

radio station WBEB-101.1, provided the initial inspiration for this project and continues to be one of its most important benefactors. Funding was also provided by an anonymous foundation and the National Institute of Justice. The authors, of course, take sole responsibility for the work.

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Unfortunately, "crime prevention today as in the past has a tendency to be driven more by rhetoric than reality" (Visher and Weisburd, 1998, p.238). Effective public policy and practice needs to be based on scientific evidence. This is an approach that has garnered much support in medicine (Millenson, 1997) and other fields dedicated to the betterment of society. It is not, however, the standard usually adopted in crime prevention and criminal justice. Anecdotal evidence, program favorites of the month, and political ideology seemingly drive much of the crime policy agenda. As a result, we are left with a patchwork of programs that are of unknown potential in preventing crime. Crime prevention programs may or may not work – or, worse yet, may produce harmful or iatrogenic results. We are not suggesting that the public is being intentionally misled by lawmakers and policymakers who are funding programs with no scientific evidence of effectiveness, but rather that lawmakers and policymakers are shirking their responsibility to the taxpaying public by not giving funding priority to those programs with evidence of effectiveness in preventing crime.

In writing on the subject of evidence-based policing, Sherman (1998, p.6; see also Sherman and Eck, Chapter 8, this volume) notes that: "Most police practice, like medical practice, is still shaped by local custom, opinions, theories, and subjective impressions." But "[e]vidence-based policing challenges those principles of decision making and creates systematic feedback to provide continuous quality improvement in the achievement of police objectives" (Sherman, 1998, p.6). This is equally applicable to the larger field of crime prevention, whether it be for police, courts or corrections, or alternative, non-criminal justice approaches, such as violence prevention programs in schools or gang intervention programs in communities.

By assessing existing scientific knowledge on the effectiveness of crime prevention programs and presenting this information in an understandable form for decision-makers, the present volume aims to change how national, state, and local crime policies and practices are shaped. The more difficult task, one that this book does not pretend to solve fully, is how to change the mindset of decision-makers to utilize scientific knowledge – to subscribe to the evidence-based approach to preventing crime and building safer communities.

This chapter presents an overall framework for understanding the evidence-based approach to preventing crime. It is divided into six sections. The first provides a brief history of the research project that led to the

features of crime prevention, as used throughout this volume. The fourth section presents key elements contributing to a science of crime prevention. The fifth section summarizes the research methods employed in the collection, review, and analysis of crime prevention programs reported in Chapters 3 to 9, and the sixth and final section describes the key aims and the layout of this book.

History of project

In 1996, a federal law required the US Attorney General to provide the US Congress with an independent review of the effectiveness of state and local crime prevention assistance programs funded by the US Department of Justice, "with special emphasis on factors that relate to juvenile crime and the effect of these programs on youth violence." The law required that the review "employ rigorous and scientifically recognized standards and methodologies." Framers of the law expected that the evaluation would measure three important aspects of crime prevention programs:

- 1 reductions in delinquency, juvenile crime, youth gang activity, youth substance abuse, and other high-risk factors;
- 2 reductions in the risk factors in the community, school, and family environments that contribute to juvenile violence; and
- 3 increases in the protective factors that reduce the likelihood of delinquency and criminal behavior.¹

After an external, peer-reviewed competition, the National Institute of Justice (NIJ) selected the proposal of a group from the University of Maryland's Department of Criminology and Criminal Justice to perform the review. With only 6 months to complete the review, the authors achieved something just short of a miracle in social science research: they reviewed just over 500 crime prevention programs and produced a 565-page report. The report, authored by Lawrence Sherman and his colleagues and released in 1997, was entitled *Preventing Crime: What Works, What Doesn't, What's Promising*.² The *New York Times* called *Preventing Crime* "[t]he most comprehensive study ever of crime prevention" (Butterfield, 1997, p. A20).

Following the release of the report, the University of Maryland's Department of Criminology and Criminal Justice established a Crime Prevention Effectiveness Program with the support of gifts and grants from private foundations and donors. The Program had two goals: to better inform policymakers on the importance of basing crime prevention programs on scientific evidence; and to advance the body of knowledge upon which sound crime prevention decisions can be made.

The *Preventing Crime* report has been the subject of four US Congressional hearings, and its authors have been invited on a number of occasions to brief policymakers and other criminal justice leaders throughout the US and internationally. The report's largest impact, however, has been evident in the

Home Secretary Jack Straw in April 1999.

Key concepts in crime prevention

Crime prevention is widely misunderstood. In the US, for example, the national debate over crime often treats "prevention" and "punishment" as mutually exclusive concepts, polar opposites on a continuum of "soft" versus "tough" responses to crime: peer mentoring versus juvenile boot camps, for example. The science of criminology, however, contains no such dichotomy. It is as if public debate over physics had drawn a dichotomy between flame and matches. Flame is a result. Matches are only one tool for achieving that result. Other tools besides matches are well known to cause fuel to ignite into flame, from magnifying glasses to tinder boxes.

Similarly, crime prevention is a result, while punishment is only one possible tool for achieving that result. Both peer mentoring and juvenile boot camps may logically succeed or fail in achieving the scientific definition of crime prevention: any policy which causes a lower number of crimes to occur in the future than would have occurred without that policy.³ Some kinds of punishment for some kinds of offenders may be preventive, while others may be "criminogenic" or crime-causing, and still others may have no effect at all. Exactly the same may also be true of other programs that do not consist of legally imposed punishment, but which are justified by the goal of preventing crime.

Crime prevention is therefore defined not by its intentions, but by its consequences. These consequences can be assessed in at least two ways: the number of criminal events; and the number of criminal offenders (Hirschi, 1986). Some would also assess them by the amount of harm prevented (Reiss and Roth, 1993, pp. 59–61) or by the number of victims harmed or harmed repeatedly (Farrell, 1995). What all of these definitions have in common is their focus on observed effects, and not the "hard" or "soft" content, of a program.

Which definition of crime prevention ultimately dominates public discourse is a critically important factor in political and public understanding of the issues. If the crime prevention debate is framed solely in terms of the symbolic labels of punishment versus prevention, policy choices may be made more on the basis of emotional appeal than on solid evidence of effectiveness. By employing the scientific definition of crime prevention as a consequence, this book is in keeping with the Congressional mandate of the 1997 report: "to employ rigorous and scientifically recognized standards and methodologies." It broadens the debate to encompass the entire range of policies we can pursue to build a safer society. A rigorously empirical perspective on what works best is defined by the data from research findings, not from ideologically driven assumptions about human nature.

The value of a broad framework for analyzing crime prevention policies is its focus on the whole forest rather than on each tree. Most debates about crime prevention address one policy at a time. Few debates, either in politics

than the other. One may have a stronger effect, cutting criminal events by 50 percent, while the other cuts crimes by only 20 percent; or one may have a longer duration, reducing crimes among younger people whose average remaining lifetime is 50 years, compared to a program treating older people with an average remaining life of 20 years. A fully informed debate about crime prevention policy choices requires performance measures combining duration and strength of program effect. While such accurate measures of "profitability" and "payback" periods are a standard tool in business investment decisions, they have been entirely lacking in crime prevention policy debates (but see Aos *et al.*, 2001).

Yet comparative measurement is not enough. Simply comparing the return on investment in each crime prevention policy to its alternatives can mask another key issue: the possible interdependency between policies, or the economic and social conditions required for a specific policy to be effective. Crime prevention programs are not delivered in a vacuum. A Head Start program may fail to prevent crime in a community where children grow up with daily gunfire. A chain gang may have little deterrent effect in a community with 75 percent unemployment. It may be necessary to mount programs in several institutional settings simultaneously – such as labor markets, families, and police – in order to find programs effective in each setting.

One theory is that the effectiveness of crime prevention in each of the seven institutional settings depends heavily on local conditions in other institutions. Put another way, the necessary condition for successful crime prevention practices in one setting is adequate support for the practice in related settings. Schools cannot succeed without supportive families; families cannot succeed without supportive labor markets; labor markets cannot succeed without well-policed safe streets; and police cannot succeed without community participation in the labor market. These and other examples are an extension of the "conditional deterrence" theory in criminology (Tittle and Logan, 1973; Williams and Hawkins, 1986), which claims that legal punishment and its threat can only be effective at preventing crime if reinforced by the informal social controls of other institutions. The conditional nature of legal deterrence may apply to other crime prevention strategies as well. Just as exercise can only work properly on a well-fed body, crime prevention of all kinds may only be effective when the institutional context is strong enough to support it.

By suggesting that the effectiveness of some crime prevention efforts may depend upon their institutional contexts, we do not present a pessimistic vision of the future. While some might say that no program can work until the "root causes" of crime are cured, we find no scientific basis for that conclusion – and substantial evidence against it. What this book documents is the potential for something much more precise and useful, based on a more open view of the role of scientific evaluation in crime prevention: a future in which program evaluations carefully measure, and systematically vary, the institutional context of each program. That strategy is essential for a body of

may help us discover how to shape many institutional factors simultaneously to prevent crime more successfully than we have been able to do thus far. The apparent failure of a few efforts to prevent crime does not mean that we should give up our work to prevent crime. Such failures marked the early stages of almost all major advances in science, from the invention of the light bulb to the development of the polio vaccine. The fact that our review finds crime prevention successes in all seven of the institutional settings (see Chapters 3 to 9) suggests that even more trial and error could pay off handsomely. In the US, the national investment in research and development for crime prevention to date has been trivial (Reiss and Roth, 1993; Blumstein and Petersilia, 1995), especially in relation to the level of public concern about the problem. Attacking the crime problem on many institutional fronts at once should offer more, not fewer, opportunities for success.

Defining crime prevention by results, rather than program intent or content, focuses scientific analysis on three crucial questions:

- 1 What is the independent effect of each program or practice on a specific measure of crime?
- 2 What is the comparative return on investment for each program or practice, using a common metric of cost and crimes prevented? (For recent research on this question, see Welsh and Farrington, 2000; Welsh, Farrington and Sherman, 2001.)
- 3 What conditions in other institutional settings are required for a crime prevention program or practice to be effective, or to increase or reduce that effectiveness?

The current state of science barely allows us to address the first question, and it tells us very little about the second or third questions. Just framing the questions, however, reveals the potential contribution that government support for crime prevention evaluations could offer. That potential may depend, in turn, on a clear understanding of the location of every crime prevention practice or program in a broad network of social institutions.

Settings, practices and programs

Crime prevention is a result of everyday practices concentrated in different institutional settings. A "setting" is a social stage for playing out various roles, such as parent, child, neighbor, employer, teacher, and church leader. There are many ways to define these settings, and their boundaries are necessarily arbitrary. Yet much of the crime prevention literature fits quite neatly into seven major institutional settings: (1) families, (2) schools, (3) communities, (4) labor markets, (5) places, (6) police agencies and (7) courts and corrections. The definitions of these settings for crime prevention are rather broad, and sometimes they overlap. But as a framework for organizing research findings on crime prevention effectiveness, they are quite workable.

parents make children come home at night, most schools have established starting times, most stores try to catch shoplifters, most police departments answer emergency calls. Some of these practices have been tested for their effects on crime prevention. Most have not. Some of them (such as police patrols and school teacher salaries) are funded in part by government programs. Most are not. Regardless of the source of funding, we define a practice as an activity that may change naturally over time, but which would continue in the absence of specific new government policies to change or restrict it.

A "program," in contrast, is a focused effort to change, restrict or create a routine practice in a crime prevention setting. Many, but far from all, programs are funded by governments. Churches may adopt programs to discourage parents from spanking children or letting children watch violent television shows and movies. Universities may adopt programs to escort students from the library to their cars in the hours after midnight. Shopping malls may ban juveniles unescorted by their parents on weekend evenings, and police may initiate programs to enforce long-ignored curfew or truancy laws. In time, some programs may turn into practices, with few people remembering the time before the program was introduced.

Perhaps the clearest distinction between programs and practices is found among those programs requiring additional resources. The disciplinary practices of parents, for example, and the hiring practices of employers are largely independent of tax revenue. But calling battered women to notify them of their assailant's imminent release from prison may be a practice that only a government funded program can both start and keep going. Whether government resources are required is of course a matter of local funding decisions. But in many jurisdictions, practices begun under government programs might die out in the absence of continued government funding.

These distinctions are important to crime prevention for reasons of evidence: newly funded programs are more likely to be subjected to scientific evaluations than long-standing practices. The modern trend towards demanding accountability for public expenditures has made program evaluations increasingly common, at least in the United States and United Kingdom. Paradoxically, we probably know more about potentially marginal new ideas than we do about the mainstream practices of the major crime prevention institutions. Police DARE (Drug Abuse Resistance Education) programs, for example, have been subjected to more numerous evaluations than the far more widespread practice of police patrol (Sherman and Weisburd, 1995). Similarly, neighborhood watch programs (Hope, 1995) have been subjected to far more extensive evaluation than the pervasive role of zoning practices in physically separating commercial and residential life in communities, reducing face-to-face contact among neighbors who used to see each other at the corner grocery store.

The availability of evidence on crime prevention is itself a major issue for a national policy debate. Where expenditures are high but evidence is weak or non-existent, the need for evaluation research is great. Even where expen-

must start not with the available evidence, but with an inventory of crime prevention programs and practices in each institutional setting. Throughout this book, this inventory guides our review of what works, what does not work, what is promising, and what we need to know a lot more about.

The science of crime prevention

To most practitioners, crime prevention is an art. But the art of crime prevention (like the art of medicine) can be evaluated and guided by the science of measuring program effects. Scientific evaluations of crime prevention have both limitations and strengths. The major limitation is that scientific knowledge is provisional. This is because the accuracy of generalizations to all programs drawn from one or even several tests of specific programs is always uncertain. The major strength of scientific evaluations is that rules of science provide a consistent and reasonably objective way to draw conclusions about cause and effect.

Scientific knowledge is provisional

The most important limitation of science is that the knowledge it produces is always becoming more refined, and therefore no conclusion is permanent. As the US Supreme Court noted in its analysis of scientific evidence in the 1993 case of *Daubet vs. Merrell Dow*,⁴ no theory (or program) of cause and effect can ever be *proved* to be true. It can only be disproved. Every test of a theory provides an opportunity to disprove it. The stronger the test and the more tests each theory survives, the more confidence we may have that the theory is true. But all theories can be disproved or, more likely, revised by new findings.

Generalizations are uncertain

The rules of science are relatively clear about the way to test cause and effect in any given study – a concept known as "internal validity." The rules are far less clear, especially in social sciences, about the way to judge how widely the results of any study may be generalized – a concept known as "external validity." For example, the results of a very strong, internally valid test of how to reduce child abuse among rural, white teenage mothers may or may not generalize to a population of inner-city African American teenage mothers. The two populations are clearly different, but the question of whether those differences change the effects of the program can best be answered by testing the program in both populations.

We cannot assess the strength of external validity using standard scientific methods and rules in the same way that we can assess internal validity (see Chapter 2). The test of the external validity or generalizability of internally valid results of an evaluation is continued testing, that is, replication. Until replications become far more common in crime prevention evaluations, the

Rules for assessing cause and effect

The strength of the scientific method is that there are widely agreed-upon rules for assessing the level of certainty that a conclusion in any one test is correct. These rules are presented in detail in standard texts, notably Cook and Campbell (1979). In Chapters 3 to 9, programs are evaluated on the "scientific methods scale," a shorthand means of summarizing these rules that was developed by Lawrence Sherman and his colleagues at the University of Maryland and first used in *Preventing Crime* (Sherman *et al.*, 1997). The scientific methods scale ranks evaluation reports from 1 (weakest) to 5 (highest) on overall internal validity (for more details on the scale, see Chapter 2). This scale is important not only scientifically; it also helps to communicate science more effectively to policymakers, practitioners, and the general public.

Research methods

As noted above, the present volume updates and substantially revises the report by Sherman and his colleagues (1997). In producing the most up-to-date scientific conclusions about what works, what does not work, and what is promising in preventing crime across the seven diverse institutional settings in which crime prevention takes place, the present volume (Chapters 3 to 9) follows, as closely as possible, a standard methodology.

The search for new studies

Shortly following the release of the 1997 report, with funding provided principally by the Jerry Lee Foundation, updates of the chapters on the seven crime prevention settings were commissioned of the original and some new authors. Unlike the research for the 1997 report, the research for the present volume was not subject to similar time constraints, thus enabling the present authors to be even more thorough. For some chapters, where secondary sources (e.g. reviews of the literature) were previously used, primary sources were collected and analyzed. For all of the chapters in the present volume, the authors initiated new searches, computer and/or manual, to identify new programs or more recent follow-ups of existing programs. Chapters were written mainly in 2000 and therefore cover material up to the end of 1999. As reported below, this resulted in more than 100 new studies that evaluated the effectiveness of crime prevention programs.

A focus on impact

The primary factor used to select evaluations of crime prevention programs for review was evidence (positive or negative) about their impact on crime. The majority of evaluations of crime prevention programs are "process" evaluations that describe what was done, rather than "impact" evaluations that

grams "work" to prevent crime. Evaluations containing both process and impact measures provide the most information, but they are rarely funded or reported.

A focus on crime

The focus of the present volume is on crime impacts; that is, knowing if crime went down, went up, or remained unchanged as a result of the program. In addition to focusing on crime outcomes, some chapters report on programs that measured risk factors for crime (e.g. disruptive child behavior, unemployment, school drop-out) or related problem behavior outcomes such as antisocial behavior and alcohol or other drug use. Where outcomes other than crime are measured, this is clearly noted.

Scientific methods scale

As noted above, the present volume (Chapters 3 to 9) uses the scientific methods scale to assess the methodological quality of crime prevention programs (for more details on the scale, see Chapter 2). This book has updated the scientific methods scale to address some of the inconsistencies across the different chapters in the report by Sherman *et al.* (1997). It also provides more information about the scale to allow policymakers, researchers, students, and others to test its reliability and utilize it in their work.

Assessing effectiveness

The "bottom line" of this book is what works, what does not work, and what is promising in preventing crime. For each of the seven institutional settings in which crime prevention takes place (families, schools, communities, labor markets, places, police, and courts/corrections; Chapters 3 to 9, respectively), the authors present their findings for what works, what does not work, and what is promising, as well as for what is unknown. These findings are guided by a set of rules that, importantly, take account of the existing state of scientific evidence on crime prevention (see below). These rules, first established by Sherman and his colleagues (1997), and used in the present volume, are as follows.

What works

These are programs that we are reasonably certain prevent crime or reduce risk factors for crime in the kinds of social contexts in which they have been evaluated and for which the findings can be generalized to similar settings in other places and times. For a program to be classified as "working," there must be at least two level 3 (minimum) studies with significance tests demonstrating effectiveness and the preponderance of evidence in support of the same conclusion.

reduce risk factors for crime, using the identical scientific criteria used for deciding what works. For the classification of "not working," there must be at least two level 3 (minimum) studies with significance tests showing ineffectiveness and the preponderance of evidence in the same direction.

What is promising

These are programs for which the level of certainty from available evidence is too low to support generalizable conclusions, but for which there is some empirical basis for predicting that further research could support such conclusions. For the classification of "promising," one level 3 (minimum) study is required with significance tests showing effectiveness and the preponderance of evidence in support of the same conclusion.

What is unknown

Any program not classified in one of the three above categories is defined as having "unknown" effects.

Important consideration is given to the existing state of scientific knowledge in the first three categories by making evaluation studies reaching at least level 3 on the scientific methods score the minimum cut-off point for inclusion. Here we are faced, however, with a dilemma: How high should the threshold of scientific evidence be for determining program effectiveness? A very conservative approach might require at least two level 5 studies showing that a program is effective (or ineffective), with the preponderance of the remaining evidence in favor of the same conclusion. Employing a threshold that high, however, would leave very little to say about crime prevention, based on the existing science. There is a clear trade-off between the level of certainty in the answers that can be given on program effectiveness and the level of useful information that can be gleaned from the available science. The present volume takes the middle road between reaching very few conclusions with great certainty and reaching very many conclusions with very little certainty. This is a dilemma that also faces other social science disciplines, such as education and social work.

Aims and organization of the book

This book has four key aims:

- 1 to update and substantially revise the report, *Preventing Crime* (Sherman *et al.*, 1997);
- 2 to provide the most up-to-date, comprehensive, and rigorous assessment of the scientific evidence on the effectiveness of preventing crime in the United States, the United Kingdom, and internationally;
- 3 to clarify the scientific methods scale; and
- 4 to provide policymakers, researchers, and community leaders in the

This book is divided into ten chapters. Chapter 2 discusses in detail the scientific methods scale that has been used throughout the present volume to assess the methodological rigor of evaluations of crime prevention programs.

Chapters 3 through 9 review the existing evidence on the effectiveness of preventing crime in seven institutional settings in which crime prevention takes place: families, schools, communities, labor markets, places, policing, and courts/corrections, respectively. Each of these seven chapters follows a consistent style of introducing and discussing key elements of the setting under study, reviewing crime prevention programs that fall within each setting, and presenting scientific conclusions on what works, what does not work, and what is promising in preventing crime.

Chapter 10, the final chapter, summarizes the findings of crime prevention effectiveness in the seven settings and brings together the main conclusions. In this chapter we also explore the evidence-based crime prevention ideal: conclusions about crime prevention effectiveness based on the highest quality science being used by policymakers as the basis of local, state, and national policies on preventing crime.

Notes

- 1 104th Congress, 1st Session, House of Representatives, Report 104-378.
- 2 Subsequent to this 1997 report, a NIJ *Research in Brief* of the same title was prepared (Sherman *et al.*, 1998), which summarized its findings.
- 3 Some developmental criminologists distinguish factors and programs that help stop people from ever becoming offenders from those which help prevent further offenses after a first offense (e.g. Tremblay and Craig, 1995).
- 4 *Daubert vs. Merrell Dow* (1993), US Sup. Ct. No. 92-102, June 28, 1993 [509 US 579].

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The main aim of the Maryland Scientific Methods Scale (SMS) is to communicate to scholars, policymakers and practitioners in the simplest possible way that studies evaluating the effects of criminological interventions differ in methodological quality. The scale is largely based on the classic book by Cook and Campbell (1979).

As an example, imagine that the following research hypothesis is to be tested: "Closed circuit television (CCTV) causes a decrease in crime." This hypothesis could be tested by investigating whether areas with CCTV have lower crime rates than areas without CCTV. However, assuming that this result was obtained, this essentially correlational design would not prove unambiguously that the research hypothesis was correct. Just to highlight one obvious problem, areas without CCTV could differ in numerous other ways from areas with CCTV, and the differences in crime rates could be attributable to one or more of these differences in extraneous variables.

An experimental design, in which the presence or absence of CCTV is deliberately manipulated, produces less ambiguous results. For example, the research hypothesis could be tested by investigating whether the crime rate decreased in an area after CCTV was installed, compared with before. However, again, this design is relatively weak because it does not exclude numerous plausible alternative explanations of the results. Perhaps the crime rate decreased because of some other change in the area (e.g. more intensive police patrolling), perhaps the decrease was merely the continuation of a prior trend, perhaps the decrease was artefactual because police methods of recording crimes changed, or perhaps the CCTV was installed just after an unusually high crime period which was then followed by a "normal" downward fluctuation. The problem is to disentangle the effects of CCTV from these other possibilities. In order to test these kinds of alternative explanations, some kind of control condition is needed which does not receive the experimental intervention (the CCTV).

The randomized experiment is usually considered to be the strongest or most compelling experimental design for testing causal hypotheses, because it makes possible the exclusion of the largest number of plausible alternative hypotheses. For example, the research hypothesis could be tested by randomly assigning city blocks to have CCTV surveillance or not, and investigating whether crime rates decreased after installation for the experimental blocks compared with the control blocks. This design controls whether or not each block has CCTV installed or not, and it controls extraneous

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