
INTRODUCTION: ANALYSIS FOR CRIME PREVENTION

by

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The collected papers in this volume address analysis for crime prevention. Analysis *for* crime prevention differs from analysis *of* crime prevention. Analysis *of* crime prevention stands back from and comments on what has been and is being done to try to prevent crime. It may be concerned with effectiveness as part of a broad agenda of social reform, but is not concerned directly to inform efforts to identify and deal with specific crime threats at specific times and places (see, for example, Crawford, 1997, Gilling, 1997, Garland, 2001, and Hughes, 1998). Analysis *for* crime prevention is oriented directly to the formulation of preventive strategies. It does so in three ways. First, it identifies concentrations of either crime as a whole or single offences where there is a potential yield from preventive efforts. Second, it helps find the most efficient, effective and, perhaps, equitable means of prevention. Third, it can help forecast likely future crime problems with a view to developing preemptive strategies (Rogerson et al., 2000; Pease, 1997).

All the chapters included in this collection aim in one way or another to improve the conduct and use of analysis for crime prevention. Some are based in relatively "pure" research. Others turn on involvement in practical work. The relationship between research and practice is by no means straightforward, as various of the following chapters indicate. The application of established research findings in new settings is often highly problematic. Moreover, general patterns and their explanation have often emerged from scientific work attempting to target specific practical problems — "pure" research has not always come first in crime prevention or, for that matter, as we shall see in an exemplary case, in other fields either. The following sections introduce and set in context contributions to this volume, that identify general crime patterns, that apply research in practical

settings, that explore the appropriate use of past research, and that consider the relationship between research, policy and practice.

ANALYSING GENERAL PATTERNS

One contribution of generic analysis for crime prevention has been to identify characteristic problem patterns that might form the focus of preventive interventions.

Hot products have been shown to be those that are CRAVED (Concealable, Removable, Available, Valuable, Enjoyable and Disposable) (Clarke 1999), or those that have VIVA attributes (Value, Inertia, and Visibility of target to likely offender, alongside Accessibility to the offender) (Felson 1998). These features make objects especially vulnerable to theft. Think of cash, cars, jewelry, and small, light-weight, anonymous high-value electronic goods. Defining attributes that make products hot is to define their criminogenic potential. Anticipating what is likely to become hot helps concentrate efforts to incorporate preemptive design attributes (U.K. Department of Trade and Industry, 2000).

Hot places are those that attract criminals because of the rich crime pickings available there or which generate crime because of the numbers of targets and offenders drawn in because of where they are or what else goes on (Brantingham and Brantingham, 1995).

Notwithstanding the normality of occasional offending (Gabor 1994), hot offenders are those who are prolific, in some instances due to drug use and drug dependency (Johnson et al., 2000; Bennett et al., 2001).

Hot victims suffer crime repeatedly, either because particular offenders learn that they offer reasonable returns at reasonable effort and reasonable risk (Farrell et al., 1995), or because the victims have attributes that make them especially vulnerable (Spelman, 1995).

Crime surveys have identified those at particular risk of crime victimisation. For example it has been found in Britain that age, income, ethnicity and employment status of the head of household, number of security devices fitted, type of neighborhood, and household structure are associated with variations in vulnerability to domestic burglary (Kershaw et al., 2000; Budd, 1999). Other research literature has identified attributes of those most likely to become involved in committing crimes (Cashmore et al., 1999).

There is, thus, a substantial volume of research findings that can inform the targeting of preventive efforts, in terms of victims, products, places, and offenders. In this collection three chapters contribute to this literature. The first, by Farrell et al., takes forward methods of analysing patterns of repeat victimisation. The second, by

Groff and La Vigne, reviews ways in which geographical information systems (GIS) can be deployed to predict crime patterns, on the basis of which decisions about allocation of preventive efforts can be made. The third, by Townsley and Pease, helps identify those longer-term hot spots where a sustained preventive focus may have a substantial potential yield. These three chapters break new ground in developing methods that can be used in local analysis to inform preventive work.

A second contribution of generic analysis to crime prevention has been the identification of causal mechanisms generating and changing crime patterns. The manipulation of these mechanisms provides the means to reduce crime problems.

Clarke's analyses have clearly been seminal here. His study of changes in the toxicity of domestic gas supplies and suicide rates, with Mayhew, is a classic (Clarke and Mayhew, 1988). It opened the way to understanding how convenient opportunity could be crucial even to the most serious decisions we can make about our futures (or lack of them), and how its reduction could lead to substantial changes in behavioural patterns. Developments since then (notably Laycock 1985, 1997) have highlighted the importance of *perceived* opportunity. Clarke's classification of crime prevention techniques in the first and second editions of his collection of *Successful Case Studies* (Clarke 1992, 1997) reflects recognition that the active mechanism in prevention is often perceived opportunity. The headings "increased risk," "increased effort" and "decreased reward," are replaced, respectively, by "increased perceived risk," "increased perceived effort" and "decreased perceived reward."¹

In this collection, the contribution by Smith et al. develops further the notion that changed perceptions can comprise a crucial mechanism producing changed crime patterns associated with the introduction of crime prevention measures. The notion of "anticipatory benefit" captures the ways in which crime prevention programs can often begin to bite prior to implementation. The paper outlines mechanisms whereby this form of benefit diffusion may be generated.

APPLYING ANALYSIS IN PRACTICE

Particular efforts to reduce or forestall crime require bespoke analysis involving the identification and definition of problems, and determination of what might be done to address them. Reviews of problem-oriented policing on both sides of the Atlantic find this work generally to be done poorly (Scott, 2001; Read and Tilley, 2000). The pioneering Newport News project was distinctive in involving talented researchers (Eck and Spelman, 1987). In the absence of strong analytic capacity at problem level, there is more commonly a swift tran-

sition from presumed problem to presumed solution, followed, where there is any assessment, by selective use of data to show that the response has been successful.

A good starting point for local analysis will often be the sorts of crime patterns identified nationally. National crime surveys identify risk factors that face classes of victims; or products that are frequently stolen. Local analysts concerned with particular areas can draw on these to check whether the results are also found in their circumstances. In some cases variations are found. For example, though the elderly in Britain are a relatively low crime-risk-group (Kershaw et al., 2000), there are circumstances where this is not the case. In an analysis to inform burglary reduction work in an area of North Wales, elderly residents in sheltered accommodation were found to suffer more than twice the national domestic burglary rate (Curtin et al., 2001).

The chapter by Clarke and Goldstein in this volume shows what is involved in adopting an analytic approach in a local area to the definition of a problem, and the development of a strategy to deal with it. Clarke and Goldstein highlight the ways in which the contours of a practically addressable problem emerged only through sustained analysis, working alongside local police practitioners. Once a problem with some specific definable and modifiable commonality had been detected and measured, and its conditions specified, thinking about methods of dealing with it became much clearer. Yet the initial analysis was crucial, and the findings far from self-evident at the start. The presenting problem, theft from construction sites in Charlotte-Mecklenburg, was too loose to be open to targeted intervention. The analysis had to move to a sharper specification of a problem — theft of household appliances from newly completed homes. Data collection in relation to this opened the way to working out a solution — removing targets for theft by postponing installation of the targeted appliances.

There are other cases in the literature showing similar features. One example is Boston's Operation Ceasefire. Here, Kennedy et al., working with a "line level" practitioner group, assembled data on shootings, victims and youth gangs. They used this analysis to inform a strategy that spoke to the particular conditions generating the carrying and use by gang members of firearms and other weapons (Braga et al., 1999). They defined the problem not as one of dissolving gangs per se, but of reducing injuries through undermining the conditions generating the availability and use of weapons. Another example, this time from Britain, is the Kirkholt burglary prevention project. This again began with analysis, identifying aspects of the underlying problem that had hitherto lain hidden, in this instance

the high rates of repeat victimisation. The analysis informed the choice and targeting of preventive measures (Forrester et al., 1988, 1990). In each of these cases, imaginative analyses, aimed at identifying essential but modifiable aspects of the problems addressed, were conducted alongside practitioners. In each case, the analyses threw up critical features of the problem that were not already being actively considered in developing responses.

Using Past Research

There are significant methodological issues at stake in determining what comprises "good practice" and what comprises good use of past practice. One of the main reasons for evaluating programs is to learn lessons for the future. Yet, even where past initiatives are found to have been successful, determining when and where they can appropriately be drawn on, and also what about them should be adopted or adapted, and how, remain tricky issues (Tilley, 1996).

The problems of replicating the apparently successful Boston and Kirkholt projects already mentioned illustrate the point. What was crucial to the Boston project? Was it the problem-oriented approach, the application of targeted leverage to groups, the interagency co-operation, the disruption of weapons supply, the focus on shootings and gangs, the formation of a line-level working group, the strong and supportive mayor, or the analysis by Harvard academics? Was it all of these features or a specific subset? What exactly would need to be included to reproduce Boston's achievements? Those planning to draw on Boston have to make decisions.

In Kirkholt, was it the analytic starting point, the removal of pre-payment meters, the small relatively self-contained housing project, the focus on repeat victimisation, the leadership by Police Inspector David Forrester, the involvement of some inspiring English academics, the interagency approach, the cocoon home watch, the focus on domestic burglary, all or some of these? What would be needed to reproduce the achievements? Again, those planning to draw on Kirkholt had to make decisions. In the Kirkholt case, there is evidence that different decisions were made by different groups over what to try to reproduce and what would comprise replications (Tilley, 1996). The same may befall the Boston gun project. In the event, for Kirkholt the focus on repeats appears now to have been crucial. For Boston, the use of targeted specific leverage has been seen by Kennedy to be portable and particularly important (Kennedy, 1997).

One recent trend has been the development of databases that capture past experience and their provision to practitioners so that

they can avoid "reinventing the wheel," or worse, "reinventing the flat tyre."

What, though, comprises good practice, and how do we emulate it? How do we use what we know? As Ekblom argues in his wide-ranging contribution, the fact that a measure has proved successful in the past in specific circumstances is insufficient to guarantee its appropriateness in the future. The circumstances may be different, meaning that the measure may trigger different causal mechanisms, bringing about different outcomes. Moreover, in the case of complex packages of measures, which are increasingly used in crime prevention work, the active ingredients may be far from self-evident. Finally, even where there is strong evidence that a particular measure has brought about a reduction in crime, changed capacities are liable to supersede it. For example, a given safe design may be enough to resist even well-organised, skilful safe-breakers at one time. Given new technology and the invention of new methods of penetrating safes, however, this capacity successfully to resist may not last indefinitely (see Ekblom, 1997).

Rather than drawing on specific projects that have been found once to work to deal with a specific problem, it may make more sense, as Ekblom argues, to distil principles that have been successful in informing the choice of interventions, from previous projects. This calls for a different "reading" of past initiatives — less that of looking at surface attributes and associations, and more an understanding of their underlying logic. Rolling out projects or mimicking projects is liable to disappoint.

ANALYSIS, PRACTICE AND POLICY RELATIONSHIPS

It might at first sight seem that general analysis will yield findings to be used in practical analysis, and that findings from previous research can be applied in a more or less mechanical way. In practice, the relationship has been more multi-directional than this. The point has already been made that findings of effectiveness in one context cannot mechanically be transposed to another situation with expectations that precisely the same results will occur. More than that, local analysis has sometimes preceded more general analysis and informed it. For example, the identification of patterns of repeat victimisation and their use as a way of shaping preventive work in the Kirkholt burglary reduction project, preceded and stimulated a widespread international research and development programme. The latter has included national initiatives to find patterns of repeats across countries and crime types (Farrell and Pease, 2001). This, in turn, is

feeding back into quite widespread routine local analysis of repeats and strategies to reduce them (Farrell et al., 2000; Laycock, 2001).

Research funding bodies may be tempted to invest in blue skies research in the belief that it is mainly this that will yield the general lessons that can then be applied in practice. This is not how matters have proceeded in situational crime prevention (Laycock and Clarke, 2001). It is also not how matters have always proceeded in the natural and medical sciences either. In both, the work on specific practical issues by an engaged practitioner-researcher has often yielded insights that have turned out to be crucial both for understanding and for policy and practice. The history of science yields many examples. One, from the medical field, will suffice here.

Ignaz Semmelweis's starting problem was this. In the Viennese hospital, where he was working as a physician, there were two maternity divisions with different mortality rates for mothers from puerperal fever (or childbed fever), as shown in Table 1.

Table 1: Mortality Rates for Puerperal Fever

Maternity Division mortality rate from puerperal (childbed) fever			
	1844	1845	1846
First	8.2%	6.8%	11.4%
Second	2.3%	2.0%	2.7%

Semmelweis's problem was, "Why the difference and what could be done about it?" He collected the following series of folk explanations, considered them critically in the light of available evidence and a series of trials, and rejected them:

- (1) "Epidemic influences," also known as "atmospheric-cosmic-telluric changes," which were spreading over all districts and causing childbed fever to women in confinement. Semmelweis reasoned, however, that this did not make sense of the divisional differences, or of the relatively low level of death from childbed fever from those giving birth outside hospital.
- (2) Overcrowding. Semmelweis reasoned, however, that division 2 was more crowded, partly because mums try to avoid the dangerous division 1.
- (3) Rough examination from medical students. Semmelweis reasoned, however, that injuries from birth were more extensive than those caused by rough examination. Moreover, when the

number of medical students was halved, after a brief fall mortality rates rose again to a higher level than previously.

- (4) Shock at seeing a priest bearing last sacraments walking through First Division ward with a bell ringing. Semmelweis found, however, that when the priest was persuaded to arrive discreetly, and without a bell and without parading through First Division ward, the mortality rate did not fall.
- (5) Giving birth on the mum's back in the First Division as against on her side in the Second Division. Semmelweis found, however, that when women in a First Division trial gave birth in the lateral position the mortality rate did not fall.

In 1847, Semmelweis came up with an explanation that opened the way to prevention. A colleague cut his finger during an autopsy, and then died after an agonising illness with symptoms similar to childbed fever victims. Semmelweis thought poisonous "cadaveric matter" might have been transmitted. Perhaps, given that the first division was staffed by physicians and trainees whilst the second was staffed by midwives and trainees, women in the first had died from similar blood poisoning which he and colleagues introduced after doing dissections in the autopsy room. Physicians therefore began washing their hands in solution of chlorinated lime before examining women as a way of testing the theory. There was an instant fall in the mortality rate (in 1848 it fell to 1.27% in the first division, compared to 1.33% in the second).

So hand-washing in chlorinated lime was introduced to avoid passing on poisonous cadaveric matter. The theory, however, was subsequently refined. Semmelweis and his associates washed their hands in the chlorinated lime, then examined 13 women. The first had festering cervical cancer. The doctors then just washed their hands again, but this time without doing so in chlorinated lime, since the prevailing theory did not suggest this was needed. Eleven of the twelve women subsequently examined died of childbed fever. It was not matter from dead bodies, as such, that was causing the problem. Poisonous matter could be passed on from living bodies also. Thorough washing in disinfectant needed to be more general.

Semmelweis was a talented action-researcher in medicine. He identified a problem pattern, and refined his definition of it. He elicited, developed and tested theory to address specific problems. Out of his work more general issues of disease patterns, hospital practice and infection emerged. Concentrating on what began as a small particular problem, much larger issues emerged and were illuminated. Semmelweis bridged research, practice and policy, doing what might be called problem-oriented medicine.

In her contribution to this volume, Laycock discusses the ways in which researchers, policy makers and practitioners need to learn to work more closely if we are to move towards evidence-based practice and policy. Researchers and analysts, in particular, need to attune their ways of working to the realities of policy and practice. If useful contributions are to be made to problem-solving and crime reduction, adjustments to conventional presentational styles, methodologies, and forms of engagement with practitioners are needed. The chapter by Clarke and Goldstein nicely illustrates the benefits that can accrue from researchers working with practitioners. Their roles describe one way in which academics can help build local capacity for an analytic approach to problem-solving and crime prevention. They also, as they point out, identify a specific problem and potential response that may be relevant far beyond the local confines of the specific project in Charlotte-Mecklenburg.

There is, thus, a two-way track between problem-oriented analysis, addressing local or specific pressing problems, and basic research, identifying general attributes of problems and mechanisms lying behind them. In both cases, the translation into new practice conditions will require a close grasp of the underlying theory or principles and an ability to recognise their relevance.

There is also a two-way track between concrete problem analysis at different levels of jurisdiction/or potential intervention (Read and Tilley, 2000). In some cases, early indications of problems may come from local analysis, for further and wider interrogation at a "higher" level of administration. In other cases, patterns identified at a higher level will be checked out for their relevance at a lower level.

Constructive and innovative uses of suites of analyses and evaluations are able sometimes to identify new patterns and new mechanisms that can be put to use in preventive strategies. The contribution by Smith et al. (this volume) exemplifies ways in which theoretically informed secondary analysis of series of studies can yield new insights of potential use to crime prevention practitioners.

IMPLICATIONS

There is clearly a critical need for crime analysts in crime prevention. The role of the expert analyst is to sharpen definitions of problems — to identify crime sets in relation to which well-targeted preventive efforts have real scope for success. This is a high-level activity, requiring imagination and a firm grasp of research-based prevention paradigms. Only with creativity, informed by an understanding of well-developed and tested theory, will analysts be able to figure out constructive ways of looking at data sets to discern pat-

terns open to preventive interventions. Such analysts will also be able to help devise promising strategies and tactics, drawing on research-based principles. There appear to be few jurisdictions where this currently occurs. There also appears to be a serious shortage of personnel who have the education, skills and disposition effectively to deliver the analytic services that are needed. It is not clear that many jurisdictions are configured in ways that are hospitable to the forms of analysis that might inform effective preventive strategies. Whilst progress is being made in refining techniques of analysis, in crime prevention theory, and in understanding what is involved in the appropriate application of that theory, the potential pay-offs can only be realised if the environment into which strong analytic capacity is inserted is capable to making good use of it. This will require the sort of ways of working described here by Clarke and Goldstein, Laycock, and Ekblom.

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NOTES

1. It may, of course, be that "real effort increase" comprises a mechanism separate from, and additional to "perceived effort increase"?