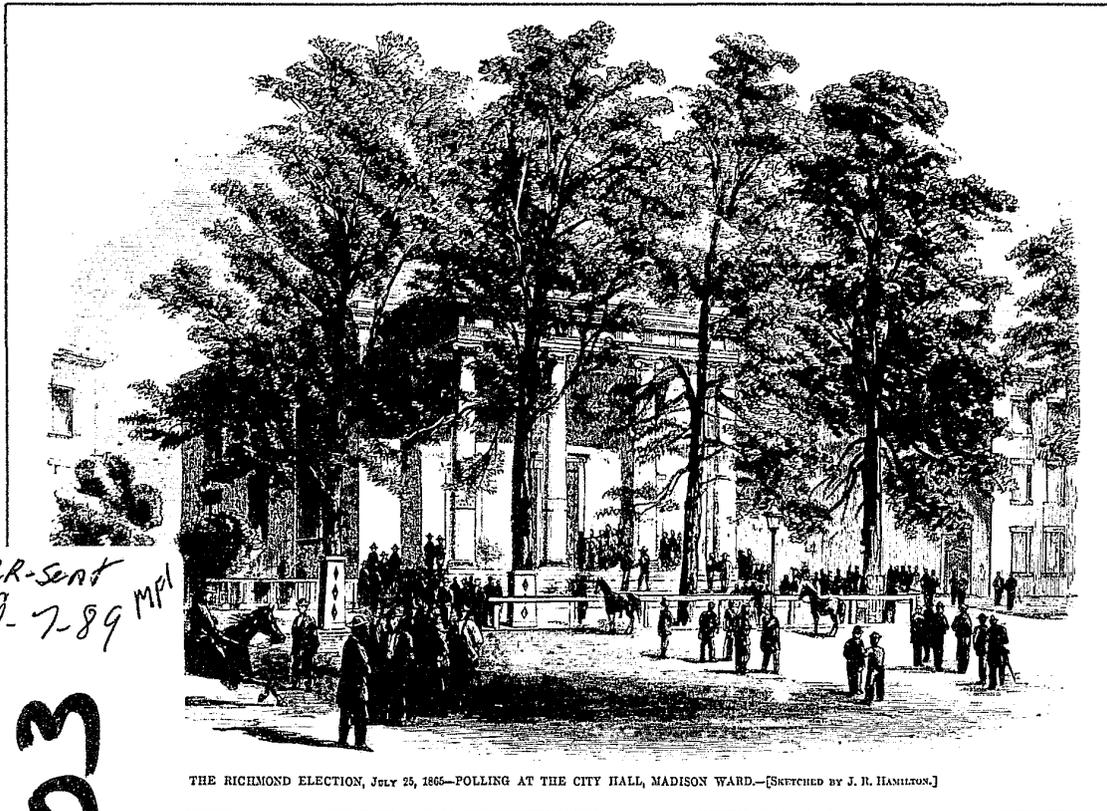


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AN EPIDEMIOLOGICAL  
MODEL FOR  
CRIME CONTROL

by

David J. Farmer and  
R. Michael McDonald

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## AN EPIDEMIOLOGICAL MODEL FOR CRIME CONTROL

by  
David J. Farmer  
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R. Michael McDonald

NCJRS

MAY 15 1989

ACQUISITIONS

## INTRODUCTION

This paper presents an epidemiological model for controlling crime, a model that will have special interest for those responsible for upgrading police and other law enforcement services. It describes an approach for reducing crime that is borrowed from medicine. Using the medical or epidemiological analogy has two clear advantages. Epidemiologists have faced problems essentially similar to crime control, and their approach has achieved remarkable results. The epidemiological analogy makes and further emphasizes the point that a new approach to policing, a "new form" of police agency, is needed (Farnier, 1984).

In pursuing the epidemiological analogy, one might ask, "How shall malaria be controlled?" One approach is clinical. It consists of the physician focusing on the needs of the individual patient. If the patient does not have the disease, the physician could advise the patient on how best to remain healthy; he or she could, among other things, prescribe this or that prophylactic (preventive measure). If the patient has the disease, the physician could call on the full resources of medical knowledge and skills to help the patient cope with the disease. Clearly, this patient-focused approach can be conceptualized in various ways, and some of the ways may be sounder than others. The physician who sees the patient as a potential or actual malaria *carrier* may be using a less effective conceptual framework than one who sees the patient as the possible *victim* of disease of all kinds. In the latter case, presumably the physician would diagnose, prescribe, and treat the patient better. Even more effective might be the physician who strives not merely to treat the patient for disease but also to assist in developing wellness in the patient. Regardless of the conceptualization chosen, the focus of the clinical approach is the same: it is the individual patient.

The epidemiological approach is a supplementary, or alternative, approach to coping with a disease like malaria. It differs from the clinical approach in that it does not focus on the individual patient. The center of analysis and action, in this approach, is the society or a subset of society. In other words, the physician adopts a public health approach to coping with the disease. He or she looks at such factors as the extent and character of the problem and the methods of spread followed by the disease, doing so to identify the cost-benefit characteristics of intervention opportunities. The epidemiological approach to the problem of malaria may not include treating patients. Rather, it may involve such non-patient focused activities as understanding the life history of the mosquito and attempting to eradicate the carrier of the disease.

This contrast in focus between the clinical and the epidemiological is not the only analogy available to administrators developing crime control policy. For

example, a similar parallel can be drawn from subjects like economics. Micro-economics examines the economic characteristics of the individual firm (micro-micro-economics goes further, studying these characteristics within the individual firm). By contrast, macro-economics examines the economic characteristics of the entire economy. We expect both kinds of examinations from the economist. Firms need to know about the forces and circumstances that will shape their economic decision-making. At another level, society needs to understand the options available for intervening in the operation of the overall economy.

There is no doubt that the bulk of criminal justice and police policy-making and administration has a clinical focus. Consider policing in an area like Midtown, New York. The principal interest of the police department is to respond to "a" robbery, "a" mugging, "a" rape. The main interest is not to cope with the "disease" that infests Midtown, the disease or underlying problem of which robbery, mugging, and rape may be seen as manifestations or symptoms. The principal interest of the prosecution responds to the volume of persons arrested for these various manifestations; in turn, the court does the same, and so does the correctional system. The sausage machine copes with the individuals fed into it by the policy agency, and so the machine is basically operating on a clinical basis.

Why is such emphasis placed on the clinical approach to crime control? The police emphasize the clinical approach for at least two major reasons. The volume and character of the crime problem is so large and horrendous that coping with the alligators is more than enough to do; it distracts attention from planning better approaches to clearing the swamp. The police also are not oriented to thinking in epidemiological terms. The history of policing in the United States is directed mainly at the individual incident, and society has established incentives for the police to focus on the individual case. For instance, the evaluation systems, the Uniform Crime Reports and the National Crime Surveys, are all directed toward individual incidents. Similar sets of reasons could be advanced for the other actors in the criminal justice system: prosecutors, courts, and correctional agencies.

What then is the problem? The difficulty is twofold. First, the relative investment of crime control effort (especially at the local level) in the epidemiological, as contrasted with the clinical, is puny. Most epidemiological approaches have been either non-operational or (as we will discuss later) non-genuine. We believe that the overwhelming bulk of criminal justice control activity should be epidemiological; the present situation is the reverse. Second, the character of the epidemiological approach needs development and clarification. It is not enough to say that the reactive approach must give way to an epidemiological approach that is concerned with a higher level of

analysis, with proclivity and with a concern for real problems rather than with symptoms. The criminal justice system needs to develop and discuss an articulated epidemiological model as a complement to the clinical approach.

### EPIDEMIOLOGICAL ANALYSIS

Mausner and Kramer (1985) define epidemiology as "the study of the distribution and determinants of diseases and injuries in human populations." Evolving from the observations of physicians early in this century--that it was often more effective to treat medical problems proactively at the larger community or population level rather than reactively at the individual or clinical level--epidemiological methods have grown considerably in complexity and technical sophistication. The underlying conceptual framework, however, has remained basically the same. That framework envisions disease, as well as the factors and conditions that culminate in personal injury, as evolving over time and through a series of increasingly severe stages. These stages include (1) susceptibility; (2) presymptomatic disease; and (3) clinical disease. It was the view of early epidemiologists that, in addition to the tertiary efforts commonly undertaken by clinical physicians, significantly greater levels of public health could be achieved through the administration of primary and secondary preventive efforts, respectively, at the susceptibility and presymptomatic stages (Mausner and Kramer, 1985).

Over the last 50 years, this expanded view has brought about many significant enhancements in both the length and quality of the human lifespan in this country. Examples of epidemiologically derived countermeasures that contributed to this positive development range from the now mandatory purification of drinking water and immunization against specified diseases, to the early identification and treatment of heart disease, diabetes, and other chronic conditions, to the prescription of therapeutic and rehabilitative treatments for those who have been injured or who suffer from serious but treatable conditions.

More recently, epidemiological methods have been applied, with considerable success, to guide the development of national highway safety policy within the United States. In 1966, the U. S. Congress passed two milestone pieces of legislation: the National Highway Safety Act of 1966 and the National Motor Vehicle Safety Act of 1966. These legislative acts were the result of congressional recognition that traffic crashes had reached an epidemic proportion. That same year over 53,000 persons died on American roadways, as traffic crashes maintained the status as the major cause of death for U. S. citizens through the age of 34 (National Safety Council, 1967).

The two Congressional acts were notable in several respects. First, they significantly elevated the level of national concern and response to the traffic crash problem. Second, they helped put in place a conceptual framework or model that offered an intellectually

attractive, systemic approach to problem analysis and program management. This second point was noted as being of particular importance by then Secretary of Transportation Boyd in his 1968 observation: "The problem isn't so much that we have been going in the wrong direction. The problem is that we have been going in all directions, and we've begun running into and falling over each other" (Baker, 1971).

### Haddon's Event Analysis Matrix

A key leader in the formulation of the new epidemiologically based national highway safety policy was William Haddon. Haddon served prominently during the early 1960s on many national committees and task forces, including the President's Committee for Traffic Safety. Benefiting from Gordon's 1949 landmark article, "The Epidemiology of Accidents," which contrasted the methods useful for the epidemiological analysis of accidents with those used by public health practitioners, Haddon pioneered the way for more and better research into the causes and methods for controlling accidents and for a more thoughtful, comprehensive approach to the formulation of national and local safety policies and practices.

Perhaps Haddon's most significant contribution was the "event analysis" or "Haddon matrix." The basic matrix design, which may be easily modified to fit a variety of situations and contexts, is included as Figure 1. In practice, the matrix has at least two levels of application. First, it offers a practical and effective framework to guide the conduct of in-depth case investigations. Its strength as an investigative tool is that it forces attention on the interaction that occurs between the several elements of the involved system before, during, and after the harmful energy exchange. Second, when data from a sample, or even a population, of negative events are loaded into the matrix, with appropriate questions asked, quite discernible "macro" patterns emerge.

		FACTORS		
		Human	Vehicle and Equipment	Environment
PHASES	Pre-Crash	1	4	7
	Crash	2	5	8
	Post-Crash	3	6	9
	Results=>			

Figure 1. Basic "Haddon matrix" for classification of factors in each of the three phases of interactions that frequently result in energy-damaged people and property [numbers assigned for descriptive purposes].

\*Figure 1 is reproduced from William Haddon, Jr., M.D., M. P. H., "A logical framework for categorizing highway safety phenomena and activity," *Journal of Trauma*, 1972, 12(3), 197.

By recognizing that the many factors and conditions interacting to produce accidents contain a severity component, as well as a causal component, Haddon's matrix added the powerful notion of "loss reduction" to the traditionally "prevention based" orientation of national safety policy makers. Enhanced by this model, national highway safety policy rapidly evolved during the late 1960s and through the mid 1970s. Federal minimum performance standards were developed, and grant funds were provided to address virtually all the cells within the matrix. For example, prevention oriented standards were promulgated to ensure that all young drivers were provided an opportunity to complete an accredited driver education program (cell 1); that each state operated an effective periodic motor vehicle safety inspection program (cell 4); and that state and local traffic engineers monitored and removed defects and conditions from the road environment known to cause traffic crashes (cell 7).

Among the many loss reduction countermeasures and standards implemented was the required use of safety glass and energy absorbing steering columns and materials in motor vehicles (cell 5); the widespread installation of break away signposts and other energy attenuating devices within the driving environment (cell 8); and the significant enhancement of emergency medical and police accident response services (cell 9).

In summary, the more holistic view of accident phenomena that the matrix provided state and national policy-makers significantly broadened and strengthened the array of prevention and loss reduction countermeasures implemented during the past 20 years. And, of particular relevance to this discussion of crime control, the ongoing application of epidemiological methods has had a profound and lasting effect on the culture and ecology of motor vehicle transportation within the United States.

### A CRIMINOGENIC EPIDEMIOLOGICAL MODEL

In the same way that epidemiological methods were adapted to improve motor vehicle safety in this country, similar efforts may prove fruitful in finding effective, socially acceptable ways to alter the ecology of crime. At present, we seem to be caught in a circular and reactive model that only tinkers with the problem but does not significantly alter the cycle or context that produces it. The approach suggested here may offer a first step toward the formulation of a more effective, macro-oriented model to guide crime control efforts.

Figure 2 outlines the "criminogenic contextual analysis matrix" we have developed to illustrate how such a shift to a macro-level view of community crime problems and solutions may be achieved. In keeping with sound epidemiological theory, the matrix envisions crime as an occurrence that involves

a "host," "agent," and the "environment" within which the host and agent interact. At the simplest level, the victim of a crime may be thought of as the host, with the criminal filling the role of the agent. Because epidemiological studies draw their useful inferences by analyzing the interactions among host, agent, and environment, the careful collection of detailed data regarding all three is critically important to any such study.

		PHASES			
		PRE-INTERACTION	INTERACTION	POST-INTERACTION	RESULTS
FACTORS	HOST *sub-host A *sub-host B *sub-host C *sub-host D *others	1	2	3	4
	AGENT *vector(s) *vehicle(s)	5	6	7	8
	ENVIRONMENT	9	10	11	12
	RESULTS =>	13	14	15	19
	COMMUNITY & GOVERNMENT MANAGEMENT	16	17	18	SUMMARY OF PROBLEMS AND SOLUTIONS
	"Why are these conditions allowed to exist?"				

Figure 2. "Criminogenic Contextual Analysis Matrix" for elevating crime control thinking and policy analysis from the clinical to the population level [numbers assigned for descriptive purposes].

The matrix also includes a time dimension divided into three parts. Although they are labeled "pre-interaction," "interaction," and "post-interaction," it may be helpful to replace the word "interaction" with the word "event." With that understanding, any event may be analyzed according to the interaction among the host, the agent, and their environment before, during, and after the specified event.

### Levels of Application

The contextual analysis matrix may be readily applied at two levels. First, the matrix may be a useful conceptual framework to guide the breadth and depth of investigations into serious crimes. The importance of collecting a comprehensive dataset on each serious criminal event that occurs within a community cannot be overstated. Although the scope of the data collection effort, specified by the matrix, may seem foreign and in some cases unnecessary, the direct field experience of numerous police investigators who have received training in similar (but clinically based) methods as accident reconstructionists testifies to the need for this rigorous front-end data collection. At the second, and more important level, the matrix may be used to structure and direct the thorough investigation of dysfunctional areas within the community. The significance of this level of application will become clear in subsequent sections of this paper.

### Host

In classic epidemiological studies, the host (see Figure 2) is typically defined as the organism or entity that is adversely affected. In our application, the host may take several forms. For example, in the clinical investigation of an isolated homicide or a group of homicides, the host would be the person or persons killed. But, we are concerned with developing a broader understanding of the criminogenic factors and conditions existing at the population level, so the community (i.e., identified problem area) assumes the role of host. Although a sizable proportion of the crime in a community may be randomly located (background crime), a sizable proportion is typically clustered into patterns of dysfunction associated with the unique ecology of a given problem area. So that these "sick" areas may be identified and professionally treated, detailed epidemiologic knowledge must be accumulated about each. In contrast to the traditional clinical investigation of isolated crimes by the local police, following our epidemiologic approach, surveys must be conducted of the several groups of sub-hosts individually and collectively victimized by the area. Sub-hosts may be categorized into at least four groups: (1) those who currently interact with the area by choice on a day-to-day basis; (2) those who previously came to the area but now refuse to do so; (3) those who have knowledge of the area and, therefore, purposefully avoid entering it; and (4) those who live or work in the area and must interact with the area on an ongoing basis. When data from these victims are assembled with the data collected from clinical investigations conducted within the area, a significantly more powerful understanding of the area's problems and their effective resolution may be attained.

### Agent

In conducting an epidemiological study, the factors and conditions surrounding the interaction of the host and the environment are carefully evaluated with particular regard for their interaction with known or suspected agents (Figure 2). An agent is the entity or entities that carry or introduce the harm to the host. Agents are identified in one of two forms, vectors and vehicles, with the distinction being that vectors are living organisms and vehicles are inanimate objects. In the public health context, the anopheles mosquito that introduces the harmful parasite into the human bloodstream is a vector; a leaded pipe that leaches toxic lead into a drinking fountain is a vehicle. Vectors and vehicles, then, are both, in the truest sense, vehicles that transport some sort of harm.

In our criminological application of epidemiology, vectors are the individuals or groups of individuals encountered by the sub-hosts during their interaction with or decision to interact with the problem area. They may be identified as patterns of behavior that

form the area's "dysfunctional ambience." That is, they actualize the hurt, repugnance and avoidance, economic loss, and fear that sub-hosts associate with the area. Examples might include the panhandling carried out by persons who are forced to live off the streets or a pattern (or perceived pattern) of physical assault or rape of those who enter the area. Vehicles, in our framework, are those inanimate objects, such as potentially dangerous building conditions, poor lighting and physical security, and other environmental conditions, that further contribute to the various levels of victimization and disaffection experienced by the sub-host groups.

### Environment

Environmental factors and conditions differ from vehicles (agents) in that they are not directly involved in, nor do they directly exacerbate, the victimization of a sub-host. Environmental factors, however, are present either before, during, or after each sub-host's interaction with the area. In other words, they are the physical, social, environmental, and governmental conditions and services that make up the area on a day-to-day basis. They represent the context within which hosts and agents interact and within which the dysfunctional character of the area is maintained.

### Management

At the community and governmental management level, the data collected through the observation surveys, clinical level police reports, and other sources are carefully analyzed and evaluated. The focus is not on individual victimizations but on the patterns of victimization, fear, and dysfunction that isolate the area within the larger community. Findings may take a variety of forms, including (a) row and column summaries (cells 4, 8, 12, 13, 14, 15) describing the most common forms of victimization and disenfranchisement associated with the area and the patterns or mechanisms through which those undesirable outcomes occur; (b) individual cell summaries (cells 1-11, excluding 4 and 8), which provide detailed information regarding the factors and conditions that most frequently lead up to or cause each type of negative outcome (cells 1, 5, 9); and (c) those that contribute to the severity of those undesirable events (cells 2, 3, 6, 7, 10, 11). As suggested by the matrix, the key question at this level of data collection and analysis is "Why are these conditions allowed to exist?" By maintaining this focus, community leaders are forced to examine the effectiveness of their efforts on real problems and to evaluate other, possibly more effective, prevention, loss reduction, and community empowerment oriented solutions.

Aside from the socioeconomic, environmental, and other complexities that make such undertakings difficult as well as expensive, the manner in which bureaucracies structure themselves to carry out their business frequently serves as a serious impediment to

the delivery of more effective services. It is at this level, community and governmental management, that innovative change must occur if crime control thinking and policy are to move to the macro level. Since innovative interventions, collaboratively designed by a host of community agencies and civic groups, may be necessary to mitigate a given problem area's dysfunctional aspects, possibilities abound for the police to assume a leadership role. It is at this juncture that the mission, methods, and procedures of the police must evolve and take the form of a more knowledge based, proactive profession.

### **APPLICATION OF THE APPROACH**

Epidemiological operational approaches to police policy-making and administration fall into two major categories. There are those varieties that are pseudo-epidemiological, and there are those that are genuinely epidemiological. Policing is replete with examples of the former; unfortunately, examples of the latter are scarce.

In a sense, it is not that there is sharp distinction between the pseudo and the genuine forms. The fact is that some pseudo approaches contain elements of the genuine form. A more important fact is that the genuine form, itself, admits of degrees of effectiveness, and it is believed that police agencies over the years can learn from the application of the genuine epidemiological approach so that the form of the approach itself is improved.

This section illustrates two epidemiological operational approaches, in two locations, one operating from a pseudo-epidemiological approach, the other from a genuine epidemiological approach. The former location has been renamed Waterloo Station; the latter has been renamed Victoria Station.

The varieties of pseudo-epidemiological operational approaches are characterized by five features: (1) an absence of fundamental society-altering goals; (2) an absence of adequate front-end epidemiologic data collection, analysis, and theory articulation; (3) an absence of an entrepreneurial reward penalty framework; (4) an absence of genuine community leadership and involvement; and (5) an absence of adequate institutional involvement. These features will become clearer as we discuss genuine epidemiological approaches. Although each is characterized by these features, at least three main types of pseudo-epidemiological approaches can be distinguished. These are the problem-functional, problem-area, and problem-crisis varieties. The problem-functional variety consists of those projects designed to address particular crime types, such as reducing the murder rate, or reducing street muggings. The problem-area variety includes those projects intended to reduce crime in a selected area, for example, a selected low-income area. The problem-crisis variety includes the projects aimed at coping with a crime crisis, such as reducing crack dealing or finding a serial murderer.

The most important subcategory of the pseudo-epidemiological approach is built into the organizational structure of the police agency. Examples of subcategories are an art theft unit, a bunko squad, or a stolen car detail. These, then, can contribute pseudo-epidemiological approaches that have significant institutional involvement.

A genuine epidemiological approach has those five characteristics that, as noted earlier, are lacking in the pseudo form:

(1) **Fundamental Society Altering Goals.** It is hard to draw the line between goals that alter and those that do not alter society. Some might claim, for example, that a radical reduction of the overall crime level in an area is society altering or that even apprehending a high-publicity serial murderer is society altering. But more than this is meant by the phrase "fundamental society altering goals." The phrase is intended to capture two notions. The first is that the changes sought are in the fundamental criminogenic conditions of an area, conditions that are built into the structure or functioning of the community. The conditions are the underlying arrangements that give rise to the various incidents of crime, disorder, and injustice. Examples of fundamental criminogenic conditions are the tendency of teens to form gangs, the proclivity toward carrying guns, the demand for crack. The second is that the changes sought are long- rather than short-term. That is, the effects of the society-altering intervention are intended to last much longer than the intervention itself.

(2) **Adequate Front-End Data Collection, Analysis, and Theory Articulation.** Initiating any but the smallest project in any bureaucracy requires planning and analysis. Thus, few police projects are preceded by no analysis whatsoever. This makes it more difficult to characterize a genuine epidemiological approach. But an essential feature of a genuine approach is that the action is knowledge based and analysis driven. To capture this idea, a genuine approach to a project is front-end theory articulated, speaking to the sophistication and subtlety of the project design.

(3) **Entrepreneurial Reward/Penalty Framework.** An entrepreneurial reward implies that the police policy-makers and administrators have something both to lose and to gain from the results of the project. A society that would fire a CEO of a private company for failing to make a profit is happy to require of its police executives merely that they maintain order. It does not require progress in maintaining order, that is, a profit. A genuine epidemiological project, difficult as it may be, would incorporate such a reward/penalty system. An example of such a system--a poor example because of the system's severe flaws--is the annual performance contract system utilized by the

U.S. government for its Senior Executive Service (Finkle, 1981). As part of this entrepreneurial framework, a new form of police agency is required.

**(4) Genuine Community Leadership and Involvement.** The key to policy-making and management involves three capacities, and one of the present writers has described how a "new form of police agency" is needed that has these characteristics (Farmer, 1984). The first is the capacity of personnel and systems to provide leadership to other public and private agencies in the cooperative development of realistic long- and short-term plans for sub-elements of the community and for the community as a whole. The second is the capacity for mobilizing and leading agencies and individuals in order to achieve order enhancement, with an emphasis on working not only directly but also indirectly through other social organizations. The third is the capacity for using results and new perspectives as much as possible in thinking about its "doing" activities, that is, the capacity for being creative (Farmer, 1984). The fact is that much community cooperation presently undertaken by police agencies is bogus. Much is as shallow as some neighborhood watch signs (programs in sign only) that deceive only the public, never the police or the criminals. The kind of cooperation that is needed with the public must be genuine.

**(5) Adequate Institutional Involvement.** A distinction may be drawn between macro-approaches that aim at institutionalization and those that are destined to remain special projects forever. Bureaucratic organizations tend to represent the fossilized priorities of the past; the new priorities, however, need to be incorporated within the organizational framework. A special project for a special area, for example, needs the support of institutional involvement. A genuine epidemiological approach will seek to modify bureaucratic behavior (e.g. the behavior of at least the host police agency) to achieve the macro ends that have been identified.

Let us illustrate the pseudo- and genuine epidemiological approaches by turning to two examples: Waterloo Station (a pseudo-epidemiological approach) and Victoria Station (a genuine epidemiological approach).

### **Waterloo Station**

In 1987 the VCU Institute for Research in Justice and Risk Administration conducted an evaluation of Waterloo Station, a project begun early in 1986 by a mid-sized eastern U. S. city to reduce the crime rate and improve the quality of life in certain inner city neighborhoods. Among the problems experienced in these neighborhoods were high crime, fear among residents, police insulation from the community, poor community cooperation with the police, high media

attention to the murder rate, and neighborhood instability. The goals of Waterloo Station were: to heighten the risk to criminals by enhancing investigative capabilities, to use saturation patrol to increase the risks of detection and apprehension for potential criminals, to secure community cooperation and participation in crime control and prevention, and to establish positive contact with youth and alter negative attitudes toward the police.

Such community-oriented policing projects have been undertaken in a variety of forms and in many jurisdictions in the past 20 years. Additional law enforcement personnel and city human resources personnel were focused on the target neighborhoods of Waterloo Station, and community service officers worked with juveniles to involve them in the Police Athletic League. The sincerity and enthusiasm of the officers were clear and moving. Results could be identified. For example, the number of arrests in the target areas increased, the level of crime was reduced in the neighborhoods, and there was much volunteer citizen activity. The evaluation study demonstrated, however, that the results from Waterloo Station were as marginal as is usually the case in such projects. The basic reason is that Waterloo Station used, and continues to use, a pseudo-epidemiological approach. It was defective on all five of the criteria discussed earlier:

**(1) It lacked fundamental society altering goals.** It is true that part of the program was directed at involving juveniles in the Police Athletic League, and other city agencies also began to work in the neighborhoods. These are society altering intentions. But a genuine epidemiological approach has a more fundamental society altering goal: It digs deeper.

**(2) Waterloo Station had no adequate front-end epidemiologic data collection, analysis, or theory articulation.** The planning was completed within 72 hours, and the commander was instructed to assemble his team within 48 hours. It is to the great credit of the project planners that they were, indeed, able to amass such a large planning document, complete with quantified goals and schedules. Unfortunately, the mountain of paper and intensity of purpose hid the lack of front-end theory articulation.

**(3) The project established no entrepreneurial reward/penalty framework police hierarchy.** In fact, for all but one of the ranking officers it may have been in their political interest for the project to fail. One of the ranking officers, the project planner, was heavily invested in the project, and he felt it necessary to allocate substantial resources to record keeping to justify the project. Thus, a major goal of the project became record keeping.

(4) **The project had only limited community leadership and involvement.** Council members, for example, adopted a hands-off policy and waited for developments, even though the evaluation report showed that many neighborhood residents strongly supported the project.

(5) **The project had inadequate institutional involvement.** The police chief was briefed on the existence of the project only toward the end of the 72 hour planning period. No sensible plans were made for involving existing units within the police department.

Good intentions, high hopes, good people all gone astray, because Waterloo Station came out of a pseudo-epidemiological approach.

### Victoria Station

This section reports on aspects of genuine epidemiological intervention being developed for Victoria Station. The plan is still in the process of development, and the intention is that at the appropriate point it will be implemented by the responsible jurisdiction. The following comments, therefore, should be interpreted in this light and should be understood as prescriptive.

Victoria Station is a high crime area. It presently takes the form of a decaying business district or strip, interspersed with bars, motorcycle gang hangouts, adult entertainment parlors, a variety of small businesses, and several residences and halfway houses for alcohol and drug dependent individuals. Immediately adjacent to Victoria Station is a large urban university, which both contributes to and is affected by Victoria Station's problems. Past responses by various units of the municipal police agency, as well as the university police, have been highly compartmentalized and non-integrated. Because the area is relatively small and is physically isolated within a larger and much healthier section of the city, it has served as an ongoing laboratory for the university's criminal justice students and faculty concerned with primary and secondary crime control interventions.

(1) **Fundamental society altering goals should be established.** At the outset, any coordinated effort that seeks to cure the problems of Victoria Station must first assume a macro-level view of the entire community and all its problems. Since the objective of the epidemiologic approach is not simply to reduce crime but to cure the underlying conditions that propagate crime and other forms of disaffection, the balance of the community cannot be ignored. Problems displaced clearly are not problems solved. While community leaders might look good in the media for a few weeks following a clinical response to one of Victoria Station's symptoms, the underlying disease

may eventually spread into adjoining, and increasingly larger, sections of the community. To avoid this outcome, community-wide commitment and a sufficiently broad perspective must be achieved.

Again, the question is how the epidemiologic approach differs from the methods in current use. And, again, the answer lies in the vastly differing philosophies that separate the reactive (micro-level) approach historically assumed by government leaders in combating community problems, and the highly proactive (macro-level) orientation of the epidemiological approach. One approach seeks to deal with problems, the other with negating the development and existence of those problems by changing the ecology that produces and supports them.

Although the sort of leadership necessary to achieve this cultural and philosophical change within the governmental and community contexts may be difficult to acquire, the local police seem the logical and best choice to assume that role. In addition to leading and directing the diagnostic work that must be done, the police could evolve a new bureaucratic structure to coordinate the efforts of other community agencies and the entire community to achieve the five characteristics of the true epidemiological approach. Attainment of this new role can at best be the result of a long and difficult evolutionary process.

In the case of Victoria Station, the police should take an active role in the creation of a "community development coordinating committee" to oversee the re-formulation and treatment efforts. The coordinating committee should consist of representatives from the area's several affected groups, agencies, and organizations, who are in a position to help resolve the area's problems, and others who hold strong political or civic interests in the betterment of Victoria Station.

### (2) **A need exists for front-end epidemiologic data collection, analysis, and theory articulation.**

Because the epidemiologic approach requires thoughtful, front-end assessment and planning, the collection of data about Victoria Station will be one of the most important tasks undertaken. If this were a public health concern, trained epidemiologists would move into the community to collect necessary data. In the example of the successful application of epidemiology to national highway safety policy, multidisciplinary teams were developed and extensively used. Those teams combined the expertise of the law enforcement, automotive and highway engineering, and medical and psychological professions to collect accurate, interpretable data about the ecology and dynamics surrounding motor vehicle crashes. In a similar fashion, a multidisciplinary team might also be assembled to study and collect data regarding Victoria Station. At the outset, the specially trained team, under the leadership and direction of the local police agency, might include individuals from the community's social service, public and mental health, and other agencies whose involvement would be

crucial during the later treatment phase of the undertaking. In addition to ensuring the collection of more and better data, this effort to involve these key agencies and groups from the outset directly addresses the requirement for genuine community leadership and involvement and for adequate institutional involvement.

Once assembled and properly trained, the interdisciplinary team's data collection efforts would commence. Since a major objective of the epidemiologic approach is to develop a more complete understanding of each victim's (i.e., sub-host groups') knowledge, feelings, understandings, and experiences regarding the dysfunctional nature of Victoria Station, as well as their recommendations for improving the area, each of the sub-host groups would be surveyed (see Figure 2). Included would be residents, workers, shop owners, motorists, and students and staff from the adjoining university, among others. In other words, a full cross-section of those contributing to the ecology of Victoria Station, say 50 or more from each of the affected sub-host groups, would be surveyed. The matrix derived interview/observation format of the surveys would focus on the factors, conditions, and particularly the interactions surrounding the nine major cells of the matrix (i.e., cells 1, 2, 3, 5, 6, 7, 9, 10, and 11). Additional data about the problems of Victoria Station would be collected through several sources, including clinical investigations made by the local police of various crimes and incidents occurring within the area and summaries of the types and levels of service delivered to the area by other government agencies and community organizations.

Once assembled, the data would be carefully analyzed and evaluated. Following is a listing of several of the more helpful reports that would be expected following this analysis:

(a) a summary describing the general ecology of the area, the various sub-hosts who are victimized, and a detailed summary of the full gamut of victimizations associated with Victoria Station, ranging from criminal violations to the fear, repugnance, avoidance, and economic damage generated by the area;

(b) a detailed summary of the agents (i.e., both vectors and vehicles) that actualize the various forms of victimization that occur within the area;

(c) a detailed summary of the environmental factors and conditions that surround and make routine these patterns of dysfunction, including data on the socio-economic level of the area, employment and school completion rates, and levels of government services provided to the area.

All these analytical reports and summaries would, of course, encompass the full three phases (pre-event,

event, post-event) of the host, agent, and environment interaction cycle. Again, a word of caution: There is often a tendency in many organizations to bypass the data collection and analysis stage and to jump to solutions. The penalties for bypassing this stage are severe, as evidenced by the historical ineffectiveness of various pseudo-epidemiological efforts at crime control. Unless this tendency is avoided, the development of a focused, macro-level countermeasure strategy that offers real hope for achieving lasting change will remain highly improbable.

Once the comprehensive dataset, outlined above, has been collected and analyzed, the next task is to formulate a sound theory to explain the recurring dysfunctions associated with Victoria Station. Without this carefully derived, logically based explanation, the community's efforts to restore the area, well intended though they may be, have little chance of success. The difficulty in carrying out this critical phase is not to be underestimated. Assuming that the police agency's leadership has been strong enough to ensure satisfactory completion of the data collection and analysis phase, then it will be confronted with a second major obstacle--beyond the tendency to jump to solutions. That obstacle is the inertia and rigidity of the bureaucracy. Most bureaucratic agencies received their initial charge and functional assignments at some remote point in their past, and they seem, almost unfailingly, to cling to those time honored traditions and bureaucratic rituals without the benefit of periodic, critical reevaluation. To realize fully the potential of the epidemiological method for crime control, however, this resistance to change must be overcome.

Once a sound theoretical model has been developed to explain the existence of Victoria Station's dysfunctional characteristics and a general framework of principles drawn to guide the intervention process, it will then become imperative for the coordinating committee to learn to "brainstorm" and to explore a variety of options and possible solutions--before acting on any one of them. In addition to broadening and deepening their perspective, this process will help avoid the victim mentality where potentially effective solutions are bypassed, because they fly in the face of traditional service delivery methods, or simply contradict "the way things are done in our agency." For the police administration, which has assumed the leadership role, and for the members of the coordinating committee, structural functionalism should be the rule; the manner in which the bureaucracy structures itself to respond to the problems and needs of Victoria Station should be defined and guided according to the best possible solutions to those problems and needs.

**(3) An entrepreneurial reward/penalty framework must be tailored to fit the local situation.** Two measures seem appropriate in the case of Victoria Station, although they might be considered uncreative

in a less conservative community. The first is to hire certain analysts with the capability of assisting in gathering and analyzing the data. The second is to offer the police chief a financial bonus for achieving selected and specified goals in Victoria Station.

(4) **Effective community leadership and support is essential.** Although not achieved in the truest epidemiological sense, an ad hoc community coalition did evolve out of concern for the problems inherent in the Victoria Station area. The group, however, was not created through the leadership efforts of the local police, or any other governmental unit, but by members of several sub-host groups who had been physically, mentally, emotionally, and economically victimized by the area. This community action group's efforts were directed, in particular, at a bar in the area that featured exotic dancing and that, they felt, seriously worsened the character of Victoria Station by attracting drunks, drug addicts, and gamblers. Their solution was to repeatedly contact the local police and prosecuting attorney and demand that the bar be closed. In response to civic pressure, the police visited the bar on several occasions and were able to charge the bar with five violations of the state's Alcoholic Beverage Control laws. Although short-lived, this citizen-initiated effort did result in the bar being closed for 20 days and the owner having to pay a moderate fine.

(5) **Adequate institutional involvement is required.** Since a full epidemiological analysis of Victoria Station has not been completed, it is difficult to speculate about possible solutions to the area's problems. It is certain, however, that the success of any comprehensive effort to clean up the area will be doomed without the combined, active involvement of the local government's various service agencies. At a minimum, the following agencies will be needed to flesh out the current understanding of the area's problems and to help design and implement the coordinating committee's theory based solutions to those problems. Among those agencies are welfare and social services, building inspection, planning and economic development, traffic engineering and public works, and housing and sanitation. Key to this entire enterprise is balanced economic redevelopment. Since the intent of this epidemiologically-based intervention is not to displace the problems of Victoria Station to other areas of the community, a thoughtfully developed package of incentives to change, which are both attractive and beneficial to local residents, must be developed and carefully administered. With careful deliberation, coordination of services, and follow-through, Victoria Station may once again become a healthy and attractive segment of the community.

## CONCLUSION

The clinical approach to police policy-making and management is necessary but, by itself, is insufficient. Needed also is the epidemiological or macro approach. In other words, the real need is not for the pseudo-epidemiological approach characterized here in the case of Waterloo Station; rather, it is for the approach exemplified in the case of Victoria Station. Police policy-makers and administrators can apply the epidemiological approach, which has proven effective in public health and in national traffic safety policy. Such a genuine epidemiological approach must feature the five critical characteristics: fundamental society-altering goals; adequate front-end theory articulation; entrepreneurial reward/penalty framework; genuine community leadership and involvement; and adequate institutional involvement.

A feature of the genuine epidemiological approach is that it is well suited to community oriented policing. Neighborhoods and communities have life histories, just like individuals. Some are very sick and grow weaker, others are healthy, and so on. A working hypothesis is that crime and disorder are manifestations of the degree of health of the community. The macro or epidemiological approach can be used to treat neighborhoods.

The existing form of police agency has had limited success in coping with the clinical criminogenic needs of society. Success with the epidemiological approach cannot be expected without a new form of police agency.

As a next step in this work, the characteristics of the epidemiological approach should be further refined and developed in several locations. Systematic experimentation, along the lines suggested by Alice Rivlin in 1972 for government in general, is needed to expand understanding of the genuine epidemiological approach in police policy-making and management. We must turn to this form of experimentation in policing.

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