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America's Dangerous Syndemic

Opioid Addiction, HIV, and Hepatitis C

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In 2015, a sudden HIV outbreak, triggered by the sharing of needles among opioid users in a seemingly improbable setting—rural Scott county Indiana, population 24,000—precipitated a public health emergency. To date, 227 people in Scott county have been diagnosed with HIV and several hundred infected with hepatitis C. Caught off-guard and ill-prepared, the county relied upon the costly emergency deployment of state health department and 40 Centers for Disease Control and Prevention (CDC) staff. Following intense debate, Indiana's then-Governor Mike Pence suspended the state law barring needle-exchange programs, a critical step in arresting the dual outbreaks. Estimated lifetime costs for caring for those Scott county residents now living with HIV and hepatitis C are formidable: over $100 million.

While America's escalating opioid epidemic has attracted high-level political attention and intensified media coverage, the knock-on outbreaks of HIV and hepatitis C it inspired in Scott receive relatively modest notice. Yet we ignore these sister epidemics—a complex "syndemic"—at our peril. Now is the time to focus keenly upon this phenomenon: at this critical moment when President Trump has declared the opioid epidemic a public health emergency, when the presidentially appointed independent Commission on Combating Drug Addiction and the Opioid Crisis, headed by New Jersey Governor Chris Christie, has completed its work, and when we face ongoing serious risk of new outbreaks.

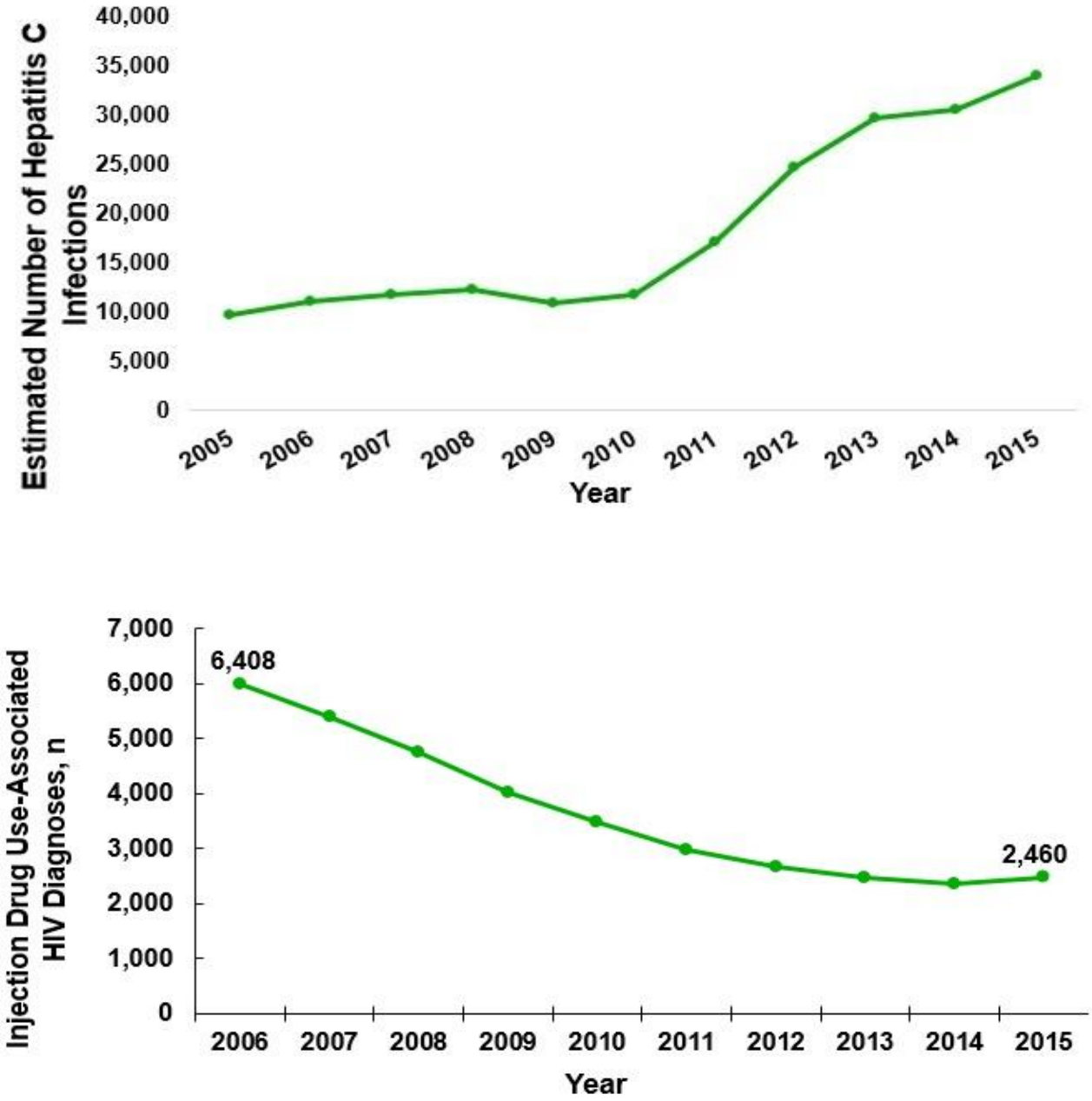
Progress against HIV and Hepatitis Is in Jeopardy

In recent years, the United States has experienced substantial reductions in new HIV infections. Since the introduction in late 2013 of a safe and effective direct-acting antiviral, almost 1 million Americans have been cured of hepatitis C. Today, the opioid epidemic threatens a reversal of hard-won gains against blood-borne infectious disease. Approximately 10,000 Americans died of HIV and 20,000 of hepatitis C in 2014. The future trajectory of HIV in the United States is uncertain, and hepatitis C cases, once declining, are on the rise (Figure 1). The vast majority of new hepatitis C infections in the United States are due to drug use.

HIV

While overall HIV infections in the United States have declined 63 percent in the last decade, injection drug use-associated HIV increased by 4 percent in 2015. Scott county, where more people who inject

Figure 1. Trendlines show recent increases in new hepatitis C and injection drug use–associated HIV infections in the United States



Source: National Notifiable Diseases Surveillance System (NNDSS), graphs adapted from Dr. Jonathan Mermin, CDC.

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drugs were infected with HIV in the span of several months than were infected in all of New York City during the previous year, illustrates the remarkable speed at which HIV can spread among communities of injection drug users.

Hepatitis C

Hepatitis C is the leading infectious disease killer of Americans, with new hepatitis C cases nearly tripling in the United States over the last five years. Untreated hepatitis C can progress to life-threatening liver disease, underlining the medical and financial imperative of early identification and treatment. An estimated 2.7–3.4 million Americans suffer from chronic hepatitis C, and an estimated 34,000 new cases occurred in 2015. From 2009 to 2014, hepatitis C infection among women giving birth nearly doubled. While hepatitis C has historically been most prevalent in American baby boomers, injection drug use has shifted the burden of new infection to young people ages 20–29. Indeed, injection drug use drives the recent surge in hepatitis C; new hepatitis C cases track geographically with areas of high rates of opioid use disorder and opioid overdose. The estimated numbers of existing and new infections likely fall short of reality, given the numbers of asymptomatic patients and limited resources for surveillance.

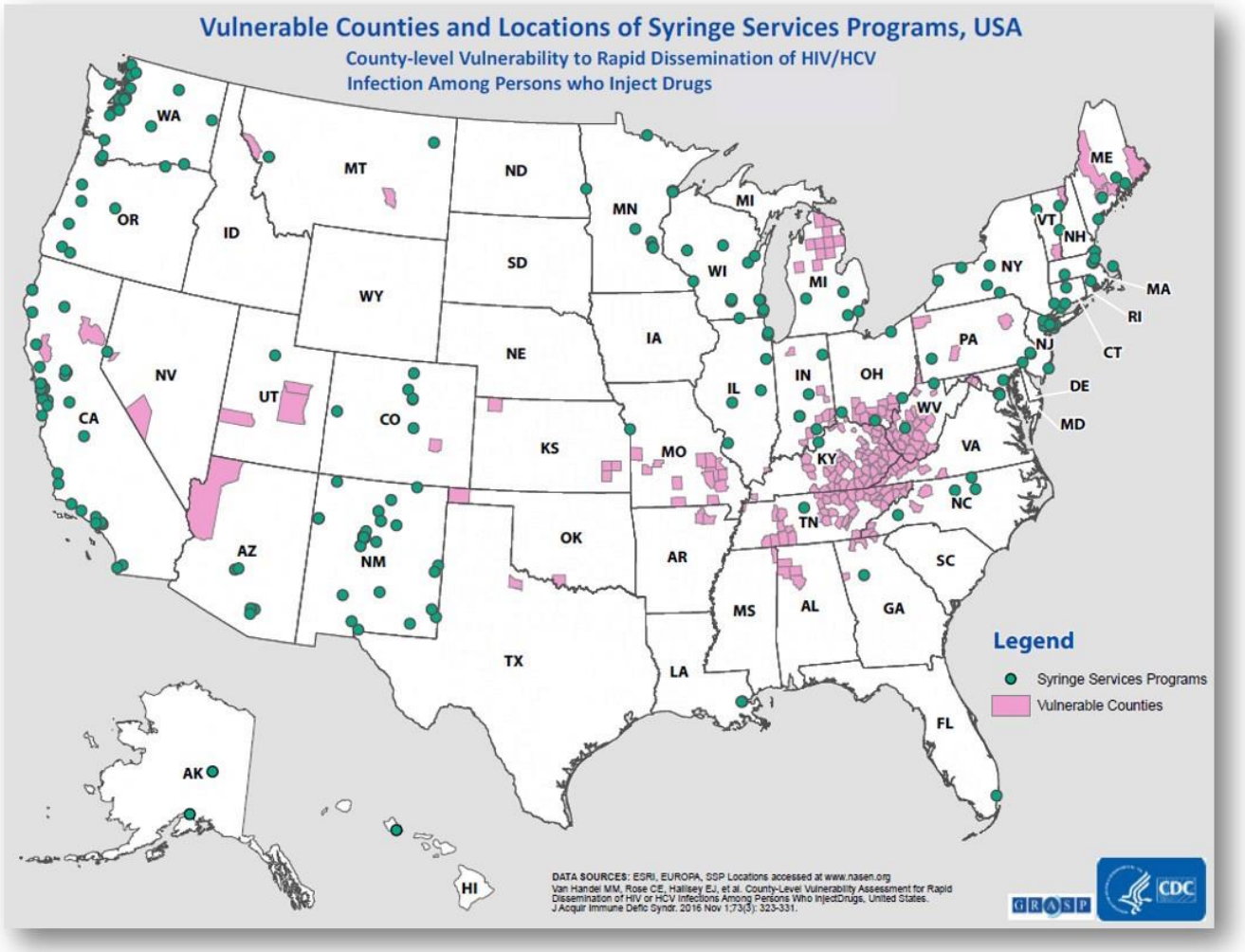
Why was Scott county vulnerable to the rapid spread of HIV and hepatitis C, and what other U.S. counties are vulnerable to similarly devastating public health crises? Scott county ranked 92nd among Indiana's 92 counties on many health and social indicators, including life expectancy. Scott county had among the highest percentages of impoverished, unemployed, and uninsured people in all of Indiana, and an estimated 500–600 injecting drug users formed a dense, established network there. These social and demographic factors, along with limited health care services in a rural setting, set the stage for outbreaks.

Following the Scott county crisis, the CDC in 2016 identified six indicators of potential vulnerability to outbreaks of injection-drug associated HIV and hepatitis C. These include drug-overdose deaths; prescription opioid sales; per capita income; white/non-Hispanic race; unemployment; and potential availability of medication-assisted therapy (specifically, the drug buprenorphine, which indicated a recognized need for drug treatment programs) for the population. Based on these indicators, CDC assessed vulnerability by county across the entire United States, with stark, alarming results (Figure 2). Two hundred twenty counties in 26 states were designated at greatest risk for rapid dissemination of HIV and hepatitis C infection. Of these, 54 counties are in Kentucky and 56 percent in the Appalachian region. Given the apparent threat of new syndemic outbreaks, CDC recommends that states and localities conduct expanded, close, prioritized monitoring of HIV and hepatitis C in acutely vulnerable communities and ongoing analysis of new and broader data.

Critical Barriers

Like Scott county, most areas vulnerable to HIV and hepatitis C are ill-prepared to identify and respond to outbreaks. Poor health care access by individuals who inject drugs, geographic misalignment between health needs and health facilities, and funding limitations are the most critical barriers to preventing, identifying, and responding to HIV and hepatitis C outbreaks. Other challenges include inadequate data, low public and provider knowledge, and the high cost of treatment.

Figure 2: Lacking overlap of vulnerable counties and locations of syringe service programs in the United States



Source: CDC, "Vulnerable Counties and Locations of Syringe Service Programs, USA," November 2016.

Limited Health Care Access

Stigmatization and criminalization of injection drug use impede delivery of detection and prevention services to injection drug users at risk of infection. This population, marginalized and residing in society's shadows, is often averse to engage with the health system and authority. High rates of mental illness and homelessness compound matters. Cultural norms, such as a tradition of fierce self-reliance in Appalachia, can discourage engagement with health and social services. Not surprisingly, injection drug users seldom have an organized advocacy voice.

Geographic Misalignment

Facilities for testing and treating these diseases seldom align geographically with need. An array of critical services are typically not available in the most vulnerable counties identified by the CDC: syringe service programs (SSPs), which provide sterile syringes and needles to injecting drug users; safe disposal of used syringes and needles; testing for HIV and hepatitis; referral to mental health and substance use disorder treatment services; HIV prevention tools, such as condoms and pre-exposure prophylaxis; and hepatitis A and B vaccination. SSPs are legal in only 26 states (permitted in 9 and illegal in 15). That is explained in part by philosophical and political objections to a harm-reduction approach, despite substantial evidence that SSPs can lower rates of HIV and hepatitis infection.[1]

Funding for Prevention, Surveillance, and Treatment

Publicly funded SSPs are associated with a larger suite of addiction services than are privately funded SSPs. The bipartisan Consolidated Appropriations Act 2016 partially lifted the ban on federal funding of SSPs, allowing federal funding of components of SSPs, such as screening and counseling services, but the use of federal funds to purchase needles remains illegal.

The Indiana legislation permitting needle exchange in Scott county likewise contains caveats: SSPs are allowed only if an outbreak is already underway and may only operate for a maximum of 12 months. No public funding from the state of Indiana can go to SSPs. Such restrictions limit the preventative utility of SSPs, reducing their efficiency and effectiveness.

Insurance requirements for treatment service coverage can also present barriers. In many states, Medicaid patients must be sober (abstain from substance use for an extended period) and have an advanced form of hepatitis C to be eligible for the cure.

Solutions

Integrated Services

Scott county's HIV outbreak was controlled through the declaration of a public health emergency, permission by the governor and legislature of SSPs, and quick establishment of centers and programs that provided education, immunization, and linkage of individuals who inject drugs with treatment and job training. While Scott county's HIV outbreak was controlled through relatively straightforward public health interventions, these efforts will now need to be sustained for 40 years. Any interruption in this suite of services might trigger a resurgence, and the price is considerable. Hepatitis C cures cost roughly $20,000 to $80,000 per patient, and lifetime HIV treatment costs over $400,000 per person. One conclusion: prevention, early detection, and sustained efforts become crucial to not only individuals' lives

[1] In 103 cities worldwide, HIV infection declined by 19 percent in cities with SSPs, while increasing by 8 percent in cities without SSPs. A meta-analysis of three studies in New York City showed that injecting drug users who did not participate in an SSP were three times more likely to contract HIV compared with those who were part of SSPs. Not only do these programs reduce transmission of disease, but injection drug users who enter them are also more likely to make use of drug treatment and other health services: SSP participants are five times more likely to enter drug treatment and more likely to stop injecting than those who did not make use of SSPs.

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but also to the long-term health of the communities in which they live. Effective prevention of and response to HIV and viral hepatitis outbreaks will continue to rely on screening, surveillance, and treatment of people who inject drugs.

Syringe Service Programs (SSPs)

Legalization, public funding, and expansion of SSPs are key to preventing and mitigating outbreaks of HIV and hepatitis C. SSPs prevent HIV and viral hepatitis infections, decrease illegal drug use, and are cost-saving. Federal and state governments should establish and fund SSPs in areas particularly vulnerable to HIV and viral hepatitis outbreaks. Legalization of SSPs is a prerequisite for doing so. Recent legalization of SSPs in states profoundly affected by the opioid epidemic has resulted in swift action: 20 SSPs have been established in Kentucky since legislative approval in 2015, and at least 25 in North Carolina since legalization in 2016.

States, in partnership with the federal government, should strategically scale Scott county's effective response. The CDC has not established specific best practices for intervening in areas vulnerable to outbreaks, reasoning that responses should be tailored to specific geographic, cultural, and epidemiological circumstances. The CDC does, however, offer capacity building assistance to improve delivery and effectiveness of HIV prevention services. The federal government should work proactively with communities to expand screening and establish SSPs like those in Scott in County. While federal, state, and local monitoring of these areas is important, proactively preventing outbreaks through screening, education, and treatment programs is an essential piece of the life and cost saving puzzle.

Expanded HIV/Hepatitis C Testing for Injecting Drug Users

It should become routine for public health officials to target people who inject drugs for HIV and hepatitis testing, meeting them where they are in terms of both geographic location and their personal readiness for addiction treatment. This will entail importing expertise and facilities into rural areas and thereby expanding opportunities for injecting drug users to interact with the health care system. The emergency room is a valuable touchpoint for screening people who inject drugs and identifying potential hotspots of infection. Ideally, however, it would serve as a hub to connect users to other services such as treatment for both viral disease and opioid use disorder. Telemedicine provides one but not the only opportunity to expand services to hard-to-reach areas and people. It is important to acknowledge that not all those addicted to injection drugs are ready for recovery. Services should be tailored to the individual, emphasizing education and harm reduction.

Expanded Treatment

Treatment of drug addiction, HIV, and hepatitis C limits or eliminates viral transmission, but current regulations restrict treatment. Many injecting drug users do not meet insurers' sobriety or disease severity requirements for hepatitis C treatment, and many insurers, including state and Medicaid programs, unnecessarily restrict provision of treatment to gastroenterologists and infectious disease physicians. As a result, users not only face personal health issues but also continue to transmit virus to others, including

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sexual partners and, in the case of pregnant women, potentially fetuses. Insurance barriers should be eased or removed, for the health of both a vulnerable population of injection drug users and society at large. Expansion of medication-assisted therapy (MAT), the addiction treatment with the largest evidence base but often little availability in regions vulnerable to secondary outbreaks, has the potential to eliminate risk of HIV and hepatitis C by preventing injection drug use itself. Indeed, MAT is associated with reductions in both opioid use and spread of infectious diseases, and individuals diagnosed with hepatitis C experience an even greater reduction in opioid use. Availability and accessibility of MAT should be prioritized in counties designated by the CDC as high risk for HIV and hepatitis C outbreaks, as well as other areas that have identified problems with increasing drug use and/or incidence of HIV and viral hepatitis.

Integration

Better integration of addiction services into health systems holds the promise of improving surveillance, prevention, and treatment by helping to identify people who inject drugs, educate them about treatment options and risks associated with injection drug use, and expand opportunities to test and treat for HIV and hepatitis. Because many opioid users do not feel they need treatment for addiction or comorbidities, health professionals should routinely and proactively ask and educate patients about drug use.

Better integration of data and partners will also be important. The U.S. Department of Health and Human Services (HHS) put forth a National Viral Hepatitis Plan 2017–2020 that seeks to improve coordination and collaboration across diverse sectors, including 23 federal partners. The plan emphasizes improved surveillance, health information systems, and data sharing across federal, state, tribal, territorial, and local governments.

Conclusion

Rates of HIV and hepatitis C associated with injection drug use are on the rise. These are highly costly diseases—in terms of human lives, economic productivity, demands upon medical and public health services—that warrant far greater prominence in the national debate surrounding solutions to America's opioid crisis. While the final draft report issued by the President's Commission to Combat Drug Addiction and the Opioid Crisis on November 1 acknowledges the connection between opioid use and infectious disease, it makes no mention of syringe service programs, despite their clearly demonstrated impact, and engages in no serious discussion of the syndemic phenomenon.

A coherent, national approach to tackling hepatitis C and HIV among opioid users could do what the Ryan White HIV/AIDS Program did for HIV in the United States: bring much-needed consistent, coordinated, and strategic funding to a marginalized, growing group of Americans. The threat of large, expensive outbreaks is no longer theoretical; epidemics of HIV and viral hepatitis are likely already underway. If multiple, overlapping outbreaks like that experienced by Scott county proliferate unchecked in highly vulnerable communities across America—a wholly feasible possibility—they could swiftly exact an escalating emotional, economic, political, and social toll. They could unwind significant progress in controlling HIV and hepatitis C. To preempt such an outcome, officials at the local, state, and national

levels need to address systematically those factors that drove Scott county's public health crisis. These include poverty, high rates of injection drug use, lack of screening and needle exchange programs, and unfamiliarity with the true dangers of transmission of HIV and hepatitis C among injection drug users and their family members. No less forbidding is a stark geographic gap: the absence of specialized facilities near the populations that are in greatest need of early preventive interventions, treatment and recovery services, and other forms of critical expert care. Missing also is a conceptual dimension: a public health approach to these multiple, overlapping epidemics that prioritizes the integration of services, innovation, and systematically accessing marginalized, difficult-to-reach individuals with opioid use disorder.

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