



Coming Full Circle

“Epidemiological Criminology”: Coming Full Circle

| Timothy A. Akers, PhD, and Mark M. Lanier, PhD

Members of the public health and criminal justice disciplines often work with marginalized populations: people at high risk of drug use, health problems, incarceration, and other difficulties. As these fields increasingly overlap, distinctions between them are blurred, as numerous research reports and funding trends document. However, explicit theoretical and methodological linkages between the 2 disciplines remain rare.

A new paradigm that links methods and statistical models of public health with those of their criminal justice counterparts is needed, as are increased linkages between epidemiological analogies, theories, and models and the corresponding tools of criminology. We outline disciplinary commonalities and distinctions, present policy examples that integrate similarities, and propose “epidemiological criminology” as a bridging framework. (*Am J Public Health*. 2009;99:397–402. doi:10.2105/AJPH.2008.139808)

FOR DECADES, THE SOCIAL

and behavioral sciences have held a dominant position, both theoretically and methodologically, in

explaining crime and criminal behavior. Their methods have guided and advanced the fields of criminology and criminal justice while expanding our understanding of crime and criminal behavior. However, what has been lacking across the many methodological and theoretical approaches in the study of criminology is interaction with another mature, robust, and evolving field of study with which criminologists can work in a dynamic process of synthesis—specifically, the science, theories, and methods of epidemiology. The methods and theories used by epidemiologists in tracking and studying disease processes have transcended the realm of traditional biomedical science and are now integral to diverse fields of study within the social and behavioral sciences.

Within the context of the criminological literature, the science of epidemiology and its methods and theories have received no more than a footnote in the study of criminal behavior. Much has been written regarding the psychological, sociological, and psychiatric dimensions of criminal behavior with respect to substance abuse, mental health, deviance, social control, violence, and many other theoretical issues and normative

constructs. However, deliberate practical and theoretical integration of epidemiology's precepts into the study of criminology from a behavioral and social science perspective, which would be required to articulate a science of epidemiological criminology, is lacking throughout the body of literature.

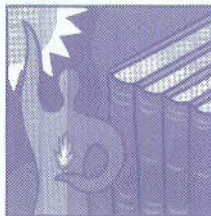
We postulate that although the term *epidemiological criminology* has not been directly published or discussed in any body of social and behavioral literature, researchers across the 2 broad sciences routinely integrate, yet never define, such interdisciplinary research into their theories and analyses of criminal and deviant behavior.

THE ORIGINS OF CRIMINOLOGY

The disciplines of science, technology, and medicine have long recognized the importance of technical and scientific integration in advancing our understanding of the world. During the Renaissance, the scientist, philosopher, artisan, engineer, physician, and musician were often one and the same person. This was the Age of Reason—when disciplines had no boundaries and specialization had few allies.

However, as the world became smaller through advances in communications, transportation, and industrialization, disciplines became more specialized. Scientists, including behavioral and social scientists, began looking within their disciplines to such a degree that few external methods and approaches were used in attempts to explain behavioral change or social deviance.¹ Disciplines such as epidemiology and sociology also began to specialize. Emile Durkheim established sociology as a distinct science by incorporating what we now commonly recognize as “public health factors” in a study of suicide.² Durkheim used factors such as religiosity, climate, and temperament to show that suicide rates varied depending on religion, country, season, and so forth, disproving the commonly held assumption that suicide is an individual act. More than any other, despite its unlikely subject, this study led to the creation of sociology as an academic discipline, because others emulated his methods and sociology became a distinct field of study.

In the public health domain, the field of social epidemiology of the mid-20th century grew out of awareness that societal characteristics affect the pattern of disease



and health in a society. The underlying question of social epidemiology is "What are the effects that social factors have on individual and population health?" This is the same question Durkheim posed in his 1864 treatise.²

Many early criminologists were actually pioneering epidemiologists who used community studies with cohort groups. For example, Robert Park, Ernest Burgess, Clifford Shaw, Henry McKay, and others of the Chicago School of Sociology were actually doing epidemiological community studies that used cohort groups and methodologies such as spots maps.³ Others such as Robert Merton applied variations of Durkheim's ideas to American society—Merton's version of anomie was unique to American society.

EVOLUTION OF CRIMINOLOGY

Around the turn of the 20th century, criminologists began leaving generalists' disciplines such as philosophy, psychology, and sociology and creating new, separate disciplines. This movement strengthened midway into the century, when criminologists and practitioners in the field of criminal justice began an aggressive move toward separating themselves from their root disciplines, primarily sociology.³ A significant motivator, though not the only one, came in the 1960s when the US government provided Law Enforcement Assistance Administration funds to establish academic programs in American universities with a criminal justice and criminological focus. This structural

intervention was meant to lead the social and behavioral sciences toward better understanding of social deviance. During this era, more than 600 new academic departments were formed in just 10 years as part of the 1968 Omnibus Crime Control and Safe Streets Act.³

Initially the leaders of these new programs were very defensive in protecting their "turf," or their evolving areas of expertise. They turned inward and rarely considered integrating with disciplines such as public health, in part because of the immaturity of their new field as a distinct discipline. However, there were some, such as Donald Cressey, who advocated the inclusion of epidemiology in criminological theory and research, as reflected in his 1960 article titled "Epidemiology and Individual Conduct: A Case From Criminology."⁴

Nearly 50 years later, criminal justice and criminology have achieved equal, if not superior, footing to that of their root disciplines. Sufficient maturity has been reached across these disciplinary domains to such extent that public health is no longer seen as a threat, but rather as an ally. It is out of this evolving awareness that we propose directly incorporating the science, theories, methods, and practices of epidemiology into our explanatory and predictive models of criminal behavior and events.

A NEW FRAMEWORK FOR CRIMINOLOGY AND PUBLIC HEALTH

In expanding our embrace of the new term *epidemiological*

criminology, we do not arbitrarily juxtapose the component terms. Epidemiology and criminology are each theoretical disciplines upon which fields of practical application are based. Criminology refers to the "systematic study of the nature, extent, cause, and control of law-breaking behavior" whereas criminal justice refers to the "crime control practices, philosophies, and policies used by police, courts and corrections."^{3(p4)} The relation of epidemiology to public health parallels the relation of criminology to criminal justice. Epidemiology is the study of factors affecting the health and illness of populations; it provides the foundation and logic for interventions made in the interest of public health and preventive medicine. As such, it is fundamental to public health research.⁵

The intersections between criminal justice and public health theories, methods, and approaches can help to explain the dynamic relations between these 2 fields of study. The criminal justice system defines criminal behavior; systems of public health define epidemiological disease processes. In what areas do crime and disease converge? These are questions that have yet to be answered, but whose answers will form the new perspective in which to advance the framework of epidemiological criminology.

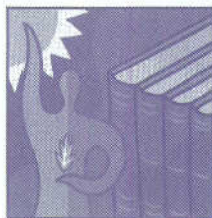
GROWING INTEGRATION OF CRIMINOLOGY AND EPIDEMIOLOGY

As the world's geopolitical, social, criminal justice, and health systems continue to change,

criminologists and epidemiologists must be ever more aware of how their interdisciplinary scientific models are changing, evolving, and integrating. Diverse entities now acknowledge the connections between crime and health variables. For example, the US Centers for Disease Control and Prevention (CDC) data sets now include crime statistics such as those from the Behavioral Risk Factor Surveillance System. The CDC began that study in 1994, stating,

The CDC Behavioral Surveillance Branch (BSB) is pleased to announce a data set [that] will allow users to compare health behaviors and outcomes. [These] variables include health care delivery information, health and vital statistics indicators, environmental measures, *crime statistics*, business indicators, and poverty/income figures [italics added].⁶

This integrationist trend is also reflected in policy initiatives such as the National Institutes of Health Roadmap Initiative, which focuses on new pathways to interdisciplinary discovery and encompasses not only the biomedical sciences but also their relation to the epidemiological, behavioral, and social sciences.⁷ As early as 1991, the US Surgeon General labeled violence a public health issue.⁸ In 2000, the Federal Bureau of Investigation published a white paper titled "A Medical Model for Community Policing" in which the community, referred to as a "healthy community" was recognized as analogous to a patient.⁹ This model was an effort to help cure "sick" crime-ridden communities by using community policing. In May 2002, the world's largest funder of biomedical and behavioral research,



the US National Institutes of Health, began to espouse interdisciplinary research methods, approaches, and teams.⁷ These and other seemingly unrelated events continued the momentum toward recognizing and fulfilling the need to more directly link epidemiology and criminology.

In short, the need for integration has not gone unnoticed. Epidemiological theories, principles, practices, methods, and models, increasingly, are directly and publicly acknowledged as related to—and important to—epistemological and etiological approaches to criminology as a discipline and science. Space precludes an extensive review of the literature of this new awareness, but the following short examples may indicate its outlines.

Injection Drug Users and HIV/AIDS

Burris et al.¹⁰ noted the public health harm caused by the criminal justice system, primarily through ineffective laws, misguided policy, and poor application at the “street” level. They make a forceful argument in several related areas. For instance, “criminal laws and enforcement practices can also influence IDU [injection drug user] risk by deterring public health agents from delivering preventive services.”^{10(p133)} After considering contemporary Russian and (we argue) American prisons and jails, they noted, “imprisonment itself is an important risk factor for disease.”^{10(p132)}

In fact, the criminal justice system itself may make health issues worse for many marginalized populations, both incarcerated

and nonincarcerated. Burris et al. stated that

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.^{10(p134)}

They summarized their argument as follows:

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. We contend that greater attention to and work with law enforcement should be a *public health priority* [italics added].^{10(p126)}

The pandemic of HIV/AIDS in correctional systems worldwide provides another example of an area in which criminal justice and public health intersect. HIV and AIDS have been examined by interdisciplinary teams combining public health, medicine, and criminology for more than 20 years.^{11–14} For example, Lanier and Gates critically analyzed the AIDS Risk Reduction Model, a popular public health theory based on the Health Belief Model, from a criminological framework.¹⁵ They found that rationally based theories such as the AIDS Risk Reduction Model do not always explain deviance or health-seeking behaviors.

Other texts have connected public health to criminal justice. Two books, *Prisons and AIDS*¹⁶ and *The Impact of HIV/AIDS on Criminology and Criminal Justice*,¹⁷ have linked public health with criminal justice, although theoretical and methodological integration and

discussion of the 2 disciplines have never been attempted. Historical texts have discussed the link between the mental and physical side of health and of criminology (see Foucault’s *Madness and Civilization*,¹⁸ *The Birth of the Clinic*,¹⁹ and *Discipline and Punishment*,²⁰ summaries of which are available in the works of Timmermans and Gabe²¹). Other authors have discussed the nature of ideology, natural rights, and definitions of crime.²²

Need for Discussion

Throughout these divergent bodies of literature, there has been continued direct, if not tacit, examination of the core challenges of both criminal justice and public health—specifically, the examination of those correlates to crime and to health disparities that tend to mirror one another (i.e., poverty, minority status, lack of education, family history, neighborhood characteristics, geography, other psychosocial indicators). These correlates—including the methods in which they were studied, strategies to prevent their transmission, the mechanism by which they harm people, and the individual and public health consequences—are often taken for granted by scholars, students, and practitioners who presume to understand their relationships (R. Langworthy, PhD, Department of Criminal Justice, University of Central Florida, oral communication, April 2008).

However, to date, no one in either the scientific or practitioner communities has explicitly linked the 2 disciplines etiologically, epistemologically, or phenomenologically.

This central unifying ideal has not been operationally defined in a comprehensive manner to allow serious contemplation, comparison, analysis, and integration from diverse theoretical perspectives, as good science demands. Contemporary practice is to discuss crime causation and health behaviors only from a particular ideological perspective, usually that of the particular domain, i.e., crime in criminal justice or health in public health. Consequently, we have already begun explicitly linking the 2 disciplines in our research and practice.^{3,23,24}

COMMONALITIES BETWEEN CRIMINOLOGY AND EPIDEMIOLOGY

Students of medical epidemiology, the biomedical sciences, environmental justice, medicine, public health, nursing, and many other environmental and health science fields have long examined criminal behavior within their own discipline-specific theories. Public health and criminal justice have shared similar theories, approaches, and lexicons of terms in their quest to describe and define various prevention approaches. As an example, public health prevention theories discuss primary, secondary, and tertiary interventions. Primary prevention is used to avoid a health care problem before it occurs, such as immunization or health education for protective behavior. Secondary prevention measures are those that treat asymptomatic persons who have already developed risk factors but in whom the condition is not yet apparent.²⁵ Tertiary



prevention involves dealing with a disease that has now entered the host person (or environment) by trying to minimize any negative effects while continuing to strengthen the higher-order functions to fight off any related complications.

These concepts are not new to the criminal justice field with respect to crime prevention; analogous to these public health prevention theories are crime prevention theories. Primary and secondary prevention in criminology are sometimes referred to as “root causes” or “opportunity reduction” theories of crime and prevention, respectively. Theories about the root causes of crime can range from illiteracy to cranial lesions that have been known to lead to deviant and criminal behavior.³ Some of the root causes of crime could be prevented by primarily targeting the vectors of the disease, such as street maintenance, broken windows, and abandoned or dilapidated buildings, all of which have led to disordered communities.^{26,27} These measures would be analogous to a public health practice of immunization.

On the other end of the crime prevention spectrum is opportunity reduction, which, for example, may refer to more locks and lights in homes and neighborhoods to reduce the risk of crime. In the context of public health, the use of protective barriers (e.g., the use of condoms or washing of the hands) can be employed to help prevent cross-contamination. For example, targeting at-risk youths or offenders directly may be another form of secondary prevention to help avoid a “superspread” of a

disease; from a criminological framework, such targeting could be an attempt to prevent a dramatic increase in gang membership. However, after a crime (or vector) has been committed (or entered the host), tertiary prevention measures, such as incarceration (or, in the context of public health, quarantine in a disease outbreak) or, for victims (or patients), programs that provide instruction on how to avoid becoming revictimized (or reinfected), can be put into action to prevent future occurrences or reduce the recidivism rate.

DIFFERENCES BETWEEN CRIMINOLOGY AND EPIDEMIOLOGY

The Association of American Colleges has identified “the need for new combinations of disciplinary knowledge and research methods to solve new and complex problems.”^{28(p1)} To fulfill this need, criminology could have a subdiscipline of epidemiology, or, conversely, epidemiology could have a subdiscipline of criminology, to help explain disease patterns and their linkage to the human condition. These subdisciplines should carry out the analyses of the biomedical, behavioral, structural, and environmental factors that can advance our understanding of criminal behavior.

Epidemiological models, methods, and theories that have taken into account disease patterns and distribution, causal linkages, methods of transmission, identification of hosts and vectors, and the like are useful because human population modeling

should not be limited to traditional interpretations of diseases from a biomedical framework. Such models have been used in the study of aberrant behavior, as in the case of drug abuse and trafficking, suicide, gang membership, intimate partner violence, sexual assault, bullying, and other behavioral and societal abnormalities.²⁹ However, the study of aberrant behaviors incorporates many traditional methodologies and theories that apply current statistical techniques and constructs in framing and interpreting the analysis.

In effect, by conceptualizing, for example, the study of violence as a disease, we can develop innovative models that advance our thinking about biomedical, behavioral, or structural interventions.^{29,30} Incorporating epidemiological perspectives and their various scientific frameworks into our analysis can lead to new inquiries and methods, perhaps including the use of key informants, focus groups, and other qualitative approaches to contextualize and help us understand our models. From a quantitative perspective, developing an epidemiological and biostatistical approach to criminology further strengthens and broadens (i.e., legitimizes) our population health modeling.

Conceptually, incorporating epidemiological methods and models can at times mean nothing more than understanding the lexicon of terms used across both disciplines. However, different disciplines may at times be studying the same issue through different lenses. Thus, the challenge becomes introducing the interdisciplinary student, practitioner, or

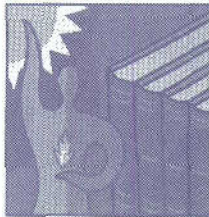
scientist to a commonality in approaches, methods, or techniques while clarifying distinctly different terminology.

COMING FULL CIRCLE

History shows that theories ebb and flow according to the zeitgeist, experiencing cycles of change and dominance in policies, practices, and social mores. Some theories have long dominated the disciplinary landscapes of both criminology and epidemiology, eventually taking a back seat to other new and emerging theories (e.g., from rehabilitation to punishment). Theories guiding “the war on poverty” and the “war on crime” in the 1960s differ from the theories guiding “the war on drugs” in the 1980s and the present-day “war on terrorism.” (It is disturbing to us that the “war” metaphor is the persistent rhetorical choice).

The opportunity now exists to draw a significant number of theories into a coherent framework that accommodates examining criminal and health behaviors in a consistent manner grounded in the same paradigms regardless of discipline. Now that criminology has reached maturity as an academic discipline, it can “come full circle” back to the academic public health roots first articulated by Durkheim.

The 21st century is embracing a new era of enlightenment that leads toward an interdisciplinary science of epidemiological criminology. Indeed, public health has itself taken steps toward addressing criminal justice and criminology issues. Consider the CDC’s efforts to thwart violence and



homicide; there is also an abundant literature documenting the adverse health effects perpetuated by the criminal justice system.³⁰⁻³⁵ In 2008, the American Public Health Association hosted "Epidemiological Criminology: A 21st Century Interdisciplinary Paradigm at the Crossroad,"²⁴ a panel of leading public health and criminal justice researchers invited to foster scientific debate. Likewise, criminal justice programs are embracing epidemiological criminology—a series of courses on Epidemiological Criminology is currently being taught to students in the College of Health and Public Affairs at the University of Central Florida, in Orlando.

Despite these first steps, much remains to be accomplished. We envision the field of epidemiological criminology as addressing a wide range of issues—essentially, anything that affects the health and well-being of a society. We advocate a closer relationship between criminology and epidemiology, resulting in the emergence, from either domain, of promising theories that will inform the other domain. We anticipate that methodological breakthroughs in one discipline will more quickly become available to the other, improving the quality of information used in decision-making and leading to healthier and safer communities. Finally, strengthening the theoretical integration of criminology and epidemiology will further the integration of public health and criminal justice practice by giving practitioners in both domains a common language and granting practitioners in each domain a heightened awareness of

the disciplinary demands of the other.

At the highest policy levels, "war" metaphors must be replaced with "health" metaphors. Policy-makers should rely more heavily on social science methodologies—such as crime mapping and medical geography—for legislative decision-making. The theory and research domains should more explicitly define methodological and programmatic linkages.

Greater understanding and accommodation are required between criminal justice practitioners and those working in public health. Emergency medical technicians and police, correctional staff and nurses, physicians and lawyers, and so on, will significantly benefit from greater interdisciplinary interaction by incorporating a greater understanding of the other field into their own. Epidemiological criminology provides the framework to help these disciplines to integrate. Individual researchers, theorists, students, and teachers are now tasked with developing specific linkages between the disciplines, identifying problems common to both domains, and providing solutions grounded in fully integrated theory and practice. ■

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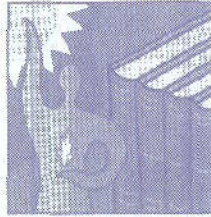
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Human Participant Protection

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Expanded Access to Naloxone: Options for Critical Response to the Epidemic of Opioid Overdose Mortality

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The United States is in the midst of a prolonged and growing epidemic of accidental and preventable deaths associated with overdoses of licit and illicit opioids. For more than 3 decades, naloxone has been used by emergency medical personnel to pharmacologically reverse overdoses. The peers or family members of overdose victims, however, are most often the actual first responders and are best positioned to intervene within an hour of the onset of overdose symptoms.

Data from recent pilot programs demonstrate that lay persons are consistently successful in safely administering naloxone and reversing opioid overdose. Current evidence supports the extensive scaleup of access to naloxone. We present advantages and limitations associated with a range of possible policy and program responses. (*Am J Public Health*. 2009;99:402–407. doi:10.2105/AJPH.2008.136937)

RAPID INCREASES IN DEATHS

from heroin-related overdose began in the 1990s, as average mortality per 100 000 population in 25 US cities increased from 8.7 in 1988 to 13.8 in 1997.¹

By 2004, poisoning was the second leading cause of death from unintentional injury in the United States.² Nearly all such deaths were attributed to illicit and prescription drugs,² fueled by a dramatic rise in the incidence of opioid-involved overdose, which paralleled similar increases in Denmark, Finland, Iceland, Norway, Sweden, Spain, Italy, Austria, Australia, England, and Wales.^{3–5}

Fatal overdose is the leading cause of death among those who misuse illicit drugs, exceeding mortality from AIDS, hepatitis, or homicide.⁶ In a 33-year longitudinal study in California, 581 opiate-dependent participants had experienced an average of 18.3 years of potential life lost before age 65,⁷ with heroin overdose

accounting for the largest proportionate mortality (22.3%). The years of potential life lost for this group was 6 times greater than in the general US population.

Although heroin-related overdose deaths have continued to rise, recently there has been an alarming increase in mortality from drug overdose associated with the misuse of prescription opioid analgesics. Data from the National Vital Statistics System indicate that the recent 62.5% increase in deaths from unintentional poisoning—from 12 186 in 1999 to 20 950 in 2004—was primarily attributable to increased misuse of prescription opioid analgesics.² According to mortality data on multiple causes of death from the National Center for Health Statistics, the number of opioid analgesic poisonings listed on death certificates increased 91.2% between 1999 and 2002; in the latter year, it accounted for 5528 deaths, more than those

associated with either heroin or cocaine.⁸

The current US epidemic of opioid-related overdoses is spreading geographically and demographically. Mortality from such overdoses is expanding from urban areas to suburban and rural regions, where overdoses are usually prescription related and general awareness and treatment services are relatively lacking.⁹ Likewise, overdose mortality is on the rise among non-Hispanic Whites, women, adolescents and young adults, and those with a history of chronic pain and depression.^{2,9–12} Methadone, oxycodone, hydrocodone, and fentanyl account for the vast majority of misused prescription opioids.^{10,13} Common sources include not only illicit dealers but friends, relatives, physicians, and emergency departments.¹¹ For instance, in a study in rural southwestern Virginia, about half of the women who died of opioid-related overdose had



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