Addressing the "Risk Environment" for Injection Drug Users: The Mysterious Case of the Missing Cop

SCOTT BURRIS, KIM M. BLANKENSHIP, MARTIN DONOGHOE, SUSAN SHERMAN, JON S. VERNICK, PATRICIA CASE, ZITA LAZZARINI, and STEPHEN KOESTER

Temple University; Yale University; World Health Organization Regional Office for Europe; Johns Hopkins University; Harvard Medical School; University of Connecticut; University of Colorado at Denver

Ecological models of the determinants of health and the consequent importance of structural interventions have been widely accepted, but using these models in research and practice has been challenging. Examining the role of criminal law enforcement in the "risk environment" of injection drug users (IDUs) provides an opportunity to apply structural thinking to the health problems associated with drug use. This article reviews international evidence that laws and law enforcement practices influence IDU risk. It argues that more research is needed at four levels—laws; management of law enforcement agencies; knowledge, attitudes, beliefs, and practices of frontline officers; and attitudes and experiences of IDUs—and that such research can be the basis of interventions within law enforcement to enhance IDU health.

In many places in the world, injection drug users (IDUs) are at a heightened risk of contracting tuberculosis (TB), HIV, hepatitis C virus (HCV), hepatitis B virus (HBV), and other sexually transmitted infections, and they also face a significant risk of fatal overdose (Sporer 2003; UNAIDS 2002). Despite a growing awareness in public health of the need to address risk-determining factors in the social and physical environment, investigators seeking causes and cures for

Address correspondence to: Scott Burris, Temple University Beasley School of Law, 1719 N. Broad Street, Philadelphia, PA 19122 (e-mail: scott.burris@temple.edu).

The Milbank Quarterly, Vol. 82, No. 1, 2004 (pp. 125–56)

blood-borne disease among IDUs continue to turn to the usual suspects: individual risk factors and educational or behavioral interventions. While acknowledging the importance of a comprehensive approach to IDUs' health, including behavioral interventions and access to drug treatment (Academy for Educational Development 2000), we argue that the available evidence points to a promising new target: the criminal justice system. From the laws on the books and police practices on the streets to the operation of the courts and the conditions of prisons and jails, the criminal justice system contributes much to the everyday lives of IDUs living at or beyond the margins of legality. In this article, we contend that greater attention to and work with law enforcement should be a public health priority. After describing our ecological approach, we will review the evidence that law and law enforcement practices are influencing the spread of communicable disease among IDUs and then discuss the implications for public health research and intervention.

An Ecological Approach to Public Health and the Law

An enduring strain of thinking in epidemiology and public health ascribes to the social and physical environment a crucial role in determining a population's level and distribution of health (Berkman and Kawachi 2000; Oppenheimer, Bayer, and Colgrove 2002; Rosen 1993). Currently, this is referred to as "eco-epidemiology" (Susser and Susser 1996), "social epidemiology" (Berkman and Kawachi 2000), "ecosocial theory" (Krieger 2000), or a "fundamental social causes" approach (Link and Phelan 1995). In this article, we will refer to this strain of thinking generically as an *ecological approach*. An ecological approach focuses on how social, political, and economic factors as well as features of the physical environment interact with personal characteristics to determine health. This approach is "big" in that it identifies pervasive characteristics of social ordering (such as inequality; see Kawachi 2000), functioning (such as collective efficacy; see Sampson and Morenoff 2000), or cohesiveness (Putnam 2000) that are linked to distributions of health in order to understand how characteristics of the social and physical environment operate or are "reproduced" in daily life (Link and Phelan 2002; Marks, Burris, and Peterman 1999; Marmot 2000; Wilkinson 1999).

To posit that health has determinants in the social and physical environment is to suggest that public health can be improved by changing the

environment. Such ecologically oriented efforts are now frequently labeled "structural interventions" (Sumartojo 2000) and have been defined as "interventions that work by altering the context within which health is produced and reproduced" (Blankenship, Bray, and Merson 2000, S11). Widely accepted elsewhere, this approach has been slower to penetrate public health practice in the United States, where the dominant intervention model is helping individuals cope with a dangerous environment by changing their attitudes and behaviors. This dominant intervention model, however, fails to adequately address how environmental factors may influence attitudes and behavior or how certain behaviors may in part be responses to dangerous environmental conditions.

Law can be seen as an ecological cause of risk and a medium of structural intervention to reduce risk. As a causal factor, law contributes to the construction of ecological determinants and also functions as a mechanism through which ecological characteristics produce health outcomes (Burris, Kawachi, and Sarat 2002). For example, laws prohibiting the possession or distribution of certain drugs can powerfully affect a society over time. In the United States, drug laws have contributed to high, racially disparate rates of incarceration, swelled prison budgets, influenced conceptions of the proper balance between individual rights and state power, and conceivably (through the disenfranchisement of drug felons) altered the course of elections (Brownsberger 2000; Tonry 1995; Uggen and Manza 2002). Likewise, through the daily interactions of law enforcement agents and IDUs, ecological conditions are transformed into risks and outcomes. Law may also be a mode of structural intervention, for it sets broad and effective rules of behavior. Both new and well-established public health interventions rely on law to structure an environment in healthy ways (Gostin 2000). For example, a law requiring customers in brothels to use condoms changes the context in which sex workers and clients negotiate safe sex (Albert et al. 1995; Sumartojo 2000). Food safety laws and regulations requiring passive restraints in automobiles create markets in which safety is not primarily a matter of consumer choice.

In addition, law must be seen as a complex phenomenon in its own right (Burris 2002). "Law" can be understood to include not only the rules found "on the books" in statutes, regulations, and court decisions but also the institutions and practices through which they are implemented "on the street" (Black 1976) and, indeed, people's understanding of the rules and the system (Ewick and Silbey 1998). Law, then, consists of

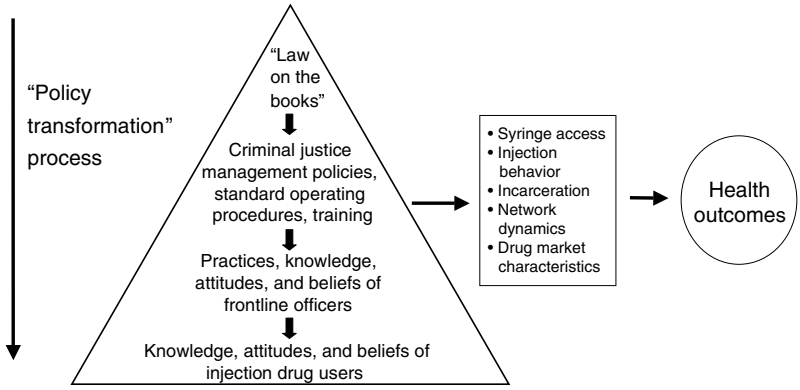

FIGURE 1. From Drug Policies to Health Outcomes of Injection Drug Users

four distinct components, which are illustrated in Figure 1. The "law on the books" includes the formal, written, legal rules—constitutions, statutes, and regulations—as well as the court decisions that interpret them. The boundaries of this formal body of law may vary somewhat from place to place (in China, for example, sociolegal scholars treat the speeches and rules of the Communist Party as the equivalent of formal law), but by and large this domain is easily delineated. In the context of criminal law, law on the books broadly defines the roster of criminal acts and establishes the mission and powers of law enforcement agencies.

The law on the books is only part of the picture. Research on the implementation of laws has long demonstrated that the actual application of laws is subject to many institutional, individual, and environmental factors, which form a gap between the law as written and the law as actually enforced (Bardach 1977). So great is this difference that the implementation of laws has been called a "policy transformation" process (Percy 1989). Policy implementation begins with the management tools of the implementing agencies—training, work rules, policies, and standard operating procedures—and extends through the practices, knowledge, attitudes, and beliefs of the frontline personnel who are expected to enforce the laws. Figure 1 also lists the knowledge, attitudes, and beliefs of the regulated parties—the IDUs—whose understanding of and reaction to the laws and the way they are enforced influence their effectiveness.

In the remainder of this article, we apply this ecological model to understand how law influences the health of IDUs. In doing so, we accept as given a prohibitionist drug policy—that is, the enforcement of

criminal laws prohibiting drug use or possession. An ecological approach to the health of IDUs, and a structural approach to interventions, invite consideration of more upstream questions, such as ecological elements that may be influencing both what laws are enacted and how they are implemented. Why drug use is seen substantially as a matter for criminal control in the first place and what forces shape attitudes toward drug use and drug users are complex questions. We will address them in a limited way at the end of this article, but the article proceeds on the premise that there are meaningful steps to be taken within the current approach to drug control that will alter the risk environment for IDUs.

HIV and Hepatitis Risk for IDUs

Considerable evidence shows that IDUs are at an elevated risk of communicable disease, and that in many places, injection drug use promotes the spread of these diseases (UNAIDS 2002). It is estimated that one-third of AIDS cases (Academy for Educational Development 2000), at least 10 percent of HBV cases (Goldstein et al. 2002), and 68 percent of new HCV infections in the United States are injection related (Alter 2002). Injection drug use is also the main mode of HIV transmission in eastern Europe and Central Asia, where 60 percent of all reported HIV cases are among IDUs (European Monitoring Centre for the Epidemiological Monitoring of AIDS 2002). Indeed, in several countries, injection drug users account for more than 90 percent of reported HIV cases (Rhodes, Stimson, Crofts, et al. 1999). In China and Southeast Asia, injection drug use is a major driver of the rapid spread of HIV and HCV (Kaufman and Jing 2002; UNAIDS 2002; Zhang et al. 2002). By the early 1990s, the prevalence of HIV in Brazilian IDUs had reached 50 to 60 percent in Santos and 25 percent in Rio (Bastos et al. 1999).

Individual Risk Behaviors and Related Interventions

Much public health research has been devoted to identifying the individual risk factors that make IDUs susceptible to particular diseases and to developing strategies to help people cope with or modify their own risks (Latkin et al. 1996; McCoy et al. 1998; Neaigus et al. 2001; Needle

et al. 1998; Strathdee et al. 1997; Thorpe et al. 2001). Identified risk factors include "sharing" (serial reuse) of syringes, cotton filters, water (for dissolving drug powder), or "cookers" (bottle caps or similar vessels used to prepare an injectable solution); using a common syringe to divide a dose of drug solution among multiple users; not being in drug treatment; and injecting at "shooting galleries" where IDUs congregate to consume drugs and in other semipublic areas (such as rooftops, abandoned buildings, and parked cars) (Celentano et al. 1991; Friedman et al. 1995; Jose et al. 1993; Latkin et al. 1996; Needle et al. 1998). Intervention strategies targeted to these individual risk factors depend heavily on education, outreach, counseling, and substance abuse treatment to modify individual behavior (Academy for Educational Development 2000; Coyle, Needle, and Normand 1998; McCoy et al. 1998).

Ecological Approaches to Risk and Structural Interventions

With experience and the passage of time, it has become evident that interventions targeting specific risk factors to help individual IDUs change their behavior are insufficient. IDUs exist in complex "risk environments" (Rhodes 2002) in which individual risk behaviors are shaped by ecological factors, including a limited availability of resources (such as clean syringes, hygienic places to inject, or drug treatment), societal norms that stigmatize drug users, disrupted social networks (Galea and Vlahov 2002; Latkin et al. 2003; Sherman and Latkin 2002), little social capital and social and economic power among drug users, and a legal and policy environment that focuses on social control and punishment of drug users. An ecological approach to IDU health and the structural interventions targeted to these environmental factors are thus important elements of an effective response to HIV and other diseases afflicting IDUs (Des Jarlais 2000b; Friedman et al. 1997). In particular, we focus here on evidence demonstrating that criminal laws and associated law enforcement practices are significant ecological factors structuring IDUs' risk and behavior. Moreover, laws and legal practices are among the most readily identifiable and, in some settings, malleable ecological risk factors influencing IDUs, an important consideration in places where the epidemic is growing rapidly and resources for interventions are limited.

Drug Law, Police Practice, and Their Effects on IDUs' Risks and Attitudes

The nontherapeutic production, distribution, and possession of drugs are now treated as criminal matters in most countries of the world, although the nature and intensity of control measures vary. The fingerprints of the criminal justice system are everywhere to be found in the behavior of IDUs, who live furtively in "microcontexts" of police surveillance, crime, mistrust, and violence (Bourgois 1998; Clatts et al. 1998; Grund et al. 1992). In the United States, where laws on the books often prohibit the possession of drug paraphernalia, a substantial body of ethnographic and quantitative research indicates that IDUs are unwilling to carry syringes for fear of being stopped by the police (Bluthenthal, Lorvick, et al. 1999; Bourgois 1998; Clatts et al. 1998; Feldman and Biernacki 1988; Gleghorn et al. 1995; Grund et al. 1995; Koester 1994; Waldorf, Reinarman, and Murphy 1990; Zule 1992). These self-reported data are to some degree validated by studies using other outcome measures. In their report of needle use practices in Seattle, where the purchase of needles is legal, Calsyn and colleagues observed lower rates of needle sharing compared with that in regions where the purchase and possession of needles are illegal (Calsyn et al. 1991). Bluthenthal and colleagues found that IDUs concerned about being arrested while carrying needles were more than one and a half times more likely to report sharing (Bluthenthal, Lorvick, et al. 1999). Metzger's New Jersey and Pennsylvania respondents who shared needles also reported more arrests and legal difficulties (Metzger et al. 1991). Laws limiting access to syringes are closely associated with high prices for syringes obtained from street sellers, which in turn limits IDUs' ability to buy enough syringes to use a new one for every injection (the public health ideal). In a survey of 42 syringe exchange programs in 35 cities in 18 states, the street prices of syringes rose steadily and substantially according to whether there was no law, an unenforced law, or an enforced law against their possession by IDUs (Rich and Foisie 2000). Moreover, Friedman and colleagues found that prescription laws in the United States were associated with a higher incidence and prevalence of HIV infection (Friedman, Perlis, and Des Jarlais 2001).

To some extent, police practices may be independent of the written law concerning syringe possession and drug use. Police generally have the discretion and the dexterity to apply a wide variety of criminal and

public order laws in order to accomplish their street control and public safety mission, and research indicates that they do so in the area of drug use (Lovell 2002; Maher and Dixon 1999). In Russia, the possession of syringes is not a crime (Hartsock 1995) but marks an individual as an IDU and exposes him or her to punishment on other grounds. Police may confiscate syringes, or they may arrest drug users and require them to be screened and, if positive, to be registered as habitual users at a government narcological institution or to be confined for treatment. The possession of even small amounts of drugs can lead to criminal charges, and the threat of any of these measures may be used to extort bribes (Bidordinova 2002). This is borne out by Grund's study, in which 40 percent of IDUs surveyed in five Russian cities said that they did not routinely carry injection equipment, in part to avoid attracting attention from the police (Grund 2001). Investigations by nongovernment organizations have repeatedly identified police interactions with IDUs as potentially worsening the risks of HIV transmission (Human Rights Watch 2003a, 2003b, 2003c, 2003d; International Harm Reduction Development Program 2003).

Such direct behavioral influence is not, however, the only way in which laws or law enforcement practices may influence HIV risk. A high prevalence of incarceration as a punishment for drug use can make prisons key sites for the transmission of HIV, TB, and other diseases because of overcrowding, poor nutrition, limited access to health care, continued drug use and unsafe injecting practices, unprotected sex, and tattooing (Buavirat et al. 2003; Galea and Vlahov 2002; Hammett, Harmon, and Rhodes 2002). TB outbreaks and HIV risk behavior and infection have been reported even in countries with substantial budgets to invest in hygienic prison conditions (Bergmire-Sweat et al. 1996; Rotily et al. 2001; Taylor et al. 1995). In Russia and Ukraine, significant outbreaks of HIV and multidrug-resistant TB have been reported in prisons (Grange and Zumla 2002; Holden 1999; Stern 2001; Trebucq 1999), making imprisonment itself an important risk factor for disease. In a particularly dramatic example, 284 cases of HIV were discovered at a Lithuanian prison, a number higher than the total number of HIV infections previously recorded by national health authorities (UNAIDS and World Health Organization 2002). In Thailand, the huge increases in HIV prevalence in the late 1980s are thought to have been related to IDUs moving in and out of prisons (Jurgens 2001). Such statistics emphasize the importance not just of hygienic prison conditions but

also of the policies and practices of the police, prosecutors, and judges determining the flow of people into the prison system.

Law enforcement practices are also of interest in regard to the role of network dynamics in the spread of HIV among IDUs (Friedman and Aral 2001; Kottiri et al. 2002; Potterat, Rothenberg, and Muth 1999; Rothenberg et al. 1998; Rothenberg et al. 2000). Networks of injectors who share injection equipment only with the other people in their network may, in theory, be retarding factors in the spread of HIV, even if other networks become saturated with the virus. However, high arrest and incarceration rates or other police practices that encourage injection sharing may disrupt stable networks and lead to the reconstitution of seromixed networks that facilitate the spread of HIV (Friedman et al. 2000; Rhodes et al. 2002). Indeed, differences in the intensity of police activity and the attendant disruption of networks could be a factor in the substantial variance in HIV rates exhibited within and across nations with large numbers of injection drug users.

Drug laws and enforcement practices also may reshape drug markets and drug use patterns, exposing new populations to injecting drug use and consequently HIV and other blood-borne viruses. In the late 1980s in some countries of Southeast Asia, for example, vigorous enforcement of laws against the use of smokable opium led to higher rates of injecting heroin (Costigan, Crofts, and Reid 2003).

Criminal laws and enforcement practices can also influence IDU risk by deterring public health agents from delivering prevention services. It goes without saying that laws that explicitly prohibit interventions, such as syringe exchange programs (SEPs) or methadone treatment, act as "barriers." In the United States, law enforcement activity has been found to hamper both illegal and legal SEPs (Bluthenthal 1998; Bluthenthal et al. 1998; Paone et al. 1999). Although few studies have assessed the impact of police pressure on SEPs, some studies report that arrests of staff or attendees have reduced SEP attendance, have limited their expansion, and may have increased the length of time that contaminated needles circulated on the streets (Bluthenthal 1997; Davis et al. forthcoming; Heimer et al. 1996). Despite the general lack of data, anecdotal evidence supports fears that both policy and practice are hurting disease prevention efforts among IDUs in other countries as well. Syringe exchanges are available in Russia, Ukraine, and Poland but SEP organizers report local resistance from the authorities, who believe that SEPs facilitate drug use (Open Society Institute 2001; Rhodes et al. 2002). As this article

went to press, the Deputy Head of the Russian State Drug Control Committee issued a "Statement Against Harm Reduction," denouncing harm reduction and urging regional and local law enforcement agencies to "take administrative and, if there is any ground, criminal action toward people who advocate for this idea" (Mikhailov 2003).

Drug users' experiences with police practices and the law enforcement system have created "a climate of fear and uncertainty" that in turn raises IDU risk. Maher and Dixon's ethnographic study of the drug scene in the Cabramatta section of Sydney, Australia, shows how this climate of fear has led to the unhygienic use of the mouth or nose to store drug packets (increasing the risk of HBV and HCV transmission), a reluctance to carry injection equipment, and pressure to consume drugs less safely (Maher and Dixon 1999). A police crackdown was found to have had similar results in the Melbourne area (Aitken et al. 2002), where another study observed IDUs consciously running a higher risk of fatal overdose by selecting injection sites away from police surveillance (Dovey, Fitzgerald, and Choi 2001). In the United States, shooting galleries—sites where large numbers of drug users congregate to inject drugs—are associated with a very high risk of contracting HIV. In turn, the IDUs' use of shooting galleries has been attributed in part to their fear of arrest (Celentano et al. 1991; Ouellet, Jiminez, and Johnson 1991).

Summary

The theory of the case now runs like this: Because drug users' interactions with the criminal justice system may plausibly be the cause of much of their vulnerability to blood-borne diseases, the criminal justice system should also be recognized as an important target of public health research and action. Interventions among and collaborations with law enforcement are also necessary to ensure that public health programs aimed at marginalized populations can be authorized and implemented. Law enforcement can continue in its traditional role of targeting the drug supply while at the same time adopting a public health approach to preventing HIV and other communicable diseases. This claim is hardly the sort of stunning revelation that ends a good mystery story. Yet though many in public health would accept in theory the value of greater attention to law enforcement, deciding on practical next steps has proved difficult. In the remainder of this article, we examine some promising directions for research and intervention to demonstrate that even

without answers to all the methodological or practical questions about social epidemiology and structural interventions, there is ample opportunity for immediate work.

Conducting Research on Law, Law Enforcement, and IDUs' Health

Despite the research indicating the role of laws and law enforcement in shaping IDUs' health, more work is needed. In keeping with the diagram in Figure 1, this work may focus on one of the four different dimensions of law relating to IDUs, each of which raises different issues and suggests numerous research questions.

Law on the Books

Laws on the books are the starting point for analyzing how laws and their implementation affect the health of IDUs. In the United States, national and state laws are readily available to legal researchers, as they are in many wealthier countries with well-functioning legal systems (Burris, Vernick, et al. 2002; Burris, Welsh, et al. 2002). But many countries facing high HIV rates do not have as good a policy research capacity or infrastructure. More systematic research is needed on how variations in laws on the books are associated with IDUs' health risks and health behaviors and on which aspects of the laws influence these risks and behaviors. In some important areas, this research may reveal that law on the books has little impact on HIV-related risks and behaviors. For example, laws requiring that HIV test results be reported to health authorities appear to have little or no direct effect on people's willingness to be tested (Lansky et al. 2002).

In researching the impact of formal laws on IDUs' health, we also must determine which laws are "relevant" among the huge body of regulations that obtain in a modern state. In some places, the vulnerability of drug users may depend less on criminal laws explicitly forbidding drug behavior and more on other laws that police use to accomplish their mission. For example, in Russia, police officers may use public intoxication or disorderly conduct charges to arrest IDUs (Rhodes et al. 2002). Just looking at laws concerning drug use would fail to detect those used in everyday police practice or to help decide why certain laws are enforced in a given setting. Laws that create long-term social or economic penalties

for IDUs or their families, including exclusion from benefits programs, public housing, or voting, also may be relevant.

Management Policies, Procedures, and Training

"Drug czars," mayors, and police chiefs set a tone and often establish concrete priorities for the deployment of law enforcement resources. Police agencies issue directives to officers, create standard operating procedures, launch special initiatives of high-intensity policing, and train new staff. Public prosecutors issue guidelines on charging and plea-bargaining. And so on. Data on this level of policing are rather limited. Some management factors may be revealed in written policies or manuals, but many can be collected only in interviews with cooperative managers. These policies are important elements of laws everywhere but may be particularly important in localities where police agencies are less constrained by other elements of the government or society.

The implementation of laws tends to be a process of transformation precisely because law enforcement agencies and their personnel have so much discretion. Consider just two significant developments in policing over the past 20 years: racial profiling for traffic stops, and "broken windows" or "zero tolerance" policing. Using race to identify drivers for stops was certainly not required by any law on the books and, indeed, was arguably inconsistent with constitutional norms of nondiscrimination, yet in at least some police departments it became standard practice. Likewise, the idea that police should concentrate on the small infractions signaling a breakdown of community social control—famously exemplified by "broken windows" (see Wilson and Kelling 1982)—led to real changes in how law enforcement resources were used in cities like New York. While in many, if not most, instances, the changes in police management may be more rhetorical than real (Fagan and Davies 2000; Harcourt 1998), these examples suggest that external pressure and "new ideas" can influence police at the implementation level even without major changes in the laws on the books.

Practices, Knowledge, and Attitudes of Street-Level Criminal Justice Personnel

In the area of policing, research has long shown that the gap in implementation between the "laws on the books" and the "laws on the streets" also exists between management directives and street practice

(Bayley and Bittner 1984; Bittner 1966; Manning 1977; Oberweis and Musheno 1999; Shearing and Ericson 1991). That is, police do not generally see laws as a set of instructions they must follow exactly but as a tool kit from which they can draw in their overall mission of keeping order (Bittner 1966; Maher and Dixon 1999). Discretion in the deployment of laws is both central and essential: central because the day-to-day work of the officer and its effect on the policed community are shaped by how he or she uses the power of the police, and essential because the rigid enforcement of every law would quickly paralyze the officer and the system (Holmberg 2000). There is an extensive literature documenting and analyzing the drivers of "police culture" and their influence on implementing management directives and laws.

Despite the large body of work on police generally and a growing interest in public health law, largely missing from current research is a focus on police and other criminal justice actors from a health perspective. The research cited here shows how laws and police work influence IDUs, but it concentrates on the effect rather than the cause. Research has documented how IDUs respond to police but has not yet looked at the behavior of the police toward IDUs or the factors that underlie their behavior. The key issues to explore are the knowledge, attitudes, and beliefs of frontline staff and managers concerning drug use, HIV prevention, and the impact of law enforcement on IDUs; the organizational structures and incentives that influence how drug laws are enforced; and how people within the system think it could or should be changed to bring about different practices with respect to IDUs. Of course, police are not the only important institutional actors. The same sorts of questions can and should be asked of prosecutors, probation and parole officers, prison officials, and judges. Exploratory health-oriented research has been conducted at the upper levels of the system and has set the course for more work (Beyer, Crofts, and Reid 2002). Rapid assessment and response methods appear to be particularly useful in identifying local law enforcement risk factors that allow a response to be timely enough to make a difference (Rhodes, Ball, et al. 1999; Rhodes et al. 2002; Rhodes, Stimson, Fitch, et al. 1999). But a greater scrutiny of law enforcement officials and the reasons for their behavior provide a useful way for all research on the health of marginalized populations to begin to grapple with ecological approaches to intervention.

IDUs' Attitudes, Knowledge, and Experiences

The final important component of law is the way that IDUs experience the law enforcement system. For the people governed by law, "law" is less a matter of formal rules than of the street rules they actually confront (Ewick and Silbey 1998; Tyler 1990). Ethnographic research has shown how perceptions of the law and experiences with police and other agents of the law enforcement system shape the behavior of injection drug users (Blankenship and Koester 2002; Bluthenthal, Kral, et al. 1999; Bluthenthal, Lorvick, et al. 1999; Bourgois 1998; Clatts et al. 1998; Koester 1994; Lovell 2002; Rhodes et al. 2002; Rhodes, Stimson, Crofts, et al. 1999). Understanding how these perceptions are formed is useful in working to change them when they have become inaccurate or maladaptive.

The relationships between the law on the books and health can be determined much more easily by using data on the actual implementation practices of system actors and the responses of IDUs (Birkhead et al. 2002; Cotten-Oldenburg et al. 2001; Friedman et al. 2001), as well as data on key measures of system activity, such as drug paraphernalia arrests and convictions (Case 1998). Major "nonhealth" interventions, like drug courts and supply-side drug control interventions, require a more extensive and rigorous evaluation of their effect on IDUs' risk and risk behavior (Belenko 2002; Wood et al. 2003).

Developing Interventions Aimed at Laws and Law Enforcement Practices

If all four of the dimensions of law on which we have focused are structuring IDUs' risk environment, then targeting changes to these dimensions of the law may be just as or even more effective than helping IDUs cope with the risks they create. Interventions that change laws, policies, or the attitudes and practices of law enforcement agents are "structural" with respect to IDUs because such interventions alter the risk environment. Even though further research and evaluation are needed, helpful interventions are available at all four levels of the law in our schema—and beyond.

Changes in Law on the Books

Law on the books is an important structural factor for public health in part because it can usually be changed, sometimes substantially. Public health

research and advocacy can help guide legal change in ways that promote health. The formal law can also be changed by litigation, which in some countries affords a means through which advocates for marginalized people, or for public health generally, can have an impact, even without the money or other resources usually necessary to effect legislative change.

Leaving aside for the moment a move as far-reaching as abandoning the prohibition model of drug control altogether, legal changes that might affect IDUs' vulnerability to blood-borne disease include deregulating the possession of syringes and needles (including decriminalizing the possession of trace amounts of a drug in the barrel of a used syringe so that IDUs can carry their used syringes to appropriate disposal sites without fear of arrest), legalizing methadone and other forms of opiate replacement therapy, and minimizing regulatory barriers to their use (Burris and Ng 2001; Heimer et al. 2002). In countries that rely heavily on incarceration to deal with drug users, efforts to reduce imprisonment and encourage treatment would be helpful. These include diversion programs, drug courts, and, in countries of the former Soviet Union, new rules for bail, probation, and parole.

Even significant changes in the laws on the books may have limited street-level effects because of the policy transformation process. Changing a law is useful as a means to instigate management change, but it is neither sufficient nor essential to such change. Moreover, laws can change without management or staff altering their practices as expected. In Connecticut, for example, the Bridgeport Police Department was found to be continuing its practice of arresting IDUs for syringe possession despite legislation decriminalizing it (*Doe v. Bridgeport Police Department* 2001). Likewise, considerable cooperation by management in harm reduction efforts may be possible, even though the laws on the books remain highly punitive. Thus in some communities in the United States, syringe exchanges operate by local interpretation of laws that state-level officials may believe prohibit SEPs, without claim to legality but with the tacit support of local law enforcement officials (Burris et al. 1996).

Management and Training Changes

Many management interventions can help harmonize health and law enforcement. Incorporating harm reduction and disease prevention in national drug strategies, as Australia and, to a limited degree, most western European countries have done (Aitken et al. 2002; European

Monitoring Centre for Drugs and Drug Addiction 2002), would be a good initial step. The United Kingdom has adopted a policy of encouraging the identification and treatment of drug users at every stage of the criminal justice process, starting with diagnosis and referral at arrest and enhanced treatment options in prison (Kothari, Marsden, and Strang 2002). Formal cooperative structures bringing together health, law enforcement, and other government managers are a promising way to begin to change priorities and cultures while exchanging useful information. Such structures have been developed in the United Kingdom and Australia (Midford et al. 2002) and may be created at the local or state level in the absence of a national plan. Directives or standard operating procedures may be used to encourage the implementation of harm reduction policies. In some Australian and American states, for example, management policies discourage police from making arrests at drug overdose scenes, in order not to deter help-seeking behavior (Burris, Edlin, and Norland 2001). In New York City, after the passage of legislation to encourage pharmacies to sell syringes to IDUs, police managers issued orders against arresting people for syringe possession (*Roe v. City of New York* 2002).

Better management of courts, bail systems, and prisons can improve conditions even without fundamental changes in the laws. Drug courts and other alternatives to incarceration may be organized, also without changing the overall legal framework. In many countries, at least some drug treatment is available in prisons, though very few make available the most effective forms of pharmacological treatment. The distribution of condoms, syringes, and bleach in prisons and better prison health care and health education may help reduce the transmission of disease, and more effective management of health issues at release could reduce the risk of overdose among newly freed prisoners. Through consultation with international and nongovernment organizations and government departments, the World Health Organization has established guidelines for the control of HIV infection and AIDS in prisons. These guidelines provide public health standards for prison authorities (WHO Regional Office for Europe 2001). Making health a relevant outcome for assessing the performance of law enforcement managers could attract more attention to these issues. Of course, both legal and policy changes must also be supported by the commitment of resources. Accessible drug treatment, efficient courts, honest police, and safe prisons all require funding.

Education can increase law enforcement agency managers' awareness of problems, possible solutions, and the relation of both problems and solutions to police concerns. Management structures that encourage interaction across government offer health and law enforcement managers an opportunity to educate each other informally, as does advocacy from those outside of government. For several years, the International Harm Reduction Development Program of the Open Society Institute has led study tours for police officers to visit sites where a public health or harm reduction approach is integrated into policing. Once management has accepted the valid position of health concerns in policing, police training becomes a prime means of fostering attitudinal and behavior change within the organization (Costigan, Crofts, and Reid 2003). Indeed, research has shown again and again the importance to reform of understanding the existing norms and incentive systems within law enforcement agencies as a precondition to intervention.

Street-Level Changes

Top-down laws and management policies are levers of change, but the fulcrum is the frontline staff on the streets. As our discussion has suggested, interventions must change how police officers and other law enforcement agents interact with marginalized people. Even if changes in laws and management policies successfully address the top-down factors that create tensions between law enforcement and health promotion, we would still need to deal with the bottom-up factors embodied in the knowledge, attitudes, and beliefs of the police officers, attorneys, probation officers, and others who apply the law. In some places, the most problematic factor is corruption (Bidordinova 2002). Research suggests that organizational change is possible but requires changes in both the "rules" governing staff work and how officers think of what they do (Chan, Devery, and Doran 2003). In practice, most interventions among marginalized populations entail negotiation with the local law enforcement agency and frontline staff (Costigan, Crofts, and Reid 2003), but these "educational" interventions are not treated (i.e., documented and evaluated) as such. Health-focused research on law enforcement workers can be expected to produce data on which attitudinal interventions can be based, as well as ideas for structural changes that offer the police greater incentives to consider health in their interactions with marginalized populations.

Interventions Aimed at IDU Perceptions of and Interactions with Police

However the top three levels of the Figure 1 pyramid are changed, successful implementation will require efforts to inform IDUs of the new policies and convince them that these changes are real and can be relied on. Consistent with HIV control strategies that have mobilized people at risk to address their own needs (Beeker, Guenther-Grey, and Raj 1998), efforts to reduce environmental risk are enhanced by enabling IDUs to undertake health research and promotion, advocate in public forums concerning the health effects of law enforcement, participate in police training, or by working with outreach and other public health workers to identify harm reduction strategies that counter IDU behaviors resulting from their fear of the police (Balian 1998; Buning 1991; Ross 2002).

Paradigm Changes in Drug and Security Policy

The interventions we have canvassed so far will be subject to criticism from a variety of perspectives. Proponents of the current drug control policy may argue that public health and harm reduction approaches to drug use weaken the normative or deterrent power of drug control laws and will ultimately hurt more than they help as the overall rate of drug use increases in response. Those who favor drug legalization may find our ambitions too limited and may not believe that policing practices can change significantly without more fundamental changes in the laws the police are enforcing. It may be argued that ecological interventions that fall short of pursuing fundamental change in the deep social determinants they identify may in the end do little more than shift the blame for ill health from disadvantaged individuals to disadvantaged communities (Muntaner and Lynch 1999). In this view, perhaps only changes at the deepest level of the social structure—in this case, changes that would transform the punitive approach to drugs and drug use and deal with related matters of race and class—can properly be called "structural interventions."

All these arguments are at some level unanswerable, if only because the answer depends on assumptions and predictions about the future that cannot be tested except over time. Drug policy has deep and tangled roots in stigma, race, class, and perhaps even what Don Des Jarlais

calls "euphoriphobia" (Des Jarlais 2000a). From various theoretical standpoints, laws and legal institutions can be seen as tools for struggle among competing social factions, struggles whose motives and logic may be far more important to policy formation than data regarding, and analysis of, the "problem" itself (Burchell, Gordon, and Miller 1991; Gusfield 1963).

The agenda we propose here uses tried and true tools of institutional change that are capable of improving the risk environment for IDUs. Public health movements have traditionally relied on data to awaken concern about social problems and channel that concern into advocacy for political and institutional change. Epidemiological data have facilitated syringe access for IDUs just as they have led to stricter control of smoking and drunken driving. Harm reduction as a grassroots social movement has achieved real success in the form of thousands of programs functioning around the world (Friedman et al. 2001). Needle exchanges, safe-injecting rooms, overdose-prevention campaigns, and drug-treatment initiatives have helped demonstrate that the public health approach to drug use is strong. The changes in U.S. drug control laws, catalyzed by public health and harm reduction arguments, have been substantial even if not radical (Burris, Strathdee, and Vernick 2003).

Our agenda also proposes that significant change can come from within police organizations, through a process that alters the organizational mentality with respect to drug abuse. Those who argue that policing organizations can change emphasize the importance of understanding organizational dynamics and culture (Chan, Devery, and Doran 2003). They point to the possibilities entailed in improving how people inside police organizations understand their mission and the communities they serve (Johnston and Shearing 2003; Shearing and Ericson 1991). Studying police behavior and thinking from a public health perspective is a necessary precondition to offering salient, acceptable alternatives for adoption by police.

More broadly, a public health perspective might also loosen the Gordian knot of drug policy by reframing the debate from one that contrasts prohibition and legalization to one that focuses on the nature of policing and its relationship to security. Looking beyond existing law enforcement approaches, a health perspective resonates with efforts within criminology and policing to promote innovation in the governance of security. Providing safe, well-ordered communities is an essential obligation of the state, and there may be better ways to do

this. Conventional state law enforcement systems intentionally inflict harm—imprisonment, shame—as a principal element of their operation. They are backward-looking and retributive and are authorized to use physical force to deal with illegal behavior (Aral, Shearing, and Burris 2002). Such systems may operate with a high degree of professionalism and legitimacy, but in disrupting communities with intensive drug policing, they may have multiple effects on individual and community well-being that counterbalance or even outweigh the benefits of less drug dealing and related disorders (Fagan and Davies 2000; Iguchi et al. 2002). In particular places, or in relation to particular kinds of disorder, it may be possible to devise new security systems that draw on different tools and ways of thinking and that free police resources to deal with matters to which coercive, retributive approaches are better suited. Interventions such as the Community Peace Project in South Africa have created alternative institutions for promoting security in poor communities (Johnston and Shearing 2003). Communities may be better able than the police to manage the quality-of-life issues of drug use, and they can collaborate with law enforcement and public health entities in developing service systems that can respond effectively (Sampson and Morenoff 2000).

Conclusion

Both law enforcement and public health are committed to promoting good order and good health in the community. We have argued that law enforcement agents are important to the search for environmental determinants of IDU health. We have suggested a change in the research focus to address a need that has remained unmet for some years, with respect not just to IDUs but also to commercial sex workers, illegal migrants and immigrants, and other populations living at or beyond the margins of legality. Researchers concerned with the health of marginalized populations have long recognized that laws and law enforcement practices matter to health and behavior, but for a variety of reasons they have done little to address these factors directly. Similarly, recognition of the importance of structural factors in health has so far outstripped research and intervention premised on that ecological view of health. It is imperative that we use an ecological approach to study law and law enforcement practices as contributing causes of HIV and targets of prevention intervention.

The significance of this change in focus is substantial. Rather than looking solely at the population at risk of contracting HIV, such research would take seriously the notion of social causes of disease or risk environment by directing significant attention toward *other people and institutions* that structure disease risks among marginalized populations. A focus on law enforcement responds to these risk-structuring factors with research aimed at producing structural interventions—that is, interventions that try to change the environmental risks, rather than helping IDUs cope with a risk environment that has not been changed. Looking away from the population immediately at risk and in the direction of others whose behavior creates risk offers many new opportunities for prevention work.

References

Academy for Educational Development. 2000. *A Comprehensive Approach: Preventing Blood-Borne Infections among Injection Drug Users*. Washington, D.C.

Aitken, C., D. Moore, P. Higgs, J. Kelsall, and M. Kerger. 2002. The Impact of a Police Crackdown on a Street Drug Scene: Evidence from the Street. *International Journal of Drug Policy* 13:189–98.

Albert, A.E., D.L. Warner, R.A. Hatcher, J. Trussell, and C. Bennett. 1995. Condom Use among Female Commercial Sex Workers in Nevada's Legal Brothels. *American Journal of Public Health* 85:1514–20.

Alter, M.J. 2002. Prevention of Spread of Hepatitis C. *Hepatology* 36:S93–8.

Aral, S.O., C. Shearing, and S. Burris. 2002. Health and the Governance of Security: A Tale of Two Systems. *Journal of Law, Medicine & Ethics* 30:632–43.

Balian, R. 1998. Myth, Truth, and HIV, a User's Perspective on the Seroconversion Rates, in Vancouver, Montreal, and Ottawa. *International Journal of Drug Policy* 9:359–64.

Bardach, E. 1977. *The Implementation Game: What Happens after a Bill Becomes Law*. Cambridge, Mass.: MIT Press.

Bastos, F., S. Strathdee, M. Derrico, and F. Pina. 1999. Drug Use and the Spread of HIV/AIDS in South America and the Caribbean. *Drugs: Education, Prevention and Policy* 6:29–59.

Bayley, D., and E. Bittner. 1984. Learning the Skills of Policing. *Law and Contemporary Problems* 47:35–59.

Beeker, C., C. Guenther-Grey, and A. Raj. 1998. Community Empowerment Paradigm Drift and the Primary Prevention of HIV/AIDS. *Social Science & Medicine* 46:831–42.

Belenko, S. 2002. The Challenges of Conducting Research in Drug Treatment Court Settings. *Substance Use & Misuse* 37:1635–64.

Bergmire-Sweat, D., B.J. Barnett, S.L. Harris, J.P. Taylor, G.H. Mazurek, and V. Reddy. 1996. Tuberculosis Outbreak in a Texas Prison, 1994. *Epidemiology & Infection* 117:485–92.

Berkman, L., and I. Kawachi. 2000. A Historical Framework for Social Epidemiology. In *Social Epidemiology*, edited by L. Berkman and I. Kawachi, 3–12. New York: Oxford University Press.

Beyer, L., N. Crofts, and G. Reid. 2002. Drug Offending and Criminal Justice Responses: Practitioners' Perspectives. *International Journal of Drug Policy* 13:199–207.

Bidordinova, A. 2002. Who Benefits from the War on Drugs in Russia. Paper presented at the 4th National Harm Reduction Conference, Seattle.

Birkhead, G.S., S.J. Klein, A.R. Candelas, H.A. Plavin, and M. Narcisse-Pean. 2002. New York State's Expanded Syringe Access Demonstration Program (ESAP): A Statewide Intervention to Prevent HIV/AIDS. Paper presented at the 14th International AIDS Conference, Barcelona.

Bittner, E. 1966. The Police on Skid Row: A Study of Peace Keeping. *American Sociological Review* 32:699–715.

Black, D. 1976. *The Behavior of Law*. New York: Academic Press.

Blankenship, K.M., S. Bray, and M. Merson. 2000. Structural Interventions in Public Health. *AIDS* 14 (suppl. 1):S11–21.

Blankenship, K.M., and S. Koester. 2002. Criminal Law, Policing Policy, and HIV Risk in Female Street Sex Workers and Injection Drug Users. *Journal of Law, Medicine & Ethics* 30:548–59.

Bluthenthal, R.N. 1997. Impact of Law Enforcement on Syringe Exchange Programs: A Look at Oakland and San Francisco. *Medical Anthropology* 18:61–83.

Bluthenthal, R.N. 1998. Syringe Exchange as a Social Movement: A Case Study of Harm Reduction in Oakland, California. *Substance Use & Misuse* 33:1147–71.

Bluthenthal, R.N., A.H. Kral, E.A. Erringer, and B.R. Edlin. 1998. Use of an Illegal Syringe Exchange and Injection-Related Risk Behaviors among Street-Recruited Injection Drug Users in Oakland, California, 1992 to 1995. *Journal of Acquired Immune Deficiency Syndromes & Human Retrovirology* 18:505–11.

Bluthenthal, R.N., A.H. Kral, E.A. Erringer, and B.R. Edlin. 1999. Drug Paraphernalia Laws and Injection-Related Infectious Disease Risk among Drug Injectors. *Journal of Drug Issues* 29:1–16.

Bluthenthal, R.N., J. Lorvick, A.H. Kral, E.A. Erringer, and J.G. Kahn. 1999. Collateral Damage in the War on Drugs: HIV Risk Behaviors

among Injection Drug Users. *International Journal of Drug Policy* 10:25–38.

Bourgois, P. 1998. The Moral Economies of Homeless Heroin Addicts: Confronting Ethnography, HIV Risk, and Everyday Violence in San Francisco Shooting Encampments. *Substance Use & Misuse* 33:2323–51.

Brownsberger, W.N. 2000. Race Matters: Disproportionality of Incarceration for Drug Dealing in Massachusetts. *Journal of Drug Issues* 30:345–75.

Buavirat, A., K. Page-Shafer, G.J.P. v. Griensven, J.S. Mandel, J. Evans, J. Chuaratanaphong, S. Chiamwongpat, R. Sacks, and A. Moss. 2003. Risk of Prevalent HIV Infection Associated with Incarceration among Injecting Drug Users in Bangkok, Thailand: Case-Control Study. *BMJ* 326:308.

Buning, E.C. 1991. Effects of Amsterdam Needle and Syringe Exchange. *International Journal of the Addictions* 26:1303–11.

Burchell, G., C. Gordon, and P. Miller, eds. 1991. *The Foucault Effect: Studies in Governmentality: With Two Lectures by and an Interview with Michel Foucault*. Chicago: University of Chicago Press.

Burris, S. 2002. Introduction: Merging Law, Human Rights and Social Epidemiology. *Journal of Law, Medicine & Ethics* 30:498–509.

Burris, S., B. Edlin, and J. Norland. 2001. Legal Aspects of Providing Naloxone to Heroin Users in the United States. *International Journal of Drug Policy* 12:237–48.

Burris, S., D. Finucane, H. Gallagher, and J. Grace. 1996. The Legal Strategies Used in Operating Syringe Exchange Programs in the United States. *American Journal of Public Health* 86:1161–6.

Burris, S., I. Kawachi, and A. Sarat. 2002. Integrating Law and Social Epidemiology. *Journal of Law, Medicine & Ethics* 30:510–21.

Burris, S., and M. Ng. 2001. *Deregulation of Hypodermic Needles and Syringes as a Public Health Measure: A Report on Emerging Policy and Law in the United States*. Washington, D.C.: American Bar Association AIDS Coordinating Committee.

Burris, S., S. Strathdee, and J. Vernick. 2003. Lethal Injections: The Law, Science and Politics of Syringe Access for Injection Drug Users. *University of San Francisco Law Review* 37:813–83.

Burris, S., J.S. Vernick, A. Ditzler, and S. Strathdee. 2002. The Legality of Selling or Giving Syringes to Injection Drug Users. *Journal of the American Pharmaceutical Association* 42:S13–8.

Burris, S., J. Welsh, M. Ng, M. Li, and A. Ditzler. 2002. State Syringe and Drug Possession Laws Potentially Influencing Safe Syringe Disposal by Injection Drug Users. *Journal of the American Pharmaceutical Association* 42:S94–8.

Calsyn, D.A., A.J. Saxon, G. Freeman, and S. Whittaker. 1991. Needle-Use Practices among Intravenous Drug Users in an Area Where Needle Purchase Is Legal. *AIDS* 5:187–93.

Case, P., T. Meehan, and T.S. Jones. 1998. Arrests and Incarceration of Injection Drug Users for Syringe Possession in Massachusetts: Implications for HIV Prevention. *Journal of Acquired Immune Deficiency Syndromes* 18 (suppl. 1):S71–5.

Celentano, D.D., D. Vlahov, S. Cohn, J.C. Anthony, L. Solomon, and K.E. Nelson. 1991. Risk Factors for Shooting Gallery Use and Cessation among Intravenous Drug Users. *American Journal of Public Health* 81:1291–5.

Chan, J.B.L., C. Devery, and S. Doran. 2003. *Fair Cop: Learning the Art of Policing*. Toronto: University of Toronto Press.

Clatts, M., J.L. Sotheran, P.A. Luciano, T.M. Gallo, and L.M. Kochems. 1998. The Impact of Drug Paraphernalia Laws on HIV Risk among Persons Who Inject Illegal Drugs: Implications for Public Policy. In *How to Legalize Drugs*, edited by J.M. Fish, 80–101. Northvale, N.J.: Jason Aronson.

Costigan, G., N. Crofts, and G. Reid. 2003. *The Manual for Reducing Drug Related Harm in Asia*. Melbourne: Centre for Harm Reduction, MacFarlane Burnet Centre for Medical Research and Asian Harm Reduction Network.

Cotten-Oldenburg, N.U., P. Carr, J.M. DeBoer, E.K. Collison, and G. Novotny. 2001. Impact of Pharmacy-Based Syringe Access on Injection Practices among Injecting Drug Users in Minnesota, 1998 to 1999. *Journal of Acquired Immune Deficiency Syndromes* 27:183–92.

Coyle, S.L., R.H. Needle, and J. Normand. 1998. Outreach-Based HIV Prevention for Injecting Drug Users: A Review of Published Outcome Data. *Public Health Reports* 113 (suppl. 1):19–30.

Davis, C., S. Burris, D. Metzger, J. Becher, and K. Lynch. Forthcoming. Effects of an Intensive Street-Level Police Intervention on Syringe Exchange Program Utilization: Philadelphia, Pennsylvania.

Des Jarlais, D.C. 2000a. Prospects for a Public Health Perspective on Psychoactive Drug Use. *American Journal of Public Health* 90:335–7.

Des Jarlais, D.C. 2000b. Structural Interventions to Reduce HIV Transmission among Injecting Drug Users. *AIDS* 14 (suppl. 1):S41–6.

Doe v. Bridgeport Police Department. 2001. 198 325–350 (D. Conn. 2001).

Dovey, K., J. Fitzgerald, and Y. Choi. 2001. Safety Becomes Danger: Dilemmas of Drug-Use in Public Space. *Health & Place* 7:319–31.

European Monitoring Centre for Drugs and Drug Addiction. 2002. *Strategies and Coordination in the Field of Drugs in the European Union: A Descriptive Review*. Lisbon.

European Monitoring Centre for the Epidemiological Monitoring of AIDS. 2002. *HIV/AIDS Surveillance in Europe End-Year Report 2001*. Saint-Maurice: Institut de Veille Sanitaire.

Ewick, P., and S. Silbey. 1998. *The Common Place of Law: Stories from Everyday Life*. Chicago: University of Chicago Press.

Fagan, J., and G. Davies. 2000. Street Stops and Broken Windows: Theory, Race, and Disorder in New York City. *Fordham Urban Law Journal* 28:457–504.

Feldman, H.W., and P. Biernacki. 1988. The Ethnography of Needle Sharing among Intravenous Drug Users and Implications for Public Policies and Intervention Strategies. In *Needle Sharing among Intravenous Drug Abusers: National and International Perspectives*, edited by R.J. Battjes and R.W. Pickens, 28–39. Rockville, Md.: National Institute on Drug Abuse.

Friedman, S.R., and S. Aral. 2001. Social Networks, Risk-Potential Networks, Health, and Disease. *Journal of Urban Health* 78:411–8.

Friedman, S.R., B. Jose, S. Deren, D.C. Des Jarlais, and A. Neaigus. 1995. Risk Factors for Human Immunodeficiency Virus Seroconversion among Out-of-Treatment Drug Injectors in High and Low Seroprevalence Cities. The National AIDS Research Consortium. *American Journal of Epidemiology* 142:864–74.

Friedman, S.R., B.J. Kottiri, A. Neaigus, R. Curtis, S.H. Vermund, and D.C. Des Jarlais. 2000. Network-Related Mechanisms May Help Explain Long-Term HIV-1 Seroprevalence Levels That Remain High but Do Not Approach Population-Group Saturation. *American Journal of Epidemiology* 152:913–22.

Friedman, S.R., A. Neaigus, B. Jose, R. Curtis, M. Goldstein, G. Ildefonso, R.B. Rothenberg, and D.C. Des Jarlais. 1997. Sociometric Risk Networks and Risk for HIV Infection. *American Journal of Public Health* 87:1289–96.

Friedman, S.R., T. Perlis, and D.C. Des Jarlais. 2001. Laws Prohibiting Over-the-Counter Syringe Sales to Injection Drug Users: Relations to Population Density, HIV Prevalence, and HIV Incidence. *American Journal of Public Health* 91:791–3.

Friedman, S.R., M. Southwell, R. Bueno, D. Paone, J. Byrne, and N. Crofts. 2001. Harm Reduction—A Historical View from the Left. *International Journal of Drug Policy* 12:3–14.

Galea, S., and D. Vlahov. 2002. Social Determinants and the Health of Drug Users: Socioeconomic Status, Homelessness, and Incarceration. *Public Health Reports* 117:S135–45.

Gleghorn, A.A., T.S. Jones, M.C. Doherty, D. Celentano, and D. Vlahov. 1995. Acquisition and Use of Needles and Syringes by Injecting Drug Users in Baltimore, Maryland. *Journal of Acquired Immune Deficiency Syndromes* 10:97–103.

Goldstein, S.T., M.J. Alter, I.T. Williams, L.A. Moyer, F.N. Judson, K. Mottram, M. Fleenor, P.L. Ryder, and H.S. Margolis. 2002. Incidence and Risk Factors for Acute Hepatitis B in the United States, 1982–1998: Implications for Vaccination Programs. *Journal of Infectious Diseases* 185:713–9.

Gostin, L.O. 2000. *Public Health Law: Power, Duty, Restraint*. Berkeley: University of California Press, and New York: Milbank Memorial Fund.

Grange, J.M., and A. Zumla. 2002. The Global Emergency of Tuberculosis: What Is the Cause? *Journal of the Royal Society of Health* 122:78–81.

Grund, J.-P.C. 2001. A Candle Lit from Both Ends: The Epidemic of HIV Infection in Central and Eastern Europe. In *HIV and AIDS: International Perspectives*, edited by K. McElrath, 41–67. Westport, Conn.: Greenwood Press.

Grund, J.-P.C., D.D. Heckathorn, R.S. Broadhead, and D. Anthony. 1995. In Eastern Connecticut, IDUs Purchase Syringes from Pharmacies but Don't Carry Syringes [letter]. *Journal of Acquired Immune Deficiency Syndromes* 10:104–5.

Grund, J.-P.C., L.S. Stern, C.D. Kaplan, N.F. Adriaans, and E. Drucker. 1992. Drug Use Contexts and HIV-Consequences: The Effect of Drug Policy on Patterns of Everyday Drug Use in Rotterdam and the Bronx. *British Journal of Addiction* 87:381–92.

Gusfield, J.R. 1963. *Symbolic Crusade: Status Politics and the American Temperance Movement*. Urbana: University of Illinois Press.

Hammett, T.M., M.P. Harmon, and W. Rhodes. 2002. The Burden of Infectious Disease among Inmates of and Releasees from US Correctional Facilities, 1997. *American Journal of Public Health* 92:1789–94.

Harcourt, B.E. 1998. Reflecting on the Subject: A Critique of the Social Influence Conception of Deterrence, the Broken Windows Theory, and Order-Maintenance Policing New York Style. *Michigan Law Review* 97:291–387.

Hartsock, P.I. 1995. The Availability of Disposable Syringes in Russia. *American Journal of Public Health* 85:1586.

Heimer, R., R.N. Bluthenthal, M. Singer, and K. Khoshnood. 1996. Structural Impediments to Operational Syringe-Exchange Programs. *AIDS and Public Policy Journal* 11:169–84.

Heimer, R., S. Bray, S. Burris, K. Khoshnood, and K.M. Blankenship. 2002. Structural Interventions to Improve Opiate Maintenance. *International Journal of Drug Policy* 13:103–11.

Holden, C. 1999. Stalking a Killer in Russia's Prisons. *Science* 286:1670.

Holmberg, L. 2000. Discretionary Leniency and Typological Guilt: Results from a Danish Study of Police Discretion. *Journal of Scandinavian Studies in Criminology & Crime Prevention* 1:179–94.

Human Rights Watch. 2003a. *Abusing the User: Police Misconduct, Harm Reduction and HIV/AIDS in Vancouver* (vol. 15, no. 2[B]). New York.

Human Rights Watch. 2003b. *Fanning the Flames: How Human Rights Abuses Are Fueling the AIDS Epidemic in Kazakhstan* (vol. 15, no. 3[D]). New York.

Human Rights Watch. 2003c. *Injecting Reason: Human Rights and HIV Prevention for Injection Drug Users* (vol. 15, no. 2[G]). New York.

Human Rights Watch. 2003d. *Locked Doors: The Human Rights of People Living with HIV/AIDS in China* (vol. 14, no. 7[C]). New York.

Iguchi, M.Y., J.A. London, N.G. Forge, L. Hickman, T. Fain, and K. Riehman. 2002. Elements of Well-Being Affected by Criminalizing the Drug User. *Public Health Reports* 117:S146–50.

International Harm Reduction Development Program. 2003. *Unintended Consequences: Drug Policies Fuel the HIV Epidemic in Russia and Ukraine*: Open Society Institute.

Johnston, L., and C. Shearing. 2003. *Governing Security: Explorations in Policing and Justice*. London: Routledge.

Jose, B., S.R. Friedman, A. Neaigus, R. Curtis, J.P. Grund, M.F. Goldstein, T.P. Ward, and D.C. Des Jarlais. 1993. Syringe-Mediated Drug-Sharing (Backloading): A New Risk Factor for HIV among Injecting Drug Users. *AIDS* 7:1653–60.

Jurgens, R. 2001. High-Risk Behaviour in Penal Institutions. In *HIV in Prisons: A Reader with Particular Relevance to the Newly Independent States*, edited by WHO Regional Office for Europe. Geneva: WHO.

Kaufman, J., and J. Jing. 2002. China and AIDS—The Time to Act Is Now. *Science* 296:2339–40.

Kawachi, I. 2000. Income Inequality and Health. In *Social Epidemiology*, edited by I. Kawachi and L. Berkman, 76–94. New York: Oxford University Press.

Koester, S. 1994. Copping, Running, and Paraphernalia Laws: Contextual and Needle Risk Behavior among Injection Drug Users in Denver. *Human Organization* 53:287–95.

Kothari, G., J. Marsden, and J. Strang. 2002. Opportunities and Obstacles for Effective Treatment of Drug Misusers in the Criminal Justice System in England and Wales. *British Journal of Criminology* 42:412–32.

Kottiri, B.J., S.R. Friedman, A. Neaigus, R. Curtis, and D.C. Des Jarlais. 2002. Risk Networks and Racial/Ethnic Differences in the Prevalence of HIV Infection among Injection Drug Users. *Journal of Acquired Immune Deficiency Syndromes* 30:95–104.

Krieger, N. 2000. Discrimination and Health. In *Social Epidemiology*, edited by L. Berkman and I. Kawachi, 36–75. New York: Oxford University Press.

Lansky, A., J.S. Lehman, J. Gatwood, F. Hecht, and P. Fleming. 2002. Changes in HIV Testing after Implementation of Name-Based HIV Case Surveillance in New Mexico. *American Journal of Public Health* 92:1757.

Latkin, C.A., V. Forman, A. Knowlton, and S. Sherman. 2003. Norms, Social Networks, and HIV-Related Risk Behaviors among Urban Disadvantaged Drug Users. *Social Science & Medicine* 56:465–76.

Latkin, C., W. Mandell, D. Vlahov, M. Oziemkowska, and D. Celentano. 1996. People and Places: Behavioral Settings and Personal Network Characteristics as Correlates of Needle Sharing. *Journal of Acquired Immune Deficiency Syndromes & Human Retrovirology* 13:273–80.

Link, B.G., and J.C. Phelan. 1995. Social Conditions as Fundamental Causes of Disease. *Journal of Health & Social Behavior*, special no.:80–94.

Link, B.G., and J.C. Phelan. 2002. McKeown and the Idea That Social Conditions Are Fundamental Causes of Disease. *American Journal of Public Health* 92:730–2.

Lovell, A.M. 2002. Risking Risk: The Influence of Types of Capital and Social Networks on the Injection Practices of Drug Users. *Social Science & Medicine* 55:803–21.

Maher, L., and D. Dixon. 1999. Policing and Public Health: Law Enforcement and Harm Minimisation in a Street-Level Drug Market. *British Journal of Criminology* 39:488–511.

Manning, P.K. 1977. *Police Work: The Social Organization of Policing*. Cambridge, Mass.: MIT Press.

Marks, G., S. Burris, and T.A. Peterman. 1999. Reducing Sexual Transmission of HIV from Those Who Know They Are Infected: The Need for Personal and Collective Responsibility. *AIDS* 13:297–306.

Marmot, M. 2000. Multilevel Approaches to Understanding Social Determinants. In *Social Epidemiology*, edited by L. Berkman and I. Kawachi, 349–67. New York: Oxford University Press.

McCoy, C.B., L.R. Metsch, D.D. Chitwood, P. Shapshak, and S.T. Comerford. 1998. Parenteral Transmission of HIV among Injection Drug Users: Assessing the Frequency of Multiperson Use of Needles, Syringes, Cookers, Cotton, and Water. *Journal of Acquired Immune Deficiency Syndromes & Human Retrovirology* 18 (suppl. 1):S25–9.

Metzger, D., G. Woody, D. De Philippis, A.T. McLellan, C.P. O'Brien, and J.J. Platt. 1991. Risk Factors for Needle Sharing among Methadone-Treated Patients. *American Journal of Psychiatry* 148:636–40.

Midford, R., J. Acres, S. Lenton, W. Loxley, and K. Boots. 2002. Cops, Drugs and the Community: Establishing Consultative Harm

Reduction Structures in Two Western Australian Locations. *International Journal of Drug Policy* 13:181–8.

Mikhailov, A.G. 2003. Moscow State Drug Control Committee of Russia Statement Against Harm Reduction. Moscow: Moscow State Drug Control Committee of Russia.

Muntaner, C., and J. Lynch. 1999. Income Inequality, Social Cohesion, and Class Relations: A Critique of Wilkinson's Neo-Durkheimian Research Program. *International Journal of Health Services* 29:59–81.

Neaigus, A., M. Miller, S.R. Friedman, D.L. Hagen, S.J. Sifaneck, G. Ildefonso, and D.C. Des Jarlais. 2001. Potential Risk Factors for the Transition to Injecting among Non-Injecting Heroin Users: A Comparison of Former Injectors and Never Injectors. *Addiction* 96:847–60.

Needle, R.H., S. Coyle, H. Cesari, R. Trotter, M. Clatts, S. Koester, L. Price, E. McLellan, A. Finlinson, R.N. Bluthenthal, T. Pierce, J. Johnson, T.S. Jones, and M. Williams. 1998. HIV Risk Behaviors Associated with the Injection Process: Multiperson Use of Drug Injection Equipment and Paraphernalia in Injection Drug User Networks. *Substance Use & Misuse* 33:2403–23.

Oberweis, T., and M. Musheno. 1999. Policing Identities: Cop Decision Making and the Constitution of Citizens. *Law & Social Inquiry* 24:897–923.

Open Society Institute. 2001. Directory: Harm Reduction Programs in Eastern Europe and the Former Soviet Union. Available at http://www.soros.org/harm-reduction/resourceguide/text/IHRD7.html (accessed November 25, 2002).

Oppenheimer, G., R. Bayer, and J. Colgrove. 2002. Health and Human Rights: Old Wine in New Bottles? *Journal of Law, Medicine & Ethics* 30:522–32.

Ouellet, L., D. Jiminez, and W.A.W. Johnson. 1991. Shooting Galleries and HIV Disease: Variations in Places for Injecting Drugs. *Crime and Delinquency* 37:64–85.

Paone, D., J. Clark, Q. Shi, D. Purchase, and D.C. Des Jarlais. 1999. Syringe Exchange in the United States, 1996: A National Profile. *American Journal of Public Health* 89:43–6.

Percy, S.L. 1989. *Disability, Civil Rights, and Public Policy: The Politics of Implementation*. Tuscaloosa: University of Alabama Press.

Potterat, J.J., R.B. Rothenberg, and S.Q. Muth. 1999. Network Structural Dynamics and Infectious Disease Propagation. *International Journal of STD & AIDS* 10:182–5.

Putnam, R.D. 2000. *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.

Rhodes, T. 2002. The "Risk Environment": A Framework for Understanding and Reducing Drug-Related Harm. *International Journal of Drug Policy* 13:85–94.

Rhodes, T., A. Ball, G.V. Stimson, Y. Kobyshcha, C. Fitch, V. Pokrovsky, M. Bezruchenko-Novachuk, D. Burrows, A. Renton, and L. Andrushchak. 1999. HIV Infection Associated with Drug Injecting in the Newly Independent States, Eastern Europe: The Social and Economic Context of Epidemics. *Addiction* 94:1323–36.

Rhodes, T., L. Mikhailova, A. Sarang, A. Rylkov, C. Lowndes, M. Khutorskoy, L. Platt, D. Burrows, C. Fitch, and A. Renton. 2002. Situational Factors Influencing Drug Injecting, Risk Reduction and Syringe Exchange in Togliatti City, Russian Federation: A Qualitative Study of Micro Risk Environment. *Social Science and Medicine* 57:39–54.

Rhodes, T., G.V. Stimson, N. Crofts, A. Ball, K. Dehne, and L. Khodakevich. 1999. Drug Injecting, Rapid HIV Spread, and the "Risk Environment": Implications for Assessment and Response. *AIDS* 13 (suppl. A):S259–69.

Rhodes, T., G.V. Stimson, C. Fitch, A. Ball, and A. Renton. 1999. Rapid Assessment, Injecting Drug Use, and Public Health. *Lancet* 354:65–8.

Rich, J.D., and C.K. Foisie. 2000. High Street Prices of Syringes Correlate with Strict Syringe Possession Laws. *American Journal of Drug & Alcohol Abuse* 26:481–7.

Roe v. City of New York. 2002. 31599522 (S.D. N.Y. 2002).

Rosen, G. 1993. *A History of Public Health*. Baltimore: Johns Hopkins University Press.

Ross, T. 2002. Using and Dealing on Calle 19: A High Risk Street Community in Central Bogota. *International Journal of Drug Policy* 13:45–56.

Rothenberg, R.B., D.M. Long, C.E. Sterk, A. Pach, J.J. Potterat, S. Muth, J.A. Baldwin, and R.T. Trotter III. 2000. The Atlanta Urban Networks Study: A Blueprint for Endemic Transmission. *AIDS* 14:2191–2200.

Rothenberg, R.B., J.J. Potterat, D.E. Woodhouse, S.Q. Muth, W.W. Darrow, and A.S. Klovdahl. 1998. Social Network Dynamics and HIV Transmission. *AIDS* 12:1529–36.

Rotily, M., C. Weilandt, S.M. Bird, K. Kall, H.J. Van Haastrecht, E. Iandolo, and S. Rousseau. 2001. Surveillance of HIV Infection and Related Risk Behaviour in European Prisons. A Multicentre Pilot Study. *European Journal of Public Health* 11:243–50.

Sampson, R., and J. Morenoff. 2000. Public Health and Safety in Context: Lessons from Community-Level Theory on Social Capital. In

Promoting Health: Intervention Strategies from Social and Behavioral Research, edited by B. Smedley and S.L. Syme, 366–89. Washington, D.C.: National Academy Press.

Shearing, C., and R. Ericson. 1991. Culture as Figurative Action. *British Journal of Sociology* 42:482–506.

Sherman, S.G., and C.A. Latkin. 2002. Drug Users' Involvement in the Drug Economy: Implications for Harm Reduction and HIV Prevention Programs. *Journal of Urban Health* 79:266–77.

Sporer, K.A. 2003. Strategies for Preventing Heroin Overdose. *BMJ* 326:442–4.

Stern, V. 2001. Problems in Prisons Worldwide, with a Particular Focus on Russia. *Annals of the New York Academy of Sciences* 953:113–9.

Strathdee, S.A., D.M. Patrick, C.P. Archibald, M. Ofner, P.G. Cornelisse, M. Rekart, M.T. Schechter, and M.V. O'Shaughnessy. 1997. Social Determinants Predict Needle-Sharing Behaviour among Injection Drug Users in Vancouver, Canada. *Addiction* 92:1339–47.

Sumartojo, E. 2000. Structural Factors in HIV Prevention: Concepts, Examples, and Implications for Research. *AIDS* 14 (suppl. 1):S3–10.

Susser, M., and E. Susser. 1996. Choosing a Future for Epidemiology: II. From Black Box to Chinese Boxes and Eco-Epidemiology. *American Journal of Public Health* 86:674–7.

Taylor, A., D. Goldberg, J. Emslie, J. Wrench, L. Gruer, S. Cameron, J. Black, B. Davis, J. McGregor, and E. Follett. 1995. Outbreak of HIV Infection in a Scottish Prison. *BMJ* 310:289–92.

Thorpe, L.E., S.L. Bailey, D. Huo, E.R. Monterroso, and L.J. Ouellet. 2001. Injection-Related Risk Behaviors in Young Urban and Suburban Injection Drug Users in Chicago (1997–1999). *Journal of Acquired Immune Deficiency Syndromes & Human Retrovirology* 27: 71–8.

Tonry, M. 1995. *Malign Neglect: Race, Crime and Punishment in America*. New York: Oxford University Press.

Trebucq, A. 1999. Tuberculosis in Prisons. *Lancet* 353:2244–5.

Tyler, T.R. 1990. *Why People Obey the Law*. New Haven, Conn.: Yale University Press.

Uggen, C., and J. Manza. 2002. Democratic Contraction? Political Consequences of Felon Disenfranchisement in the United States. *American Sociological Review* 67:777–804.

UNAIDS. 2002. *Report on the Global HIV/AIDS Epidemic* (UNAIDS/02.26E). Geneva.

UNAIDS and World Health Organization. 2002. *AIDS Epidemic Update: 2002*. Geneva.

Waldorf, D., C. Reinarman, and S. Murphy. 1990. Needle Sharing, Shooting Galleries, and AIDS Risks among Intravenous Drug Users in San Francisco: Criminal Justice and Public Health Policy. *Criminal Justice Policy Review* 3:321–43.

WHO (World Health Organization) Regional Office for Europe. 2001. WHO guidelines on HIV Infection and AIDS in Prisons. In *HIV in Prisons: A Reader with Particular Relevance to the Newly Independent States*, edited by WHO Regional Office for Europe, 223-44. Copenhagen: WHO Regional Office for Europe.

Wilkinson, R.G. 1999. Income Inequality, Social Cohesion, and Health: Clarifying the Theory—A Reply to Muntaner and Lynch. *International Journal of Health Services* 29:525–43.

Wilson, J.Q., and G.L. Kelling. 1982. The Police and Neighborhood Safety: Broken Windows. *Atlantic Monthly* 249(3): 29–38.

Wood, E., M.W. Tyndall, P.M. Spittal, K. Li, A.H. Anis, R.S. Hogg, J.S. Montaner, M.V. O'Shaughnessy, and M.T. Schechter. 2003. Impact of Supply Side Policies for Control of Illicit Drugs in the Face of the AIDS and Overdose Epidemics: Investigation of a Massive Heroin Seizure. *Canadian Medical Association Journal* 168:165–9.

Zhang, C.Y., R.G. Yang, X.S. Xia, S.Y. Qin, J.P. Dai, Z.B. Zhang, Z.Z. Peng, T. Wei, H. Liu, D.C. Pu, J.H. Luo, T. Takebe, and K.L. Ben. 2002. High Prevalence of HIV-1 and Hepatitis C Virus Coinfection among Injection Drug Users in the Southeastern Region of Yunnan, China. *Journal of Acquired Immune Deficiency Syndromes* 29:191–6.

Zule, W. 1992. Risk and Reciprocity: HIV and the Injection Drug User. *Journal of Psychoactive Drugs* 24:242–9.

Acknowledgments: The authors gratefully acknowledge the insights and advice of Sevgi O. Aral and T. Stephen Jones. Scott Burris's work on this article was supported by a grant from the Substance Abuse Policy Research Program of the Robert Wood Johnson Foundation. The opinions and recommendations presented here are solely those of the authors.