic/Latino (N=1,577), and 21% were black, non-Hispanic (N=943). HIV/HCV co-infection occurred most frequently in people between the ages of 35 and 39 years of age (22%, N=969), and among males (70%, N=3,076). Injection drug use was found to be the most frequently reported risk factor among the HIV/HCV co-infected population with 73% (N=3,199) of individuals reporting this risk and 7% (N=301) reporting this risk and male sex with male (MSM). (Figure 8).

Figure 7: People co-infected with hepatitis C virus and HIV by race/ethnicity: Massachusetts, cumulative prevalence through 2010

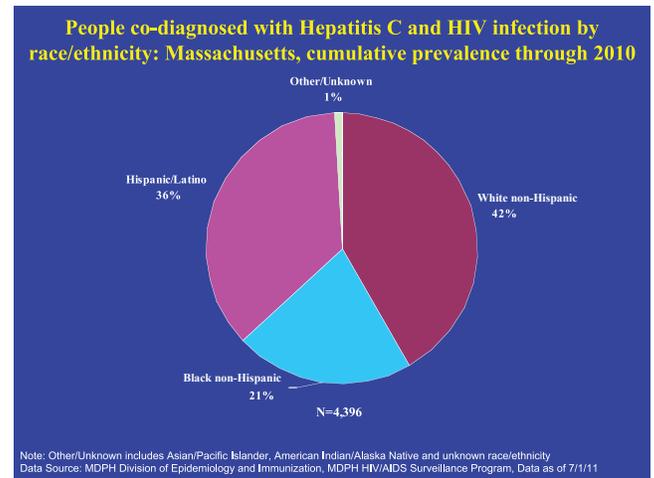
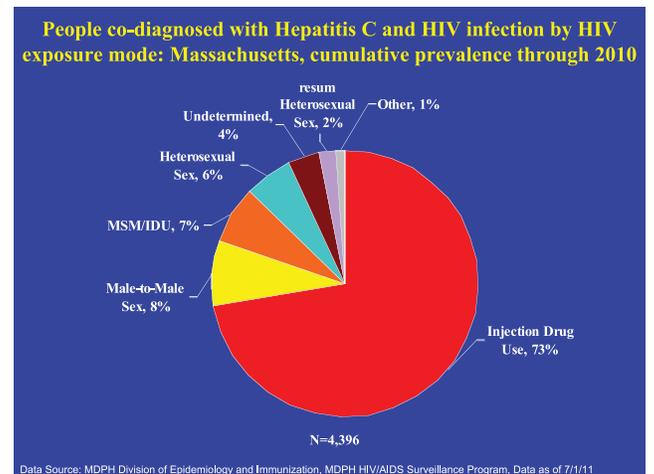


Figure 8: People co-infected with hepatitis C virus and HIV by HIV exposure mode: Massachusetts, cumulative prevalence through 2010



As of December 31, 2010, there were 3,294 individuals living with reported HIV/HCV co-infection in Massachusetts. The majority of those individuals were reported in one of the IDU exposure modes (IDU or IDU/MSM, n=2,538, 77%) across race/ethnicity groups. As discussed earlier, the overall numbers of people who have been diagnosed with HIV with an injection drug use history have decreased dramatically over the past ten years. However, the proportion of those cases co-infected with HCV has increased over time, from an average of 47% during 1999-2001 to an average of 67% during 2007-2009. This may be a reflection of better HCV screening for HIV infected persons in recent years, but more data are needed to understand this trend.

People currently 45 years or older comprised 75% (n=2,473) of co-infected individuals living in the state. While there were relatively few young IDU with HIV/HCV co-infection (27 cases aged 15-24 years, 38 cases aged 25-29 years), these numbers do indicate that HIV is being transmitted in some social networks of this population. The rates of younger co-infected persons were higher in Worcester and Hampden counties, suggesting that these areas may be priorities for expanded prevention efforts for IDU.

IX. National Behavioral Health Survey and IDU in Massachusetts

Since 2004, DPH has partnered with U.S. Centers for Disease Control and Prevention (CDC) to implement the National HIV Behavioral Surveillance System (NHBS). NHBS assesses trends in HIV risk behaviors, testing and prevention services. NHBS involves an interviewer-administered survey and voluntary HIV testing, and study participants were recruited through a peer-referral recruitment methodology.

In 2009, per the CDC's methodology, NHBS data were collected from individuals 18 years of age or older who resided in the Boston Metropolitan Statistical Area (MSA). Six hundred and twenty-four persons who self-reported injecting drugs in the past 12 months were recruited for interviews. Of these, 92% of participants resided in Boston, while the remaining 8% resided outside the city but within the Greater Boston area. Two-thirds of injection drug using participants were male, half were white (non-Hispanic), and one-quarter were under the age of 30. Nearly two-thirds reported annual incomes below the federal poverty level; 62% reported being held in a detention center, jail or prison for more than 24 hours at least once during the past year. Nearly all participants (92%) reported sexual partners in the past year, and nearly all reported heterosexual partners (91%). Nearly all heterosexually active IDUs had unprotected vaginal sex in the past year (97%) and a majority had unprotected anal sex (53%).



Heroin was by far the injection drug of choice (89%) among participants, and 68% injected drugs at least daily. In addition, 78% reported using non-injection drugs in the past year, and 70% reported binge alcohol use. Finally, 8.4% tested HIV positive in the study, with prevalence higher among females (9.5%) compared to males (7.8%). Approximately half of those who tested positive were already aware of their HIV infection status. In addition, 12% reported a diagnosis of a sexually transmitted disease (STD) in the past year and 54% self-reported infection with the hepatitis C virus (most commonly among older IDUs). Concurrent substance use, defined as using alcohol and/or drugs before or during sex, was reported by 80% of participants. Finally, 4% of IDU reported that their last sex partner was HIV positive, while 58% did not know the HIV status of their partners. These data suggest that, as with national data, many IDUs continue to participate in behaviors that put them at risk for HIV and HCV acquisition and transmission.



X. Successful public health efforts: prevention works

In order to address HIV infection among IDUs, DPH and community partners have implemented numerous prevention programs, as described below. Our surveillance data, reviewed earlier, suggest these programs have had a remarkable impact on the spread of HIV infection due to injection of drugs. In more recent years, HCV prevention, screening, and treatment services have been integrated into this programming. Massachusetts is one of few states in the US to have such an extensively integrated infectious disease service structure. The following provides an overview of these programs and identifies strategies to focus on IDU health in the future.

Disease prevention among IDUs

There is considerable evidence that public health interventions with IDUs to prevent HIV transmission are highly effective. The HIV prevention benefits of needle exchange programs and access to drug treatment have been studied extensively. Needle exchange programs have been found to be effective in reducing risky injection practices such as sharing needles, and in subsequently reducing the risk of HIV infection by as much as 80%.^{27,28,29,30} These programs have also been found to facilitate access to drug treatment programs and other health services without increasing drug use.¹ Evaluation of needle exchange programs in Massachusetts likewise found that these services assisted in linking clients to drug treatment programs, engaging individuals with high risk behaviors not otherwise in care, and did not increase crime or drug use.³¹

Additional HIV prevention services for IDUs made available in Massachusetts include behavioral counseling and the availability of bleach kits to help disinfect used drug injection equipment. Risky sexual behavior among IDUs is also a source of HIV exposure, although it is not usually possible to differentiate this route of infection from their injection practices. However, a consistent focus on sexual risk reduction may have had an added positive impact in HIV infection rates among IDUs in Massachusetts.

Effective strategy: syringe access in Massachusetts

The shared use of injection equipment is the primary way that HIV and HCV are transmitted among IDUs, and consequently there has been significant programmatic and policy focus on identifying ways to increase access to sterile equipment.

1. Massachusetts Needle Exchange

Needle exchange programs provide an opportunity for IDUs to dispose of used needles/syringes and to obtain sterile injection equipment. The programs also serve as an entry point to vital health services, such as substance use treatment, communicable disease screening, and primary care. Massachusetts law (MGL c. 111 § 215) permits up to ten locally approved needle exchange programs to be established by the Department of Public Health. Currently, there are five locally approved programs in Massachusetts located in Boston, Cambridge, Northampton, Provincetown, and Holyoke. Since the first needle exchange program was established in 1994 in Massachusetts, over six million used syringes have been exchanged. State funded needle exchange programs offer comprehensive risk and harm reduction services, educate users on safer injection practices and the proper disposal of used syringes, offer public health screenings for HIV, HCV, and sexually transmitted infections, and facilitate access to substance abuse treatment services.

2. Pharmacy sales of syringes

The passage of Chapter 172 of the Acts and Resolves of 2006 deregulated the sale of syringes and decriminalized their possession in Massachusetts. The law allows individuals to purchase syringes over the counter without a prescription, increasing access to sterile injection equipment. While the needle exchange programs still offer a vital set of services to IDUs, the deregulation of syringe sales and decriminalization of syringe possession allow for new opportunities to support IDUs in accessing sterile syringes and support services in community settings.

3. Syringe disposal

DPH funds over 65 syringe collection kiosks throughout the state. The kiosks serve as collection sites where syringes can be safely deposited, effectively removing them from community spaces and the waste streams of cities and towns. Since the kiosk program was initiated in 2007, over 1.2 million syringes have been safely collected and properly disposed. Because many of the kiosks are located at DPH funded program sites that work with IDUs, they also offer the opportunity for increased exposure to prevention, screening and treatment services. Information on syringe disposal and where syringe collection kiosks are located can be found at: www.mass.gov/dph/aids — Needle and Syringe Purchase, Sale, Use and Disposal — Health and Human Services.

Effective Strategy: HIV Treatment and Prevention

Another factor in the decrease of HIV transmission in Massachusetts is the wide availability of effective HIV treatment, which limits the likelihood of HIV transmission by reducing the viral load in patients' blood.³² Both Massachusetts health reform and supplementary efforts such as the Massachusetts HIV Drug Assistance Program (HDAP) ensure equitable access to effective medical treatment of HIV infection. While most of the evidence for the effectiveness of HIV treatment as a prevention method focuses on sexual transmission³³ there have been studies that have examined the treatment impact on transmission of HIV among IDUs and found similar benefit as seen among those at sexual risk.³⁴ Because of this remarkable shift in treatment-related HIV prevention, the elimination of HIV transmission among IDUs is becoming an increasingly feasible goal. Despite this progress there is ongoing evidence that high risk behaviors among IDUs, including sharing syringes and other injecting equipment²⁰ may impede this outcome.

Conversely, however, access to HCV treatment has not been as widely available. DPH has supported a limited number of medical management programs to assist patients in accessing appropriate HCV care. However, HCV treatment is not universally available, particularly for those that are mono-infected (e.g. not also infected with HIV). While HCV treatment can cure an increasing number of people who complete it, it is not known at this time if this contributes to secondary prevention as has been demonstrated for HIV treatment. Increased HCV treatment access is indicated with evaluation on the impact such access may have on reducing rates of transmission among IDUs.

Effective Strategy: Opioid overdose prevention in Massachusetts

Between 1990 and 2006, Massachusetts experienced a dramatic increase in poisoning deaths due to opioid overdose, with the MA age-adjusted poison death rate more than doubling from 5.6 to 14.9 per 100,000 residents. Most of these deaths were due to overdose with prescription or illicit drugs, the majority of which were opioids.³⁵ Opioid overdose occurs when the drug suppresses breathing, causing death by oxygen deprivation. These types of overdoses can be reversed by the use of a medication called Narcan™ (naloxone). In 2008, the DPH Bureau of Infectious Disease and the Bureau of Substance Abuse Services established seven Overdose Prevention Program pilot sites. Through October 2012, over 15,000 people have been enrolled in the program, and over 1,500 reversed overdoses have been reported in Massachusetts.

Effective Strategy: Education and training

Educating injection drug users and the providers that serve them has been an important function of the Department. This has been accomplished through targeted material distribution, trainings for providers, and educational sessions with active users. Among the educational materials distributed widely through the state is a brochure developed in conjunction with active IDU entitled "HIV Questions and Answers: HIV and Injection Drug Use." This document can be accessed at no cost through the DPH Clearinghouse website at www.maclclearinghouse.com. The core series of provider trainings sponsored by the DPH Office of HIV/AIDS (OHA) have included informational and skills-building activities related to HIV and viral hepatitis risk reduction techniques. Educational sessions for active users have included information on how to reduce risk, how to become involved with prevention interventions, how to get tested, and how to get into care. In addition to the educational activities of the OHA, the Department's Bureau of Substance Abuse Services (BSAS) has offered an array of trainings to support their providers in complying with BSAS requirements regarding the provision of HIV and viral hepatitis information to clients.



XI. Issues and challenges

This report has detailed ways to successfully address some of the health needs of IDUs in the Commonwealth. As discussed earlier in this report, HIV infection has been substantially controlled among IDUs in recent years; however, similar HCV infection control in this population has not yet been observed. Given the differential success in preventing HIV and HCV infection among IDUs, it is important to ensure fully integrated prevention services. The United States Department of Health and Human Services recently published their Action Plan for the Prevention, Care and Treatment of Viral Hepatitis (2011),^{5,6} which calls on state and local health departments to enhance surveillance, prevention, care, and treatment of HCV infections among IDUs. That report also recognizes the need to provide vaccination against hepatitis A and B among high risk adult populations, including IDUs, men who have sex with men, and inmates.

Effective HCV prevention for IDUs relies on multi-component programs which integrate access to sterile injection equipment, healthcare (including interferon-based treatment for mono- and co-infected individuals), syringe disposal services, and substance use treatment. Barriers, both nationally and within Massachusetts, to implementing comprehensive services remain.

A recent study found that training IDUs to be peer prevention educators for other IDU within their social network may be an effective way to prevent HIV transmission.³⁶ This should be explored within the context of the DPH-funded prevention and screening programs as an additional option for reaching high risk IDUs, and include integration of HCV prevention messages.

A key issue that further impacts prevention of HIV, HCV, and other health risks is the stigma and fear that IDUs may experience as a result of their drug use. Since IDUs are typically injecting illegal substances, concerns about law enforcement can affect how and where drug use and/or injection occurs.¹¹ Further, there may be insufficient training of medical and social service providers in drug use and addiction, limiting their skill and comfort working with this vulnerable population. Consequently, IDUs may be less likely to disclose risk behaviors and to receive appropriate

care leading to poorer health outcomes. Stigma has also been found to contribute to poorer mental health for IDUs³⁷ which may further increase risk behaviors and complicate access to care. Infection with HIV and/or HCV has additional stigma and, in conjunction with injection drug using related stigma, can create barriers that may delay identification and/or treatment of these infections. While stigma is seen as a tool of social control in some literature,³⁸ there is no evidence that criminalization of injecting drug use behaviors decreases drug use (Friedman, et al, 2011)³⁹. Creating barriers to care only serves to increase the number of people likely to receive care late in the disease process, and thus have lower likelihood of treatment success, higher likelihood of transmission, and increased cost of end-stage disease care. It is therefore essential for programs and services serving IDUs to focus on decreasing stigma and related health disparities. Without such focus, adequate prevention will not be possible.

Another set of risks to IDU health are hepatitis A virus (HAV) and hepatitis B virus (HBV) infection. Unlike hepatitis C, there are vaccines available to prevent both HAV and HBV infection. While health care reform in Massachusetts may increase access for at risk adults to this vaccine, those people who are not engaged in or eligible for care will still be at risk. Therefore, innovative programs to ensure vaccination are necessary, such as those in correctional facilities or via community-based programs that directly target high risk populations.

Massachusetts has been a national leader implementing integrated services to advance IDU health and has documented remarkable success at HIV and overdose prevention in this population. The recommendations in this report are intended to maintain this strong focus on drug user health and to expand and enhance those services to have a greater impact on the health and well-being of IDUs and the communities they live in.

Technical Notes: How are data on HIV and hepatitis C collected in Massachusetts?

HIV/AIDS is reportable directly to the DPH HIV/AIDS Surveillance Program (MHASP). AIDS has been reportable by name since 1983 and HIV by a non-named code from 1999 to 2007 and by name since 2007.

HCV infection has been a reportable condition since 1992. For HCV infection reporting in Massachusetts, DPH utilizes an electronic, web-based surveillance and case management system, the Massachusetts Virtual Epidemiologic Network (MAVEN). All positive laboratory results indicating HCV infection are reportable to DPH, and the diagnosing clinician is requested to submit a

“case report form.” The case report form collects information on demographics, symptoms and risk history. Completion of these data by clinicians is highly variable and the majority of case report forms do not include race/ethnicity or risk history data. All cases are classified in accordance with the case definitions determined by CDC. The majority of HCV cases reported to DPH are classified as chronic HCV infection. Cases are further classified as either “confirmed,” meaning that an initial screening test has been confirmed by a supplemental test, or “probable,” where all that is available is a positive screening antibody test. For this report, cases of confirmed and probable HCV infection are included.

Acronym Dictionary

BID:	Bureau of Infectious Disease
BSAS:	Bureau of Substance Abuse Services
CDC:	Centers for Disease Control and Prevention
CLIA:	Clinical Laboratory Improvement Amendments
DPH:	Department of Public Health
HAV:	Hepatitis A Virus
HBV:	Hepatitis B Virus
HCV:	Hepatitis C Virus
HIV:	Human Immunodeficiency Virus
IDU:	Injection Drug Use/User
IOM:	Institute of Medicine
MAVEN:	Massachusetts Virtual Epidemiologic Network
MDPH:	Massachusetts Department of Public Health
MMWR:	Morbidity and Mortality Weekly Report
MSA:	Metropolitan Statistical Area
MHASP:	DPH HIV/AIDS Surveillance Program
MSM:	Men Who Have Sex with Men
NEX:	Needle Exchange
NHBS:	National HIV Behavioral Surveillance System
PCSI:	Program Collaboration and Service Integration
STD:	Sexually Transmitted Disease
STI:	Sexually Transmitted Infection
SVR:	Sustained Virologic Response
TB:	Tuberculosis

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- b- HCV cases with only antibody test results were classified as “suspect” through 2005. The CDC surveillance recommendations changed in 2005 and following that time, those cases were instead referred to as “probable”. For this report, only suspect cases through 2005 are included.
- c- This analysis is inclusive of HIV cases that were originally diagnosed out-of-state as HCV data do not make that distinction.

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**Massachusetts Department of Public Health
Bureau of Infectious Disease**

