

Chapter 7

PREVENTING CRIME AT PLACES

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WHY PLACES ARE IMPORTANT

Most places have no crimes and most crime is highly concentrated in and around a relatively small number of places. If we can prevent crime at these high crime places, then we might be able to reduce total crime. Do we have evidence that this is feasible?

Places have received relatively little attention in crime policy so it is important to define "place." A place is *a very small area reserved for a narrow range of functions, often controlled by a single owner, and separated from the surrounding area*. By small we mean that a location is smaller than a neighborhood or community. Examples of places include stores, homes, apartment buildings, street corners, subway stations, and airports. We will also include mobile places, such as buses, in our discussions.

Concentration of crime at places is predicted by routine activity theory (Cohen and Felson 1979; Felson 1994) and offender search theory (Brantingham and Brantingham 1981). Some of the original evidence for clustering of crime at places was found in Boston (Pierce, Spaar and Briggs 1986) and Minneapolis (Sherman, Gartin and Buerger 1989). Additional evidence for crime concentration at places has been found for specific types of crime. Crow and Bull (1975) noted over 20 years ago that most convenience stores have no or few robberies, but a few have many robberies. In England and Canada a growing body of research has revealed that in high burglary neighborhoods most residences have no burglaries, but a few residences suffer repeated burglaries (Forrester et. al. 1988; Forrester et. al. 1990; Polvi et. al. 1990; Farrell 1995). Among drinking establishments, a few bars have most tavern-related violence (Sherman, Schmidt, and Velke 1992). Ten percent of the fast food restaurants in San Antonio, Texas account for one third of the property crimes at such restaurants (Spelman 1995b). In Kansas City and Indianapolis, gun crimes were found to be highly concentrated at a few places (Sherman and Rogan 1995b). Drug dealing is highly concentrated in a few locations, even in areas with a high volume of drug dealing (Weisburd, Green and Ross 1994; Eck 1994; Sherman and Rogan 1995a). This clustering is most apparent when compared to repeat offending and repeat victimizations. Combining the results from several studies, Spelman estimated that 10 percent of the victims in the United States are involved in about 40 percent of the victimizations, that 10 percent of the offenders are involved in over 50 percent of the crimes, and that 10 percent of the places are sites for about 60 percent of the crimes (Spelman and Eck 1989). Further, the concentration of crimes at a few places is relatively stable over time (Spelman 1995a, 1995b). These

findings suggest that something about a few places facilitates crimes and something about most places prevents crimes.

Blocking Criminal Opportunities

The oldest forms of crime prevention were undertaken with the knowledge that making changes to places might prevent criminal events. These changes involve making crime more difficult, risky, less rewarding, or less excusable. This approach is known as opportunity blocking (Clarke 1992; 1995; Clarke and Homel, forthcoming). Opportunity blocking does not have to be done at places. It can also be built into targets (for example, designing anti-theft devices into automobiles [Clarke 1995] or printing holograms and photos on credit cards to curtail forgery and fraud).

Designing methods for blocking crime opportunities is the domain of Situational Crime Prevention (Clarke 1992; 1995). In this chapter we examine opportunity blocking at places, a subset of Situational Crime Prevention. It not only has a much longer history than offender-based prevention measures, it is used much more widely and in more settings than any other form of crime prevention. The vast majority of efforts to block crime opportunities at places are carried out and paid for by businesses, individuals, and local governments. Because places themselves have only recently become a subject for study by criminologists (Eck and Weisburd 1995), the Office of Justice Programs has funded very few explicit place-focused programs or tests of place-focused prevention. We will see that this lack of attention has limited our knowledge about this approach to prevention.

Opportunity blocking at places may have a greater direct effect on offenders than other crime prevention strategies. This is because place-focused tactics might influence offenders when they are deciding to commit a specific crime. Most offender based strategies try to sway offenders weeks, months, or years before they confront a tempting criminal opportunity. If offenders pay closer attention to the situation immediately before them than to the uncertain long term risks of their behavior, then it is quite possible that prevention at places may have a greater impact on offending than increases in penalties or less tangible increases in risks (e.g., decreases in police response time, increased police presence, or greater numbers of arrests and convictions). Because hotspots of crime are themselves clustered, if crime at these few places can be substantially reduced, communities can be made safer.

Although opportunity blocking takes a different approach than programs designed to change the life-course of potential and existing offenders, these two approaches can work together. Keeping cookies out of sight of toddlers is not only different from instructing them not to take the cookies -- and sanctioning them when they yield to temptation -- it reinforces instructions and sanctions by eliminating the temptation. For people with low self-control and low ability to see long term consequences of behavior (Gottfredson and Hirschi 1990) addressing the immediate circumstances surrounding

crime opportunities may amplify the effectiveness of other strategies designed to address the prevalence of such offenders.

The evaluations selected for review in this chapter were required to meet three criteria. First, they must describe crime opportunity blocking at places. Second, they had to examine the manipulation of places, usually intentional changes in which the changes clearly precede any change in crime. Third, each evaluation must report outcome data, typically a measure of crime. We did not examine studies of implementation and management that did not measure an impact on crime. In short, we looked at evaluations of the impact on crime of intentional changes at places.

Over the last decade, police have paid attention to places, or “hotspots,” of crime (Eck and Spelman 1989; Sherman and Weisburd 1995). This chapter does not review police efforts at places that relied solely on patrolling, investigations, or other enforcement. These are reviewed in Chapter 8 of this report. We did review evaluations of interventions involving police agencies when the intervention was a tactic that could also have been implemented by other agencies or institutions. Nuisance abatement, for example, has been implemented by police agencies, but it has also been implemented by prosecutors’ offices, city attorneys, and citizen groups. In short, who implemented the tactic was of less importance than the fact that the tactic was applied at places.

Table 7-1 summarizes the evaluations examined. When a report described several separate quasi-experiments we treated them as distinct interventions. Two-thirds of the evaluations were conducted outside the United States, particularly in the United Kingdom and Australia. Only six studies were funded by an OJP-related agency. Although the OJP funded evaluations comprise only 15 percent of U.S. interventions, recent efforts by the National Institute of Justice (NIJ) are improving our understanding of places. NIJ’s Drug Market Analysis Project helped introduce computer mapping of crime and drug places to police agencies and funded one of the randomized experiments described in this chapter (as well as several evaluations described in Chapter 8, on police prevention). The recent establishment of the Crime Mapping Research Center at NIJ has the potential to increase our knowledge of what works at places.

Violent crimes -- homicide, robbery and assault (no rape prevention evaluations were found) -- were the focus of 31 percent of the evaluations. Three of the six drug dealing prevention evaluations were OJP funded. Over half the evaluations examined serious crime (either a mixture of violent and non-violent crimes, or just non-violent crimes). Thus, 90 percent of the evaluations focused on serious property, personal, or drug crimes. Only 20 percent of the evaluations examined minor offenses, such as property damage, vandalism, minor thefts or incivilities.

As in earlier chapters, evaluations were graded using the scientific methods score (1=correlations between tactics and crime and studies without pre-intervention measures; 2=pre-post designs without control places; 3=pre-post designs with controls or time-series designs with at least five time periods prior to the intervention; 4=studies of

Table 7-1: SUMMARY OF EVALUATIONS

Reports Examined	78	Percent of Interventions
Interventions Examined	99	100%
Funded by OJP agency*	6	6%
Setting & Crimes Study		
U.S. Setting	40	40%
Violent Crime	31	31%
Drug Dealing	6	6%
Serious Crime	52	53%
Minor Crime	20	20%
Scientific Methods Score		
1 -- correlation/cross section	7	7%
2 -- before/after (b/a)	36	36%
3 -- b/a with control & time series	50	51%
4 -- large sample quasi-exper.	4	4%
5 -- randomized experiments	2	2%
Evidence of Crime Change		
Down	89	90%
Up	2	2%

* Including predecessor agencies within the Department of Justice.

interventions in a large sample of places compared to similar places without interventions; and 5=randomized controlled experiments). The modal score was 3, but a substantial number of evaluations only scored 2. There were few studies at either extreme (1 or 5).

GENERAL FINDINGS

These evaluations are consistent with the hypothesis that opportunity blocking at places can prevent crime, at least under some circumstances. Ninety percent of the evaluated interventions displayed evidence of crime reduction effects. Often these reductions were large. As we will see, these findings are consistent across a variety of evaluation designs, settings, and interventions. Although few of them have been replicated at a strong level of scientific evidence, there is good reason to invest in further testing of these tactics. Do these tactics displace crime? We will delve into this issue at the end of this chapter, but for now we will state that displacement seldom overwhelms prevention effects.

How much can we conclude about specific types of intervention, at specific places, against specific crimes? The answer is, we usually cannot be confident about what works where. We will discuss this finding in greater detail later in this chapter. We looked at nine types of places in four broad categories: In the following sections we describe the results of evaluations at residential places; money spending places (retail stores, banks and money handling businesses, and bars and drinking establishments); transportation places (public transportation facilities, parking lots, and airports); and other public places (open urban spaces and public coin machines). The nine types of places examined were not selected on theoretical grounds. They were selected because these were the places for which evaluations existed. Clearly, our knowledge about place-focused tactics is limited to a relatively few place types. Within each category we examine look at a variety of crime prevention tactics.

APARTMENTS AND RESIDENCES

Places where people live are the subject of this section. We will examine six types of interventions at residential properties, many of which are in public housing in Great Britain and the United States. Public housing complexes have become notorious for high crime rates in the United States. Dunworth and Saiger (1994) found that public housing complexes in three cities had higher rates of violent crimes and drug arrests than nearby neighborhoods or surrounding cities, but there was a great deal of variation among housing projects within each of the cities. We will see that crime in British public housing estates can also be a problem. First we will look at efforts to reduce crime by restricting movement through apartment complexes. Next we will look at improving security by improving locks and barriers on windows and doors. Third, we will examine property marking. Improving watching of residences is the subject of the fourth section.

In the fifth section we will look at the effectiveness of multiple tactic interventions to prevent burglaries at dwellings with a history of burglary. Finally, we will turn our attention to methods to compel place managers to reduce drug dealing on their rental property. Table 7-2 summarizes the evaluations of crime prevention in residential settings.

Restricting Pedestrian Access and Movement

Oscar Newman's *Defensible Space* (1972) stimulated interest in the link between the built environment and crime in residential areas. Newman compared two public housing complexes and asserted that the differences in design were the principal reasons for the differences in crime. The limited number of places observed and the failure to take into account other differences (most notably the age distribution of tenants) suggests that his conclusions may have been overstated (Mawby 1977; Mayhew 1979; Merry 1981; Taylor, Gottfredson, and Brower 1980). Newman expanded on his ideas in a later book (1980). Other studies of the influence of design have compared more sites (Coleman 1985; Poyner 1983; Poyner and Webb 1991). All pointed to the association of design features and crime, particularly features that allow unfettered movement through residential complexes. Two of these evaluations examine changes in residential sites that break up large residential complexes into smaller components.

Newman (1980; 1996) reports on the effect of changes to the Clawson Point public housing complex in the Bronx. The complex was changed by reducing the number of pedestrian routes through the project, creating separate areas within the complex, improving lighting, and enhancing the surface appearance of the buildings. Newman (1996) reports a 54 percent decline in the crime rate and a 62 percent decline in the rate of serious crime (burglary, robbery and assault). No control group was used.

Poyner (1994) describes a retrospective evaluation of the effect of the removal of elevated walkways connecting buildings in a British public housing complex. The walkways were thought to facilitate robberies of residents. He reports a reduction in purse snatching, but no reduction in burglaries. An entry phone was installed at one entrance and this too may have contributed to the decline in purse snatches. Although auto thefts declined, Poyner was unable to determine if this was due to the removal of the walkways or the presence of construction workers while the removal was underway. There was no comparison to control places.

Restricting the movements of pedestrians was also part of a 1991 effort to reduce crime in several of Chicago's worst public housing buildings (Popkin et. al. 1995b). The approach included door-to-door police inspections of all units within the buildings. Ground floor entrances were enclosed in new lobbies and guard stations were installed along with metal detectors. Residents were issued identification cards and asked to present them when entering the buildings. In addition to housing authority and private

security guards, the Chicago Public Housing Authority organized tenant patrols. Finally, a set of drug prevention services were provided tenants.

Popkin and her colleagues (1995b) attempted to evaluate this program. They interviewed a sample of residents in two complexes and asked them if conditions had improved, remained the same, or became worse following the interventions. The surveys found that 74 percent and 88 percent of respondents (depending on the complex) said shootings and fighting in their building had declined. It also found that 40 percent and 64 percent of the residents interviewed said drug dealing in their building had declined. These retrospective assessments by residents were a substitute for pre-treatment measures of crime and drug problems. The lack of control groups and true pre-treatment measures of crime, along with the implementation of multiple simultaneous interventions means that we cannot determine if the restrictions on pedestrian access contributed to improvements.

Collectively, these evaluations are suggestive of possible beneficial effects of reducing pedestrian movement through large public housing complexes. The weak designs used to evaluate these interventions temper our confidence in these types of interventions.

Target Hardening

Providing locks and improved security to access points is a commonly used burglary prevention tactic. The installation of improved locks and doors at two English public housing complexes was evaluated by Tilly and Webb (1994). Both studies used a pre-post design compared to a control area. In one complex burglaries declined 59 percent. In the other, burglaries decline over 90 percent relative to the control area.

The displacement of burglars to less protected locations is commonly raised as a threat to the effectiveness of place-focused interventions. Patricia Allatt (1984) has been one of the few evaluators to explicitly test for displacement effects. In addition to identifying the target residences which received improved ground floor entrance security, she examined the residences in the area immediately adjacent to the target area. And she used a control area that was far enough from the treatment area that it would not be contaminated by displacement. She found that burglaries in the target area increased by 9 percent one year after implementation, but in the control area burglaries had increased 77 percent. This suggests the program may have reduced potential burglaries, compared to what they would have been in the absence of the program. Burglaries increased 86 percent in the displacement area, but relative to the control area this was only a 9 percent increase over what could have been expected without the program. Thus, she was able to determine that displacement may have occurred, but was small relative to the overall program effect on the target area.

Target hardening appears to reduce burglaries without major displacement effects. However, with only two studies, more rigorous evaluations would make valuable contributions to our knowledge of what works in place-focused crime prevention.

Property Marking

A third approach to controlling burglaries is to make burglary targets unattractive to offenders. Laycock (1985; 1991) reports on the evaluation of a property marking campaign in two isolated Welsh communities. She reports a 40 percent decline in burglaries at residences where people said they engaged in property marking compared to the control group of non-participating residences. These results might be due to property marking, but the results could also occur if less vulnerable residents participated in the program and more vulnerable residents did not participate. Gabor (1981) also evaluated property marking in a Canadian neighborhood. He found a 75 percent increase in seasonally adjusted burglaries per dwelling unit by comparing the 24 months before the program to 18 months after the property marking. Clearly, with two contradictory studies we cannot be confident that property marking is an effective method for reducing burglaries to residences.

Closed-Circuit Television (CCTV)

CCTV was used in fifteen housing complexes for elderly residents in Manchester, England. Chatterton and Frenz (1994) report a decline in burglary and burglary attempts of 79 percent across all complexes. Again, natural trends in burglary were not reported due to the absence of control places. This single weak study is insufficient as a basis for crime prevention policy. We will return to the use of CCTV in other settings.

Multi-tactic Interventions and Repeat Victimizations

Crime prevention in residential settings often involves the implementation of a variety of measures. Evaluations of such interventions usually cannot estimate the relative effectiveness of the component parts, but they can show whether prevention is possible. Meredith and Paquette (1992) examined a multiple tactic approach to controlling burglaries in a Canadian apartment building. The program included apartment watch (like neighborhood watch but for apartment dwellers), target hardening, property marking, lighting improvements, and an assortment of other interventions. Reported burglaries dropped 82 percent from the year before to the year after the prevention measures were put in place. No control group was used, so again this drop may have been due to a general trend toward fewer burglaries in the surrounding area.

A growing body of evidence suggests that a few victims are involved in a large proportion of victimizations (Farrell 1995). Most of the research on this topic has been

conducted in Great Britain, where programs to reduce burglaries of dwellings have been based these findings. The Kirkholt public housing complex has received considerable attention in England because evaluations indicated that focusing on residences with previous burglaries is effective (Forrester, Chatterton, and Pease 1988; Forrester, et. al. 1990; Pease 1991; Tilly 1993a). A number of interventions were used at each targeted residence, including target hardening and organizing residents in surrounding homes to watch the burgled house. However, two tactics deserves special mention. Like many low income publicly subsidized projects in England, the residences in Kirkholt had coin-operated gas meters. Residents put coins in the meter to get a preset amount of gas for heating and cooking. Officials periodically empty these meters, but for weeks the meters can contain a great deal of cash. These meters were the target of many of the burglaries in Kirkholt and removing them was an important tactic in the project. Another part of the Kirkholt repeat victimization project was organizing the residents surrounding burgled dwellings to watch the victimized home. This was referred to as "cocoon neighborhood watch" because instead of organizing the entire neighborhood, the police focused only on the people living around at-risk places (Forrester, Chatterton, and Pease 1988; Forrester, et. al. 1990).

The 40 percent decline in burglaries in the first year following the start of the program, and subsequent decline over the next three years (controlling for seasonality and surrounding area burglary trends) cannot be attributed to any single tactic (Forrester, Chatterton, and Pease 1988; Forrester, et. al. 1990). Thus, we do not know which tactics worked.

Another repeat victimization program in Great Britain used a graded response to repeat victimization (Anderson, Chenery, and Pease 1995a; 1995b). Residents that reported a single burglary received a "bronze" response. This included crime prevention advice from the police, cocoon neighborhood watch, and improvement in dwelling security. If a resident was a victim of a second burglary within a year the police stepped up patrolling of the location, and put warning stickers on the dwelling. This was the "silver" response. If a third burglary was reported within a year then the "gold" response was put into place. This included the use of video surveillance of the location and even more intense police patrols. Anderson, Chenery and Pease (1995b) report a 19 percent reduction in burglaries relative to changes in burglary in the surrounding area.

Repeat victimization and crime prevention programs based on repeat victimizations are interesting. Because housing projects in Great Britain and the United States have important differences (the presence of coin-operated gas meters is just one example), research in the United States should be undertaken to determine if repeat burglaries are a problem in the United States, and if repeat victimization responses are effective. The National Institute of Justice is currently sponsoring studies examining repeat victimization.

Reducing Drug Dealing and Crime in Private Rental Places

Despite the fact that the management of private rental housing has only recently been examined as a crime risk factor, we have strong evidence that improving management of rental properties can reduce drug related crime. A study of retail drug dealing locations in San Diego found that smaller apartment buildings were more likely to be selected by drug dealers than the larger buildings, primarily because owners of the smaller buildings had less management resources to control the behaviors of place users (Eck 1994; 1995). Spelman (1993) studied residential locations that had been abandoned by their owners and found that they were magnets for crime. The effectiveness of compelling place managers to control the behaviors of people that use their properties has been the subject of a number of evaluations.

The civil law has been the primary tool used to make owners of private rental property evict drug dealers or make physical changes to their property. Hope (1994) describes three case studies from St. Louis where police officers influenced the changing of ownership of drug houses. Calls for service from blocks with the houses declined 54 percent to 94 percent relative to nearby blocks, suggesting a decline in drug selling.

Most efforts to influence landlords threaten civil action, but do not typically result in the transfer of property ownership or the seizure of property. Nuisance abatement programs threaten court action to seize property unless owners take action to curtail drug dealing. Three evaluations of nuisance abatement programs were found.

Lurigio and colleagues (1993) evaluated an abatement program run by the State's Attorney Office in Cook County, Illinois. They compared the perceptions of residents living near 30 abated properties to the perceptions of residents on nearby untreated blocks. They found no difference in perceptions. If the abatement program did reduce drug dealing or related crime, nearby residents did not notice it. The weakness of this design is that it does not have a true pre-treatment measures of crime, but only perceptions of change.

Green (1993; 1995; 1996) examined changes in drug arrests, police field contacts, and citizen calls around 275 abated drug dealing sites in Oakland, California. Relative to citywide changes in these measures, Green found a 15 percent decline in arrests, a 38 percent decline in field contacts, and a 14 percent decrease in citizen calls.

Finally, Eck and Wartell (1996) report on the results of a randomized controlled experiment using threatened property seizure in San Diego, California. No landlords were taken to court and no properties were seized. Instead, following police drug enforcement, owners of properties in one randomly selected group received a letter from the police ("letter" group). Owners of properties in another randomly selected group met with a narcotics detective and a city codes inspector ("meeting" group). Owners of properties in a third (control) group received no follow-up contact from the police or the city. Drug offenders who were lease holders were more likely to be evicted from the

properties in meeting group. Further, for the six month period following treatment, the properties in the meeting group had a significantly lower number of reported crimes. The letter group also had a decline in crimes, but it was not significantly different from the control group or the meeting group.

Three of the four studies report some reduction in crime or calls for service at treated drug properties or the block around the properties. The three studies that reported the positive findings were more rigorous than the single study showing no results. Thus we can be reasonably confident that holding owners responsible for drug dealing on their property may reduce drug related crime.

Conclusions About Residences

Collectively, there is reason to be optimistic about the efficacy of opportunity blocking tactics in residential settings. As a group, these evaluations – from the weakest to the strongest – suggest that improvements in crime reduction can be achieved. Nevertheless, it is difficult to be precise about what works, at which types of residential sites, and against which crimes. One set of tactics, however, does have a limited number of rigorous evaluations. Nuisance abatement is a place-focused tactic that “works.” With the evidence available we are relatively certain that holding private landlords accountable for drug dealing on their property by threatening abatement reduces drug related crimes. A weaker body of evidence suggests that reducing the ability of people to move freely about large public housing complexes can reduce crime.

Addressing repeat victimization deserves more attention in the United States but there is insufficient evidence to recommend that this tactic be applied wholesale at this time. Nevertheless, research on repeat victimization prevention in housing and other settings will be useful for public housing authorities, police agencies, and private landlords. Finally, by that standards used in this report, the evidence for target hardening is weak so it is of unknown effectiveness. Of particular concern is the lack of significance tests in target hardening evaluations that could provide evidence that observed crime reductions were not due to chance. More rigorous evaluations need to be conducted to improve our confidence in this tactic.

Table 7-2: RESIDENCES				
STUDY	SCIENTIFIC METHODS SCORE	TACTIC	SETTING	RESULTS
Allatt 1984	3	target hardening	British public housing	52% reduction relative to controls in burglary
Anderson, Chenery, Pease 1995a; 1995b	3	graded response depending on number of prior burglaries	British public housing (Huttersfield)	19% reduction in burglary relative to control
Chatterton & Frenz 1994	2	cctv including dummy cameras	elderly housing complexes, Manchester, Great Britain	79% decline in burglary and attempt burglary
Gabor 1981	3	property marking	residential dwellings, Canada	75% increase in burglary
Laycock 1985, 1991.	3	property marking	public housing, Great Britain	40% reduction in burglary
Tilly & Webb. 1994	3	improving security of doors and windows	Birmingham public housing, Great Britain	59% reduction in burglary
	3	improved door locks and removal of prepayment meters	Bradford public housing, Great Britain	91% reduction in burglary
Forrester, Chatterton, & Pease 1988; Forrester, Frenz, O'Connell & Pease 1990. Pease 1991. Tilly 1993a.	3	removal of pay gas meters; Cocoon neighborhood watch; security survey and hardware installation	Public housing, Great Britain	40% reduction in burglary in one year; continued drop over next three years
Meredith & Paquette 1992	2	crime watch (and target hardening)	apartment building	82% drop in burglary, little drop in other crimes
Popkin, et. al. 1995a; 1995b	1	guards, design changes, enforcement, identification cards, and other changes	Two high rise public housing buildings, Chicago	40% to 64% drop in drug dealing; 74% to 88% drop in shootings and fighting

Table 7-2: RESIDENCES (continued)

Newman 1996	2	restricting pedestrian movement and other design changes	Bronx public housing	54% drop in reported crime. 62% drop in burglary, robbery, & assault
Poyner 1994	3	closing walkways connecting buildings and installation of entry phone	London public housing	reported reduction in purse snatches
Eck & Wartell 1996	5	nuisance abatement	private residential rental property, San Diego CA	59% drop relative to controls in reported crime for most stringent intervention, 51% drop for less stringent intervention not significant
Green 1993; 1995; 1996	4	nuisance abatement	private residential properties with drug dealing in Oakland, CA	15% decline in arrests, 38% decline in field contacts, & 14% decline in calls
Hope 1994	3	closing or selling of property	3 addresses used for drug dealing in St. Louis, MO	54%, 67% and 95% reduction in calls for service
Lurigio, et. al. 1993	2	nuisance abatement	residential properties in Cook County, IL	no difference between treated and untreated blocks relative to drug dealing

RETAIL STORES

Places that sell goods to the public are frequent crime sites. The theft of goods represents a large proportion of these crimes. Some of these thefts are committed by patrons and some by employees. In addition to thefts, robberies of store clerks and burglaries after store hours can also be problems. In this section we examine all of these crime types. First we will look at convenience store robberies. Much has been written on this topic, but most of it describes correlational studies with very small samples, comparing stores with and without robberies. As we will see, the number of evaluations of interventions is limited. We will then turn to burglaries and robberies in other retail settings. Third, we will examine credit card fraud. The largest group of studies involves shoplifting prevention. Finally, we will look at thefts by employees.

Convenience Store Robberies

Although convenience stores have received considerable attention in the crime prevention literature, robberies of these retail establishments peaked around 1980-81, declined through 1983 and remained stable for the next 10 years at around 16,000 per year. Over the same period, the number of such stores has increased and gas station robberies have trended upward (Bellamy 1996). Comparisons of convenience stores with and without robberies have been carried out for over two decades. These studies attempted to find store features that are associated with few or no robberies. The studies generally suffer from three major scientific problems. First, they usually examine a variety of store features using a small sample of stores. Since these features are often correlated with each other, it is difficult to determine which features are related to robberies. Second, since the store features and robberies are measured at about the same time, it is unclear if the features preceded the robberies (and could possibly have influenced the chances of the crime) or whether the robberies cause store managers to change the store's features. Finally, most convenience stores have no robberies, but a few have many robberies. Crime prevention measures may work in the few stores with repeated robberies but have no influence on the other stores (Crow and Bull 1975). It is not surprising, therefore, that these studies can arrive at contradictory findings.

One of the most debated questions is whether two clerks reduces the risk of robberies. Hunter and Jeffrey (1992) cite a number of studies showing that stores with fewer robberies are associated with two clerks being on duty. LaVigne (1991) provides evidence that the number of clerks is unrelated to robberies. Another study, conducted by Robert Figlio, compared 230 convenience stores with two or more clerks on duty at night, to 346 stores with only one clerk on duty, and examined a subsample of one-clerk stores before and after they shifted to two clerks. The evaluation found no impact on robberies by the switch to two clerks, compared to similar stores that did not increase the number of clerks from one to two. However, for stores with robberies prior to the switch, two clerks did reduce the chances of a robbery (National Association of Convenience Stores 1991).

The Gainesville (Florida) Police Department evaluated a city ordinance requiring two clerks to be on duty. The police department found that convenience store robberies declined immediately after the ordinance took place (Clifton 1987). Wilson (1990) reviewed the initial evidence and found that a plausible rival explanation for the decline in robberies was the arrest of active offenders responsible for a rash of convenience store robberies just before the ordinance took place. Although the short term reduction may have been due to these arrests, robberies of these stores in Gainesville continued to decline for seven years following the ordinance and the arrests of the repeat offenders (Bellamy 1996). The controversy surrounding this ordinance, and Florida-wide efforts to increase the number of clerks, may have sensitized the convenience store industry and the police to this problem. Thus, many other changes could have created the long term reduction. Changes in stores' operations may also have been responsible for the reduction in robberies. Thus we cannot be certain the decline was due to the two clerk rule.

One of the first randomized experiments in crime prevention was undertaken over 20 years ago to determine if prevention measures in convenience stores reduced robberies. Crow and Bull (1975) matched 120 stores according to previous robberies and other characteristics. These stores were randomly assigned to either a control group or a prevention group. The type of prevention was selected based on site visits, so it was not possible to determine what type of prevention had what effects. The treated stores with two or more previous robberies had 30 percent fewer robberies after treatment than the untreated stores with two or more previous robberies.

In a later convenience store study, cameras and silent alarms did not appear to prevent robberies when 55 convenience stores in Columbus, Ohio and New Orleans, Louisiana receiving these devices were compared to 53 stores in Dayton, Ohio and Baton Rouge, Louisiana not receiving them (Crow and Erickson 1984). In the treated stores signs announcing the equipment were posted. These changes were accompanied by publicity in the treatment areas. No significant changes in robberies were found.

The National Association of Convenience Stores (1991) reported on two other interventions evaluated by Robert Figlio. The installation of interactive CCTV (allowing communication between the clerk and the personnel watching the TV monitor in a remote location) reduced robberies in 189 stores by a statistically significant 31 percent in the first year following the installations. By the second year, the reduction had shrunk to 15 percent, which was not statistically significant. No control stores were used in the analysis. One chain of 81 stores installed color video monitors that were visible to patrons and staff. Robbery rates were reported to have declined by 53 percent a year after installation. Again, no control stores were used.

The convenience store industry has conducted some of the most sophisticated crime prevention experiments available. These studies suggest that there are two types of stores, those with few or no robberies where crime prevention efforts are unlikely to

influence future robberies, and a fewer number of stores with several robberies where prevention efforts may be more productive.

Burglary and Purse Snatching in Other Retail Places

Burrows and Speed (1996) report on an effort to curb "wire-cut" burglaries of electronics stores. Since alarm systems in these stores are connected to a remote monitoring station, burglars cut the telephone lines before entering. Electronically monitoring the integrity of the phone lines appears to have reduced losses from these types of burglaries. Unfortunately the authors only show a graph of the data without reporting the figures for burglaries or losses. Trends in wire-cut burglaries were compared to other types of burglaries and indicated that the decline was unlikely to be due to a general decline in burglaries, independent of the preventive tactic studied.

"Ram-raiding" involves crashing a vehicle (often stolen) into the front of a retail establishment and then removing valuable products. The costs of the damage to the store are considerable and often exceed the costs of the stolen merchandise (Jacques 1994). This is a problem in Great Britain, but its extent in the United States is unknown. Jacques (1994) reports that the installation of metal shutters in six large retail establishments cut burglary costs 53 percent (from an average of 20,892 pounds sterling to 9613 pounds sterling). In one store, burglars shifted to a roof entry thus providing evidence of limited displacement in burglary tactics. No control stores were examined.

Thefts from shoppers at retail places can also be a problem. In shopping markets in one British city, women's purses were being taken from their shopping bags. The aisles of the markets were widened to reduce the bumping of patrons that facilitated the thefts. Poyner and Webb (1992) report that a comparison of reported thefts for the three years prior to the changes to the two years after, showed a 44 percent decline in these offenses. Simultaneous changes in nearby markets makes them unsuitable as control places, so we have no evidence about background trends.

Credit Card Fraud

Three evaluations examined attempts to prevent credit card fraud at the point of sales. All three involved staff training and increased attention to customers. Two studies describe providing clerks with more information about potential offenders, either through liaison with law enforcement authorities (Masuda 1993) or by providing computer-aided identification of shoppers wishing to use credit cards to pay for purchases (Masuda 1996). Both evaluations compared pre-program losses to post-program losses, but did not use control stores. Losses declined 82 to 90 percent.

A British experiment in lowering the limit for unauthorized credit card purchases along with improved information exchange about possible offenders may have reduced

fraud losses by 25 to 41 percent nationwide, depending on the length of the pre-treatment period used (Webb 1996).

Although these studies did not use strong evaluation designs, they consistently report that tightening restrictions on credit card use and use of information about people with a history of credit card fraud can reduce this crime. Such findings underscore the point that many losses by retailers are due to choices about how to conduct their business. Challinger's (1996) evaluation of refund fraud reduction reinforces this point. Refund fraud involves the return of stolen goods for a refund. The store ends up paying for the merchandise twice, the first time at the wholesale price and the second time at the retail price. Challinger (1996) reports that requiring proof of purchase may reduce the losses from this form of theft. For confidentiality reasons, he does not report the amount of losses for stores involved in the evaluation.

Shoplifting

Here we will look at several methods for preventing shoplifting. Two interventions, electronic article surveillance and ink tags, have received multiple evaluations. Electronic article surveillance (EAS) involves placing tags on merchandise that only clerks can remove at time of payment. If a clerk does not remove the tag and the shopper leaves the store, the tag causes an alarm to sound. EAS technology improves employee surveillance of goods. Ink tags deface the merchandise if it is removed from the store without paying. This destroys the value of the goods to thieves.

Five evaluations of EAS were reviewed and each reported reductions in crime events or shrinkage. All compared crime or shrinkage (unaccounted for declines in inventory) before the installation of EAS to the same measures after, and all used a control store to measure background trends. The reduction in shrinkage varied from 32 percent (Bamfield 1994) to 80 percent (DiLonardo 1996). Farrington and colleagues (1993) report even greater reductions in shoplifting in the two stores they examined (76 to 93 percent). Furthermore, EAS was found to be more effective than security guards (no improvement) or store redesign (50 to 80 percent improvement) (Farrington et. al. 1993). Unfortunately, with one exception (Farrington et. al. 1993) significance tests were not reported so we cannot determine the probability that the reported reductions were due to chance.

Ink tags may also reduce shoplifting, but we have fewer studies and they used weaker evaluation designs. DiLonardo and Clarke (1996) report on two quasi-experiments involving ink tags. Both used repeated inventory counts to measure inventory reduction before and after the installation of the tags. In the first study, 14 new stores were compared to the chain-wide average. Shrinkage was reduced 14 percent in the new stores. In the second study, ink tags were installed in four stores, but no control stores were used. Shrinkage declined by 47 percent. As we will see below, repeated inventory counts have been linked to reduced employee theft, so we cannot be certain that

the changes reported in these two ink tag studies are due to the ink tags or the method of measuring shrinkage.

The final shoplifting evaluation is a case study of a single store where the problem was minor thefts by elementary school children. A combination of individual and collective rewards were offered the children for refraining from stealing small items. The period before the program, program period, and a period after the program ended were compared. Shoplifting of targeted items declined by 58 percent and profits increased 42 percent during the program period compared to the periods before and after the program.

Shoplifting appears to be controllable by the use of EAS technology, and possibly ink tags. If more evaluations had used significance tests we could have classified EAS as "works." In the absence of this information EAS must be placed in the "do not know" category. Limited evaluations of other approaches suggest that there may be alternative approaches as well. The single study that examined the value of guards found that they were of no assistance in reducing shoplifting, but as Farrington and colleagues (1993) point out, this may be due to an implementation failure.

Employee Theft

Masuda (1992) examined the effectiveness of increasing the frequency with which articles at great risk of theft are counted. Since the increased inventory counts were unknown to shoppers but were known to store employees, it is reasonable to assume that the 100 percent reduction in shrinkage he found was due to the deterrence of employees. The 85 percent reduction in non-target item shrinkage may be attributable to a diffusion of benefits effect. However, the absence of an uncontaminated control makes it difficult to determine if this reduction was an unexpected program effect or evidence of declining shrinkage independent of the intervention.

Table 7-3: RETAIL STORES				
STUDY	SCIENTIFIC METHODS SCORE	TACTIC	SETTING	RESULTS
Crow & Bull 1975	5	variety	convenience stores	stores with 2 prior robberies had 30% fewer robberies relative to controls
Crow & Erickson 1984	4	surveillance cameras	convenience stores	No significant change in robberies
National Association of Convenience Stores 1991	4	two clerks	convenience stores	15% reduction in robberies over 2 year period in high robbery stores
	2	cctv	convenience stores	15% reduction in robberies over 2 year period
	2	video monitors for patrons and staff	convenience stores	53% reduction in robberies
Poyner & Webb 1992	2	widening aisles in open market	public market in Birmingham, Great Britain	44% reduction in thefts from purses
Burrows & Speed 1996	3	electronic monitoring of phone lines	electronic retail stores	noticeable decline in wire cut burglaries but amount difficult to determine from chart provided
Jacques 1994	2	metal shutters	electronic retail stores	53% drop in losses due to ram-raiding burglaries
Masuda 1993	2	profiling offenders, training, liaison with law enforcement	retail store chain	82% decline in credit card fraud losses
Masuda 1996	3	computer aided positive identification at point of sales	retail stores	90% reduction in credit card fraud losses
Webb 1996	2	lowering limits for use of credit cards, improved information exchange, and other tactics	point of sales in retail establishment in Great Britain	25% to 41% decrease in credit card fraud losses nationwide
Challinger 1996	3	requiring proof of purchase for refund, and related procedures to prevent refund fraud	retail stores	decline in losses and reports.

Table 7-3: RETAIL STORES (continued)

Bamfield 1994	3	EAS to prevent shoplifting	retail stores	32% reduction in shrinkage
DiLonardo 1996	3	EAS to prevent shoplifting	retail stores	47% decline in shrinkage over 5 years
	3	EAS to prevent shoplifting	retail stores	80% decrease when installed. When reinstalled over 80% decline repeated.
	3	EAS to prevent shoplifting	retail stores	52% decrease in shrinkage
DiLonardo & Clarke 1996	3	ink tags to prevent shoplifting	retail stores	14% reduction in inventory shrinkage
	3	ink tags replace EAS to prevent shoplifting	retail stores	47% decline in inventory shrinkage
Farrington et.al. 1993	3	uniformed guards	retail stores in Great Britain	No measurable impact on shoplifting
	3	store redesign	retail stores in Great Britain	58% drop in shoplifting at one store and 80% decline in another in target items stolen.
	3	tagging	retail stores in Great Britain	76% reduction in shoplifting at one store and 93% reduction in another in target items stolen.
McNees, Schnelle, Kirchner, & Thomas 1980	3	awards for compliance to prevent shoplifting by elementary school children	single convenience store	58% decline in shoplifting of targeted items. Estimated increase in profits of 42% during program
Masuda 1992	2	increased frequency of inventory counts to prevent employee theft	retail stores	Elimination of shrinkage for targeted products, 85% decline in shrinkage of non-targeted products

BANKS AND MONEY HANDLING PLACES

The robbery of banks and other places that provide money handling services is a serious problem. In this section we will examine evaluations of security measures in United States and Swiss banks, British post offices, and Australian betting shops.

Guards may prevent bank robberies. A study of 236 banks in the Philadelphia area found one less robbery per year at banks with guards compared to banks without them, controlling for the surrounding area, police response time, proximity to major streets, and other prevention measures used. Screens protecting tellers and cameras were not associated with fewer robberies (Hannan 1982). Since these tactics are often found together, the evidence about the effectiveness of any specific measure is weak. Though this is a correlational study, the evaluator made special efforts to control for temporal order. Information about security measures came from surveys administered by the Federal Reserve and only crimes reported after the survey were used in the analysis. Because we can be sure that the interventions were installed prior to the crimes, this evaluation was given a scientific methods score of 2.

Two other studies provide better evidence that screens protect clerks from robberies. A study of over 300 Swiss banks found that banks with screens had a 52 percent lower robbery rate than banks without them (Grandjean 1990). Ekblom (1987, 1988) examined the installation of bullet proof barriers to protect post office clerks. He estimated that the barriers reduced robberies from 55 percent to 65 percent, net of changes in control group robberies. Both studies found evidence for displacement, but even accounting for displacement, robberies declined substantially.

Clarke and McGrath (1990) examined the effects of time-lock cash boxes and safes on Australian betting shop robberies. Relative to control places, robberies may have been reduced by 52 to 139 percent. The results may be highly unstable given that there were three interventions throughout a 10-year period.

An examination of a drop in the number of bank robberies in Victoria, Australia asserts that this was due to the installation of screens protecting clerks, guards, cameras, and other security devices (Clarke, Field, and McGrath 1991). After increasing from 1979 through 1987, the number of bank robberies dropped to levels similar to those found in earlier years. Similar patterns of growth and rapid decline were found in bank robberies in an adjacent state and in robberies of other businesses. It is unclear if the protective measures were installed only in Victoria's banks and when they were installed.

We do not know what works to prevent robberies at banks and other money handling places. The scientific methods scores for the interventions are either below 3 or significance tests were not reported. The evaluations suggest that guards, bullet proof screens, and secure cash containers might reduce crimes, but more rigorous evaluations are needed to draw firm conclusions.

Table 7-4: BANKS AND MONEY HANDLING PLACES

STUDY	SCIENTIFIC METHODS SCORE	TACTIC	SETTING	RESULTS
Clarke & McGrath. 1990	3	time-lock cash boxes and safes	Betting shops in Australia	robberies declined 52% to 139%
Clarke, Field & McGrath 1991	1	security screens, and other measures	Banks in Victoria, Australia	drop in bank robberies
Eklblom 1987 1988	3	counter screen barriers in front of clerks	Post offices in London	55% to 65% reduction in robberies
Grandjean 1990	2	bulletproof screens for tellers	Banks in Switzerland	52% reduction in robberies
Hannan 1982	2	security guards, screens and cameras	Banks in Philadelphia, PA area	reduction of one robbery per year for most robbery prone banks due to guards

BARS, TAVERNS AND DRINKING ESTABLISHMENTS

There is a consistent research literature that points to a relationship between the presence of bars and crime in the surrounding area (Roncek and Bell 1981; Roncek and Pravatiner 1989; Roncek and Meier 1991; Block and Block 1995). Despite this reputation, most bars may be relatively crime free while a few may be hotspots of crime (Engstad 1975; Sherman, Schmidt, and Velke 1992; Homel and Clark 1994). The behavior of bartenders and bouncers may contribute to violence in these places (Homel and Clark 1994) and changes in bar management practices (from server training and changes in legal liability of bartenders) may reduce assaults (Putnam et. al. 1993), drunk driving (Saltz 1987), and traffic accidents (Wagenaar and Holder 1991).

Two Australian programs to reduce violence created agreements among pub managers to improve the training of bouncers, reduce crowds of youths, and improve relationships with police, along with other tactics (Homel et. al. 1997). In one evaluation observers reported a 53 percent reduction in assaults per 100 hours of observation in the first year of the program. The prevention effects decayed over time. Three years after implementation the reduction had declined to 15 percent. No control pubs were observed (Homel et. al. 1997). The other evaluation examined serious assaults at downtown pubs for the year before and four years after the management accord, and compared these changes to the same period for six other cities in the same state. Serious assaults declined 40.5 percent in the target city but increased 14.3 percent in the control cities (Felson, et. al. 1997).

The consistent results from Australia and the United States summarized in Table 7-5, suggest that changing the management of drinking places is a promising method for prevention of drinking-related offenses.

Table 7-5: BARS AND TAVERNS

STUDY	SCIENTIFIC METHODS SCORE	TACTIC	SETTING	RESULTS
Felson, et. al. 1997	3	code of practice for pubs	bars and drinking establishments in Geelong Australia	60% decline in serious assaults, net controls
Homel, et. al. 1997	2	training for bouncers, code of practice	bars and drinking establishments in Australian town	53% decline in assaults/100 hours of observation 1st year after implemented, but only 15% decline compared to 3 years after
Putnam, Rockett, & Campbell 1993	3	training of alcohol servers and police enforcement	alcohol sales outlets in one Rhode Island community	decline in alcohol related assaults & vehicle crash injuries, relative to control communities
Saltz, 1987	3	changing serving policies and training	Navy enlisted club in California	Over 50% reduction in driving when drunk

PUBLIC TRANSPORTATION

Two types of public transportation have been the subject of evaluations: buses and subways. Evaluations investigated prevention measures directed at four types of crime: crimes against riders; attacks on staff; fare evasion; and vandalism. The types of interventions have been quite varied, ranging from complete system design to volunteer citizen patrols.

Incivilities and Crimes Against the Public

The Washington, D.C. Metro System has been singled out in crime prevention literature as having been designed to prevent crime (LaVigne 1997) and is sometimes contrasted with the New York City subway system which gained a reputation for crime in the 1970's (Sloan-Howitt and Kelling 1990; Dwyer 1991). "Designing in" crime prevention may be effective, but it is difficult to determine if a design is effective. LaVigne (1997) compared the Washington, D.C. Metro to three other urban rail transit systems and found that it had less crime than the other systems. She also compared subway station crime to crime in the areas above-ground. If the system had no influence on crime then the above-ground crime levels and station crime levels should be correlated. If the system design prevented crime, then there should be no relationship between station and above ground crime. LaVigne (1997) found that, except for assaults, ground level and station crime were not correlated. Although this is not a strong research design, it is the best evidence available that system design influences crime patterns.

To improve passenger confidence in the safety of the New York subway system, an intensive cleanup program was undertaken to remove graffiti from all train cars and stations. Rapid cleanup would deprive vandals of the benefit of seeing their graffiti (Sloan-Howitt and Kelling 1990). By treating the physical appearance of the system, it was hoped that this would make the public feel safe and bring more people into the system. More riders would increase the number of people watching out for each other, and this could drive down crime. This chain of events is expected according to the "broken-windows" hypothesis (Wilson and Kelling 1982). Sloan-Howitt and Kelling (1990) show that graffiti was virtually eliminated, and despite increased police attention to graffiti, arrests for this offense also declined.

A similar effort was carried out by the Victoria (Australia) transit system which includes trains, trams and buses. The Victoria program involved rapid repair and cleaning of vandalized equipment, along with stepped up police enforcement. Carr and Spring (1993) show that train availability increased 45 percent and reported crimes against persons declined 42 percent.

Another comprehensive program to clean up a problematic transit facility has been described by Felson and colleagues (1997). The title of their paper, "Redesigning Hell," suggests the state of disrepair into which the New York Port Authority Bus Terminal had

fallen. Sixty-three interventions were made at the terminal, at about the same time. These included closing off spaces, improving shopping, cleaning, increased enforcement, and other measures to remove situations that facilitated offending or increase the number of patrons and their ability to watch each other. Although robberies and assaults declined in the station, they also declined in the surrounding area. Outside crime control efforts or diffusion of crime control benefits to the surrounding area may account for these parallel trends. Annual surveys of patrons that began with the cleanup in 1991 show declines in incivilities and disorder.

Vandalism against buses is another problem in transit systems. Poyner (1988) describes how the installation of CCTV on a portion of a bus fleet was followed by reduced vandalism throughout the fleet. There was also a public information campaign directed at the group of people most likely to be responsible for the damage, school children. Poyner (1988) attributes the diffusion of benefits from the targeted buses to the entire set of buses, to offenders' confusion over which buses had the CCTV. Unfortunately, this evaluation only describes trends in vandalism after CCTV was installed.

Kenney (1986) evaluated the effectiveness of Guardian Angel patrols at stations by comparing crime changes to control stations without these patrols. He found that these citizen patrols had no discernible impact on crime in the patrolled stations. This may be because the base rates of crime in the stations were too low to detect an effect (Kenney 1986).

Webb and Laycock (1992) also found no evidence that the Guardian Angels reduced crime in the London Underground. They did find that the installation of CCTV in London Underground stations reduced robberies 11 to 28 percent, relative to control stations without CCTV. Twenty-two months of data before CCTV installation and 26 months after installation at selected stations were compared.

On the whole, we have limited information about how to prevent incivilities and crime against transit. In part this is due to the difficulty in assessing system-wide designs and comprehensive changes. Selecting a control system and disentangling the effects of multiple interventions is very difficult. Rapid cleanup and repair to deprive offenders of the pleasure of seeing their graffiti appears to be effective, but the evidence to date is weak.

Attacks On Bus Drivers

The two evaluations of attacks on bus drivers provide evidence that these crimes can be reduced. The rise in robberies of bus drivers in the late 1960's and early 1970's prompted New York City officials, along with transportation officials in other U.S. cities, to remove accessible cash that was the target of the robbers. They required passengers to give exact fares and prohibited bus drivers from giving change. Fares were put in secure boxes. Chaiken, Lawless, and Stevenson (1974) reported a 90 percent reduction in bus driver robberies following these changes. The Stanford Research Institute (1970) reported similar

results in its review of the effect of exact fare systems in 18 other cities (Clarke 1992, page 216).

If the target of the attack cannot be removed, then maybe it can be protected. A bus company in northern England used two approaches to protect its drivers from assaults by riders (Poyner and Warne 1988). The first was to simplify the fare system so it would be less aggravating. They also installed protective screens around bus drivers. Assaults on drivers declined 90 percent following the installation of screens. Assaults on all employees fell during this period, but not as much as it fell for drivers (37 percent).

Fare Evasion

Transit systems suffer from people who try to enter without paying the correct fare. Fare evasion can simply mean jumping gates or moving through entries without paying, or it can involve the use of slugs in gates or ticket machines. Three evaluations examined the redesign of gates or ticket machines to curtail fare evasion. All three report evidence suggesting declines in this form of theft. Clarke (1993) reports an increase in ticket sales of 10 percent, relative to control stations where new automatic gates were not installed. Clarke, Cody and Natarajan (1991) show that one form of slug use was totally eliminated by modifying ticket machines so they would not accept a type of coin for which a slug could be substituted. This was a system-wide change so no control stations were available. Finally, Weidner (1997) gives results of the effect on fare evaders of the installation of new gates in the New York City subway. While arrests declined in the target station, they increased in adjacent control stations. Whether this was due to changes in police enforcement, displacement, or background trends cannot be determined from the evidence provided.

Two evaluations examined personnel changes to reduce fare evasion. Increases in ticket takers at a Canadian ferry terminal may have reduced fare evasion by 20 percent, although there were no control sites to assess background trends (DesChamps, Brantingham, and Brantingham 1992). A Dutch effort to reduce fare evasion in three cities decreased fare dodging by 18 to 78 percent. Authorities recruited over 1100 unemployed young people to monitor ticket use on the buses, trains and trams in the three cities. This report (vanAndel 1986) claims that there was also a 60 percent decline in assault on and harassment of patrons. Like the Canadian study, there was no control group.

Conclusions about Transportation System Prevention

Although there are several evaluations of crime prevention in transportation settings, we know relatively little about the effectiveness of these interventions. This is in part due to the variety of crime types that are applicable to transportation systems. It is also due to the number of settings (buses, trains, and stations) within the system, as well as the variety of victims (patrons, staff, and facilities). Thus a large number of studies are needed to learn

what works to prevent crime in transit systems. However, there are methodological complications that make learning about crime prevention effectiveness quite difficult. Many of the systems are large and there are few, if any, plausible control settings are available to measure background trends. Places within systems are linked, so internal changes to part of a system can influence crime in other parts of the system. If untreated parts of the system are used as controls, diffusion of benefits or displacement effects can confound the findings. We cannot, therefore, identify, with reasonable certainty, any specific tactic against specific crimes, that can be said to “work” across similar settings in other cities.

Table 7-6: PUBLIC TRANSPORTATION FACILITIES

STUDY	SCIENTIFIC METHODS SCORE	TACTIC	SETTING	RESULTS
LaVigne 1997	1	subway system design	Washington, DC metro subway	system design may prevent crime
Carr & Spring 1993	2	improved cleaning and vandalism repair; patrolling	public transportation system, Victoria, Australia	45% improvement in train availability. 42% reduction in crimes against persons
Felson et. al. 1997	3	63 different tactics imple- mented about the same time	Port Authority Bus Terminal, New York City	reduction in robberies & assaults but not compared to surrounding area; reductions in incivilities
Kenney 1986	3	Guardian Angels	subways	no detectable impact on crime
Poyner 1988	1	cctv	buses	steady decline in vandalism
Webb & Laycock 1992	3	cctv (and other tactics)	stations on London Underground	11% to 28% reduction in robberies
Chaiken, Lawless, & Stevenson 1974	2	exact fare requirement	buses in New York City	90% decline in robberies of bus drivers
Poyner & Warne 1988	2	protective screens for drivers	buses in Cleveland, Great Britain	90% reduction in assaults on drivers
Clarke 1993	3	automatic gates to prevent fare evasion	London Underground	10% increase in ticket sales
Clarke, Cody & Natarajan 1991	2	modification of ticket vending machines	London Underground	elimination of problem of slug use within 4 months of modification
DesChamps, Brantingham, & Brantingham 1992	2	increase in rush hour attendants to check tickets, training in fraud detection	ferry terminal	20% reduction in fare evasion rate
vanAn del 1989	2	recruiting over 1100 young unemployed people as public transit monitors	buses, metro trains and trams in 3 large cities in the Netherlands	18% to 72% decrease in fare dodging depending on city and mode of transport, 60% decline in attack or harassment victimizations
Weidner 1997	3	installation of new fare gates	stations on New York City subway	fare evasions declined in target station

PARKING LOTS AND GARAGES

Evaluations of crime prevention in parking lots and garages examined changes in people who watch cars. These people were often security guards, although one evaluation looked at placing a taxi business near the entrance to a parking garage to increase informal guardianship (Poyner 1991). Another set of interventions used close-circuit television to centralize watching.

Guards and Security Attendants

Four evaluations are available reporting on the effectiveness of adding security guards to parking lots. Four showed reductions in car-related crimes (Barclay et. al. 1996; Laycock and Austin 1992; Poyner 1994; and Poyner 1991) and one found no improvement (Hesseling 1995). Although these studies suggest auto thefts and thefts from automobiles might be prevented by increasing people who watch lots, there are two important caveats. Poyner (1991) notes that parking lot strategies that control access may curb thefts of vehicles, but may be ineffective at controlling thefts from vehicles. The failure of Hesseling (1995) to find a reduction in thefts from vehicles may be due to the way the guards were deployed. Thus, what the guards do may be as important as their deployment. Second, none of these studies examined personal violence against people using parking facilities. In conclusion, because of the mixed results of the evaluations, we do not know if guards or security attendants prevent crimes in parking lots.

Closed-Circuit Television

There are seven evaluations from Great Britain of the effects of CCTV on vehicle crimes (thefts of vehicles, thefts from vehicles, and damage to vehicles), but no evaluations of its effect on other crimes in parking facilities (Poyner 1992; Tilly 1993c). The weakest of the evaluations found no effect (Coventry lots, in Tilly 1993c). The other six evaluations found varying levels of decline in vehicle crimes. In the CCTV parking lots evaluated, thefts from vehicles declined 46 to 94 percent, and thefts of vehicles dropped 18 to 89 percent, depending on the evaluation. We do not know if these results can be replicated in the United States. There is no empirical basis for recommending CCTV to prevent parking lot violence. The results suggest that CCTV should be tested in high vehicle crime parking lots within the United States. Because of the lack of significance tests we must classify CCTV in parking facilities as having "unknown" prevention effectiveness.

Conclusions About Parking Facilities

Evaluations in parking lots and garages outside the United States consistently support the hypotheses that guards and CCTV reduce vehicle-related property crime.

Though several CCTV studies had scientific methods scores of 3, they lacked of significance tests. Therefore, CCTV's effectiveness in parking lots is "unknown." These studies do not report on violent crimes in parking lots, including robberies and car-jacking. The highly crime-specific nature of intervention effectiveness suggests that we must be careful drawing inferences about the effectiveness of interventions to places and setting where they have not been tested.

Table 7-7: PARKING FACILITIES

STUDY	SCIENTIFIC METHODS SCORE	TACTIC	SETTING	RESULTS
Barclay et. al. 1996	3	security guards on bikes	commuter parking lot	53% reduction in car thefts/ month
Hesseling 1995	3	guards	parking area in Rotterdam	2% increase in thefts from automobiles relative to control
Laycock & Austin 1992	3	security attendant	parking area	52% to 60% in auto theft reduction
Poyner 1994	2	guard	parking area	Reduction in auto thefts. Amount cannot be estimated
Poyner 1991	3	restricting foot access, improved lighting, increased guardianship	parking garage	29% increase in thefts from vehicles, 35% reduction in thefts of vehicles
	3	cctv	parking lots	71% & 94% reduction in thefts from cars
Tilly 1993c	3	cctv	parking lots, Hartlepool, Great Britain	75% reduction in theft of autos, 60% reduction in theft from autos
	2	cctv	one parking lot, Hull, Great Britain	45% reduction in damage to autos, 89% reduction in theft of autos, and 76% reduction in theft from autos
	2	cctv	one parking lot, Lewisham, Great Britain	75% reduction in auto crimes
	3	cctv	one parking lot, Bradford, Great Britain	73% to 78% reduction in theft from autos, 49% to 75% reduction in thefts of autos
	2	cctv	one parking lot, Wolverhampton, Great Britain	18% reduction in thefts of autos, 46% reduction in thefts from autos
	2	cctv	5 parking lots, Coventry, Great Britain	no discernible pattern in auto crimes

AIRPORTS

Aircraft hijacking by armed passengers has been a problem since World War I. Wilkinson (1977) has documented the worldwide trends in this problem. From 1948 (when records were first kept) through 1957 there were 15 attempts worldwide and none involved aircraft originating in the United States. In the next decade there were 48 hijackings worldwide (23 of them North American originating flights). In 1968, the number of world-wide aircraft hijackings began an explosive climb. There were 38 that year, and 82 the next. In response, policy makers implemented a number of strategies, including treaties to ensure the return of hijackers and aircraft. By 1973, hijacking attempts had dropped to 22 worldwide and 2 in the United States (Wilkinson 1977).

Since several interventions were put into place over a short time period during the early 1970s, it is difficult to determine which tactics made the greatest contribution to the decline. Sky marshals (armed nonuniformed security guards) were assigned to selected flights beginning in 1970. To thwart parachuting from aircraft, modifications were made to the rear doors of Boeing 727's and DC 9's to prevent them from being opened in flight (Landes 1978). In early 1973, the U.S. and Cuba signed a treaty that required each country to extradite or punish hijackers (Landes 1978).

Landes (1978) attempted to determine the effectiveness of sky marshals and passenger screening. He used a time series analysis of 64 quarter years and 143 incidents. He also controlled for hijacking of aircraft originating from foreign airports to remove world-wide trends in skyjacking and attempted to remove the effects of the Cuba treaty. He provides evidence for an 82 percent decline in U.S. hijacking due to the combined effects of the Cuba treaty, sky marshals, and passenger screening. He then estimated the contribution of the three policies: screening was the cause of a decline of 45 percent, sky marshals created a 28 percent decline, and the remainder (9 percent) was probably attributed to the Cuba treaty.

Two other studies, using annual data for different time periods and weaker evaluation designs, also found large declines in aircraft hijacking in the United States following passenger baggage screening (Wilkinson 1977; Eastal and Wilson 1991). These studies did not attempt to estimate the effects of different hijacking programs.

The variation in aircraft hijacking from year to year and the virtually simultaneous implementation of multiple prevention methods at airports around the world make it difficult to come to definitive conclusions regarding any particular intervention. Nevertheless, the weight of the evidence supports the effectiveness of passenger screening.

These findings are important. First, they demonstrate the potential utility of opportunity blocking against highly determined offenders. Second, they illustrate some of the difficulties of evaluating place-focused prevention (multiple simultaneous

interventions, detecting reductions in rare events, and the difficulty of finding control places). And third, they may have implications for other places.

What do these findings about the use of metal detectors to screen for weapons at airports tell us about their deployment at other places? These devices have been used to enhance the security of court buildings, schools, government offices, and public housing. Are they effective? From an empirical perspective, we can only say we do not know. Evaluations are scant and weak. A New York City study of the use of metal detectors found that weapon carrying in schools with metal detectors (n=19) was lower than in schools without the devices (n=96), but there were no differences in assaults within or outside these schools (Centers for Disease Control and Prevention 1993). This evaluation has a scientific methods score of four, and although there was a decline in risk-factors for violence, there was no significant decline in violence. In the residential places section we noted an evaluation of a multi-tactic intervention in a particularly troubled set of public housing buildings (Popkin, et. al. 1996). Metal detectors were a part of this program, but it is impossible to determine what, if any, influence they had because so many other things were implemented at the same time. We cannot, therefore, be confident about the transferability of this tactic to other, very different settings.

Table 7-8: AIRPORTS				
STUDY	SCIENTIFIC METHODS SCORE	TACTIC	SETTING	RESULTS
Easteal & Wilson. 1991	2	passenger screening with metal detectors	US Airports and originating flights	64% reduction in hijacking of passenger aircraft
Landes 1978	3	passenger screening with metal detectors	US Airports and originating flights	45% reduction in hijacking of passenger aircraft
	3	sky marshals		28% reduction in hijacking of passenger aircraft
Wilkinson 1977	3	passenger screening with metal detectors	airports	41% reduction in hijacking of passenger aircraft in US, 3% drop world-wide

OPEN PUBLIC SPACES

The places considered in this section are open spaces in cities, including street corners and segments. Four types of interventions will be examined. The first is the control of problem offenders. The second is improved lighting. The fourth is the use of closed-circuit television (CCTV). Finally, we examine street closures and rerouting.

Controlling Problem Offenders

Two efforts to control public drinking as a means to reduce assaults and incivilities in downtown areas provide evidence that controlling problem offenders may be effective. Ramsay (1990; 1991) reports on the banning of public drinking in one English town. Comparing the year before and the year after the ban (with no control group) he found no changes in assaults, but surveys of people using the area suggest that there may have been a reduction in incivilities. A Swedish effort to reduce disorder at an annual festival reported a decline in drunkenness and disorderly conduct arrests following the prohibition of public drinking, banning high risk offenders, and the closing of a popular camping site (Bjor, Knutsson and Kuhlhorn 1992). This study compared arrests at the previous year's festival to arrests at the festival with the restrictions, without control area comparisons.

Lighting

Lighting campaigns seek to enhance the ability of people to provide protection for each other. In 1979, the predecessor agency of NIJ, the National Institute of Law Enforcement and Criminal Justice, reported on a review of 60 lighting evaluations. The authors of this review concluded:

"Is street lighting an effective approach in the reduction and deterrence of crime? The answer is inconclusive. The paucity of reliable and uniform data and the inadequacy of available evaluation studies preclude a definitive statement regarding the relationship between street lighting and crime." (Tien, et. al. 1979, page 93, emphasis in the original)

Almost twenty years later, we know little more about the effectiveness of lighting.

In the 1980's, a borough in London upgraded all of its street lighting. Atkins, Husain and Storey (1991) compared reported crimes the year before the relighting to the year following for 39 sections of the borough. No control areas were used, so background trends in crime cannot be assessed. No systematic changes in crime were detected. Surveys of residents of one area found no changes in perceptions of security.

A Scottish study of relighting in a Glasgow neighborhood and a small town near Glasgow found that there was a short term reduction in victimizations that varied from 32 percent to 68 percent, depending on how victimization was measured (respondent victimizations, victimization of respondents' children, victimization of other family members, victimization of friends, or car victimization). Reported crime dropped 14 percent. The evaluators compared a three-month period prior to relighting to a three-month period following (Ditton and Nair 1994). No control group was used and the results for the two neighborhoods were combined.

Finally, we need to consider three separate evaluations, with similar designs, undertaken by Painter (1994). She examined lighting improvements on two separate street segments and a footpath, all located in "crime prone" areas within London. Pedestrians were interviewed before and after the lighting improvement. All interviews were conducted after dark and were completed within 6 weeks of the relighting. No interviews were conducted in control areas. Substantial reductions in robberies, auto crimes, and threats were reported in two sites (86 percent, 79 percent). These crimes were eliminated in the third site, but the number of crimes before relighting was small so this could have been the result of other factors.

Not much has changed since Tien and his colleagues (1979) gave their critical assessment of the impact of lighting on crime. In part this is due to the lack of research on lighting, particularly in the United States. However, the limited research on lighting continues to use weak designs (typically without control areas) which fail to substantially reduce our uncertainty about the effect of lighting on crime. We may speculate that lighting is effective in some places, ineffective in others, and counter productive in still other circumstances. The problematic relationship between lighting and crime increases when one considers that offenders need lighting to detect potential targets and low-risk situations (Fleming and Burrows 1986). Consider lighting at outside ATM machines, for example. An ATM user might feel safer when the ATM and its immediate surrounding area are well lit. However, this same lighting makes the patron more visible to passing offenders. Who the lighting serves is unclear.

Closed-Circuit Television

Closed-circuit television (CCTV) enhances the ability of a designated guardian to watch people in an area and to call for police intervention if potential trouble is detected. This is supposed to increase the risks of offending, but only if the CCTV surveillance is well known to the people who use the area. This project was unable to locate any published scientific evaluations of the use of CCTV in urban areas of the United States.

Three CCTV evaluations have been reported in Great Britain (Brown 1995). As deployed, a set of video cameras are posted in center city areas and monitored at a central station. The cameras cover many, but not all locations in the target area. Finding locations with clear unobstructed views, year round, can be difficult. CCTV cameras

were installed around the town center of Newcastle-upon-Tyne in late 1992 and early 1993. Using a time series of 23 months prior to the installation of cameras, four months during, and 14 months after, and comparing CCTV covered areas to uncovered areas in the same period, Brown (1995) found that burglaries declined by 18 percent, auto thefts dropped 9 percent, thefts from autos went down 11 percent, and other thefts declined 7 percent. No effect was found for robberies.

Brown (1995) used a similar design to assess the impact of CCTV in Birmingham. He compared reported crime 12 months before, two months during, and 30 months after installation to control areas. Unfortunately, no figures were provided with the reported charts, but visual inspection of the time-series charts provided suggests reductions in robbery, burglary, and thefts. Similar results were reported for another town center in Great Britain, King's Lynn. Four quarters of reported crime before installation were compared to seven quarters after. A control area was used. Again, the data was not given, but visual inspection of the charts suggests reductions in burglary, assaults, thefts from vehicles, and thefts of vehicles. Significance tests were not reported in any of these case studies.

The effectiveness of CCTV in open spaces is unknown due to the lack of significance tests. Given recent interest in the use of CCTV in the United States, this tactic should be given a high priority for rigorous evaluations. Absent evaluation results from installations in the United States, the level of uncertainty about CCTV effectiveness is too high to advocate its use except to test its effectiveness.

Street Closures

Research has suggested that areas with easy access have more crime than areas with street layouts that restrict access (White 1990; Beavon, Brantingham and Brantingham 1994). Oscar Newman (1982) reported on crime and its association with privately owned streets with limited access. He compared these streets in a St. Louis neighborhood to nearby publicly owned, free access streets and found that the private streets had less crime. In this section we will examine five evaluations that support the hypothesis that closing and rerouting automobile traffic can reduce crime.

In 1986 the citizens of Miami Shores, Florida (just outside Miami, in Dade County) voted to increase taxes to fund closing off 67 streets (Atlas and LeBlanc 1994). The closings took place between July 1988 and March 1991. The evaluation compared changes in reported crime within the town to the changes in the same crimes in the surrounding county and Miami. Mean 1986 and 1987 crimes (before installation) were compared to the mean number of reported crimes in 1991 and 1992 (Atlas and LeBlanc 1994). There were no significant changes in reported robberies and aggravated assaults within Miami Shores compared to the two control jurisdictions. Relative to changes in Dade County, reported burglaries significantly declined at least 8 percent. Larcenies and

auto theft in Miami Shores also declined significantly, relative to changes in Miami and Dade County.

Newman (1996) reports the results of a street closure program in a Dayton, Ohio neighborhood. The Five Oaks neighborhood is a half-mile square area containing 2,000 homes on a grid street layout. Streets were closed off so that the area was subdivided into small areas and so one could not drive directly through the area. Newman (1996) summarized the City of Dayton evaluation results. Police-reported crime statistics showed that crime in the city rose one percent, but that total crime in the target neighborhood declined 26 percent, and violent crime declined 50 percent. Significance tests were not reported. Citizen surveys reported that over half of the residents felt crime had declined. Newman also reports that housing values increased after having declined prior to the street closures.

Two efforts to curb prostitution activity in London neighborhoods used road closures and rerouting coupled with increased police enforcement. In the Finsbury Park area police had steadily increased enforcement for two years prior to changes in the street closures. However, with the changes in the streets, "Soliciting and curb-crawling virtually disappeared and the area was transformed from a noisy and hazardous 'red-light' district into a relatively tranquil residential area." (Matthews 1992, page 94). Reported crime declined 50 percent for the 12-month period after the street closures compared to the previous 12 months. Observations of the area suggest that most of the prostitutes left the area but did not displace to adjacent neighborhoods (Matthews 1992).

In the Streatham neighborhood of London, street closures were also used in conjunction with increased police enforcement. Matthews (1993) reports a decline in traffic flow along key streets. Although police enforcement was maintained, arrests of "curb-crawlers" seeking sexual services declined by two-thirds (comparing the first quarter of 1990, after the program, to the first quarter of 1988, before the program began). Interviews of residents suggests a decline in noticeable prostitution activity, although some of this activity may have shifted to the periphery of that area.

The final evaluation of street closures was a retrospective analysis of the Los Angeles Police Department's Operation Cul-De-Sac. In 1990 the Los Angeles Police Department installed traffic barriers on 14 streets in a South Central Los Angeles neighborhood with a high level of drug activity, shootings and homicides. Much of the violence was created by disputes over drug sales locations by local gang members. The barriers were designed to make the driveup purchase of drugs more difficult and prevent drive-by shootings. This effort was part of a larger law enforcement effort to suppress these crimes. Two years following the installation of the barriers, the barriers were abandoned and then removed as the police became embroiled in the controversy surrounding the Rodney King beating.

The evaluation of the Los Angeles Police Department project compared reported crimes in the neighborhood for four quarters before the barriers were installed, the eight

quarters while they were being maintained, and 16 quarters after the program was abandoned (Lasley 1996). Reported crime for the four adjacent areas was also examined. If one uses the surrounding beats as control areas, the net effect of the installation of the barriers (before, compared to during) was that homicides decreased 65 percent. In fact, during the two years when the barriers were installed there was only a single killing in the target area. Once the barriers were no longer maintained and were removed (comparing the installed period, to the after period) homicides rose 800 percent, relative to the surrounding area killings. Total violent crimes (homicide, rape, street robbery, aggravated assault and purse snatching) declined from the pre-program period to the two years during the program (8 percent for the first year and 37 percent for the second year) and then rose again after the program fell into disuse. At the same time the surrounding areas remained relatively stable. Lasley attributes most of the decline in violent crime to changes in aggravated assaults. Significance tests were not reported for any of these comparisons.

Closing streets makes offenders' escapes more problematic. In the case of prostitution cruising and drive-by shootings, the offenders are likely to follow a circular driving pattern in their search for targets. By making circular driving patterns more difficult and increasing the chances offenders will find themselves at the end of a dead end street, criminal behavior may be thwarted.

The street closure evaluations used moderately strong designs and their conclusions are consistent with theory and prior research. This gives us confidence that this approach to curbing crime should be classified as "promising." In at least three of the programs (the two London prostitution cases and the Los Angeles drive-by shooting case), the street closures were undertaken along with police crackdowns. Matthews (1992) hypothesizes that street closures and enforcement may be more effective when used together than when used separately and enforcement should be used prior to street changes. This opportunity-blocking tactic for controlling crime in open urban areas deserves more attention by, particularly since it might reduce violence under some circumstances.

Conclusions for Open Urban Places

Four types of tactics were considered in this section. There is limited evidence that controlling offenders, particularly public drinking, might be useful. However, the evaluations are small in number and weak in design, leaving its effectiveness unknown.

Lighting has received considerable attention. Yet, evaluation designs are weak and the results are mixed. We can have very little confidence that improved lighting prevents crime, particularly since we do not know if offenders use lighting to their advantage. In the absence of better theories about when and where lighting can be effective, and rigorous evaluations of plausible lighting interventions, we cannot make

any scientific assertions regarding the effectiveness of lighting. In short, the effectiveness of lighting is unknown.

The installation of CCTV in urban areas might be a fruitful area for research, but its effectiveness is unknown. Though several evaluations had scientific methods scores of 3, the absence of significance tests limits what we can claim for the effectiveness of this tactic. We cannot recommend the adoption of this tactic, except for purposes of testing.

Finally, compared to the other tactics examined, street closure evaluations have been conducted with greater rigor. We also have evaluation evidence that is consistent with theory and research. This tactic appears to be promising and deserves greater attention, particularly in high crime areas.

Table 7-9: OPEN PUBLIC PLACES

STUDY	SCIENTIFIC METHODS SCORE	TACTIC	SETTING	RESULTS
Bjor, Knutsson, & Kuhlhorn 1992	2	ban on public drinking & high risk offenders & closing of a parking site	Open spaces of downtown area, Sweden	8% reduction in drunkenness arrests 64% reduction in disorderly conduct arrests
Ramsay 1991 Ramsay 1990	2	ban on public drinking	Open spaces of a British downtown area	No change on assaults 33% reduction in insults from strangers
Atkins, Husain, and Storey. 1991	2	lighting	39 sections of London	no systematic effect of lighting
Ditton & Nair 1994	2	lighting	Glasgow neighborhood	32% to 68% reduction in victimizations. 14% reduction in reported crime
Painter 1994	2	lighting	London	86% reduction in street robberies, auto crimes, and threats
	2	lighting	London	78% reduction in street robberies, auto crimes, and threats
	2	lighting	London	100% reduction in street robberies, auto crimes, and threats (base rates too small to be meaningful)
Brown 1995	3	cctv	town center, Newcastle upon Tyne Great Britain	decline in burglary (18%), criminal damage (9%), auto theft (7%), theft from auto (11%), other theft up (7%).
	3	cctv	town center, Birmingham, Great Britain	charts suggest reductions in robbery, burglary, and theft but do not allow calculation of reductions
	3	cctv	town center, King's Lynn, Great Britain	charts suggest reductions in burglary, assaults, thefts from autos, and thefts of autos but do not allow calculation of reductions

Table 7-9: OPEN PUBLIC PLACES (continued)				
Atlas, and LeBlanc 1994	3	street closures	Florida town	8% decline in burglary, drops in larceny and autotheft. No change in robbery or aggravated assault
Lasley 1996	3	street barricades	Los Angeles, CA	65% reduction in homicides
Matthews 1992	2	street closures & rerouting	Finsbury Park, London	reduction in prostitution activity
Matthews 1993	2	street closures & rerouting	Streatham, London	reduction in prostitution activity
Newman 1996	3	street closures	Dayton, OH	26% reduction in reported crime and 50% reduction in violent crime

PUBLIC COIN MACHINES

Parking meters and public telephones are the principal subject of this section. These devices occupy small but important places in cities and are subject to fraud and vandalism. The six studies we will examine here show reductions in property offenses due to changes in the physical structure (target hardening) or operations of these devices.

Two evaluations examined the effectiveness of strengthening the material used in public telephone cash boxes. Target hardening was supplemented by other prevention measures in both instances. In Britain, electronic monitoring of phone booths helped identify attacks quickly and act as a deterrent (Barker and Bridgeman 1994). The evaluators reported a 49 percent reduction in attacks on cash compartment attacks as a result of these changes. Australian evaluators claimed a comparable reduction in vandalism incidents following a combined target hardening and rapid repair program (Challinger 1991). Both studies have weak designs due to their absence of control places.

Fraudulent use of public telephones has been addressed in two studies. In both, new systems were installed that prohibited calls that prior analysis suggested were likely to be fraudulent. At the New York Port Authority Bus Terminal, international calls were blocked, keypads were disabled to prevent routing calls through outside automated systems, and the number of available phones were reduced and relocated (Bichler and Clarke 1997). Calls and number of minutes of phone use declined from the pre-intervention period to the post-intervention period. This is indirect evidence of a drop in fraudulent phone use because one cannot distinguish between reduced legitimate phone use due to increased inconvenience to users and reduced illegitimate phone use.

LaVigne (1994) evaluated the effects of restricting inmate access to phones at Rikers Island, a New York City jail facility. The Department of Corrections restricted inmate phone use to control the costs of fraudulent calls. Not only did phone costs go down, but phone related fights among inmates declined, controlling for overall trends in fights and changes in inmate population.

Finally, Decker (1972) examined the effectiveness of a target hardening method to prevent slug use in parking meters (i.e., installation of meters that reject certain types of slugs and display the last coin inserted). Rates of slug use were measured in 10 areas of New York. Slug use declined in all areas. Decker (1972) also looked at the effectiveness of warning labels on parking meters. He found short-term reductions in slug use for some labels, but overall the labels were less effective than meters that reject slugs.

These evaluations imply that target hardening is a promising method for reducing theft and vandalism. When evaluators looked for displacement effects, they were not found. LaVigne's (1994) evaluation suggests that illegal use of some facilities might stimulate other more serious criminal behavior and blocking minor offenses might reduce other more serious crimes. The Rikers Island evaluation is an illustration of the possible diffusion of crime prevention benefits (Clarke and Weisburd 1994).

Table 7-10: PUBLIC COIN MACHINES				
STUDY	SCIENTIFIC METHODS SCORE	TACTIC	SETTING	RESULTS
Barker & Bridgeman 1994	2	publicity, target hardening, electronic monitoring	public telephones in Great Britain	49% reduction in vandalism/ theft
Wilson 1988; Challinger 1991	2	hardened coin boxes, and other changes, and rapid repair	Australian public telephones	48% reduction in vandalism
Bichler & Clarke 1996	3	removing international dialing capacity and disabling telephone keypads to prevent pay phone toll fraud	Port Authority Bus Terminal, Manhattan	37% reduction in calls and 72% reduction in minutes of phone use. No displacement found
LaVigne 1994	3	restrictions on inmate phone use and phone system	Rikers Island, New York	46% reduction in telephone related fights. 49% reduction in phone costs
Decker 1972	4	installation of slug rejecting parking meters & warning signs on parking meters	parking meters in New York	reduction in slug use due to changes in meters. Short term reduction with two labels, but no long term effect of any labels

SCIENTIFIC CONCLUSIONS

Blocking crime opportunities at places can reduce crime, under some circumstances. Over 90 percent of the interventions reported evidence of crime reduction following the installation of an opportunity blocking tactic. This evidence is encouraging but it must be tempered by three considerations.

First, we know little about the place- and crime-specific effects of these tactics. That there is a great deal of uncertainty about what works, at which places, against which crimes, should not distract us from the broader finding that opportunity blocking tactics at places can be productive. We will address specific tactics below.

Second, 94 percent of these evaluations are case studies of a very few sites, typically a single site. We cannot treat the 99 interventions as a random sample of all interventions of this type. These may have been evaluations of programs that were far more likely to succeed than is typical. Nevertheless, authors of many of the evaluations asserted that their places were hotspots of crime and had resisted other interventions, such as police enforcement. Thus, the interventions may have tackled tougher problems than would be found at the average place.

Third, many of the evaluations studied the effect of multiple interventions implemented at about the same time. Even when the effects of a single tactic were identified, it was sometimes reported that other changes had occurred that could confound the evaluation results. Thus we might learn that crime was prevented, but we do not know what caused the prevention. The large number of multiple interventions deserves some explanation. Many of the efforts evaluated were the result of some form of problem-solving process in which a specific crime problem was analyzed and a set of appropriate solutions were implemented. This must be contrasted with efforts undertaken to test the efficacy of a particular prevention measure in a particular setting. Problem-specific interventions may have a greater likelihood of success than generic interventions, but we may have more difficulty learning from them. Later we will return to the subject of problem-solving and situational crime prevention.

Fourth, the scientific rigor (as shown by the scientific methods score) supporting the conclusions is usually moderate at best, and is frequently weak. Forty-three percent of the studies did not use control places or measure crime for a minimal number of pre-intervention time periods. Only 6 percent of the evaluations compared the same intervention in at least 20 places and used control places. There were only two randomized controlled experiments among the studies examined. Often evaluators did not report significance levels for crime reductions, so we cannot determine the chances that the results were due to random changes in crime. In summary, a typical evaluation of a place-focused intervention involves a before-after comparison of a prevention tactic at a single location, compared to a roughly similar location or the surrounding area.

The Effects of Displacement are Limited

There is little reason to believe that side effects from place-focused efforts are greater than the intentional effects. Further, some of these side effects enhance prevention, rather than undermine it. There are two side effects: displacement of crime and diffusion of prevention benefits.

One reason for community resistance to place-focused prevention (or any area specific tactic) is the fear of the displacement of crime from the target places to other, presumably safer, locations nearby. Displacement can take on a number of forms. Offenders can change locations. They can change the times of offending. They can change the target of their criminal behavior. They can adopt new behaviors to attack the same targets. And they can switch the type of crime they commit. Fear of displacement is often based on the assumption that offenders are like predatory animals (they will do what ever it takes to commit crimes just as a rat will do whatever it takes to steal food from the cupboard).

In the last 10 years there have been four reviews of the empirical evidence and theoretical underpinnings for displacement. Theoretical explorations based on a rational choice perspective (Cornish and Clark 1986) find no basis for believing offenders always completely displace if they cannot attack their favorite targets (Cornish and Clark 1987; Barr and Pease 1990; Eck 1993; Barnes 1995; Bouloukos and Farrell 1997). Reviews of empirical studies examining place-focused prevention, police enforcement, and other preventive tactics in the United States, Canada, Great Britain, continental Europe, and Australia, find that there is often no displacement, but when displacement occurs it does not overwhelm other gains from blocking crime opportunities (Cornish and Clark 1987; Barr and Pease 1990; Eck 1993; Hesselning 1995). There is no evidence to suggest that these interventions increases crime by displacing it. There have been only a very few examples where something close to 100 percent displacement has been observed (for example, 100 crimes are prevented at one set of targets, but there is an increase of 100 crimes at similar targets). Displacement far less than 100 percent is not uncommon (for example, 100 crimes are prevented against one set of targets but there is an increase of 30 crimes against other targets, yielding a net reduction of 70 crimes). But usually, evaluators who have looked for empirical evidence of displacement have found little evidence of displacement. Concern about displacement is usually based more on pessimism than empirical fact.

It is possible that more displacement would be found if evaluators were more diligent in their search for it. Most prevention evaluations do not report on possible displacement effects and when they do, the evidence used is almost always weaker than the evidence used to support the main findings. Still, if the evidence for limited displacement is weak, the evidence for large amounts of displacement is even weaker.

Prevention Benefits Can Spread

Overlooked in our concern about displacement is the possibility of just the opposite effect, diffusion of crime prevention benefits (Clarke and Weisburd 1994). For example, Scherdin (1992) reported that when magnetic tags were put in books in a university library, book theft declined. But so did the theft of audio and video tapes which were not tagged. Thieves apparently were unaware of which items were protected. We have noted several other examples of possible diffusion of benefits effects in the evaluations examined in this chapter (Felson et. al. 1997; LaVigne 1994; Masuda 1992; Poyner 1988). Evidence for diffusion of benefits is weaker than evidence against displacement, largely because few people have looked for it. Nevertheless, this possibility cannot be rejected on empirical or theoretical grounds. In fact, there are good theoretical reasons to believe diffusion of benefits might be common. Diffusion is the flip side of the coin of crime contagion. Contagion suggests that when offenders notice one criminal opportunity they often detect similar opportunities they have previously overlooked. Crime then spreads. The broken-windows theory (Wilson and Kelling 1982) is an example of a contagion theory. Thus under some circumstances offenders may be uncertain about the scope of prevention efforts and avoid both the blocked opportunities and similar unblocked opportunities. When this occurs, prevention may spread.

There is Much Uncertainty About Place- and Crime-Specific Tactics

Table 7-11 summarizes the place-specific findings described in detail in the body of this chapter. Each evaluated intervention was put into one of four categories. Tactics that “work” had to have two or more positive studies with a scientific methods score of 3 or more and had to report the statistical significance of the findings. Only one tactic, nuisance abatement to control drug dealing and related crime at private rental places, received this classification.

To be classified as “does not work” an intervention had to meet the same qualifications as “works” but the findings reported no relationship between the intervention and crime. The scientific methods used were insufficient to detect tactics that did not work, so we have no tactics in this category. With improved knowledge from more rigorous evaluations some of the tactics in the “unknown” category might move into this category. Most tactics may be effective at some type of place and against particular crimes, but it is unlikely that all tactics are effective at all places against all crimes. The absence of tactics in the “does not work” category reveals our ignorance.

“Promising” tactics had to have at least one evaluation with a scientific methods score of 3 that used significance tests, and showed that crime declined. If significant tests had been reported some tactics of “unknown” effectiveness might have been classified as “promising.” Seven interventions had sufficient scientific evidence to be classified as “promising.” Putting metal detectors in this category reveals the limits of the application of standard social science research methods. Few would question the efficacy of metal

detectors and passenger screening to prevent aircraft hijacking, but because this tactic has not been widely studied and many of the studies use weak research methods, we cannot put this tactic in the “works” category. We can be far less certain about its effectiveness in other settings. Street closures may be another tactic that is underrated because of a lack of rigorous evaluations, particularly the absence of significance tests.

The “unknown” category contains the majority of interventions. Many of these interventions had multiple studies showing positive effects, but the evaluations had scientific methods scores less than 3, or did not report significance test results. Examples of these tactics include CCTV in open spaces and parking lots, and EAS in retail stores. Other tactics had several weak studies reporting conflicting results. Lighting in open areas is an example of this type of tactic. Finally, some tactics may not prevent crime. Cameras were found to be ineffective at preventing robberies of convenience stores in a single rigorous test. In a less rigorous analysis, cameras were found to be unrelated to bank robberies.

Clearly there is much to learn if we are to develop a set of well-tested interventions that can be applied to specific problems. Most cells in Table 7-11 empty and the places listed are only a small set of places with crime problems. Even when we have tactics that work or look promising, they have only been tested against a limited set of crimes.

Table 7-11: SUMMARY OF PLACE SPECIFIC-FINDINGS

	Works	Does Not Work	Promising	Unknown
Residential	• nuisance abatement			• target hardening • restricting movement • guards • CCTV • cocoon watch • property marking
Commercial stores			• multiple clerks • store design	• EAS • CCTV • target hardening • frequent inventory counts • prohibiting offenders • electronic monitoring • ink tags • guards • cameras • restricting movement
banking & money handling				• cameras • target hardening • guards
bars & taverns			• server training	
Transport public transportation				• removing targets • rapid cleanup • design • informal watching
parking lots				• CCTV • guards • restricting movement
airports			• metal detectors • guards	

Table 7-11: SUMMARY OF PLACE SPECIFIC FINDINGS (continued)

Public Setting open spaces			• street closures	• CCTV • prohibiting offenders • controlling drinking • lighting
public facilities			• target hardening	• removing targets • signs

Situational Crime Prevention and Problem-Solving are Promising

This chapter has described what we have learned about the effectiveness of specific tactics to prevent crimes at specific types of places. It is based on the assumption that if know the type of place and the type of crime, we should be able to recommend a specific tactic that can prevent crimes of this type and this place. We have seen limited evidence that this assumption is valid.

There is another approach to addressing crime problems, however, that may also be valid. Rather than look for a generic solution to a specific crime problem at a place, one could undertake a thorough examination of the problem and then craft a unique set of interventions to address this problem. Such an approach is advocated by both situational crime prevention (Clarke 1992) and problem-oriented policing (Goldstein 1990). Many of the evaluations examined multiple simultaneous interventions that addressed specific problems at places. In these projects the selection of tactics was preceded by some form of crime analysis. Their evaluations are examinations of the effectiveness of problem-solving and situational crime prevention. Additionally, one of the two randomized experiments was a study of problem-solving (scientific methods score=5). Stores in the treatment groups did not get a standard intervention, but had an on-site diagnosis and a recommendation of a set of tactics that fit the circumstances (Crow and Bull 1975). Repeat victimization evaluations (Anderson, Cheery and Pease 1995; Forrester, Chatterton and Pease 1988) are also a form of problem-solving because the complex interventions were based on site-specific analysis (both with scientific methods scores=3). It is difficult to determine how many of the studies reviewed in this chapter should be considered as problem-solving or situational crime prevention efforts, but almost half provide evidence they can be interpreted in this light. This implies that we have relatively strong evidence for the effectiveness of problem-solving and situational crime prevention. At minimum, these complementary strategies are a promising approach to crime prevention.

EFFECTIVENESS OF DOJ PROGRAMS

There is no single program within the Department of Justice that funds place-focused prevention. Instead, place-focused prevention tactics maybe scattered throughout a variety of program areas. Within the Byrne Formula Grant Program, place-focused tactics may be funded under the domestic drug control, community crime prevention, property crime prevention, law enforcement effectiveness, and public housing purpose areas. These areas comprises \$151.8, or about 8 percent of all Byrne Funds for fiscal years 1989 through 1994 (Dunworth, Haynes and Saiger 1997). We do not know what proportion of these funds actually went to place-focused tactics, but it is probably very small. Within the Local Law Enforcement Block Grant Program for 1996 through 1997, \$50 million has been allocated to security measures and crime prevention. This comprises about 14 percent of the program total. Once again, we cannot determine how much of these funds go to place-focused crime prevention.

Programs to foster problem-solving and situational crime prevention efforts at places may be effective. The NIJ sponsored the earliest research on problem-solving in Madison, Wisconsin (Goldstein 1990) and Newport News, Virginia (Eck and Spelman 1987). The Bureau of Justice Assistance has funded a number of programs that applied problem-solving, including the Problem-Oriented Approach to Drug Enforcement, the Systems Approach to Crime and Drug Prevention, and the Comprehensive Gang Initiative. The COPS program, with its focus on the police problem-solving with communities, could make good use of place-focused crime prevention. Improving the ability of police and communities to identify and analyze problems and then craft effective prevention methods to alleviate these problems may improve police effectiveness.

Though police problem-solving has received much attention in the United States, the police are not the only social institution that uses problem-solving to prevent crime problems. Improving the ability of small businesses, social organizations, community groups, and non-criminal justice public agencies to craft problem-specific solutions to crime problems would have the effect of democratizing crime prevention. Two types of knowledge are required for such efforts. First, people addressing crime problems at places must know how to go about identifying problems, analyzing the causes of problems, crafting feasible solutions, and determining if the problems have declined. Second, these people need knowledge about what place-focused prevention have been tried and which have been found to be effective. Congressional support for developing both sets of knowledge might improve the ability of private and public institutions to prevent crime.

To the extent that Department of Justice program funds are used to support nuisance abatement to prevent drug dealing and related crime, these funds are probably being used in an effective manner. The Bureau of Justice Assistance has singled out three programs (Boston's Safe Neighborhood Initiative, Lansing's Neighborhood Reclamation program, and Los Angeles's FALCON Narcotics Abatement Unit) involving nuisance abatement as particularly innovative (Bureau of Justice Assistance 1995).

Nuisance abatement points out a very important fact about place-focused prevention. Most place-focused prevention takes place at privately owned locations. If these owners do not employ prevention measures at their places, then mechanisms are required to induce them to undertake relevant prevention measures. Nuisance abatement provides a threat in order to compel the installation of prevention. A positive alternative is landlord training. Landlord training programs provide information to landlords to help them manage their properties and prevent drug dealing. Unfortunately, this positive approach has not been evaluated so we do not know how effective it is, either in absolute terms or relative to nuisance abatement.

IMPROVING EFFECTIVENESS THROUGH EVALUATION AND RESEARCH

Providing citizens and businesses, as well as local governments, with scientifically based information on crime prevention may be more productive than directly funding such programs. Such information can only be provided by a program of rigorous research.

What should a research program look like? First, it must enlist the active participation of the people and organizations that own and control places. Some basic research can be undertaken using police records, other public data bases, and surveys. Most systematic evaluation and experimentation involving changes to the characteristics of places will require the cooperation of the businesses and property owners.

Second, a place-focused research and evaluation program should build a body of theoretically sound and rigorously tested interventions. The program should address six questions:

1. Where is each type of crime most likely to occur?
2. What place characteristics protect places from crime or facilitate crime?
3. What innovative prevention tactics come from problem-solving and situational crime prevention efforts?
4. What methods for analyzing problems and developing prevention tactics are particularly useful for local decision makers?
5. Which tactics are found effective, based on impact evaluations with scientific methods scores not less than 3?
6. Of those tactics that appear promising based on impact evaluations in single sites, which survive multi-site evaluations with scientific methods scores of 4 and 5?

The Drug Market Analysis Project (DMAP) is a useful example of how demonstration, research and evaluation can work together. In five cities (Jersey City, Hartford, Pittsburgh, Kansas City, and San Diego) NIJ funded the development of advanced computer mapping. These efforts improved police ability to analyze their crime and drug problems and they supported basic research into drug market places and rigorous evaluations of interventions to control drug dealing.

DMAP also addressed another research priority. A place-focused research program should foster improvements in scientific methods used in evaluations. All evaluations should employ control groups or interrupted time-series designs, unless there are overwhelming reasons why such controls cannot be employed. Further, significance tests and effect sizes should be reported. NIJ's new Crime Mapping Research Center

has the potential to expand on what was learned through DMAP and to extend our knowledge of effective place-focused tactics.

Special efforts need to be made to address side effects: displacement and diffusion of benefit. These side effects can contaminate control groups and confound evaluation results. If crime displaces into control places then program effects can be overestimated. If crime prevention diffuses into control places then program effects will be underestimated. In neither case can diffusion or displacement effects be estimated. Evaluation protocols for separating control places and displacement/diffusion places need to be required for all federally funded research. Additionally, these side effects should be the subject of research to determine the conditions under which they are most likely to occur and what can be done to reduce displacement and facilitate diffusion.

Several place-focused interventions should be given priority for testing to determine if they are effective at controlling violence. These include street closures around retail drug markets, CCTV at locations that are hotspots for robberies and assaults, landlord training programs to curb drug related violence in apartment buildings, and metal detectors in schools and public housing with high violent crime rates. Research into the relationship between lighting and violent crime needs to be conducted. Such research should examine how offenders use lighting, the circumstances under which lighting facilitates crime, and the conditions under which lighting is associated with low crime rates. Evaluations could then be undertaken at places where this earlier research suggested that lighting improvements might be effective. Finally, studies should examine how repeat victimization, repeat crime places, and repeat offenders are related.

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Chapter Eight

POLICING FOR CRIME PREVENTION

by Lawrence W. Sherman

The more police we have, the less crime there will be. While citizens and public officials often espouse that view, social scientists often claim the opposite extreme: that police make only minimal contributions to crime prevention in the context of far more powerful social institutions, like the family and labor markets. The truth appears to lie in between. Whether additional police prevent crime may depend on how well they are focused on specific objectives, tasks, places, times and people. Most of all, it may depend upon putting police where serious crime is concentrated, at the times it is most likely to occur: policing focused on risk factors.

The connection of policing to risk factors is the most powerful conclusion reached from three decades of research. Hiring more police to provide rapid 911 responses, unfocused random patrol, and reactive arrests does not prevent serious crime. Community policing without a clear focus on crime risk factors generally shows no effect on crime. But directed patrols, proactive arrests and problem-solving at high-crime "hot spots" has shown substantial evidence of crime prevention. Police can prevent robbery, disorder, gun violence, drunk driving and domestic violence, but only by using certain methods under certain conditions.

These conclusions are based largely on research supported by the National Institute of Justice, the research arm of the Office of Justice Programs in the U.S. Department of Justice. In recent years, increasing numbers of police executives have incorporated these findings into their crime prevention strategies. University of Wisconsin law professor Herman Goldstein's (1979) paradigm of "problem-oriented policing" directed research attention to the specific things police do, and how they can focus their resources to attack the proximate causes of public safety problems. The Justice Department's adoption of this perspective has yielded an increasingly complex but useful body of knowledge about how policing affects crime.

One of the most striking recent findings is the extent to which the police themselves create a risk factor for crime simply by using bad manners. Modest but consistent scientific evidence supports the hypothesis that the less respectful police are towards suspects and citizens generally, the less people will comply with the law. Changing police "style" may thus be as important as focusing police "substance." Making both the style and substance of police practices more "legitimate" in the eyes of the public, particularly high-risk juveniles, may be one of the most effective long-term police strategies for crime prevention.

This chapter begins with a review of the eight major hypotheses about how the police can prevent crime (Figure 1). It then describes the varying strength of the scientific evidence on those hypotheses, in relation to the "rigor" of the scientific methods used to test them. The available studies are summarized for both their conclusions and their scientific rigor. The chapter then attempts to simplify these results by answering the questions about what works, what doesn't, and what's promising. Major gaps in our knowledge are also examined. The chapter concludes with recommendations derived from these findings for future federal investment in both evaluation research and police methods to be developed for evaluation.

Figure 8-1

Eight Major Hypotheses About Policing and Crime

Other things being equal,

1. **Numbers of Police.** The more police a city employs, the less crime it will have.
2. **Rapid Response to 911.** The shorter the police travel time from assignment to arrival at a crime scene, the less crime there will be.
3. **Random Patrols.** The more random patrol a city receives, the more a perceived "omnipresence" of the police will deter crime in public places.
4. **Directed Patrols.** The more precisely patrol presence is concentrated at the "hot spots" and "hot times" of criminal activity, the less crime there will be in those places and times.
5. **Reactive Arrests.** The more arrests police make in response to reported or observed offenses of any kind, the less crime there will be.
6. **Proactive Arrests.** The higher the police-initiated arrest rate for high-risk offenders and offenses, the lower the rates of serious violent crime.
7. **Community Policing.** The more quantity and better quality of contacts between police and citizens, the less crime.
8. **Problem-Oriented Policing.** The more police can identify and minimize proximate causes of specific patterns of crime, the less crime there will be.

VARIETIES OF POLICE CRIME PREVENTION

1. Numbers of Police. Like the deterrence hypothesis itself (Gibbs, 1975), the claim that police prevent crime is not a "theory" in a truly scientific sense. The idea was developed not as a mathematical equation but as a general "doctrine" of public policy in the heat of democratic debate. The doctrine was based not just on speculation, but also on the apparent results of several "demonstration projects" with some empirical results. These included the court supervised "Bow Street Runners" (Lee, 1901 [1971]; Pringle, 1955) and the privately operated but publicly chartered Thames River "Marine Police" (Stead, 1977). As the level of violence throughout the 19th century declined while the number of police increased (Gurr, et al, 1977: 93-96; 140), many observers concluded that the more police, the less crime.

2. Rapid Response to 911. The general form of this claim is that the shorter the police travel time from assignment to arrival at a crime scene, the more likely it is that police can arrest offenders before they flee. This claim is then extended to rapid response producing three crime prevention effects. One is a reduction in harm from crimes interrupted in progress by police intervention. Another, more general benefit of rapid response time is a greater deterrent effect from the threat of punishment reinforced by response-related arrests. The third hypothesized prevention effect comes from the incapacitation through imprisonment of offenders prosecuted more effectively with evidence from response-related arrests. All of these claims presume, of course, that police are notified during or immediately after the occurrence of a crime. This premise, like the hypotheses themselves, is empirically testable, and it's falsification could logically falsify the hypotheses built upon the assumption of its validity.

3. Random Patrols. Early beat officers were directed to check in at specific places at specific times, with rigid supervision of the prescribed patrol patterns (Reiss, 1992). The increasing emphasis on rapid 911 response in automobiles gradually put an end to directed patrols, allowing officers to patrol at random far beyond their assigned beats. This policy was justified by the theory that unpredictability in patrol patterns would create a perceived "omnipresence" of the police that deters crime in public places. Chicago Police Chief and Berkeley Criminology Dean Orlando W. Wilson (1963: 232) was a widely cited proponent of this view. Although he favored the use of police workload analysis to determine how many officers should be assigned to different beats and shifts, modern police practice shows little variation in patrol presence by time and place. Nonetheless, many police chiefs and mayors claim that hiring more officers to patrol in this fashion would reduce crime.

4. Directed Patrols. Since the advent of computerized crime analysis, however, a far greater precision in the identification of crime patterns has become possible. Police have used that precision to focus patrol resources on the times and places with the highest risks of serious crime. The hypothesis is that the more patrol presence is concentrated at the "hot spots" and "hot times" of criminal activity, the less crime there will be in those places and times. The epidemiological underpinning for this claim is NIJ-funded research showing

that the risk of crime is extremely localized, even within high crime neighborhoods, varying widely from one address to another (Pierce, Spaar and Briggs, 1988; Sherman, Gartin and Buerger, 1989).

5. Reactive Arrests. Like police patrol, arrest practices can be either unfocused or focused on crime-risk factors. Reactive arrests (in response to specific citizen complaints) are like random patrol in that they cast a wide net, warning all citizens that they can be arrested for all law violations at all times. This net is necessarily quite thin. Observations of thousands of police encounters with criminal suspects shows that police choose **not** to arrest suspects in the majority of the cases in which there was legal basis to do so (Black, 1980: 90; Smith and Visher, 1981: 170). The frequent decision not to arrest has been noticed by crime victims' advocacy groups, who argue that more arrests will produce less crime. This hypothesis, like deterrence generally, is expressed at two levels of analysis: the "general" or community-wide, and the "specific" or individual-level. The individual-level hypothesis has been questioned for decades by social scientists, and even some police, who suggest exactly the opposite: that arrest, especially for minor offenses (which are by far the most common), provokes a response by offenders making them more likely to commit future crime than if they had not been arrested.

6. Proactive Arrests. Like directed patrol, proactive (police-initiated) arrests concentrate police resources on a narrow set of high-risk targets. The hypothesis is that a high certainty of arrest for a narrowly defined set of offenses or offenders will accomplish more than low arrest certainty for a broad range of targets. In recent years the theory has been tested with investigations of four primary high risk targets: chronic serious offenders, potential robbery suspects, drug market places and areas, and high-risk places and times for drunk driving. All but the first can be tested by examining the crime rate. The hypothesis about chronic serious offenders is tested by examining the rate at which such offenders are incapacitated by imprisonment from further offending.

Another version of the proactive arrest hypothesis is called "zero tolerance," based on the "broken windows" theory (Wilson and Kelling, 1982). The theory is that areas appearing disorderly and out-of-control provide an attractive climate for violent crime--just as a window with one broken pane attracts more stones than a completely unbroken window. The crime prevention hypothesis is that the more arrests police make for even petty disorder, the less serious crime there will be (Skogan, 1990).

Community vs. Problem-Oriented Policing

The hypotheses about community- and problem-oriented-policing are less focused than the others, so much so that some observers have even advised against trying to test them (Moore 1992: 128). They both involve far more variations and possible combinations of police activities than the narrow deterrence hypotheses. As in the community- and school-based programs reviewed in chapters 2 and 4, community and problem-oriented policing are put into practice more like a "stew" of different elements than a single type of

"food." Yet it is just this flexibility that proponents hypothesize to give them their power. Crime problems vary so widely in nature and cause that effective policing for prevention must vary accordingly, and arguably require many elements to succeed.

While community and problem-oriented policing are often said to be overlapping strategies (Skogan, 1990; Moore, 1992), they actually have very different historical and theoretical roots. Community policing arises from the crisis of legitimacy after the urban race riots of the 1960s, the proximate causes of which several blue-ribbon reports blamed on police (President's Commission on Law Enforcement and Administration of Justice, 1967; National Advisory Commission on Civil Disorders, 1968). The reports claimed police had lost contact with minority group residents, both by changing from foot patrols to radio cars and by taking a more legalistic approach to law enforcement. In various ways, most notably "team policing" (Task Force Report; Sherman, et al 1973), the police were urged to increase their contact with citizens in more positive settings than just responding to emergencies. Thus for almost three decades the **Community Policing** hypothesis has been that increasing the quantity and quality of police-citizen contact (Kelling, 1988) reduces crime.

Problem-oriented policing, in contrast, arose from the crisis of police effectiveness at crime prevention provoked in the 1970s by some of the very studies reviewed in this chapter. As one of its early sponsors, Gary Hayes (1979), put it, the studies told police chiefs that nothing they were doing--putting more police on the street into random patrols, rapid responses--was working to fight crime. The strategy of problem-oriented policing conceived by Professor Goldstein (1979) provided a new paradigm in which to focus innovation, regardless of any contact with the citizenry. Where the core concept of community policing was community involvement for its own sake, the core concept for problem-oriented policing was **results**: the effect of police activity on public safety, including (but not limited to) crime prevention. Nonetheless, community policing has also been justified by its hypothesized effects on crime, not the least of which has been the rationale for the 100,000 federally funded police officers.

7. Community Policing. The crime prevention effects of community policing are hypothesized to occur in four major ways.

7.a. Neighborhood Watch. This hypothesis justifies one of the most widespread community policing programs, "block watch": increasing volunteer surveillance of residential neighborhoods by residents, which should deter crime because offenders know the neighbors are watching.

7b. Community-Based Intelligence. This hypothesis justifies the many community meetings (Sherman et al, 1973) and informal contacts police sought through storefront offices, foot patrol (Trojanowicz, 1986) and other methods: increasing the flow of intelligence from citizens to police about offenses and offenders, which then increases the probability of arrest for crime and the deterrent incapacitative effects of arrest. The

increased flow of citizen intelligence can also increase police effectiveness at crime prevention through problem-solving strategies.

7.c. Public Information About Crime. This hypothesis is just the reverse of the last one: increased flow of police intelligence about crime back to citizens improves citizen ability to protect themselves, especially in light of recent changes in crime patterns and risks. The latest version of this idea is "reverse 911," under which police fax out warnings of criminal activity to a list of residential and business fax numbers requesting the service.

7.d. Police Legitimacy. Given the historical roots of community policing, perhaps the most theoretically compelling version of its crime prevention hypothesis addresses police legitimacy, or public confidence in the police as fair and equitable (Eck and Rosenbaum, 1994). Recent theoretical and basic research work in "procedural justice" (Tyler, 1990) provides a more scientifically elaborate version of this hypothesis than its proponents in the 1960s intended. The claim is not just that police must be viewed as legitimate in order to win public cooperation with law enforcement. The claim is that a legitimate police institution fosters more widespread obedience of the law itself. Gorer (1955: 296) even attributes the low levels of violent crime in England to the example of law-abiding masculinity set by 19th Century police, a role model that became incorporated into the "English character." There is even evidence that the police themselves become less likely to obey the law after they have become disillusioned with its apparent lack of procedural justice (Sherman, 1974).

8. Problem-Oriented Policing offers infinite specific hypotheses about crime prevention, all under this umbrella claim: the more accurately police can identify and minimize proximate causes of specific patterns of crime, the less crime there will be. In recent years this claim has taken two major forms:

8.a. Criminogenic Commodities. The more police can remove criminogenic substances from the micro-environments of criminal events, the fewer crimes there will be. This claim arises from the growing emphasis on the causation of criminal events as partly independent of the causation of individual criminality (Hirschi, 1986). Like the theories about preventing crime in places (Chapter 7), the premise is that many crimes require certain preconditions, such as guns or cash or moveable property (Cohen and Felson, 1979).

8.b. Converging Offenders and Victims. Another precondition of violent criminal events is that victims and offenders must intersect in time and space. A major problem-solving theory of crime prevention is to keep the more basic elements of criminal events from combining: the more police can reduce the intersection of motivated offenders in time and space with suitable targets of crime, the less crime there will be.

TESTING THE HYPOTHESES

All of these hypotheses pose formidable challenges to scientific testing. The

measurement of crime is difficult under any circumstances, let alone in relation to experiments or natural variation in police practices. Control over police practices is difficult for police administrators under normal conditions, let alone under experimental protocols. Measuring the many dimensions of police activity, from effort to manners, is expensive and often inaccurate. Only a handful of studies have managed to produce strong scientific evidence about any of these hypotheses. But the accumulated evidence of the more numerous weaker studies can also provide some insights on policing for crime prevention.

As noted in chapter 1, this report employs a scale of 1 to 5 to summarize several different dimensions of scientific "rigor": the strength of scientific evidence. A score of 5 = strongest evidence for inferring cause and effect, while 1 = the weakest. These dimensions vary somewhat by institutional setting, with different issues inherent in the kinds of programs being evaluated. problems. In the police evaluation literature, crime is almost always measured by either official crime reports (with all their flaws) or by victimization surveys of the public (with all their costs). Police practices are measured either not at all, through citizen perceptions of those practices, through police records, or (in one instance) through direct observation of police patrol activity. It is not clear that any of these methods except the last is superior to any others in drawing valid inferences about the actual practices of the police. Thus the greatest difference across police evaluations lies not in their methods of measurement, but in their basic research designs: the logical structure for drawing conclusions about cause and effect.

Evaluations of police crime prevention generally follow five basic research designs, which can be ranked for overall strength of the inferences they can suggest about cause and effect. These designs are 1) correlations at the same point in time (e.g., in 1995 the cities with the most police had the most crime) 2) before-and-after differences in crime without a comparison group (e.g., doubling drunk driving arrests was followed by a 50% reduction in fatal accidents, 3) before-after differences with comparison (e.g., the 50% reduction in fatal crashes compared to a 10% increase in fatal crashes in three cities of comparable size in the same state), 4) before and after large sample comparisons of treated and untreated groups (e.g., 30 neighborhoods organized for neighborhood watch compared to 30 that were not), and 5) randomized controlled experiments (300 offenders selected by a computerized equal probability program to be arrested had higher repeat offending rates than 300 offenders selected to be given warnings only).

SCIENTIFIC EVALUATIONS

This section reviews and interprets the reported tests of each of the hypotheses. The discussion attempts to integrate both the scientific score of the various studies and the number of studies converging on the same conclusion. More detailed discussion is offered for some of the major findings, in order to connect the evidence more clearly to the hypotheses. The main concern throughout this section is the cumulative success or failure of the studies in ruling out competing theories in the attempt to provide a conclusive test of

each hypothesis.

1. Numbers of Police

As Table 1 shows, most of the studies of the effects of police numbers on crime are scientifically weak. They consist of two basic research designs. One is evidence from police strikes¹ about a sudden and drastic reduction in police numbers. The other is evidence from correlational studies of police strength and crime rates.

The police strike evidence, while weak in both measurement and design, is fairly consistent in showing the effect of this natural experiment: crime rates skyrocket instantly. The strongest design is the Makinen and Takala (1980) study of crime in Helsinki before and during a police strike. The Helsinki measures included systematic observation counts of fights in public places, as well as emergency room admissions for assault-related injuries. Both measures rose substantially during the strike despite severe winter weather. The only purportedly negative evidence on this conclusion is the Pfuhl (1983) study of police-recorded crime in 11 American police strikes, in which 89% of the "strike" period in the analysis consisted of non-strike days. Both the measure and the definition of the strike period hopelessly confound cause and effect, rendering the study irrelevant to the conclusion reached from the stronger evidence.

None of the strike findings have comparison groups, so in theory it is possible that crimes would have risen dramatically during the strike period even without the strike. The substantial magnitudes of some of the increases, however, greatly exceed typical daily variations in crime in big cities. In the Montreal police strike of 1969, for example, there were 50 times more bank robberies and 14 times more commercial burglaries than average (Clark, 1969). Thus despite the weak research design, the large effect size suggests that abolishing a police force can cause crime to increase.

¹ And in one case, the arrest of the entire Copenhagen police force by the Nazis in 1944, which was equivalent to a strike because the occupying German army did nothing to enforce civilian criminal laws before or after arresting the police (Andenaes, 1974).

Table 8-1: Numbers of Police

The more police a city employs, the less crime it will have.

Studies	Scientific Methods Score	Findings
Andenaes 1974	2	1944 No Danish Police, large robbery & larceny increase
Clark 1969	2	Police Strike, major increase in violent & property crime
Russell 1975	2	Same as preceding (Boston)
Sellwood 1978	2	Same as preceding (Liverpool)
Makinen and Takala 1980	2	Same as preceding (Helsinki)
Pfuhl 1983	1	No crime increase during quarters with police strike
Marvell & Moody 1996	3	Higher police numbers in cities reduce most types of crime
36 study review	2	Little evidence that more police reduce crime; weak methods

Whether adding more officers to an already large police force causes crime to decrease, however, is somewhat less clear. A recent review of 36 correlational studies, most of them weak in research design, found little evidence that more police reduce crime (Marvell and Moody, 1996). The same authors, however, offer a twenty-year analysis of 56 cities of over 250,000 people each and of 49 states. Using a complex technique called the Granger test, Marvell and Moody (1996) find consistent evidence that increases in the numbers of police cause reductions in crime in the following year. This study rates a level 4 because it employs multiple comparison groups and uses appropriate controls for well-specified differences across units. While it lacks random assignment, it is the best evidence available about the effect of modest increases in police numbers. While it runs against the conclusion of the preponderance of the other studies, the difference in scientific rigor tips the preponderance of the evidence in the direction of the conclusion that police numbers alone do help to reduce crime in a big city or a state. What the causal mechanism for that effect may be or how it may be enhanced, however, is not clear.

The Marvell and Moody (1996: 632) analysis also allows a test of the hypothesis that the prevention benefits of hiring more police officers are greater in higher-crime cities than across the country in general. The analysis estimates that for each additional officer added to a police force in a big city, 24 Part I crimes are prevented annually. For each officer hired anywhere in a state, only 4 Part I crimes are prevented. States, on average, have much lower crime rates than the big cities (over 250,000 population); in 1995 the rate of Part I crimes was 8,563 per 100,000 in the big cities, compared to 5,624 per 100,000 across all police agencies. Yet the ratio of crime prevention benefit is far greater than the ratio of reported crime risks. The Marvell and Moody estimate shows that six times as much crime is prevented for each officer added in cities than added in all places on average. Why the benefit ratio exceeds the risk ratio is unknown, but one likely candidate is the greater population density in cities which lets additional police officers have greater effects on patrol visibility per resident.

2. Rapid Response to 911

One major theory about the crime prevention benefits of hiring more officers is that it reduces police response time. The research on this theory is an excellent example of how different conclusions can result from research results with very different levels of scientific strength. The initial studies of the response time hypothesis produced strong support, suggesting that shaving minutes off response time could lead to the arrest of many more offenders. The extension of this hypothesis into a strategy of policing included the development of 911 systems to speed victim contact with police radio dispatchers, and the hiring of more police nationwide in the early 1970s in order to reduce average response times and deter crime through greater certainty of arrest. Only the 1977 NIJ response time analysis in Kansas City study, and the NIJ replications in four other cities, were able to call that strategy into question, and open the door to more focused alternatives (Goldstein, 1979).

The original test of the hypothesis was based on a scientifically weak research design, a non-random sample of 265 police responses to citizen calls by the Los Angeles Police Department (Isaacs, 1967). Its results were confirmed by a later study in Seattle (Clawson and Chang, 1977): the probability of arrest per police response increased as police time in travel to the scene decreased. Two other studies (Brown, 1974; Holliday, 1974, as cited in Chaiken, 1978) failed to find that pattern, perhaps because, as Chaiken (1978: 130) observes, "the curves are essentially flat for response times larger than three minutes, and therefore a substantial amount of data for responses under three minutes is needed to observe any effect."

The Kansas City (1977) response time analysis took a far more systematic approach to the issue. Its first step was to divide crimes into victim-offender "involvement" (e.g., robbery, assault, rape) and after-the-crime "discovery" categories (e.g., burglary, car theft). It then focused response time analysis on involvement crimes, since the offender would not be present at the discovery crimes. The analysis then divided the involvement crime "response time" into three time periods: crime initiation to calling the police ("reporting time"), police receipt of call to dispatch ("dispatch time"), and "travel time" of police from receipt of dispatch to arrival at the scene. Using systematic observation methods and interviews of victims, the Kansas City study (1977, Vol. 2: 39) found that

Table 8-2: Rapid Response

The shorter the police travel time from assignment to arrival at a crime scene, the less crime there will be.

Studies	Scientific Methods Score	Findings
Isaacs 1967	1	Shorter police travel time, more arrests
Clawson and Chang 1977	1	Same as preceding
Pate et al 1976	1	Police travel time unrelated to arrest
Kansas City (MO) Police 1977	2	Same as preceding, most crimes
Spelman and Brown 1981	2	Same as preceding

there was no correlation between response-related arrest probability and reporting time once the

time exceeded 9 minutes. The average reporting time for involvement crimes is 41 minutes (K.C.P.D. 1977, Vol. 2: 23). Cutting police travel time for such crime from 5 to 2.5 minutes could require a doubling of the police force, but it would have almost no impact on the odds of making an arrest.

Police chiefs in the Police Executive Research Forum (PERF) told NIJ that they did not think citizens in their own communities would take so long to call the police. NIJ responded by commissioning PERF to replicate the citizen reporting component of the response time analysis in four other cities. Over 4,000 interviews about 3,300 "involvement" crimes produced unequivocal support for the findings of the Kansas City response time analysis (Spelman and Brown, 1981). The probability of arrest in those serious crimes was only 29 per 1,000 reports, with 75% of serious crimes being discovered by victims long after the crimes occurred. Of the 25% that directly involved the victims, almost half were reported five minutes or more after the crime was completed. The findings were consistent across cities, including one that had a 911 system and three that did not.

The conclusion that reduced response time will not reduce crime is based on strong but indirect evidence. The evidence is strong because it is based on large samples, careful measurement, and a replicated research design in five diverse cities showing little variation in arrest rates by police travel time, the main factor that tax dollars can affect. It is indirect because an experimental test of the effects of reduced police travel time on city-wide arrest and crime rates has never been conducted. Yet there is neither empirical nor theoretical justification for such an expensive test. Given the strong evidence of citizen delays in reporting involvement crimes, and the small proportion of serious crimes that feature direct victim-offender involvement, further tests of this theory seem to be a waste of tax dollars. Those dollars might be better spent on communicating the findings to the general public, which still puts great priority on police travel time for public safety (Sherman, 1995).

3. Random Patrols

Another major theory about the benefits of more police is that they can conduct more random patrols. Table 3 summarizes the evidence for the police numbers hypothesis tested at the level of uniformed patrols within cities, in non-directed or random patrol patterns. The Table shows weak evidence of no effect of moderate variations in numbers or method of patrols. The most famous test of the **random** preventive patrol hypothesis, the Kansas City Preventive Patrol Experiment (Kelling et al, 1974), reveals some of the difficulty in testing this claim. This experiment claimed to have varied the dosage of patrol presence for one year across three groups of five randomly assigned beats each, preceded and followed by extensive measures of crime from both household surveys and official records. The results of the experiment showed no statistically significant differences in

Table 8-3: Random Patrol

The more random patrol a city receives, the more a perceived "omnipresence" of the police deters crime in public places.

Studies	Scientific Methods Score	Findings
Kelling et al 1974	3	No difference in crime by N of police cars assigned
Police Foundation 1981	3	No difference in crime by N of foot patrol assigned
Trojanowicz 1986	3	Foot patrol areas had fewer crimes than controls, but no significance tests reported.

crime across the three groups.

Many criminologists conclude from this experiment that there is no crime prevention effect of adding patrol presence in a big city, where low density of crime makes the extra patrol a mere drop in the bucket (Felson, 1994). Yet the experiment has been criticized for its failure to measure the actual differences in patrol dosage and the possible lack of them (Larson, 1975), its inadequate statistical power to detect large percentage differences in crime as not due to chance (Fienberg, et al, 1976), and its failure to assign patrol dosage at random (Farrington, 1982). Similar limitations are found in the Newark Foot Patrol Experiment (Police Foundation, 1981), where despite large victimization surveys no crime prevention effects were detected in association with adding or eliminating daytime and early evening foot patrols from selected patrol beats.

The weakness of the evidence is even greater for the one study claiming to find a crime prevention effect from random patrols not focused on crime risks (Trojanowicz, 1986). The design of this study was limited to recorded crime and calls for service, with no victimization surveys. After daytime foot patrols were added to 14 beats in Flint Michigan for three years, the official crime counts in those beats were down by 9% in the foot patrol beats and up 10% in the other beats city-wide. Large increases in burglary and robbery in the foot patrol areas were matched by reportedly greater increases in the rest of the city. No significance tests were reported, nor were there any controls for the demographic characteristics of the areas selected for foot patrol compared to the rest of the city. Since the foot patrol areas were not selected at random, it is possible that those areas might have experienced different crime trends even without the foot patrols. The fact that the increase in burglary and robbery occurred largely at night when the foot patrols were not working is perhaps the most interesting fact in the study, supporting the conclusion reached from evaluations of directed patrols focused on high crime-risk times and places.

4. Directed Patrols

The evidence from the **directed** preventive patrol hypothesis is more voluminous, scientifically stronger (in two tests), and consistently in the opposite direction from the weight of the (weak) evidence on the random patrol hypothesis. In order to be assigned to this category, the studies had to indicate that they were somehow focused on high-crime places, times or areas. In the New York City study (Press, 1971: 94), for example, the test precinct was known as a high robbery area, and had over three times as many robberies per week as each group of five areas in the Kansas City experiment. All eight of the reported tests of this hypothesis show crime reductions in response to increased patrol presence.

Table 8-4 Directed Patrol

The more precisely patrol presence is concentrated at the "hot spots" and "hot times" of criminal activity, the less crime there will be in those places and times.

Studies	Scientific Methods Score	Findings
Press 1971	3	40% more police, reductions of outdoors crime
Chaiken et al 1975; Chaiken 1978	3	Police on subways at night reduced crime
Dahman 1975	2	More police, reductions of outdoors crime
Schnelle et al 1977	2	400% more patrol, less Part I crime
Sherman and Weisburd 1995	5	100% more patrol, less observed hot spot crime
Koper 1995	4	Longer patrol visits, longer post-visit crime-free time
Reiss 1995 Review: Barker et al 1993 Burney 1990	2 2	Squad focused on hot spots, where street crime dropped Saturation patrols, reduced street crime

The crime prevention effects of extra uniformed patrol in marked police cars at high crime "peaks" are especially evident in two very different research designs imposed on one large NIJ study designed to improve upon the Kansas City Preventive Patrol Experiment. Based on the NIJ-funded research showing extreme concentrations in spatial and temporal distributions of crime, the Minneapolis Police Department (MPD) reorganized its entire patrol force in 1988-89 to test a pattern of directed patrols at hot spots during hot times. With the unanimous consent of the City Council, the MPD substantially reduced patrols from low-crime areas in order to provide 2 to 3 hours of extra patrol each day during high crime hours at 55 street corner hot spots. The corners were randomly selected for extra patrols from a carefully compiled list of 110 high crime locations that were visually separate from each other (Buerger, Petrosino and Cohn, 1995). Under a million dollar NIJ grant, both the patrolled and unpatrolled hot spots were subjected to over 7,000 randomly selected hours of observations by independent researchers over the course of a year. The observers recorded every minute of 24,813 instances of police presence in the hot spots, and 4,014 observed acts of crime and disorder (Koper, 1995: 656).

Koper's (1995) analysis of the Minneapolis Hot Spots Patrol data found a very strong relationship between the length of each police patrol presence (which averaged 14 minutes) and the amount of time the hot spot was free of crime after the police left the scene. The longer the police stayed before they left, the longer the time until the first crime (or disorderly act) after they left. This relationship held for each additional minute of police presence from one to fifteen minutes, after which the relationship began to reverse. Thus the "Koper curve" in the Minneapolis data suggests the optimum length of a police patrol visit to a hot spot for the purpose of deterring crime is about 15 minutes.

Koper's correlational analysis of all police presences observed in both the extra-patrol and no-extra-patrol hot spots combined is consistent with the results of Sherman and Weisburd's (1995) comparisons of the two groups. The experimental analysis found that there was an average of twice as much patrol presence and up to half as much crime in the extra-patrol hot spots as in the no-extra-patrol group. The observational data showed crime or disorder in 4 percent of all observed minutes in the control group compared to 2 percent in the experimental group (Sherman and Weisburd, 1995: 64). Most of the difference in the observed crime was found when police were not present in the hot spots. Crime-related calls for service increased for both groups of hot spots over the one-year experiment as well as city-wide, but the average growth per hot spot was up to three times as great in the no-extra-patrol group (17%) as in the extra patrol group (5%) (Sherman and Weisburd, 1995: 644).

These findings can be questioned, like most place-linked crime prevention effects, with the possible side effect that the crime simply moved elsewhere (but see the discussion of displacement in Chapter Seven). So, too, can a reduction of crime in one city be questioned on the grounds that offenders may have focused on other jurisdictions. The theoretical perspective of "routine activities" (Cohen and Felson, 1979; Felson, 1994), under which crimes are only likely to happen in certain places and times, makes the displacement hypothesis less plausible. It suggests that if crime is displaced, it would have to be

displaced to other hot spots. That argument is still consistent with the experimental-comparison group analysis, given the rising numbers of calls in the experimental year relative to the baseline year. But it does not explain away Koper's cross-sectional analysis of the effects of longer patrol presence on post-patrol crime rates.

5. Reactive Arrests

The evidence in support of the reactive arrest hypothesis is remarkably unencouraging at both the community and individual levels of analysis. As a matter of general deterrence, the tests are all fairly weak and generally negative. As a matter of individual deterrence, the results are consistently negative for juveniles, and contradictory for two different groups of domestic assailants, employed and unemployed. The scientific evidence for the latter is among the strongest available in the police literature, while the evidence about juveniles is much weaker. Taken as a whole, these results make a vivid demonstration of the complexity of police effects on crime.

The evidence on the **general deterrent** effects of reactive (Reiss, 1971) arrests is based on correlational analyses, with and without temporal order. There is some weak evidence that there is a threshold beyond which the effect of increased arrest rates becomes evident, while no such effect is apparent below the "tipping point" of minimum dosage level (Tittle and Rowe, 1974). This evidence is complicated by the suggestion that the arrest effects are only evident among cities of less than 10,000 people, even with the "tipping point." The finding by Greenberg and his colleagues (1979, 1982) of no arrest rate deterrent effects in a temporal sequence design in big cities throws great doubt on a simple claim of general deterrence. Here again, without focusing arrests on high risk persons or places, the effects of higher arrest levels may get lost in the many factors causing crime.

Table 8-5 Reactive Arrests

The more arrests police make in response to reported or observed offenses of any kind, the less crime there will be.

5.a. General Deterrence. The higher the arrest rate per crime for each type of crime in a city, the lower the city's rate of that type of crime.

Studies	Scientific Methods Score	Findings
Tittle and Rowe 1974	2	Cities with higher arrest rates beyond a "tipping point" have less crime, but under tip point no arrest effects
Logan 1975	2	No correlation of arrest rates and crime across cities
Brown 1978	2	Tipping effect limited to cities under 10,000 people
Greenberg et al 1979	2	No effect of arrest rates on crime across cities
Greenberg and Kessler 1982	3	No arrest rate effect even when other factors controlled
Chamlin 1988	3	More arrests reduce robberies, not 4 property crimes
Chamlin 1991	3	No arrest rate effect for cities over 10,000

5.b. Specific Deterrence. Individual offenders arrested for an offense are less likely to repeat that offense in the future than offenders who are not arrested.

Table 8-5b: Specific Deterrence

Studies	Scientific Methods Score	Findings
Juvenile Offenses:		
Gold and Williams 1970	2	Arrested juveniles offend more post-arrest than those not arrested
Klein 1986	4	More formal arrest processing increased recidivism
Huizinga and Esbensen 1992	2	Same as preceding
Smith and Gartin 1989	2	Arrested juveniles offend less post-crime than those not arrested, if they are first offenders; others more
Farrington 1977	2	Arrested juveniles offend more post-arrest than those not arrested
Domestic Violence		
Sherman and Berk 1984	4	Arrest reduced recidivism 50%
Dunford et al 1990	5	Arrest had no effect on recidivism at 6 mos
Dunford 1992	5	Arrest increased offense frequency at 12 mos
Dunford 1990	5	Arrest warrant reduced absent offender recidivism 50%
Sherman et al 1991	5	Arrest had no effect on recidivism at 6 mos; short arrest increased recidivism after 12 mos

Sherman et al 1992		
(Milwaukee)	4	Arrest deters employed, criminogenic for unemployed
(Omaha)	4	Same as preceding
Berk et al 1992a	5	Arrest reduced recidivism
Berk et al 1992b	4	Arrest deters employed, not unemployed
Pate et al 1991	5	Arrest reduced recidivism
Pate and Hamilton 1992	5	Arrest deters employed, criminogenic for unemployed
Hirschel et al 1992	5	Arrest increases official recidivism
Marciniak 1994	4	Arrest deters in areas of high employment & marriage; increases recidivism in areas of low employment & marriage

The consistent **individual level** evidence of the criminogenic effects of arrests for juveniles is all longitudinal, but only one of the studies is a randomized experiment (Klein, 1986). The other studies are natural observations of the difference in self-reported offending before and after juvenile offenders were arrested. These studies cannot adequately control for the rival hypothesis that the same factors that led to the youth being arrested also caused a higher level of repeat offending. A pattern of "defiance" (Sherman, 1993), for example, would account for both variables and their correlation. The Klein (1986) experiment reported some difficulties in maintaining random assignment, but still managed to make the formal charging of juveniles in police custody a matter of equal likelihood across cases. Holding juvenile characteristics relatively constant, then, Klein found that the more legalistic the processing of a juvenile suspect, the higher the official recidivism rate.² In interpreting these results, it is necessary to recall that most juvenile offenses are for fairly minor offenses, and that most juveniles with one police contact never have another (Wolfgang, Figlio and Sellin, 1972). Thus to a certain degree, arresting some juveniles and not others for such offenses may be perceived as arbitrary or procedurally unfair.

The evidence on the effects of arrest for misdemeanor domestic violence is contradictory across cities but consistent within arrestee characteristics. While three experiments have found some evidence of deterrent effects of arrest (Sherman and Berk, 1984; Pate, Annan and Hamilton, 1991; Berk et al, 1992), three other experiments have found some evidence that arrest increases the frequency of officially detected offending (Sherman, et al, 1991; Hirschel et al, 1992; Dunford, 1992). All four of these six experiments for which the data have been analyzed separately by employment status of the offender show consistent results. Arrest increases repeat offending among unemployed suspects while reducing it among employed suspects. Marciniak (1994) has shown that this difference operates even more powerfully at the census tract level than at the individual level, with arrest backfiring irrespective of individual employment status in neighborhoods of concentrated unemployment and single parent households. There is a literature raising concerns about measurement issues in these data (Garner and Fagan, 1995; Fagan, 1996) that are not generally raised about other studies in the police literature. Yet there is no other example in the police literature of six similar randomized experiments all testing similar hypotheses with similar (though not identical) designs, and these studies feature a scientific rigor score that is twice the mean of all studies classified for this chapter. The consistency of the effects of arrest on crime for employed and unemployed offenders even extends to similarity in effect sizes.

6. Proactive Arrests

Like the evidence on focused patrol, the evidence on the focused proactive arrest

² There was no difference in the self-reported offending data, but only 60% of the offenders gave followup interviews.

hypothesis is generally supportive across a wide range of studies and research designs. While most of the studies are relatively modest in scientific strength, there are some randomized controlled experiments. With the exception of arrests targeted on drug problems, there appear to be substantial results from focusing scarce arrest resources on high risk people, places, offenses and times.

The evidence on high-risk people comes from two strong (level 4) evaluations of police units aimed at repeat offenders. The Washington, D.C. unit employed pre-arrest investigations, designed to catch offenders in the act of crime to enhance the strength of evidence. The Phoenix police unit employed post-arrest investigations, designed to enhance the evidence in the offenders latest case based upon the length and nature of the offender's prior record. Both projects aimed at increasing the incarceration rate of the targeted offenders, and both succeeded. Just how serious or active the offenders were is an important issue in these studies, one which could illuminate future analyses of dollars invested per crime prevented.

Two weaker studies use national samples of cities to test the effects of police arrest rates for minor offenses on robbery. Both employ multivariate models to control for the effects of some of the other factors that could influence the city's robbery rate. Both find that the higher the per capita rates of traffic arrest, the lower the rates of robbery. One uncontrolled factor in these analyses is the number of pedestrian robbery opportunities. This may be much higher in cities where there is less use of automobiles, such as New York City, in which under 3% of the US population suffers 12% of the reported robberies. Since that is the only crime type for which New York is so disproportionate, and since other dense, pedestrian cities like Baltimore and Boston also have high robbery rates, there may be a spurious relationship between traffic enforcement and robbery. That is, the more cars per capita, the fewer robbery opportunities and the more traffic enforcement opportunities.

Table 8-6: Proactive Arrests.

The higher the arrest rate for high-risk offenders and offenses, the lower the rates of serious violent crime.³

8-6.a. Repeat Offenders.

Studies	Scientific Methods Score	Findings
Martin and Sherman 1986	4	Targeted offenders more likely to be arrested and incarcerated (Washington)
Abrahamse et al 1991	4	Post-arrest case enhancement increases odds of arrestees being incarcerated (Phoenix)

Table 8-6.b. Traffic and disorderly conduct arrests

Studies	Scientific Methods Score	Findings
Wilson and Boland 1978	2	Cities with higher arrest rates have less crime
Sampson and Cohen 1988	2	Same as preceding
Weiss and McGarrell 1996	3	Increased traffic tickets, reduced robbery

³ Given the potential for vehicular homicide attached to drunk driving, that offense is included here in the definition of violent crime. It would not, however, be classified that way for most other purposes.

Table 8-6.c. Drug market areas

Studies	Scientific Methods Score	Findings
Kleiman 1988 (Lynn)	2	Crackdown on heroin market, violence down
Kleiman 1988 (Lawrence)	2	Crackdown on heroin market, violence up
Zimmer 1990 and Kleiman 1988 (NYC)	2	Crackdown on heroin market, violence down
Sviridoff et al 1992	3	Crackdown on crack market, violence flat
Uchida et al 1992 (Birmingham)	3	Inconsistent changes in violence after arrests up
Uchida et al 1992 (Oakland)	3	Buy & bust plus door-to-door, robbery down Each strategy alone, no effect
Sherman and Rogan 1995	5	Raids of crack houses reduced crime for 12 days
Weisburd and Green 1995	4	Crackdowns on hot spots reduced disorder; no effects on violence or property crime
Annan and Skogan 1993	3	Drug crackdown in public housing, no effect on crime

Table 8-6.d. Drunk driving

Studies	Scientific Methods Score	Findings
Ross 1981 review: Ross 1973 (U.K.)	2	Arrests up sharply, drop in crashes decays over time
Ross 1975 (Scandinavia)	2	Same as preceding
Ross 1977 (Cheshire 1)	2	Same as preceding
Ross 1977 (Cheshire 2)	2	Same as preceding
Hurst-Wright 1980 (NZ1)	2	Same as preceding
Hurst-Wright 1980 (NZ2)	2	Same as preceding
Ross et al 1982 (France)	2	Same as preceding
Homel 1993	3	Increased state arrest rate reduced deaths over 10 years, but not in comparable states

Table 8-6.e. Zero Tolerance Arrests

Studies	Scientific Methods Score	Findings
Boydston 1975; Sherman 1990	3	More field interrogations, fewer outdoors crimes
Reiss 1985	3	More police regulation of conduct, fewer "soft" crimes
Pate et al 1985; Skogan 1990	3	Same as preceding
Sherman 1990	2	Disorder crackdown, no robbery reduction
Kelling and Coles 1996	2	Fare-beating, crackdown, robbery reduction in subways

That is just the kind of limitation in causal inference that experiments can address. Quasi-experimental evidence on this hypothesis was recently reported by the Hudson Institute study of the Indianapolis Police Department, in which substantial increases in traffic enforcement in a high robbery area were followed by a sharp reduction in robbery (Weiss and McGarrell, 1996).

The evidence on drug crackdowns shows no consistent reductions in violent crime during or after the crackdown is in effect. The strongest evidence is the randomized experiment in raids of crack houses (Sherman and Rogan, 1995), in which crime on the block dropped sharply after a raid. The rapid decay of the deterrent effect in only seven days, however, greatly reduces the cost-effectiveness of the labor-intensive raid strategy. Only the high yield of guns seized per officer-hour invested (Shaw, 1994) and its possible connection to community gun violence over a longer time period (Sherman, Shaw and Rogan, 1995) showed great cost-effectiveness. Other drug enforcement strategies in open-air markets have even less encouraging results, with the exception of the Jersey City experiment in which the principal outcome measure was disorder, not violence.

The evidence on drunk driving, in contrast, is one of the great success stories of world policing. Despite relatively low rigor scores, the sheer numbers of consistent results from quasi-experimental evaluations of proactive drunk driving arrest crackdowns suggest a clear cause and effect. The ability of the police to control drunk driving appears to be a direct and linear function of the amount of effort they put into it (Homel, 1990). Since more deaths are caused annually by drunk driving than by homicide, the cost effectiveness of saving lives through DUI enforcement may well be far greater than for homicide prevention. The evidence on drunk driving prevention seems far clearer than anything we know how to do to have police prevent murders.

The evidence for the **broken windows-zero tolerance arrests** hypothesis (Wilson and Kelling, 1982) is also consistently supportive. The research designs are only moderately strong, but they all suggest that a police focus on street activity can help reduce serious crime. The specific tactics by which this is accomplished can be controversial, and some methods used in the 1982 Newark test have been described in the literature as "unconstitutional" (Skolnick and Bayley, 1985:199), including the ordering of loitering teenage males off of street corners on the grounds of obstructing traffic. Field interrogations have often been a flash point of poor police-community relations, yet they have also been a favorite crime prevention tactic for police in both the US and Europe. The evidence from both the San Diego field interrogation experiment (Boydston, 1975) and the NIJ Oakland city center study (Reiss, 1985) suggest that it is possible to regulate public behavior in a polite manner that fosters rather than hinders police legitimacy. That possibility, however, is by no means guaranteed, and generally takes substantial managerial investment in order to bring about.

The larger concern about zero tolerance is its long-term effect on people arrested for minor offenses. Even while massive arrest increases, such as those in New York City, may

reduce violence in the short run--especially gun violence--they may also increase serious crime in the long run. The negative effects of an arrest record on labor market participation are substantial (Schwartz and Skolnick, 1963; Bushway, 1996). The effects of an arrest experience over a minor offense may permanently lower police legitimacy, both for the arrested person and their social network of family and friends. The criminogenic effect of arrest may make arrestees more defiant (Sherman, 1993) and more prone to anger in domestic violence and child abuse. The data suggest that zero tolerance programs should be evaluated in relation to long-term effects on those arrested, as well as short-term effects on community crime rates. Program development to foster greater legitimacy in the course of making the arrests is also advisable, based on findings from procedural justice research (see hypothesis 7.d below). This could include, for example, a program to give arrested minor offenders an opportunity to meet with a police supervisor who would explain the program to them, answer questions about why they are being arrested, and give them a chance to express their views about the program while listening respectfully to them. Such innovations would not be expensive, but would also pose many testable hypotheses.

7. Community Policing

The results of available tests of the community policing hypotheses are mixed. The evidence against the effectiveness of police organizing communities into neighborhood watches is consistent and relatively strong. The evidence about the crime prevention benefits of more information flowing from citizens to police is at best only promising. The two tests of police sending more information to citizens are both very strong, but clearly falsify the hypothesis. The tests of increasing police legitimacy are the most promising, especially since they draw on a powerful theoretical perspective that is gaining growing empirical support.

One of the most consistent findings in the literature is also the least well-known to policymakers and the public. The oldest and best-known community policing program, **Neighborhood Watch**, is ineffective at preventing crime. That conclusion is supported by moderately strong evidence, including a randomized experiment in Minneapolis that tried to organize block watch programs with and without police participation in areas that had not requested assistance (Pate et al, 1987). The primary problem found by the evaluations is that the areas with highest crime rates are the most reluctant to organize (Hope, 1995). Many people refuse to host or attend community meetings, in part because they distrust their neighbors. Middle class areas, in which trust is higher, generally have little crime to begin with, making measurable effects on crime almost impossible to achieve. The program cannot even be justified on the basis of reducing middle class fear of crime and flight from the city, since no such effects have been found. Rather, Skogan (1990) finds evidence that Neighborhood Watch increases fear of crime.

Another popular program for increasing contact between police and public is **community meetings**. The careful NIJ evaluation of the Madison, Wisconsin community policing project in which meetings played a central role found no reduction in crime

(Wycoff and Skogan, 1993). A different approach to the meetings in Chicago shows more promise, with the meetings focused much more precisely on specific crime patterns in the area and ideas for what the police should do to attack those problems. While the crime reduction evidence for "community policing, Chicago style" is mixed, it is striking that Chicago has mobilized high crime communities to participate in these meetings (Skogan, 1996). Unlike neighborhood watch meetings, the Chicago meetings are held in public places rather than local residences. The best attendance at these meetings for almost two years has been found in the police districts with the highest crime rates.

A less popular but often effective community policing practice is **door to door visits** by police to residences during the daytime. These visits may be used to seek information, such as who is carrying guns on the street (Sherman, Shaw and Rogan, 1995). The visits may be used to give out information, such as burglary reduction tips (Laycock, 1991). The visits may be used simply to introduce local police officers to local residents, to make policing more personal (Wycoff et al, 1985). Four out of six available tests of the door to door visits show modestly strong (rigor = 3) evidence of substantial crime prevention. In the NIJ-funded Houston test, for example, the overall prevalence of household victimization dropped in the target area substantially, with no reduction in the comparison area. The prevention effects were primarily for car-breakins and other minor property crime. Here again, however, there was a substantial "Matthew effect" (see Chapter 1): the benefits of the program were highly concentrated among white middle class homeowners, with virtually no benefit for the Asian, Hispanic and African-American minorities living in rental housing in the target area (Skogan, 1990).

A far more popular program is far less effective. **Police storefronts** are often requested by communities, often staffed during business hours by a mix of sworn police, paid civilians and unpaid volunteers. The evidence from tests of substations in Houston, Newark and Birmingham

(continued after Tables)

Table 8-7: Community Policing

Increasing the quantity and quality of police-citizen contact reduces crime. Tests of this basic hypothesis omitting measurement of an intervening causal mechanism have been done:

Table 8-7.a. Neighborhood Watch

Studies	Scientific Methods Score	Findings
Lindsay and McGillis 1986	3	Burglary reduced for 18 mos
Pate et al 1987; Skogan 1990	4	No effect of block watch on crime Poorer areas had less surveillance
Rosenbaum 1986	3	Same as preceding
Bennett 1990	3	Same as preceding

Table 8-7.b. Intelligence from citizens to police.

Studies	Scientific Methods Score	Findings
Community Meetings		
Wycoff and Skogan 1993	3	No drop in victimization after increase in police-community meetings in target district
Skogan et al 1995	3	After 18 monthly police-community meetings in each beat in 5 districts, reductions in some crimes and victimization measures but not others
Door-to-Door Contacts		
Wycoff et al 1985; Skogan 1990	3	Door-to-door police visits; victimization dropped
Pate et al 1985; Skogan 1990	3	Door-to-door visits & storefront, crime dropped

Laycock 1991	3	Door-to-door visits, burglary down by ____%
Sherman et al 1995	3	Door-to-door visits, no drop in crime
Uchida et al 1992	3	Visits plus Buy and Bust, crime down
Uchida et al 1992	3	Visits alone, no crime reduction
Storefronts		
Wycoff and Skogan 1986	3	Storefront open, no drop in victimization
Uchida et al 1992	3	Storefront open, no difference in crime
Pate et al 1985; Skogan 1990	3	(See above under "door-to-door")

Table 8-7.c. Increasing the flow of information from police to citizens.

Studies	Scientific Methods Score	Findings
Pate et al (Newark)	5	Monthly newsletter with crime data failed to reduce victimizations of recipients
Pate et al (Houston)	5	Same as preceding

Table 8-7.d. Legitimacy

Studies	Scientific Methods Score	Findings
Skogan 1990 (Houston)	3	Doorknock visits reduced fear of police, reduced crime
Tyler 1990	1	Definition of past police treatment as fair increases expected obedience to law in the future

Paternoster et al 1996	2	Definition of treatment at arrest as fair, lower recidivism in domestic violence
Skogan et al 1995	3	Perceived increased responsiveness of police to community in 4 districts, perceived reduction in serious crime in 3 of those 4

(AL) consistently shows no impact on crime. While there are some positive citizen evaluations associated with storefronts, the problems of staffing the offices once they are open may counterbalance any non-crime benefits.

Increasing the flow of information from police to public has been tested in the form of **police newsletters**. In two randomized NIJ-funded experiments, the Newark and Houston police departments found no effect of newsletters on the victimization rates of the households receiving them. The finding was true for both newsletters with and without specific data on recent crimes in the community.

The most promising approach to community policing is also the most theoretically coherent. Based on two decades of laboratory and field studies on the social psychology of "procedural justice," a growing body of research suggests that **police legitimacy** prevents crime. Tyler (1990) finds a strong correlation across a large sample of Chicago citizens between perceived legitimacy of police and willingness to obey the law. The legitimacy was measured by citizen evaluations of how police treated them in previous encounters. This finding is consistent with the Houston door-to-door experiment, in which citizen fear of police after a major scandal over police beating to death a Mexican immigrant was reduced by the door-to-door visits. Community policing Chicago style (Skogan, et al 1996) also find the greatest perceived reduction in serious crime in the districts where surveys showed police were "most responsive" to citizen concerns. The most powerful test of this hypothesis is the Paternoster et al (1996) reanalysis of the Milwaukee Domestic Violence Experiment, which found that repeat domestic violence was lowest among arrestees who thought police had treated them respectfully; a powerful effect on recidivism was associated with police simply taking the time to listen to the offender's side of the story. The capacity of police legitimacy to prevent crime is something community policing may well be effective at creating; Skogan's (1994: 176) review of six community policing evaluations (SM scores = 2 or 3) found every one showed positive or improved perceptions of police in the treated areas.

Still in progress, but with encouraging preliminary results, is the Australian test of **community accountability conferences**. The Australian Federal Police in the Australian capital, Canberra, use this procedure as an alternative to prosecuting juveniles. Only cases in which the offender(s) admit(s) guilt and the victim(s) are willing to attend the conference are eligible. The conference of offenders and victims with their respective families and friends is led by a trained police officer, who focuses the discussion on what happened, what harm it caused, and how the harm can be repaired. The officer tries to insure that everyone, especially victims, is allowed to have their say. Sometimes offenders apologize, but always an agreement for repaying the cost of the crime to the victim is reached; failure to do so results in the case being prosecuted. Preliminary findings from subsequent interviews with victims and offenders in a randomized experiment show that the procedure greatly increases respect for police and a perception of justice, regardless of the outcomes (Strang, 1996; Barnes, 1996). The National Institute of Justice has funded a similar ongoing project in Bethlehem, Pennsylvania. This method may turn out to have long-term

effects on police legitimacy in the eyes of both juvenile offenders and their families, which could in turn reduce crime.

The interesting point about the Australian model of community policing, as noted in Chapter 2, is that it builds on actual community ties rather than anonymous geographic areas. Moreover, the attendees form a community of concern about the criminal act bringing them together, holding the offender accountable for over an hour to a "village-like" community rather than for a few minutes to a distant and anonymous judge. Of all the approaches to community policing yet tried, this one may have the most focused empowerment of "community" to prevent future crimes.

8. Problem-Oriented Policing

The tests of this hypothesis are generally more positive than the tests of community policing. As Moore (1992) suggests, however, this may be due to a process of selective reporting, in which failures are not included. The most basic problem with testing this very rich and complex hypothesis is that it is essentially about insight, imagination and creativity. The essence of problem-oriented policing as Goldstein (1979) defined it is science itself (Sherman and Strang, 1996): classification, prediction, and causation. Evaluations of the scientific method, paradoxically, are not readily susceptible to the scientific method--except in gross comparison to **unscientific** methods. From this perspective, problem-oriented policing embraces all of the other strategies described in this chapter, with the problem to be solved that of crime prevention.

This section reviews some evidence on police efforts to prevent crime that do not fall into the preceding seven hypotheses, and that self-consciously adopted a scientific process that involved police officers in analyzing crime patterns, imagining and creating an intervention, and testing it in the field. The two basic categories of interventions reported in the literature to date are "removing criminogenic substances" and "separating potential victims and offenders." These two categories simply reflect a convergence of police and criminological thinking about the proximate causes of criminal events. There is nothing in the basic problem-oriented policing (POP) strategy (Goldstein, 1979) that requires the use of these two approaches. Many others are possible, and may even be more effective. If POP succeeds at making scientific research and development the core technology of police work (Reiss, 1992), we may expect that its approaches to crime prevention will evolve with the evolution of knowledge about crime causation.

8.a. Criminogenic Substances. The evidence on **cash control** is weak but suggestive. As part of a multiple intervention strategy to reduce crime in an English public housing project, the coin-operated gas heaters were removed from residences. Rather than having the cash in the house as an attraction to burglars, the gas charges were switched to monthly billing. Burglary went down substantially. It is uncertain, however, whether other efforts, such as the "cocoon" neighborhood watch around recently burglarized residences, might account for

the crime reduction.

The evidence on **gun carrying** is stronger. In the NIJ Kansas City Gun Experiment, police focused traffic enforcement and field interrogations on gun crime hot spots during hot times (Sherman, Shaw and Rogan, 1995). With special training in the detection of carrying concealed weapons, police focused on seizing illegally carried weapons. Gun seizures in the target area rose by 60%, and gun crimes dropped by 49%. A similar area in a different part of town showed no change in either guns seized or gun crimes. In Boston, police have used a mix of strategies to discourage gun carrying in public places among juveniles, especially gang members and probationers. Qualitative evidence from an NIJ project suggests gun carrying by the high-risk groups has been substantially reduced, while early quantitative evidence shows an elimination of juvenile gun homicide (Kennedy et al 1996).

The evidence on **alcohol** and **prostitution** is also encouraging, and was presented in Chapter Seven in the discussions of taverns, bars, traffic barriers and street closures.

In the Minneapolis RECAP (REpeat Call Address Policing) experiment, however, four police officers were unable to implement a **broad mix** of efforts to separate potential victims and offenders across a sample of 250 target addresses. The YMCA refused to limit access to its lobby during evening hours, the Public Library refused to bar intoxicated persons, public housing officials were unable to segregate young "disabled" but predatory alcoholics from elderly co-residents, and private landlords resisted efforts to evict drug dealers (Sherman, 1990; Buerger, 1994). While a randomized experimental design gave the test strong science, police inexperience at persuading property managers gave the strategy a weak technology. Given the theoretical power of the idea, further development of the methods of persuasion might be justified, and only then followed by further research.

One of the most popular practices for separating victims and offenders is evening curfews for juveniles. While such curfews give police additional powers to search for guns, they have not been used consistently in that fashion. The primary objective is to get kids, not guns, off the streets. Some cities, such as San Antonio, have reported reductions in reported crimes against juveniles. But in preliminary results of an NIJ evaluation, Adams (1996) finds no consistent crime reduction effects across cities adopting curfews. The scientific rigor of these studies is quite low given their complete absence of control groups, and there may also be difficulties in police willingness to follow curfew policies. Thus the question of the effectiveness of curfews at preventing youth violence is still quite open to further research and development.

Table 8-8: Problem-Oriented Policing

The more accurately police can identify and minimize proximate causes of specific patterns of crime, the less crime there will be.

Table 8-8.a. Reducing Gun Carrying in Public. The more police can remove guns from public places or deter people from carrying them in the micro-environments of criminal events, the fewer crimes there will be.

Studies	Scientific Methods Score	Findings
Sherman et al 1995	3	Increased gun seizures, reduced gun crimes
Kennedy et al 1996	2	Reduced gun carrying, fewer gun crimes

Table 8-8.b. Separating Potential Victims and Offenders. The more police can reduce the intersection of motivated offenders in time and space with suitable targets of crime, the less crime there will be.

Studies	Scientific Methods Score	Findings
Sherman 1990; Buerger 1994	5	Unable to get landlords to restrict offender access
Adams 1996	2	Youth curfews, no consistent reduction in crime.

CONCLUSIONS

For all of its scientific limitations, the evidence shows substantial consistency on a number of the hypotheses, and some tentative conclusions on others. All science, of course, is provisional, with better research designs or theories revealing previously undiscovered patterns. It is no small achievement that police crime prevention research has developed to the point of having reached some conclusions to discard.

The available evidence supports two major conclusions about policing for crime prevention. One is that the effects of police on crime are complex, and often surprising. The other is that the more focused the police strategy, the more likely it is to prevent crime. The first conclusion follows from the findings that arrests can sometimes increase crime, that traffic enforcement may reduce robbery and gun crime, that the optimal deterrent effect of a police patrol may be produced by 15 minutes of presence in a hot spot, and that prevention effects generally fade over time without modification and renewal of police practices. The second conclusion follows from the likely failure to achieve crime prevention merely by adding more police or shortening response time across the board.

The substantial array of police strategies and tactics for crime prevention (Reiss, 1995) has a small but growing evaluation literature. Using the standard of at least two consistent findings from level 3 scientific methods score (well-measured, before-after studies with a comparison group) **and** a preponderance of the other evidence in support of the same conclusion, the research shows several practices to be supported by strong evidence of effectiveness, and several with strong evidence of ineffectiveness.

What works:

- o increased directed patrols in street-corner hot spots of crime
- o proactive arrests of serious repeat offenders
- o proactive drunk driving arrests
- o arrests of employed suspects for domestic assault

What doesn't:

- o neighborhood block watch
- o arrests of some juveniles for minor offenses
- o arrests of unemployed suspects for domestic assault
- o drug market arrests
- o community policing with no clear crime-risk factor focus

Several other strategies fail to meet the test of strong evidence for generalizable effectiveness, but merit much more research and development because of encouraging findings in the initial research.

What's Promising:

- o police traffic enforcement patrols against illegally carried handguns
- o community policing with community participation in priority setting
- o community policing focused on improving police legitimacy
- o zero tolerance of disorder, if legitimacy issues can be addressed
- o problem-oriented policing generally
- o adding extra police to cities, regardless of assignments
- o warrants for arrest of suspect absent when police respond to domestic violence

What is notably absent from these findings, however, are many topics of great concern to police. Gang prevention, for example, is a matter about which we could not find a single impact evaluation of police practices. Police curfews and truancy programs lack rigorous tests. Police recreation activities with juveniles, such as Police Athletic Leagues, also remain unevaluated. Automated identification systems, in-car computer terminals, and a host of other new technologies costing billions of dollars remain unevaluated for their impact on crime prevention. There is clearly a great deal of room for further testing of hypotheses not listed here due to the absence of available scientific evidence.

These conclusions suggest important implications for both DOJ crime prevention funding of police agencies, and improving that effectiveness through stronger evaluations.

The Effectiveness of DOJ Programs

Local police agencies receive crime prevention funding from a wide range of DOJ programs (see Chapter One). The evidence cited in this chapter indicates that most of the funding supports programs shown to be effective. There is also evidence that Congress could increase the effectiveness of the funding with modifications to several formula grant allocation criteria. The two largest components (multijurisdictional task forces and police equipment) of the two largest OJP programs (estimated \$361 million total in FY 1996 funding) are of unknown effectiveness, suggesting a high priority for evaluation research. Also of unknown effectiveness are the Violence Against Women grants for police. Byrne grants in the drug enforcement purpose area supporting unfocused proactive arrest programs in drug market areas appear from the available evidence to be ineffective at preventing crime.

How Police Funds Are Allocated. The largest single funding source is the Office of Community-Oriented Policing Services (COPS), which distributes funding for the 100,000 planned extra police officers irrespective of crime rate and partially on the basis of population served by each police agency; the major constraint is that half of all funds must go evenly to police agencies serving over 150,000 people. Other DOJ funds for police are distributed through the Office of Justice Programs (OJP) and its constituent offices.

Figure 8-2
Federal Funding Programs for Local Police

DOJ Office and Program	Purpose Areas	Total Funding (in bold)
COPS Office	Cops on the beat	\$1.4 Billion
Office of Justice Programs		
Bureau of Justice Assistance Local Law Enforcement Block Grants	Law Enforcement Equipment Law Enforcement Hiring Law Enforcement Overtime Total	\$171 million 65 million 51 million \$287 million
Bureau of Justice Assistance Byrne Memorial Grants ⁴	Multijurisdictional Task Forces against drugs Urban Enforcement vs. drugs Law Enforcement Effectiveness Organized Crime Total	\$190 million 26 million 15 million 3 million \$234 million
Violence Against Women Grant Office Encourage Arrests Program	Total	\$46 Million
Violence Against Women Grant Office STOP Block Grants	Law Enforcement Total	\$30 Million
OJJDP Community Policing for Juveniles	Total	\$16 million
Other Programs, amounts n.a.: Weed and Seed, OJJDP Serious Chronic Violent and Anti-Gang, BJA Comprehensive Communities Program, others		
Total of Major Funding Programs		\$2.013 Billion

⁴ These amounts are extrapolated from the Dunworth, et al (1997) analysis of the award of grants in 1989-94, proportionately applied to the FY 1996 allocation of \$475 million.

Because each OJP grant award may be allocated among a variety of local agencies including police, there is no exact count of how much federal funding goes to police agencies. Purpose areas within the major funding programs, however, provide a good approximation (See Figure 8-1). While simply summing the purpose area allocations may overestimate police agency funding as distinct from other "enforcement" agencies, such as prosecutors, the difference is probably more than made up by other programs for which we have no precise estimates.

The largest OJP source of local police funding is apparently the Local Law Enforcement Block Grants Program, which distributes formula grants to units of local government on the basis of both state and local Part I violent crimes for the preceding three years; 71 percent of the \$405 million (\$287 million) in 1996 formula funds were allocated to Purpose Areas specifically directed to law enforcement, and more may have been awarded through other purpose areas. At similar levels of funding are the \$475 million in 1996 formula funds provided as Byrne Grants on the basis of population, of which 50% (\$237 million at 1996 funding levels) were allocated to Purpose areas specifically directed to law enforcement in 1989-94 (Dunworth, et al, 1997). The Violence Against Women Act includes two major funding mechanisms for local policing, the \$120 STOP Violence Against Women Formula Grants (of which 25%, or \$30 million in FY 1996, must be allocated to improving law enforcement) and the competitive Grants To Encourage Arrest Policies (\$46 million in 1996). There are also funds for community policing components appropriated through Weed and Seed, BJA's Comprehensive Communities Program (CCP), and these OJJDP Programs: Kids and Guns, the Comprehensive Community-Wide Gang Prevention, Intervention and Suppression Program, the Comprehensive Strategy for Serious, Violent and Chronic Offenders, and Juvenile and Child-Centered Community-Oriented Policing. Many other smaller funding programs support local police crime prevention programs. The current estimated total is in excess of \$2 billion per year.

Implications of Available Science. The DOJ funding programs support a wide range of local police activity. Some types of police activity DOJ supports have no impact evaluations, while others can be evaluated directly or indirectly with the evidence reviewed in this chapter. Much of the funding simply supports additional police presence regardless of the activities police undertake. Given the promising evidence on the effectiveness of simply adding police officers to police agencies, the scientific review suggests that these funding programs may be effective. It also suggests, however, that the funding programs could be even more effective if the statutory formula were changed.

In general, the evidence suggests that **federal appropriations to prevent crime through additional policing is most effective when allocated on the basis of serious crime rather than on the basis of population size.** This implication is drawn from several scientific conclusions. One is the "promising" finding that across all large cities, more police produced less serious crime. A second is the finding that **each additional police officer assigned to a big city prevents six times as many serious crimes each year as an officer assigned nationally by population** (Marvell and Moody, 1996). A

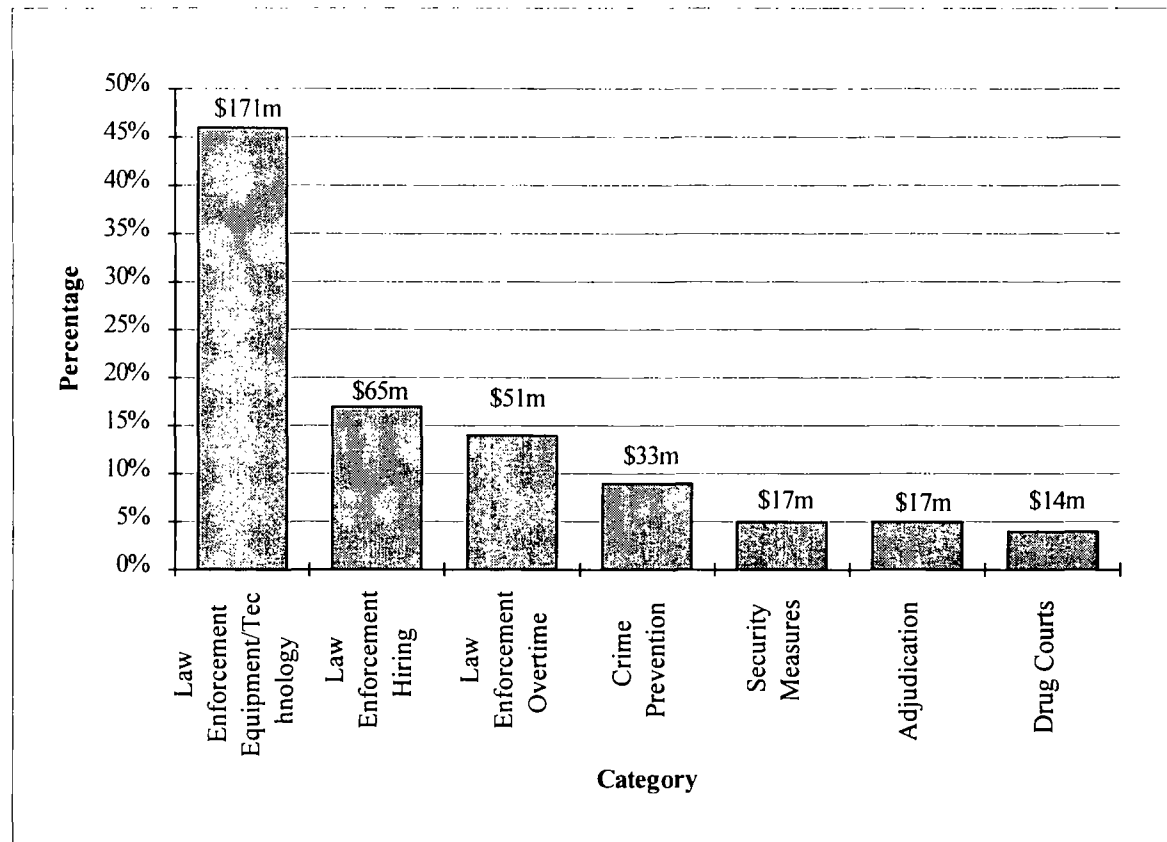
third conclusion is the finding that directed patrol in crime hot spots "works" to prevent crime in those hot spots, the greatest micro-level concentrations of crime. A fourth conclusion is the "promising" finding that police can reduce gun crime by intensified enforcement of the laws against carrying concealed weapons. This finding suggests that federally funded police work in hot spots of gun crime could have a substantial impact on the national homicide rate, just as police may have done in New York City (Repetto, 1996). Taken together, these findings suggest that the Congress could consider revising the statutory allocation formula based not only on city-level violent crime, but beat-level and block level crime as well. Such a revision would be more effective in directing federal funds as precisely as possible for maximum crime prevention.

Refining a Crime-Based Grant Formula. If the Congress did decide to move towards more crime-based grant formulas for allocating police funding, it would be worth considering more precise criteria. The LLEBG formula based on total Part I violent crimes is problematic for several reasons. One is that police agencies vary in how they report the largest single category of Part I violence, aggravated assault. The boundary between aggravated and simple assaults is marked very differently in different cities. In Milwaukee in the early 1990s, for example, when someone pointed a gun at another person and threatens to shoot, the offense is classified as an aggravated assault. In many other police agencies, that conduct might not even result in an offense report being taken, or at most a simple assault report would be filed; this merely reflects different local traditions in defining "attacks" and "attempts" (the latter of which the FBI asks police to count as completed crimes) for Uniform Crime Reporting Purposes. Differences in aggravated assault rates thus do not reflect the level of serious violence as reliably as differences in homicide rates. But aggravated assault counts clearly determine the allocation of LLEBG money; they constituted sixty-one percent of all Part I violence in 1995, while homicides constituted only one percent.

Taking aggravated assaults out of a crime-based formula raises other issues. Homicide alone is a more consistently reported but more unstable indicator, vary widely in many cities from year to year, which would create instability in funding levels if used to allocate funding. Robberies are much more numerous, and more consistently reported than aggravated assault and rape. On balance, the Congress may find a combination of robbery and homicide counts to be the most reliable indicator of the greatest need for supplementary police presence. The same is true for possible statutory requirements on how federal funds should be spent on policing within cities, with hot spots of robbery and homicide receiving top priority. The concentrations of those crimes in the "hot times" of 7 pm to 3 am is a further element a refined crime-based formula for allocating police funding could consider.

COPS Program. The procedure for distributing COPS funds by jurisdiction is the major implication of the scientific review for the COPS Program. Another important issue, however, is the purposes for which COPS officers are funded. While there is promising evidence that any increase in police officers is helpful, there is even stronger evidence of crime prevention effects of specific activities. While COPS Program language has stressed

Local Law Enforcement Block Grant Program
Funding, 1996 through 1997



a community policing approach, there is no evidence that community policing per se reduces crime without a clear focus on a crime risk factor objective. There is strong evidence, however, that directed patrols and programs targeted on criminogenic substances like guns and alcohol can be effective in attacking crime hot spots. The evidence on crime prevention in places reviewed in Chapter Seven also finds promising support for problem-oriented policing, which could be another more tightly defined purpose area for supplementary police. Thus while the scientific evidence indicates the COPS program is effective, it also suggests it could be more effective if its funding was more focused upon police programs of proven effectiveness.

Local Law Enforcement Block Grants (LLEBG). The scientific evidence also suggests that most of the wide range of police activities supported by the LLEBG program are effective in preventing crime. The major exception is for law enforcement equipment and technology, which received 60 percent of 1996 appropriations directed to specifically to police (see bar graphs). As noted above, there are no published impact evaluations of the effects of equipment and technology on crime. Thus the effectiveness of this funding is unknown. Impact evaluations of this activity are certainly feasible, and could result in substantial improvements in the uses of such technologies as firearms identification, automated fingerprint identification systems, and in-car computer search capacity for stolen cars and arrest warrants. While the common sense value of such systems may appear substantial, the prior history of other equipment items suggests that there is much to be learned from careful analysis of its ultimate effects upon crime, and not just intermediate indicators like arrests.

The Congress could also consider refining the crime-based formula for LLEBG as described above, especially for the usage of police overtime. Many police agencies are now using such overtime to mount directed patrols of the kind found effective in this Chapter. The statutory plan could better insure that overtime is used in the most effective ways possible by incorporating the "hot times, hot spots" criteria, or other programs of proven effectiveness, for overtime work. It could offer additional special purpose areas, such as repeat offender units, which have also been found effective in apprehending and incarcerating serious violent felons.

Byrne Grants. The many uses of Byrne grants almost certainly include the programs of proven effectiveness identified in this Chapter. The most heavily funded Purpose Area, however, is of unknown effectiveness. Multijurisdictional Task Forces against drugs received 40 percent of Byrne Formula funding in the years 1989-94 (Dunworth, et al, 1997), but they have never been subjected to a published impact evaluation. To the extent that the Byrne Program was intended to apprehend drug dealers, it may be inappropriate to consider these task forces a prevention program. It does not seem inappropriate, however, to specify measurable goals for the program, and to design an impact evaluation to test the effectiveness of the Task Forces in accomplishing those goals.

A Purpose area for Byrne Grants in which evaluation research indicates ineffective

use of funding is "urban enforcement" against drugs, estimated at \$26 million in FY 1996. To the extent that these grants support street-level drug enforcement with an emphasis on arrests or drug raids, the money is unlikely to prevent crime. The conclusions of multiple evaluations show that such practices do not reduce violent crime or disorder in the absence of constant police presence, and sometimes not even then.

New purpose areas under the Byrne Grants include both drunk driving and gang enforcement and prevention. The scientific evidence strongly supports the use of Byrne grants for drunk driving enforcement as likely to prevent many deaths and serious injuries. It may also have the prevention effect of reducing gun crime, since so many illegally carried guns and gun criminals wanted on warrants can be removed from the streets through traffic enforcement. There is also a preponderance of available evidence that traffic enforcement that can help reduce robbery. There are no impact evaluations available on the effectiveness of police strategies against gangs.

STOP Violence Against Women Block Grants. A review of the detailed listing of FY 1995 STOP grants for law enforcement shows that they generally supported activities of unknown effectiveness. Programs such as training police about domestic violence, hiring domestic violence specialists in police agencies, and computer software for domestic violence records all appear to be useful at face value, but have not been subject to published evaluations. While the individual grant awards are small, there are many in the same program categories. An evaluation program addressing the effectiveness of the major funding categories could enhance the currently unknown effectiveness of most of these grants.

Grants to Encourage Arrest Policies. These grants apparently support similar activities as the STOP grants, although with a more narrow focus on domestic violence against women. To the extent that these grants result in more arrests in areas of high employment, the scientific evidence suggests they will be effective in reducing domestic violence against women. There is also strong scientific evidence, however, that under certain conditions arrests substantially increase future domestic violence against women. This research raises a critical need for further rigorous research, development and program evaluation, which would attempt to discover means to overcome the apparent criminogenic effects of arrest on certain batterers. This research program, much of which has already been suggested by a National Academy of Sciences panel report (Crowell and Burgess, 1996), could test combinations of arrest with greater use of supplementary measures such as battered women's shelters, detoxification centers for batterers, prosecution, counseling, and other strategies.

Juvenile Crime. Substantial federal funds are spent on policing juvenile crime, for which scientific evidence also shows that policing can increase crime under certain conditions. The effectiveness or harm resulting from federal support of juvenile policing cannot be determined from the present review, since the kinds of activities and kinds of offenders are too diverse. The available evidence, however, suggests that there is a substantial need for

randomized controlled tests of federally funded juvenile policing strategies, in order to provide the greatest possible certainty that these programs at least do no harm. Federal support of juvenile curfew enforcement is of unknown effectiveness (and quantity), but the apparent growth of the idea suggests a need for rigorous program evaluation beyond the current NIJ-funded survey.

Other Programs. Federal support of policing in high-crime Weed and Seed target areas is strongly supported by the scientific evidence, as described above. Federal support of policing in the Comprehensive Communities Program is also supported by the evidence that extra police prevent crime more effectively in big cities.

Improving Effectiveness Through Stronger Evaluations

This analysis of how DOJ funding effectiveness shows many critical knowledge gaps. While the scientific evidence does suggest that the majority of DOJ funding for police is indeed effective at preventing crime, there is no evidence available on a large percentage of the other funding. A conservative estimate is that we lack even indirect scientific evidence on the effectiveness of some \$500 million in Congressionally directed federal funding for local police in 1996. The record also suggests that evaluation results could help to revise and channel these funds in ways that would prevent crime more effectively. Moreover, the past two decades have seen police become much more sensitive to the significance of crime prevention evaluation results, and actively put them to good use (Blumstein and Petersilia, 1995).

Evaluation needs for each specific funding program have been noted above as appropriate. A basic statutory plan for accomplishing these evaluations more effectively is offered in Chapter Ten. The remainder of this chapter summarizes the evaluation needs of the current DOJ funding, and then addresses the highest priority areas for police effectiveness research implied by this review of the available evidence.

LLEBG Police Equipment and Technology. Historically, DOJ support of police technologies has focused on the engineering issues in accomplishing technological goals, rather than the human factors in using technology effectively. A major Congressional investment in human factors evaluations could provide the Congress with far better guidance on the effectiveness of its substantial appropriations in this area.

A prime example is NIJ's support of lighter-weight bullet-proof vests, which has apparently saved hundreds of police officers' lives. Even more lives might be saved, however, if evaluation research examined police officer compliance in wearing the vests, factors affecting that compliance, and strategies for increasing the compliance. Similar questions can be answered for the role of automated fingerprint identification systems (AFIS). The percentages of cases in which fingerprints are respectively sought, detected, submitted to an AFIS, resulting in a suspect's identification, leading to an arrest, conviction and incarceration can all be evaluated in a variety of police agencies. The results could

encourage greater use of AFIS, if warranted, or if not, a redirection of federal funding into police expenditures that may be more cost-effective in preventing crime.

Another major example is police use of in-car computer terminals. In theory, this equipment can help patrol officers make far more productive use of the time they spend patrolling hot spots, or otherwise awaiting the next dispatch to a call for service. Whether the officers will actually use the terminals to look for stolen cars or check suspicious persons, however, is a key question for an equipment program evaluation. The National Institute of Justice can help design controlled tests (Scientific Methods Score = 5) randomly assigning new in-car computer systems to some officers but not others, with observations of how the officers spend their patrol time both before and after the new equipment is installed. This in turn could inform analyses of the number of arrests made per patrol hour, the number of guns seized, stolen cars recovered, and so on. Similar experiments could be done at the patrol beat level over longer periods of time, testing the hypothesis that beats patrolled by computer-equipped cars will have less crime than beats patrolled without them. If these hypotheses cannot be supported by rigorous scientific testing, additional research could identify the reasons the technology does not prevent crime as expected and possible ways to solve those problems.

Other possible examples of technology evaluations are limited only by the diverse array of police equipment already on the market and currently in development, from hand-held gun detectors revealing weapons concealed under clothing to electrical devices for police to shut off the ignition of pursued vehicles. A Congressional plan setting aside ten percent of program funding for controlled testing, and another ten percent for research costs, would allow evaluations to identify police technology and equipment of proven effectiveness.

Byrne Grant Multijurisdictional Task Forces Against Drugs. This program may be defined as serving purposes other than crime prevention. Other goals might be measured in amounts of drugs seized or the number of mid-level drug dealers arrested and incarcerated. Testing the effectiveness of these programs in accomplishing the goals might be done through random assignment of a large sample of cases to single jurisdiction versus task force investigation. Alternatively, before-and-after comparisons of drug abuse problems could be made in metropolitan statistical areas where the task forces operate, with further comparisons to areas not creating these task forces. Comparisons might also be made across task forces of different sizes. Basic productivity indicators could also be computed and compared across all Byrne-funded task forces, with an analysis of the reasons for variation in productivity. Further funding might then be conditional upon achieving specific productivity levels. Task force leadership might collaborate with NIJ researchers in framing a set of questions to be answered by such an evaluation, and agree upon scientifically and operationally appropriate means of designing an evaluation of this \$190 million annual program.

Violence Against Women Grants. Both the STOP and Encourage Arrest grants have two

critical areas in which program evaluation can help. One is discovering programs of proven effectiveness in preventing almost every kind of crime against women. The other is identifying the most effective means of delivering a wide array of support services, from police training to data banks. Both tasks are hindered by the fact that many of the grants awarded under these funding programs are under \$20,000, and are too small in scope to warrant separate evaluations. This issue, which also applies to the Byrne Grants and is addressed in Chapter Ten, is one that a Congressional plan for evaluation can resolve. It is arguably inefficient for each grantee to confront similar issues separately, such as classroom instructional materials for police training. A national evaluation program to identify Violence Against Women programs of proven effectiveness would provide much better guidance for how to focus the thousands of small grants scheduled to be awarded by these programs in future years.

The methods of testing program effectiveness in crime prevention are discussed generally in Chapter Four. The most important police research issues concern the prediction and prevention of serious domestic violence, for which no scientifically validated risk assessment tools are currently available (Sherman and Strang, 1996). The effectiveness of police-monitored personal radio alarm necklaces for women given court orders of protection is a high priority for a randomized controlled trial. So is a comparison of the crime prevention effectiveness of misdemeanor domestic assault arrests with and without prosecution, which could indicate a need for Congressional earmarking of funding for the specific purpose of prosecution of such cases. Issuance of arrest warrants for absent misdemeanor assault offenders is a promising practice (Dunford, 1990) that needs replication. Various police responses to non-violent domestic disputes (which are more numerous than violent ones) can be compared and tested for their effectiveness in preventing subsequent violence.

Program effectiveness at accomplishing goals other than crime prevention can also benefit from evaluations. Improved gender equality and victim services in police actions can also be measured scientifically as program outcomes. Regardless of the effectiveness of mandatory arrest, for example, the literature reveals substantial difficulty in obtaining patrol officer compliance with arrest policies for misdemeanor assaults--of which the majority require no medical treatment and one-third have no visible signs of injury. The tendency of officers to trivialize these crimes, to respond slowly to domestic calls, and to refuse to make arrests are all behaviors that DOJ-funded training and technical assistance programs may seek to change. Whatever methods are used to pursue those goals, randomized controlled tests can reveal which methods are most effective. Followup observations of police treatment of women victims in the field would be a critically important--although expensive--component of evaluating training programs. Absent such careful scrutiny by a "big science" national evaluation effort, however, the effectiveness of programs for changing police behavior will remain unknown. Here again, a Congressional plan for developing programs of proven effectiveness could make a major difference.

Getting Guns Off the Streets--With Legitimacy. One major hypothesis about the

declining homicide rate in the US is that police have become more effective at deterring illegal gun carrying in public places (Moore, 1980; Wilson, 1994). Further testing of the gun carrying hypothesis seems to warrant the highest priority for federal research, given the clear connection of guns to serious juvenile and gang violence. At the same time, the issue of police legitimacy and perceived harassment of young black males is a crucial aspect of gun enforcement. A research agenda developing both police effectiveness at detecting illegal guns, while enhancing police legitimacy in the eyes of all citizens including offenders, could address both issues simultaneously. On these issues, research could help reduce both homicides and riots, and increase general compliance with the law through greater respect for the moral authority of police.

Patrol Location and Timing Strategies. Since gun violence is heavily concentrated in less than 100 of the 10,000 police agencies reporting to the FBI, research is also needed on more general approaches to directed patrols in hot spots and hot times. One example is the apparently mundane is of police schedules, which may be vital to crime prevention. Police chiefs face enormous resistance from police unions in changing work assignments and schedules to concentrate police in high crime areas between 7 pm and 3 am, with the most officers assigned on weekends. Many must use overtime pay to even move in that direction. If experiments comparing crime-focused staffing patterns with conventional procedures found a reduction in crime, that could support police chiefs trying to make better use of taxpayer dollars.

Juvenile Shaming and Restorative Justice. Every police agency must deal with juvenile offenders. The Australian community accountability conferences can be tested in police agencies large and small. Given the negative findings about the effects of arrest on juvenile offending, there is much to be gained and perhaps little to lose by developing alternatives to arrest. The growing concern over serious juvenile violence, especially gun offenses in big cities, should not distort the truth that most juveniles are still arrested for shoplifting and other minor offenses. A program for first-offenders that works better to nip criminal careers in the bud may well prevent more serious property crime, such as auto theft, and violent crime. It may also increase police legitimacy in the eyes of the participating adults, far more effectively than conventional approaches to community policing.

Multi-Agency Experiments. The proposed Congressional restructuring of evaluations in Chapter Ten would make possible a major breakthrough in police research: comparing strategies across large sample of police departments. Random assignment of enhanced federal funding for specific strategies to half of the hundred largest cities could go a long way towards learning what works of agency-wide policies. A prime example is traffic enforcement. Proactive police arrests for drunk driving are generally sporadic (Ross, 1994), in part because there is no direct evidence that traffic deaths will rise if drunk driving arrests decline. Moreover, the evidence that traffic enforcement reduces robbery is suggestive but not conclusive. Taken together, the twin objectives of reducing traffic deaths and robberies would justify investment in a 100-agency randomized experiment in traffic enforcement. An experiment in which 50 police agencies selected at random from

100 volunteering agencies received substantial federal funding for greatly increased traffic enforcement--by 300 or 400%-- would be an ideal test of the hypothesis now weakly supported by merely correlational studies.

Another approach would go right to the core of the 1994 Crime Act--the 100,000 police. An experiment in which 20% more officers (over current levels including COPS grants) were randomly funded in half of a sample of police agencies would provide a far more definitive test of the crime prevention effectiveness of the \$1.4 billion annual expenditure. The popular support for this program may render the question moot for the moment, but the question remains of just how effective the program is. Experiments using this design could also test other theories, such as problem-solving or community policing uses of extra officers.

Evaluation Funding Priorities. Over half of all DOJ funding for local crime prevention is directed to the police. The same cannot be said, however, for the allocation of program evaluation funding. The Congress has not addressed the question of evaluation funding priorities with the same clarity as it has identified program funding priorities. This is one more reason for the Congress to consider the restructuring of DOJ crime prevention evaluations as discussed in Chapter Ten.

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Chapter 9

CRIMINAL JUSTICE AND CRIME PREVENTION¹

By Doris Layton MacKenzie

1. INTRODUCTION

Past behavior is the best predictor of future behavior. From this perspective, it is reasonable to attempt to prevent crime by preventing known offenders from continuing their criminal behavior. This chapter focuses on the options for dealing with actual perpetrators once they are identified so that crime in the community can be reduced. While traditional crime prevention efforts are directed toward those who are not yet involved in crime, our broader definition includes any setting that reduces crime in the community. By definition, therefore, we include as crime prevention, programs in the courts and corrections that focus on reducing the criminal activities of offenders.

For policy purposes, recent interventions for reducing crime through the courts and corrections can be classified into six categories:

- (1) **Incapacitation** or depriving the offender of the capacity to commit crimes usually through detention in prison or capital punishment.
- (2) **Deterrence** or punishment that is so repugnant that neither the punished offender (specific deterrence) nor others (general deterrence) will commit the crime in the future.
- (3) **Rehabilitation** or treatment directed toward changing the offender and thereby preventing future criminal behavior of the treated individual.
- (4) **Community Restraints** or the surveillance and supervision of offenders in the community in order to reduce their capacity and/or opportunity for criminal activities.
- (5) **Structure, Discipline and Challenge** programs that use physically and/or mentally stressful experiences to change the offenders in a positive way or deter them from later crime (specific deterrence).

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- (6) **Combining Rehabilitation and Restraint** in order to insure that offenders make changes that are associated with a reduction in future criminal behavior.

As shown in Table 9-1, these are not mutually exclusive categories. The categorization is a heuristic device to classify a wide range of programs currently existing in criminal justice systems throughout the United States. They represent different strategies for controlling crime in the community. Most have some theoretical rationale for expecting a reduction in crime; they differ enormously in the mechanism anticipated to produce the reduction in crime.

Support for these different strategies of crime prevention in the courts and corrections have changed enormously in the past thirty years. In the 1970s, the strong emphasis on rehabilitation that had existed since the turn of the century gave way first to a focus on equality and fairness in sentencing, and then to an increased focus on incapacitation, deterrence and restraint strategies of crime prevention. Today, incapacitation is the primary justification for imprisonment in the U.S. criminal justice system (Zimring and Hawkins, 1995).

A dramatic increase in offender populations accompanied this change in philosophy. The increase was unprecedented. It followed a period of relative stability in incarceration rates that had existed throughout most of the twentieth century. For example, from 1945 to 1974 the average incarceration rate was 106 inmates per every 100,000 individuals in the population. Incarceration rates fluctuated only slightly, from a low of 93 inmates per 100,000 to a maximum rate 119 (Blumstein and Cohen, 1973). Since that time, however, incarceration rates have grown enormously. By 1985, the number of inmates per 100,000 U.S. residents was to 313; this grew to 600 by 1995 (Bureau of Justice Statistics, 1996).

This increase impacted the total correctional populations and not just prisons. Since 1980, the total estimated correctional population rose 179 percent from 1.8 million in 1980 to 5.1 million in 1994 (BJS, 1995). For parole populations the increase was 213 percent, for probation populations the increase was 1,565 percent (BJS, 1995).

While this analysis of crime prevention focuses on how effective these different strategies are in reducing crime, it is important to remember that each strategy has impacts other than crime reduction. For example, analysis of the costs and benefits is critically important in any examination of policy relevant issues. This has been the focus of much of the incapacitation discussion because of the large impact associated with policies that increase the need for building, operating and maintaining the prisons necessary for incapacitation. On the other hand, with the exception of some drug treatment analyses, there are fewer discussions and less research examining the costs and benefits of rehabilitation. Yet, such analysis is important. A high quality, intensive treatment program for offenders can be relatively costly. The advantages of the program must be weighed against the costs. Such issues, among others, are important in policy decisions.

Table 9-1. Different strategies for preventing crime by the courts and corrections showing the anticipated mechanisms for impact.

CRIME PREVENTION IN THE COURTS AND CORRECTIONS						
	Incapacitation	Deterrence	Rehabilitation	Community Restraints	Structure, Discipline and Challenge	Combining Restraints and Rehabilitation
MECHANISM FOR IMPACT	Imprisonment removes offenders' capacity to commit crimes in community (General) Small number of high rate offenders can be identified and imprisoned during their active criminal career (Specific) General and Specific deterrence	General: Punitive punishment will keep those in the community from committing crimes Specific: Punitive punishment will keep punished individuals from committing more crimes	Change aspects of offenders that are changeable and associated with criminal behavior Intensive, adequately implemented programs (with treatment integrity) of sufficient duration (dosage) Target higher risk cases Cognitive, skill oriented and behavioral treatment methods	Increased surveillance and control in the community will decrease offenders capacity to commit crimes Increased surveillance and control in the community will decrease offenders' opportunity to commit crimes Specific deterrence	Experience will change offenders in a positive way so they will not continue to commit crimes General and specific deterrence	Offenders can be coerced into rehabilitation (forced to take steps to positively change) Offenders can be coerced to remain in treatment longer Coercion will not diminish the effectiveness of treatment

However, the focus of this chapter is on strategies that reduce crime in the community. From this perspective, issues such as costs, prison crowding, reducing risk factors, public opinion, and the politicalization of decision making are considered important only if they have a direct impact on criminal activities and crime prevention. In the following sections of this chapter, these topics are discussed only when they are such an important part of the interpretation of the impact of some programs that they cannot be easily dismissed. In general, the focus of this review is on activities in the courts and corrections that have a direct bearing on preventing crime by reducing the criminal activities of known offenders.

Given the scope of programs and evaluations, examining crime prevention techniques in the criminal justice system is a very large assignment and decisions had to be made about what was important to emphasize in this review. Given the limitations on time, some important topics had to be omitted from this report. Four obvious examples are: Capital punishment; deterrence research not directly related to court or correctional programs; transferring juveniles to adult courts; and community treatment for drug-involved offenders. Another topic that was not described is the relatively new programs on restorative justice and mediation. These are important and current topics, and the interested reader should refer to the recent summaries of the work.

1.1 Examining the scientific evidence

In evaluating the research and assessing the effectiveness of the six identified strategies of crime reduction, this chapter uses three different methods: (1) reviews of the research literature; (2) reviews of meta-analyses used to examine groups of studies; and (3) the scientific methods score combined with significance tests. There were several reasons for this decision to use the different methodologies to review the research and draw conclusions about effectiveness in crime prevention. First, some strategies of crime prevent do not lend themselves to program evaluation that can be easily categorized using the scientific methods score we designed. For example, incapacitation research uses complex statistical models to estimate the crimes prevented by various policy decisions. Such studies do not easily lend themselves to the scoring methodology used for evaluating specific programs. We decided that reviewing the literature on incapacitation, and not scoring each study was more valuable for drawing conclusions about the effectiveness of incapacitation strategies.

Reviews of the literature were also used to judge the effectiveness of several other programs. Most often this was because current reviews of the literature were available, and there was little research that had been completed in the past five or six years that would change the conclusions of the previous reviews. For example, the discussion of shock probation and the Scared Straight programs were based on past literature reviews.

Broad assessments of treatment effects have greatly benefited from the rise of a new statistical technique, meta-analysis that enables researchers to aggregate the continuously growing research literature in order to examine and compare the effect sizes for treatment versus control groups comparisons. In some areas, such as the rehabilitation literature, there is a body of research using meta-analyses to examine the effectiveness of programs. Wherever possible, these meta-analyses are used to draw conclusions about programs. The rationale for this decision is that meta-analysis techniques are respected statistical techniques that are more rigorous than the scientific methods score we are using in this project. The meta-analysis technique permits the aggregation of a large body of research literature in order to examine and compare the effect sizes for treatment versus control group comparisons. The meta-analyses reported herein summarize a large number of studies and control for important methodological issues.

There is an enormous body of literature on crime prevention efforts in criminal justice. Much of this literature is not research examining the impact of crime prevention strategies. Few of the research studies are of sufficient quality to permit conclusions regarding the effectiveness of the program studied. In order to evaluate the quality of the research, as described in Chapter 1, this report uses a scale of 1 to 5 to summarize the scientific rigor of the studies examined. A score of 5 indicates the strongest evidence for inferring cause and effect, a score of 1 indicates the weakest. Studies scoring a 1 were considered so low in scientific rigor that they were excluded from conclusions about a topic. Topics were chosen and the previously described categories were identified by examining current research publications. The focus was on research that had been completed since 1987. In most other cases, the discussion of a topic is based on published reviews of the literature or meta-analyses.

Most of the studies reviewed examine the recidivism of offenders who receive some treatment, service or regime. Studies with scientific method scores of 5 are random assignment studies with successful assignment of cases to treatment conditions, sufficient numbers to reasonably expect that the experiment had sufficient statistical power to detect a difference in recidivism if indeed one was there, and limited attrition during the study.

Two problems that continually arose in the research were the small number of subjects and attrition. Even if a strong experimental design is used, a study will not have sufficient power to detect a difference that may exist if the number of subjects are small. This was particularly a problem with studies using juvenile subjects. Attrition is another problem. Some studies used as comparison groups those who had dropped out of the program being studied. At times this is referred to a comparison between the motivated individuals and others. The problem is these groups can be assumed to differ prior to receiving any treatment and, therefore, no conclusion can be drawn about the effect of the program being studied. This is a serious problem with some of the drug treatment studies.

Frequently studies did not fulfil the requirements for a score of 5 because the assignment process was not successful, there were too few subjects, or subjects were lost during the study. If

the effect of these problems could be assumed to be minimal from a research perspective, such studies were given a score of four. Other studies that scored a 4 were quasi-experimental designs with careful statistical controls for differences among subjects. These studies were also required to have limited attrition during the study and sufficient numbers of subjects.

A score of 3 indicated more serious problems with the research design such as limited information on the subjects and comparison groups so that it was impossible to determine how similar the groups were before the study began. Attrition, uncontrolled group differences, and few subjects would also contribute to a score of 3.

A score of 2 revealed serious flaws with the research design, therefore only tentative conclusions could be drawn from such a study because the scientific rigor was so limited.

The next sections of this report review the proposed strategies for preventing crimes through the use of the criminal justice system. Studies for juveniles and for drug-involved offenders are evaluated in separate sections because of the particular focus of these studies. Conclusions about what works, what doesn't and what is promising are based on a careful examination of the literature reviews, meta-analyses, statistical significance, and the scientific methods scores.

2. INCAPACITATION

The concept of incapacitation is simple -- for as long as offenders are incarcerated they clearly cannot commit crimes outside of prison. Crime is reduced because the incarcerated offenders are prevented from committing crimes in the community. At least while they are in prison, they cannot continue to commit crimes. A secondary benefit of incarceration is thought to be the indirect effect of deterring (or inhibiting) others from committing crimes because of the threat of incarceration (general deterrence effect). Furthermore, individuals who spend time in prison may be deterred from continuing their criminal activities when they are released (a specific deterrence effect).

Most people accept the notion that crime prevention through incapacitation is a primary justification of imprisonment (Zimring and Hawkins 1995). Generally accepted also, is the fact that some individuals should be incapacitated for long periods of time because of the seriousness of their offenses and the threat they pose if released. Questions arise over how broadly the incapacitation strategy should be used and whether it is a cost efficient and effective crime prevention strategy. Some ask that prison space be reserved for only a small select group of dangerous repeat offenders. Others advocate a general incapacitation strategy that would incarcerate a substantial number of felons. The success of incapacitation in reducing crime in the community remains a controversial subject.

During the mid-1970s, interest in incapacitation as a crime prevention strategy grew, in part due to concerns about the efficacy of rehabilitation, rising crime rates and public fear of crime. Originally, incapacitation strategies were supported because of what seemed to be the logical utility of keeping offenders in prison so they could not commit crimes. In some jurisdictions increases in incarceration rates were found to be accompanied by decreases in crime rates. This correlation was used to justify incapacitation policies. However, careful scientific examination requires more than an association between two variables because both could easily be caused by some third factor. Furthermore, correlational studies examining the association between incarceration rates and arrest rates within jurisdictions have not found any consistent relationship between the two (Zimring and Hawkins 1995).

More rigorous research examining the effectiveness of incapacitation in reducing crime has focused on developing models to estimate the impact of incarceration on individual level offending (Zimring and Hawkins 1995; Spelman 1995). Estimating the crime prevention benefits that can be obtained through incarceration is a complicated process. The researcher must estimate how frequently offenders commit crimes and the duration of active criminal careers. The majority of studies examining incapacitation effects demonstrate a small but positive effect in reducing crime. Frequently, however, this crime prevention effect is associated with significant increases in prison populations. Issues of concern relate to whether this reduction is worth the additional costs for building and maintaining prisons and jails, and whether there are other more cost-effective methods of crime reduction.

Early research on incapacitation used official-records to estimate individual-level offense rates (Clarke 1974; Greenberg 1975; Van Dine, Conrad, and Dinitz 1977; Petersilia and Greenwood 1978; Blumstein and Cohen 1979). In a review of these studies, the National Academy of Sciences Panel on Research on Deterrent and Incapacitative Effects (1978) reported that the incapacitation studies offered widely divergent estimates of the incapacitative effect of imprisonment. While some studies indicated that incapacitative effects were negligible, others claimed major potential impacts on crimes through increased use of imprisonment. The panel concluded that the principal disagreement was over the value of the individual crime rates that were used to estimate the effectiveness of incapacitative policies. That is, models of the crime reduction effectiveness of imprisonment required estimates of how frequently individuals commit crimes when they are in the community. There were no generally accepted estimates of these rates nor did researchers know how long criminals continued to commit crimes (e.g., the length of the “career” of crime).

Surveys of prisoners conducted during the late 1970s and early 1980s were designed to answer the questions about the individual crime rates and criminal careers of offenders (Peterson, Greenwood, and Lavin 1977; Peterson and Braiker 1980; Peterson and Braiker with Polich 1981; Marquis and Ebener 1981; Peterson, Chaiken, Ebener, and Honig 1982; Chaiken and Chaiken 1982; Greenwood with Abrahamse 1982). If researchers could discover how frequently individuals committed crimes when they were in the community (e.g., individual crime rates)

and for how long they continued committing crimes (the career), the information could be used to refine the models predicting how much crime would be reduced by locking them up in prison. The surveys asked prisoners to report on their criminal activities before they had been incarcerated.

Using these estimates, researchers examined the number of crimes prevented by actual and hypothetical criminal justice practices and sanctioning policies. In general, reviews of these "collective" incapacitation strategies demonstrated a modest reduction in crime combined with substantial increases in prison populations. For instance, in a 1987 review of the research on general incapacitation, Visher (1987) concludes that the sentencing practices and policies, that doubled prison populations during the 1970s and early 1980s, resulted in an estimated crime reduction of 10 to 30 percent.

Increases in prison populations and the research findings of large differences in crime rates of individual offenders moved attention towards a more selective strategy of incapacitating a small group of offenders. Encouragement for this selective incapacitation as a crime control strategy also came from research that revealed a small number of very active offenders (six percent of the cohort) accounted for a disproportionately large number of the arrests (52 percent) in a Philadelphia birth cohort (Wolfgang, Figlio, and Sellin 1972). That is, a relatively small number of offenders were responsible for a large amount of crime. Incapacitation advocates argued that crime could be reduced if these "career criminals" were identified and incapacitated. This "selective incapacitation" strategy would identify the offenders who were predicted to commit serious crimes at high rates so that they could be incarcerated for long periods of time. Further support for the benefits of incapacitation as a correctional strategy came from the proposal that, although there were enormous costs to incarcerating large numbers of felons, there were also substantial costs if they were released and continued to commit crimes (in terms of such factors as criminal processing, loss to victims, etc.) (Zedlewski 1987). Some of the practices that can be attributed to these incapacitation strategies are habitual offender laws, mandatory sentences and the more recent three-strikes laws.

In support of the selective incapacitation sentencing policy, Greenwood and Abrahamse (1982) argued that increasing the length of time served by the predicted high-rate offenders while at the same time reducing the time served by those who were predicted to be low-rate offenders could reduce crime rates without a corresponding increase in prison populations. From this perspective, in the face of constraints on available prison resources, the issue for criminal justice policy was how to allocate a limited number of cells among competing offenders. Ideally, the worst (those who commit the most and/or the most serious crimes), active (not yet at the end of the "career" of crime) criminals would be identified and put in the prison cells. Greenwood and Abrahamse (1982) examined whether such policies could reduce the robbery rate in California. They found evidence that through the use of a selective incapacitation strategy the robbery rate could be reduced by about 15 percent, and the number of incarcerated robbers would be reduced by about five percent, but they cautioned that their analysis had several limitations and they

suggested that the work should be replicated in other jurisdictions.

Other researchers reviewed Greenwood and Abrahamse's results and concluded that the original analysis greatly overstated the effects of the proposed selective incapacitation (Cohen 1983, 1984; Spelman 1984; von Hirsch and Gottfredson 1984; Visser 1987). And, in 1983 the National Academy of Sciences panel on Criminal Careers commissioned a reanalysis of the original survey data. The estimates resulting from this study indicated substantially smaller incapacitative effects than those found by Greenwood and Abrahamse. Furthermore, substantial increases in the prison population were predicted (Blumstein et al. 1986).

For selective incapacitation to be effective, it must be possible to identify and incarcerate offenders who will commit the most crimes in the future. The estimates of crime commission rates used in the incapacitation studies were derived from the RAND studies using inmate self-reports of criminal activities prior to incarceration. Greenwood and Turner (1987) investigated whether this retrospective data could be used to predict future arrests. They found their data had poor predictive accuracy and, furthermore, the small differences in arrest rates between the groups classified as high- and low-risk did not justify the large differences in sentence lengths that would be required for these offenders if significant selective incapacitation effects were to be achieved. This research, as well as the more recent work of Gottfredson and Gottfredson (1994), suggests that identifying future offenders in order to selectively incarcerate them will prove difficult.

Surprisingly there was little research on the magnitude of incapacitation effects during the decade of the 1980s when the incapacitation philosophy drove the largest increase in incarceration in American history (Zimring and Hawkins 1995). A few more recent studies were completed in the early 1990s (Miranne and Geerken 1991; Horney and Marshall 1991; English and Mande 1992). In one recent study, Cohen and Canela-Cacho (1994) studied the relationship between incarceration and levels of violent crime using both national data and corrections data from six states. The study focused on the crime control effects of incarceration especially whether incarceration was an effective strategy for controlling violent crimes and the merits of pursuing alternative incarceration policies. Their data indicate that changing prison policies such as guidelines, mandatory minimum prison terms, and restrictions on parole release, have played a major part in the rising prison populations over the last decade. In comparison to the past, a higher proportion of those who are arrested in the U.S. are sentenced to prison and those who are committed to prison stay there for longer periods of time. This increased risk of being sent to prison after arrest, and of spending more time if committed to prison was true, in general, for those convicted of various types of crimes and across different jurisdictions.

In their research, Cohen and Canela-Cacho (1994) used sophisticated estimating techniques that took into consideration the fact that high-rate offenders are over-represented among inmates while low-rate offenders are disproportionately found among the offenders who remain free, and the fact that termination of criminal careers reduces the crime prevention effects

derived from increased in incarceration. They estimate that the incapacitation effects during periods of low incarceration rates are probably much greater than previously estimated, and that the increasing numbers of offenders being incarcerated today bring only marginal returns for incapacitation effects. This occurs because the expanding prison populations are likely to include an increasing number of offenders who would be low-rate.

The focus on tougher sentencing laws has led to increasingly rigid sentencing statutes and these have particularly impacted repeat offenders. By 1994, 30 states had introduced "three-strikes" legislation and ten had passed tougher sentencing for repeat offenders (Benekos and Merlo 1996). The "three-strikes and you're out" baseball metaphor is used throughout the country in reference to criminal sanctions that become increasingly severe for each conviction an offender receives until they are consider to be "out" or in prison for life. Greenwood, Rydell, Abrahamse, Caulkins, Chiesa, Model and Klein (1994) estimated the crime prevention impact of the California three-strikes law, one of the most sweeping of the laws. Although the first two "strikes" accrue for serious felonies, the third strike that triggers the life sentence can be any felony. According to their estimates the new law would reduce serious felonies committed by adults in California between 22 and 34 percent below what would have occurred had the previous law remained in effect. One third of these prevented felonies would be violent crimes such as murder, rape, and assaults. The remaining two-thirds of the prevented crimes would be less violent felonies such as less injurious assaults, and most robberies, and burglaries of residences. Several alternative models were tested to see if other less costly options would be predicted by the model to be as effective as the three-strikes laws. Although these options were predicted to drop the costs, they would also drop the effectiveness. The researchers caution, that while these results appear encouraging for crime prevention, it will come at great financial cost due to the large estimated increase in prison population. For example, the California three-strikes law, if applied in all eligible cases, would reduce the number of serious felonies in a year by about 28 percent or 329,000 crimes. However, this would cost an additional \$5.5 billion a year in additional criminal-justice funding for the additional costs of the construction and operation of prisons. This can be translated as a cost of \$16,000 per serious felony prevented.²

In summary, there is now a body of research examining the crime prevention effectiveness of incapacitation policies. In general the results indicate:

- o Incapacitation policies prevent crime because offenders who are imprisoned do not have the opportunity to commit crimes;

² It should be noted that this research made use of a complex statistical model with reasonable estimates of the relevant factors completed by a respected group of researchers. Although, there is still debate about the estimates used in the statistical models, it is important to distinguish the predictions from unscientific estimates given in some policy debates. For example, Hawkins and Zimring (1995) describe one unscientific estimate that would have produced a \$300 billion savings in the cost of crimes prevented, and, as noted by Hawkins and Zimring this unreasonable estimate is greater than the federal deficit or the national defense budget.

- o There are a small number of offenders who commit a large number of crimes. If they could be incapacitated a large number of crimes would be prevented.

However, there are many unresolved questions that make the effectiveness of this strategy questionable. Most important are the following issues:

- o It is not yet possible to predict who will be the high frequency offenders in the future; therefore targeting them for increased prison sentences is impossible;
- o Increased use of incapacitation as a crime prevention strategy must address the expected increases in imprisonment rates and the associated financial costs that accompany such strategies;
- o Large increases in the use of incapacitation may have limited returns because the additional offenders not now incarcerated are lower frequency offenders who would not be committing many crimes in the community, thus, reducing the return on investment for every new dollar expended;
- o Large increases in the use of incapacitation may also have limited returns because offenders who are incarcerated for lengthy periods of time may be at the end of their criminal career and therefore would not be committing crimes in the community;
- o True estimates of the crimes prevented are difficult to obtain because both the frequency of criminal participation and the duration of careers must be estimated.

Furthermore, recent studies of the impact of the increases in imprisonment rates that have occurred in the past twenty five years have revealed that the impact has had a major impact on minority populations in urban environments (Tonry, 1995). Other disadvantages of increased use of imprisonment strategies are the unintended consequences of imprisonment on the families and communities of those who are imprisoned (Clear, 1996).

3. DETERRENCE

Deterrence strategies are based on early criminological theory proposing that sufficiently repugnant punishments will inhibit individuals from committing crime. As is obvious from Table 1, deterrence could be an expected impact of incapacitation, community restraints and challenge programs. However, this is secondary to the primary mechanism that is expected to have an impact on crime prevention for these strategies. Here, the programs classified as

deterrence are those with a primary purpose of deterring either the individual offender or others through the repugnant nature of the sanction. At the individual level, specific deterrence is explained by the fact that the pain generated by the punishment will serve to discourage future criminality. It assumes a rational choice model of decision making where the offender perceives that the cost and benefits of punishment are not outweighed by the crime. General deterrence refers to the impact of the threatened punishment has on other potential offenders, thus reducing the chance that they will commit crimes.

Deterrence is the rationale given for programs such as Scared Straight, chain gangs and shock probation. These are distinguished from other strategies because the major emphasis is on the punitive nature of the punishment and not on reducing crime through restraint, discipline or challenge. Another deterrence strategy is that of fines, particularly day fines. These fines are designed to be fair given the difference in the economic circumstances of the individual offenders thereby making this sanction more punitive than the tradition fines.

Research examining two types of deterrence programs is reviewed in this section. It is important to note, as shown in Table 9-1 that other programs such as incapacitation policies that threaten offenders with longer prison sentences as well as the programs requiring offenders to participate in emotionally and physically strenuous programs (e.g., structure, discipline and challenge) are also expect to deter offenders. However, they are also viewed as potentially having other impacts and, therefore, they have been examined in separate sections.

3.1 Monetary Penalties

Fines are frequently used as criminal penalties for a wide variety of cases in American courts (Hillsman, 1990; Hillsman, Sichel, and Mahoney 1984; Casale and Hillsman 1986; Cole et al. 1987). However, many of the fine sentences are composites of fines and other noncustodial sanctions and not stand alone sanctions. Judges have wide discretion in setting fines. They are not uniformly imposed, and jail sentences are sometimes used as alternatives to fines particularly for the poor. Rarely are fines in the U.S. used as the sole sanction for more serious cases or for repeat offenders. In contrast, in Western Europe fines are the most often imposed sentence for most crimes and are a major alternative to imprisonment (Hillsman 1990). One of the differences between the use of fines in the United States and other countries is the fact that American judges are not able to set fines that are proportionate to the severity of the offense but are also equitable and fair given the difference in the economic circumstances of the individual offenders. “Day” or “unit” fines as they are called in Western Europe are linked to both the offender’s daily income and to the gravity of the crime.

In terms of crime prevention, fines may act as a deterrent to criminal activities. Most studies of fines, however, have focused on setting just and proportionate levels for the amount of the fine, or on compliance, cost savings, or prison population impact issues. Until recently little

was known about the use of fines as criminal penalties in the United States. NIJ has filled this gap by supporting studies to examine fining practices (see Hillsman et al. 1984; Casale and Hillsman 1986; Cole et al. 1987; Glaser and Gordon 1988; Hillsman and Green 1987, 1988). These studies are discussed in this chapter only if they examine the impact of fines on crime prevention. However, it is important to note that the results from these studies demonstrate that the use of fines is widespread throughout the U.S. and they are used for a wide range of offenses. Collection rates vary greatly by court, however, these difference may be due to differences in collection techniques and enforcement strategies. The assumption is that these practices could be improved to achieve greater compliance (Casale and Hillsman 1986).

Gordon and Glaser (1991) did examine the impact of traditional fines on recidivism in a quasi-experimental study comparing financial penalties versus similar sentences (probation or probation plus jail). While there were no significant difference between groups, as shown in Table 9-2, offenders who received a fine with probation have lower recidivism rates than offenders who received only probation. Similarly, those who received a fine with probation and jail had lower recidivism than offenders who received only probation and jail without the fines.

As yet, there are few jurisdictions in the United States that use the day fine concept. However several courts are currently adapting day fines to the American context and they are experimenting with their use (Hillsman 1990). Two studies have examined the impact of day fines on the recidivism of offenders. One study assessed the recidivism of offenders sentenced in Milwaukee's Municipal Court Day-Fine Pilot Project and compared the recidivism rates to a comparison group who received traditional fines (Worzella 1992). A larger proportion of the day-fine offenders paid their fine in full. There was no difference in the percent of the groups who committed further violations of municipal ordinances but the day-fined group had fewer arrest warrants (neither measure was significantly different).

In 1991, the Bureau of Justice Assistance funded a multi-site demonstration project, "Structured Fines Demonstration Project," designed to enhance the application and enforcement of structured fines (day fines) as sanctions for drug offenders and other misdemeanants and felons. NIJ awarded funding to Turner and Petersilia (1996) to complete an evaluation the project. While most of the research focused on the implementation and development of the day fine programs, there was some outcome data from one of the jurisdictions. As shown in Table 2 , day fines were associated with reductions in both technical violations and rearrests.

Overall, there is a limited amount of research examining the effectiveness of fines in reducing the recidivism of offenders. The Gordon and Glaser (1991) study suggests that fines as additions to other sanctions may be effective in reducing recidivism. Since fines could potentially reduce the cost of courts and corrections, and day fines address the problems of inequality, this strategy appears to be a promising avenue for future research.

3.2 Shock Probation, Shock Parole, and Split Sentences

The programs in this section have been grouped together because the major emphasis of the programs has been on specific deterrence of the offender participants. Shock probation or parole programs are a form of split sentence in which offenders are incarcerated for unspecified short periods of time in prisons or jails followed by a period of community supervision. The idea is that a short period of time incarcerated would “shock” offenders into abandoning criminal activity and into more conventional and law-abiding behavior. During their incarceration there are no special programs for them and they are mixed with other offenders in the jail or prison. Reviews of the research examining shock programs has provided little evidence of a deterrent effect. Studies examining the recidivism of shock probationers with similar probation groups have found no differences and in some cases the shock probationers have done demonstrably worse (Vito, 1984; Vito and Allen, 1981; Boudouris and Turnbull, 1985; Finckenaue, 1982).

“Scared Straight” is another program designed to deter young offenders or at-risk juveniles from continuing criminal activities. They are taken to maximum security institutions where inmates tell them the horrors and difficulties of life in prison. Studies of these programs have not indicated any differences between those who participated in the programs and comparison groups and in some cases the re-arrest rates were higher for those who participated in the program (Buckner and Chesney-Lund 1983; Lewis 1983).

Overall there is no evidence that deterrence programs such as these effectively reduce the future criminal activities of the offender participants (see also section on rehabilitation in this chapter).

Table 9-2. Studies of fines and recidivism showing scientific methods score and findings.

Study	Scientific Methods Score	Findings
Gordon and Glaser (1991)	3	Probation + fine had fewer arrests (25%) than probation only (36%), S. Probation + jail + fine had fewer arrests (37%) than probation + jail only (50%), S.
Worzella (1993)	3	No differences between day fine group in new ordinance violations (33%) and conventional fine group (34%), NS.
Turner and Petersilia (1996)	5	Day fine group had fewer technical violations (9%) than conventional sentenced group (22%), S. Day fine group had fewer rearrests (11%) than conventional sentenced group (17%), NS.

Note: NS=nonsignificant, S=significant

4. REHABILITATION AND TREATMENT

In contrast to incapacitation, rehabilitation strategies focus on changing individual offenders so they will not continue their criminal activities. The research goal is to identify and understand the individual differences that explain criminal behavior and how interventions can be used to change individuals so they will not continue to commit crimes. The work is based on psychological theories of learning, cognition and the general principles of human development applied to the analysis of illegal behavior (Andrews and Bonta 1994). Research has focused on examining the components of programs that are effective in reducing recidivism.

Since the mid-1970s there have been major changes in how the courts and corrections manage offenders in this country. One of the most visible influences on this change was the report by Martinson (1974) that was widely interpreted as showing that "nothing works" in rehabilitation. Distilled from a larger co-authored research report by Lipton, Martinson, and Wilks (1975), Martinson's essay described the results of the research teams' assessment of 231 evaluations of treatment programs conducted between 1945 and 1967. From this research, he concluded "With few and isolated exceptions the rehabilitative efforts that have been reported so far have had no appreciable effect on recidivism (1974:25; see also Sechrest, White, and Brown 1979 and Martin, Sechrest, and Redner 1981).

Critics (Gendreau 1981; Gendreau and Ross 1979, 1981, 1987; Gottfredson 1979; Cullen and Gilbert 1982, Greenwood and Zimring 1985; Halleck and Witte 1977; Palmer 1975; Palmer 1983; Van Voorhis 1987) argued against this conclusion, saying it was not that treatment programs could not potentially reduce recidivism, but instead that it was impossible to draw any conclusions from the research because:

1. The research methodology was so inadequate that few studies warranted any unequivocal interpretations about what works; and,
2. The programs studied were so poorly implemented and delivered in such a weakened form that they would not reasonably be expected to have an impact.

The predominantly negative reviews of rehabilitation that dominated the 1970s were challenged by researchers such as Palmer (1975; 1983) who argued that the broad generalizations of the conclusions overlooked many positive instances of success and the researchers gave little attention to such important issues as the fit between the type of offender and the type of treatment provided. Reviews of evaluations published after Martinson's essay indicated that substantial research exists showing the effectiveness of correctional treatment (Gendreau 1981; Gendreau and Ross 1979, 1981, 1987; Gottfredson 1979; Cullen and Gilbert 1982; Greenwood and Zimring 1985; Halleck and Witte 1977; Van Voorhis 1987). However, despite the critiques of the work and its questionable validity, the phrase "nothing works" became an instant cliché and

exerted an enormous influence on both popular and professional thinking (Walker, 1985; Cullen and Gendreau 1989; Tonry 1996; Stojkovic 1994). The perception of the conclusion became widespread throughout the U.S. and it gave rise to a strong movement to change both the philosophy and control of imprisonment policy and this impact was felt throughout the 1980s.

Today, while there is still some debate about the effectiveness of rehabilitation (e.g., Lab and Whitehead 1988; Whitehead and Lab 1989) recent literature reviews and meta-analyses demonstrate that rehabilitation programs can effectively change offenders (Andrews and Bonta 1994; Andrews, Bonta, and Hoge 1990; Andrews, Zinger, Hoge, Bonta, Gendreau, and Cullen 1990; Palmer 1975; Gendreau and Ross 1979, 1987). In general, according to Andrews et al. (1990), reviews of the literature show positive evidence of treatment effectiveness. For example, in a series of literature reviews, the proportion of studies reporting positive evidence of treatment effectiveness varied from near 50 percent to 86 percent: 75 percent (Kirby 1954), 59 percent (Bailey 1966), 50 percent (Logan 1972), 48 percent (Palmer's 1975 re-tabulation of studies reviewed by Martinson in 1974), 86 percent (Gendreau and Ross 1979) and 47 percent (Lab and Whitehead 1988).³ In reviewing these studies, Andrews et al. (1990) conclude that "This pattern of results strongly supports exploration of the idea that some service programs are working with at least some offenders under some circumstances." The important issue is not whether something works but what works for whom.

What is clear is that some approaches to treatment are better than others. Psychological researchers emphasize that effective treatment programs must follow some basic principles (Gendreau and Ross 1979, 1987; Gendreau and Cullen 1989). First, treatment must directly address characteristics that can be changed (dynamic) and that are directly associated with an individual's criminal behavior (criminogenic factors). There are numerous risk factors associated with criminal activity. Age, gender and early criminal involvement are some examples. In comparison to others, young males who began criminal activities at a young age are higher risks for future criminal activities. But these "static" characteristics such as age, gender and past history, while predictive of recidivism, cannot be changed in treatment. Instead, the "dynamic" or changeable factors should be the target of treatment programs.

Equally as important is the distinction between factors that are criminogenic and those that are not. Criminogenic factors are those that are directly associated with criminal behavior. Research has revealed some dynamic factors that are also criminogenic: attitudes, cognitions, behavior regarding employment, education, peers, authority, substance abuse and interpersonal relationships that are directly related to an individual's criminal behavior. Less promising targets for reducing future criminal behavior include increasing self-esteem without touching antisocial propensity, or increasing the cohesiveness of antisocial peer groups. While factors such as self

³ Note that this is the proportion of all the studies reviewed that show positive and significant reductions in recidivism when the treated group is compared to the control group.

esteem many be correlated with criminal behavior, changing them will not necessarily reduce future criminal activities. That is, criminals may have relatively strong self concepts but they may continue to commit crimes. Treatment programs that target such non-criminogenic factors will not be particularly successful in reducing recidivism. In order to be successful, treatment must address factors that can be changed (e.g., dynamic factors) and that are directly related to an individual's criminal behavior (criminogenic).

In a recent meta-analysis examining predictors of adult recidivism, Gendreau, Little and Goggen (1996) found antisocial cognitions, values, and behaviors (dynamic, criminogenic factors) along with static factors (history, age, gender, race) were the strongest predictors of recidivism. This provides support for the proposal that these changeable factors should be targeted in treatment. In contrast, self esteem, depression and anxiety were relatively weak predictors of recidivism. These characteristics are commonly targets of treatment despite the fact that they appear to have little association with recidivism.

Also important in determining whether a treatment program will be effective is the therapeutic integrity of the program or the need for effective programs to be delivered as planned and designed. Poorly implemented programs, delivered by untrained personnel, where offenders spend only a minimal amount of time in the program, can hardly be expected to successfully reduce recidivism.

Furthermore, programs must target offenders who are at sufficient risk for recidivism so that this reduction is measurable. Many offenders are low risk for future recidivism. Treatment programs that provide intensive services for such offenders will show little reduction in future criminal activities because few of these offenders will recidivate anyway.

The final principle of effective treatment is the need to deliver treatment in a style and mode that addresses the learning styles and abilities of offenders. For example, more effective programs follow a cognitive behavioral and social leaning approach rather than nondirective relationship-oriented counseling or psycho-dynamic, insight-oriented counseling.

Using these principles as the basis to classify studies of treatment as appropriate or inappropriate, Andrews et al (1990) undertook a meta-analysis of 154 treatment comparisons.⁴ Most often studies were classified as appropriate because the treatment was behavioral in nature. Few studies could be classified on the basis of risk or treatment integrity. Inappropriate treatments were those that employed deterrence (e.g., "Scared Straight"), nondirective approaches, non-behavioral milieu approaches, and group interactions. They found an effect size of .63 for appropriate treatment and this was significantly larger than the mean values for

⁴ While this analysis included both adult and juvenile treatment programs, the majority of the studies dealt with juvenile programs.

inappropriate services and criminal justice sanctions (warnings, probation, intensive probation, custody). Over all they found an effect size of .21 for the effectiveness of treatment programs. The researchers do note that, considering the enormous number of offenders who have passed through the criminal justice system, there are a comparatively small number of evaluations of appropriate correctional programming.

Lipton and Pearson (1996) found some, but limited, evidence corroborating the finding that treatment programs could be classified by the appropriateness of the treatment provided. These researchers are currently working on a comprehensive, detailed review of the evaluation research on rehabilitation programs for offenders, the Correctional Drug Abuse Treatment Effectiveness Project (CDATE). The project, funded by The National Institute on Drug Abuse (NIDA) at the National Institutes of Health, has been collecting evaluation studies conducted from 1968 until 1994 in order to assess the effects of correctional interventions on various outcome measures (e.g., drug use, recidivism). Preliminary findings from a meta-analysis of the first 500 coded evaluation studies (they anticipate over 1,500 studies) replicated the findings of the Andrews et al. (1990) study on the significance of the appropriateness of treatment. However, while Andrews et al. found a correlation of .69 between appropriateness of correctional service (as defined by the Andrews group) and recidivism (using effect size), Lipton and Pearson found a correlation of only about half that size (.34). They speculate that part of this difference may be because the conceptualization of appropriateness of correctional service still has some ambiguity that results in differences in the categorization of studies used in meta-analyses. From the perspective of crime prevention, the implication is that there are some difficulties in identifying what is appropriate treatment. However, the preliminary analysis of the CDATE data does support the conclusion that specific types of correctional treatment are associated with lower rates of recidivism. The difficulty appears to be in identifying exactly what characteristics are associated with effective treatment.

In summary, there is evidence that:

- o Rehabilitation is effective in reducing the criminal behavior of at least some offenders.

The evidence from the meta-analyses suggests that effective correctional treatment programs appear to follow some basic principles. In order to effectively reduce recidivism, treatment programs appear to need to:

- o Be carefully designed to target the specific characteristics and problems of offenders that can be changed in treatment (dynamic characteristics) and those that are predictive of the individual's future criminal activities (criminogenic) such as antisocial attitudes and behavior, drug use, anger responses;

- o Be implemented in a way that is appropriate for the participating offenders and utilizes therapeutic techniques that are known to work (e.g., designed by knowledgeable individuals, programming provided by appropriately educated and experienced staff, use of adequately evaluated programs) and require offenders to spend a reasonable length of time in the program considering the changes desired (deliver sufficient dosage);
- o Give the most intensive programs to offenders who are at the highest risk of recidivism;
- o Use cognitive and behavioral treatment methods based on theoretical models such as behaviorism, social learning or cognitive behavioral theories of change that emphasize positive reinforcement contingencies for prosocial behavioral and is individualized as much as possible.

More information is needed regarding: (1) how to ensure that treatment programs have adequate integrity; (2) what should be targeted in the treatment (antisocial attitudes, values, employment behavior, education, etc.); and, (3) what method should be used to deliver the treatment (required staff training, outpatient, in-prison programs).

5. COMMUNITY RESTRAINTS

Many of the sanctions and correctional options categorized as community restraints are frequently referred to as intermediate sanctions or alternative punishments. However, here the term community restraint refers to the fact that a group of these alternative punishments increase the amount of surveillance and control over offenders while they are in the community. In a sense, they might be referred to as “semi-incapacitation” because they are expected to reduce offenders’ ability to commit crimes. Examples of restraint programs are intensive supervision, house arrest, electronic monitoring, and halfway houses. Theoretically, increasing the surveillance and control over offenders in the community will prevent criminal activities by reducing both their capacity and their opportunity to commit crimes. Additionally, it is expected that the punitive nature of the sanctions will act as a specific deterrence to reduce the offenders future criminal activity.

In response to the record numbers of convicted offenders and widespread prison crowding, correctional officials in recent years have expanded the range of intermediate sanctions that fall between traditional probation and complete incarceration (Cullen, Wright, and Applegate 1996; Tonry and Lynch 1996; Byrne, Lurigio and Petersilia; Harland 1996; Smykla and Selke 1995). House arrest, intensive supervision, curfew, day reporting and other intermediate sanctions fulfill many purposes. They provide graduated punishments that may be

more appropriate than either probation or prison for some offenses, and they maintain a higher level of offender restraint and accountability than does standard probation or parole supervision. In addition, intermediate sanctions may provide enhanced levels of treatment or services for problems that are common among criminal offenders, such as drug abuse, low education levels and unemployment. Finally, when used in lieu of confinement, intermediate sanctions may reduce prison or jail populations and associated costs.

This section examines sanctions that increase the restraints on offenders in the community and studies assessing the effectiveness of these restraints in reducing criminal activity. The term restraints is used to refer to activities such as contacts with agents, urine testing (see section on drug-involved offenders, this chapter) and employment verification that represent control over offenders and increased accountability. Since these restraints and not rehabilitation are the primary focus of the research, this section examines whether the sanctions are effective in preventing the future criminal activities of these offenders. That is, the research is designed to investigate such factors as the number of contacts with probationers, curfews, or confinement to home, and not the amount of rehabilitation provided within the programs. However, when available, follow-up studies or components of studies that examine the effectiveness of rehabilitation within these restraint-focused sanctions are reviewed as well. All of these sanctions increase the restraints above what would usually occur in traditional probation or parole.

Most jurisdictions in the U.S. have some type of intermediate sanctions programs. These programs have variously been called correctional alternatives, intermediate sanctions, community corrections or, more recently, correctional options. As a result of disillusionment with the effectiveness of rehabilitation and the focus on justice and incapacitation, intermediate sanctions were proposed as an ideal way to provide a range of sanctions between probation and parole (Morris and Tonry 1990; Tonry 1996). Theoretically, these sanctions could be scaled in severity so as to be proportionate to the seriousness of the crimes committed. Furthermore, the additional control and threat of sanctions were expected to either deter offenders from future criminal acts or restrict them (in a sense incapacitate them) so they would not have the opportunity to reoffend.

Throughout the 1980s and 1990s, NIJ funded a wide range of evaluations of different correctional alternatives. There is now a body of research that permits us to draw some conclusions about the crime prevention effectiveness of these programs. This section reviews the literature and research on some of the major alternative sanctions. The focus of most of these studies has been the recidivism rates of offenders who are given sanctions that increase the degree of control and surveillance over their activities. In the majority of cases no significant differences are found between offenders placed in alternative sanctions and the comparison groups. Except in a few instances, there is no evidence that these alternatives are effective in reducing crime as measured by official record data. The problem is that most of these alternatives increase the probability of detection. It is unknown whether the actual offense rates

change. That is, the increased probability of detection may mean that the intensively supervised offenders are at higher risk of being caught when a criminal act is committed, compared to the comparison offenders, who may commit crimes much more frequently.⁵

The most hopeful sign from this work is in the exploratory research that has followed most of these evaluations. This research focused on alternative sanctions that increase the treatment and therapeutic aspects of the programs and compares the effectiveness of such programs with similar alternatives that do not include treatment or therapy. The findings suggest that if sanctions include appropriate treatment, the recidivism of the offenders receiving the treatment may be reduced. From this perspective, it is not the restraints that are effective in reducing the criminal activities of the offenders, but rather, their criminal activities are reduced through the treatment they receive.

5.1 Intensive Community Supervision

Compared to regular probation and parole services, Intensive Community Supervision, usually called Intensive Supervised Probation (or Parole) or ISP, was designed to provide increased restraints on offenders in the community (Lurigio and Petersilia 1992; Petersilia and Turner 1993; Cullen, Wright and Applegate 1996; Tonry and Lynch 1996). Studies of ISP do indeed reveal that there are increased direct contacts between the offenders and the supervising probation or parole agent. Many programs combine other options such as electronic monitoring and/or home confinement with the increased agent-offender contacts. Furthermore, indirect methods of observation are also frequently combined with the ISP programs. Many times offenders are required to report for more frequent urine testing or agents may conduct regular employment verification. In all, these direct and indirect observations provide substantially increased levels of control within probation and parole programs. However, the type and level of demands placed on offenders differs enormously by jurisdiction. Offenders are often required to pay fines, keep a mandatory curfew, or provide community service and these additional requirements also differ by jurisdiction.

ISP programs grew dramatically in the 1980s, and by 1990 virtually every state in the nation had developed some type of ISP program. In part, this was the result of the initial research examining the programs in New Jersey and Georgia where the findings suggested that ISP led to a significant decrease in reincarceration (in Georgia, see Erwin 1986) and rearrests (in New Jersey, see Pearson 1987). However, critical reviews of the research demonstrated that the data did not support the initial unqualified conclusions about the ability of the ISP programs to reduce crime.

⁵ A current NIJ study is examining the self-reported crime rates of offenders on probation. This information will provide some estimates of the crime rates and the association between these rates and the conditions of probation in order to determine whether those who are more intensively supervised have lower self-reported crime rates (MacKenzie, Browning and Prui 1996).

Recognizing the limitations of the prior research, the National Institute of Justice funded RAND to evaluate fourteen ISP programs in nine states using an experimental design (Petersilia and Turner 1993). The research was greatly facilitated by the addition of funds from the Bureau of Justice Assistance to assist sites in the additional costs for the increased probation and parole staff required to provide the additional supervision. This experimental design with random assignment of offenders to ISP and control groups eliminated many of the past methodological problems of the earlier studies. Recidivism was measured using arrests and technical violations. The results were disappointing for the ISP advocates. When ISP participants were compared to the control group, there were no significant differences in arrests. At the end of the one year study period, about 37 percent of the ISP participants and 33 percent of the control offenders had been arrested. In comparison, the researchers found a significant difference when the technical violation rates were examined. The average ISP violation rate was found to be 65 percent for ISP participants compared with 38 percent for the controls. In summary, while there was no evidence that the increased surveillance in the community deterred offenders from committing crimes, it did appear that this additional control increased the probability that criminal or technical violations would be detected.

In another study funded by NIJ, Deschenes, Turner and Petersilia (1995) found similar conclusions -- no difference between comparison groups and two groups of offenders on ISP programs. One ISP group was diverted from prison and the other was given ISP after release from prison. Supporting the results of the previous 14 site study, findings revealed no significant difference between groups. As shown in Table 9-3, there is a fairly substantial body of research now available on ISP. Few of the studies found statistically significant differences and the direction of the differences between the ISP groups and the comparison groups varied, sometimes favoring ISP, sometimes favoring the alternative.

Although research has not revealed a significant relationship between levels of surveillance and recidivism, there is some evidence that increased treatment of offenders in ISP programs may be related to significant reductions in rearrests. Follow-up analyses by the RAND researchers (Petersilia and Turner 1993) and also researchers evaluating ISP programs in Massachusetts (Byrne and Kelly 1989), Oregon (Jolin and Stipack 1991) and Ohio (Latessa 1993) have found evidence that rearrests are reduced when offenders receive treatment services in addition to the increased surveillance and control of the ISP programs. For example, Petersilia and Turner (1993) reported a 10 to 20 percent reduction in recidivism for those who were most active in programs while they were in the community. However, the research designs used in these evaluations do not reach the experimental rigor of the random assignment study by RAND that examined the effect of increasing the surveillance and control of ISP participants.

In summary the results indicate:

- o Increasing the surveillance and other restraints on offenders in ISP programs is not associated with decreases in recidivism;

- o The increased surveillance of ISP is often associated with increases in technical violations of the conditions of the ISP programs;
- o Incorporating treatment into the requirements of ISP programs may lead to a reduction in recidivism but this research has not been as rigorously examined.

5.2 Home Confinement

Home confinement is designed to regulate and restrict the freedom of the offender within the community (Renzema, 1992; Baumer and Mendelsohn 1992). The terms “house arrests,” “home confinement” and “electronic monitoring” are often used interchangeably. However, it is important to note that house arrest, home confinement and more recently “community control” are terms describing the programs, while electronic monitoring is a tool used to monitor the compliance with the requirements of the sentence. During the 1980s, technological advances made it possible to monitor offenders electronically to insure that the offender was complying with the requirements of the program. Unlike ISP, house arrest is usually a sentence given by the court that are much more restrictive than ISP.

In general home confinement programs had targeted low-risk offenders such as those convicted of Driving While Intoxicated (DWI). However, more recently home confinement has been used for parolees (Beck and Klein-Saffran 1989) or other more serious offenders (Baumer, Maxfield and Mendelsohn 1993; Baumer and Mendelsohn 1991; Austin and Hardyman 1991). Early research examining the effectiveness of the home confinement programs suffered from poor research designs, lack of program integrity, and the low risk offenders placed in the programs.

Recidivism rates of the low-risk offenders placed in home confinement programs are usually very low. Therefore, many studies do not have the power to detect small differences that might be expected between the participants and control groups. Two studies using experimental designs shown in Table 9-4 found no significant difference in recidivism when the behavior of offenders who are electronically monitored on home confinement is compared with those being manually supervised (Baumer and Mendelsohn 1991; Austin and Hardyman 1991).

In summary:

- o Most likely because of the low-risk offenders in the programs, most home confinement programs have low recidivism and technical violations rates;
- o The available evidence indicates no significant differences in recidivism outcome when the participants are compared to control groups.

Table 9-3. Studies of intensive supervised probation/parole (ISP) showing scientific methods score and findings (from Cullen et al. 1993 and Byrne and Pattavina 1992).

Study	Scientific Methods Score	Findings
Fallen et al. (1981)	3	Recidivism lower for ISP
Erwin (1986)	3	Recidivism rates lower for ISP than probationers and lower for prison releasees.
Mitchell et al. (1986)	3	Recidivism higher for ISP than parolees and CCC.
Pearson (1987)	3	ISP recidivism rates lower
Byrne and Kelly (1989)	3	ISP lower recidivism
Molof (1991)	2	ISP lower recidivism than probationers
Jolin and Stipack (1991)	4	Recidivism rates higher for ISP than EM and work release groups
Latessa (1991a)	3	Recidivism rates higher for ISP offenders than three comparison samples
Austin and Hardyman (1991)	3	ISP-EM offenders arrested more than parolees
NCCD (1991)	3	Recidivism rates for ISP-jail probationers and ISP-parolees higher than comparisons but rates lower for ISP parolees than comparison
Latessa (1992)	3	Recidivism rates higher for ISP
Latessa (1993)	2	Offenders in drug and mental health units had higher recidivism rates than those in sex-offenders and alcohol offender units.
Moon and Latessa (1993)	3	ISP drug program participants had lower recidivism rates
Latessa (1993b)	3	ISP groups had higher recidivism than probationers.
Petersilia and Turner (1993)	5	ISP sample in 10 states had higher recidivism than comparison. ISP samples in 4 states had lower recidivism than comparison.

Table 9-4. Studies of home confinement and electronic monitoring showing scientific methods score and findings.

Study	Scientific Methods Score	Findings
Baumer and Mendelsohn (1991)	5	EM had more revocations (21%) than Manual supervision (18%), NS.
Austin and Hardyman (1991)	5	EM arrested (14%) more than controls (11%), NS.

Note: NS=nonsignificant, S=significant

5.3 Community Facilities: Residential and Day Reporting

Halfway houses, also called community residential centers, pre-release centers, or restitution centers, are nonconfining residential facilities for adjudicated adults or juveniles, or those subject to criminal or juvenile proceedings (pre-trial period). They are intended as an alternative to confinement for persons not suited for probation or who need a period of readjustment to the community after imprisonment. More halfway houses provide services for juveniles than for adults, and some houses specialize by client or treatment modality such as women only, pre-release, substance abusers, or developmentally disabled (Latessa and Travis 1991). The facilities are included as community restraints because most of the research reviews have focused on their use as additional restraint and not on the details of the services provided.

Research examining the effectiveness of halfway houses in reducing recidivism has indicated mixed results. In an early evaluation of correctional halfway houses, Allen et al. (1976) reviewed 35 studies. The majority of the studies used quasi-experimental designs or nonexperimental designs; only two used true experimental designs. The evidence was about equally divided between lower recidivism for the halfway house residents and no differences in recidivism in comparison to control groups in the quasi-experimental and experimental designs. In a later study focusing on parolees in halfway houses, Latessa and Allen (1982) examined 44 studies with sufficiently rigorous methodology to enable the researchers to draw reasonable assessments of post-release outcomes. As Allen et al. (1976) had found earlier, the results were mixed -- at times showing halfway house residents having lower recidivism rates and at times showing no differences or that halfway house residents did worse on recidivism rates.

Day reporting centers are a more recent correctional option that require offenders who are on pretrial release, probation, or parole to appear at specific location on a frequent and regular basis. Unlike the halfway houses, the day reporting centers are non-residential, offenders are required to report to the centers but they return to their homes to sleep at night. While at the centers they are required to participate in services (treatment, employment search, etc) or activities (urine test, meetings with agents) provided by the agency or other community agencies.

These programs are currently being widely implemented in the United States. In 1990, a study by the NIJ found only 13 centers in the United States, by 1995 there were at least 114 centers in 22 states (Parent, Byrne, Tsarfaty, Valdae and Esselman 1995). The centers emphasize both strict surveillance and high levels of treatment and other services to offenders. As with the other intermediate sanctions, there is a tension between providing increased surveillance and increased treatment in the day reporting centers, and centers vary greatly in the emphasis placed on one or the other. While there have been some descriptive studies of day reporting programs, to date there have been no impact evaluations examining the effectiveness of the programs in preventing crime.

5.4 Summary of Community Restraints

A large body of research, much of it funded by NIJ, including random assignment studies, consistently shows the failure of these programs to lower recidivism. Restraining offenders in the community by increasing surveillance and control over their activities does not reduce their criminal activities. In general, they are arrested as often as their counterparts who receive less surveillance. Most research has focused on the restraining aspects of these community programs and not the treatment services delivered to the offenders. That is, the research fails to clearly identify and rigorously examine (from a research perspective) the impact of the therapeutic aspects of the community programs. When the researchers have mentioned the therapeutic integrity of the programs, it is often to note that the anticipated services or staffing did not occur (see for instance, Sontheimer and Goodstein's study or Greenwood et al.'s study of the Skillman aftercare program discussed in the juvenile programs section of this chapter). Questions remain about the impact of additional treatment within a program that increases restraints.

6. STRUCTURE, DISCIPLINE AND CHALLENGE

Correctional boot camps for adults and for juveniles and wilderness programs have been grouped together because they all focus on structure, discipline and physical and/or mental challenge. The experiences of the offenders in the programs is anticipated to change them in a positive way so that their future criminal activities will be reduced. The mechanism for this change is attributed to various factors such as self esteem, or increased bonds with staff and peers. Some also expect that these punitive programs will discourage others from committing crimes or that the individuals who spend time in the programs will be deterred from future criminal activities. At times programs combine therapeutic programming with the structure, discipline and challenge aspects. The studies of the programs focus on the recidivism rates of those who are released from the programs and compare these rates to comparison groups who served different sentences. Thus, the studies examine the specific deterrence or positive change impacts of the programs.

6.1 Boot Camps for Adults

Boot camp prisons, alternatively called shock incarceration, regimented discipline or intensive incarceration, are correctional programs designed to be similar to military basic training. These relatively new programs began in 1983 in Georgia and Oklahoma but rapidly spread throughout the nation (MacKenzie 1990; MacKenzie and Parent 1991). The early programs emphasized the military aspects of discipline, comportment and drill and ceremony.

More recently the programs have changed to include more programming and treatment and many have de-emphasized the military focus of the programs. As has occurred with other

correctional options, the boot camp programs vary tremendously when cross-program comparisons are made in type of population served, treatment components, aftercare or follow-up supervision, and emphasis on military drill and ceremony. The majority of the state department of corrections have opened boot camp programs and increasing numbers of programs are being opened for juveniles and for jail inmates.

To date, there have been no random assignment studies examining the effectiveness of boot camp prisons for adult offenders. As shown in Table 9-5, most of this research had limited scientific rigor (scores of 3). Some of the research has made use of statistical controls to adjust for original differences between the boot camp releasees and comparison groups to examine their performance in the community (see for example, MacKenzie et. al 1995). In general, the results show no significant differences in recidivism between offenders who are sent to boot camps when compared to others including those who either served a longer period of time in prison or those who served their sentence on probation (MacKenzie et. al. 1993; MacKenzie and Shaw 1993; Flowers, Carr and Ruback 1991; Florida Department of Corrections 1990). However, in programs where a substantial number of offenders were dismissed from the boot camp prior to completion, the recidivism rates for those who completed the program were significantly lower than the rates for those who were dismissed (MacKenzie et al. 1995; NYDCS and NYDP 1993). Thus, while there is no evidence that the boot camps actually change offenders, there is some indication that the programs can be used to “signal” which offenders will have difficulty completing probation or parole. That is, offenders who remain in the program and complete it are at less risk for recidivism than those who are dismissed (either voluntarily dropping out or for misbehavior).

In a further exploratory analysis examining program differences and recidivism rates, MacKenzie et al. (1995) found some commonality among programs where the boot camp releasees had lower recidivism rates than comparison groups on some but not all, measures of recidivism. In particular, these programs: (1) devoted more than three hours per day to therapeutic activities such as therapy, counseling, drug treatment and education; (2) there was some type of follow-up for the offenders in the community after they left the boot camp; and (3) participants had to volunteer for the program.

The following conclusions can be drawn from the available research examining boot camps for adult offenders:

- o The military atmosphere, structure and discipline of correctional boot camps does not significantly reduce the recidivism of releasees in comparison to offenders serving time on parole or probation;
- o In programs where a substantial number of offenders are dismissed from the boot camp, the recidivism rates for those who complete the boot camp are significantly lower than the rates for those who were dismissed;

- o Exploratory analyses suggest that programs incorporating components such as therapeutic activities during the boot camp and follow-up in the community may be successful in reducing recidivism but this conclusion is tentative until more research is completed.

6.2 Boot Camps for Juveniles

Recently, four random assignment studies have been completed examining the recidivism of juveniles released from boot camps. With cooperative funding from The NIJ and the Office of Juvenile Justice and Delinquency Prevention (OJJDP) a carefully designed experimental study examining boot camps in three sites was completed. Funding was provided for sites to develop innovative demonstration programs, if they were willing to permit research to randomly assign juveniles to the boot camps or some alternative. Three sites were selected to participate. The research results are considered preliminary because data collection continued after these analyses were completed.

The fourth study of juvenile boot camps is being conducted by The California Youth Authority (CYA). This study used random assignment to evaluate the effectiveness of the CYA juvenile boot camp. The results are considered preliminary at this point because the juveniles have been in the community for only a short period of time.

As shown in Table 9-6, all of these studies are judged to be rigorous (methods score of 5). The results from three of the studies reveal no significant differences in recidivism between the boot camp youth and the control groups. In the fourth site, the CYA, more of the boot camp youth were reincarcerated than the control youth. Obviously, this presents little support for these boot camps as crime prevention techniques.

Table 9-5. Studies of correctional boot camps showing scientific methods score and findings.

Study	Scientific Methods Score	Findings
N.Y. Department of Correctional Services and N.Y. Division of Parole (1992, 1993)	2	Male BC graduates reincarcerated less for new crimes and parole violations compared to: (1) parolees sentenced before the program began; (2) those who refused to enter; (3) dismissals from the program.
N.Y. Department of Correctional Services and N.Y. Division of Parole (1993)	2	Female BC graduates reincarcerated less for new crimes and parole violations compared to: (1) parolees sentenced before the program began; (2) those who refused to enter; (3) Dismissals from the program.
Flowers and Ruback (1991)	3	Compared with those sentenced to various alternatives, male BC graduates were reincarcerated less often. But when graduates were compared with groups most similar to BC graduates the reincarceration rates were higher for BC graduates.
MacKenzie (1991)	3	BC graduates had fewer arrests and reconvictions for new crimes when compared to samples of parolees and probationers but more arrests for technical violations. Those dismissed from the program had fewer arrests than graduates but were the same in reconviction rates.
Texas Department of Criminal Justice (1991)	2	BC releasees were reincarcerated more than parolees, ISP and restitution center releasees.
MacKenzie et al (1995)	4	Compared to probationers BC releasees had fewer rearrests in one state and more in two states; fewer revocations in three states, NS. Compared to parolees BC releases had fewer rearrests in four states; fewer revocations in five states and more revocations in one state NS.
Florida Department of Corrections (1990)	2	There were no differences between BC graduates and prison releasees in new felonies. BC graduates had more new misdemeanors but fewer technical violations.

Note: NS=nonsignificant, S=significant

Table 9-6. Studies of juvenile boot camps and recidivism showing scientific methods score and findings.

Study	Scientific Methods Score	Findings
Peters et al. (1996a)	5	More boot camp youths (38.8%) recidivated than control group (35.5%), NS.
Peters et al. (1996b)	5	Fewer boot camp youths (28.1%) recidivated than control group (31%), NS.
Peters et al. (1996c)	5	More boot camp youths (71.8%) recidivated than control group (50%), S.
Bottcher et al. (1996)	5	More boot camp youths (77.7%) rearrested than control group (77.1%), NS.

Note: NS=nonsignificant, S=significant

6.3 Summary

The boot camps reviewed in this section do not, as a whole, appear to be good candidates for crime prevention. In general, findings indicate no difference between the offenders who participated and those who did not. There was some suggestion in the research examining adult boot camps that enhanced therapeutic programming within the boot camps may have had an impact on reducing recidivism, but the research is exploratory and did not use a strong methodology. The juvenile programs appeared less hopeful. Several questions remain. First, more information is needed about the therapeutic integrity of the programs and how the programs compare to the alternatives where the control groups spent time. Possibly, the failure to find differences in recidivism may be because the control groups were receiving enhanced treatment while the juveniles in the boot camps were spending time on physical activities. Such physical activities may have health benefits but they may not address the criminogenic needs of these offenders. Questions remain about how rehabilitation can be combined with these programs and whether this would enhance or conversely reduce the effectiveness of the rehabilitation.

7. JUVENILE OFFENDERS

7.1 Treatment Programs for Juveniles

Rehabilitation has particular appeal for use with juveniles. Juvenile crime is often serious and it may represent a large proportion of the total criminal activity in a community. However, it is usually assumed that adolescents deserve and require special handling because at this stage of life they are in a formative period and criminal behavior at this stage will not necessarily be continued into adulthood. Theoretically, rehabilitation has been the focus of correctional programs for juveniles. However, in practice, as occurs with adult programs, juvenile programs are generally poorly implemented. Juveniles have a potentially long adulthood in front of them, therefore, strategies that reduce the future criminal activities of juveniles are also particularly important. An effective preventive intervention at an early age, that results in reduced criminality over a lifetime, can have a substantial payoff.

The most extensive meta-analysis examining the effectiveness of delinquency outcome studies was conducted by Lipsey (1992). In a meta-analysis of juvenile delinquency programs, Lipsey examined the effectiveness of 443 different research studies.⁶ This meta-analysis improved on previous reviews of delinquency treatment research by: (1) broadening the coverage

⁶ This was a more extensive analysis than previous meta-analyses that had focused on delinquents in residential programs (Garrett 1984;1985), at-risk juveniles (Kaufman (1985), and treatment of adjudicated delinquents (Gottschalk et al.1987; Whitehead and Lab 1989). While the conclusions from these analyses differed, all yielded a positive mean effect of about the same order of magnitude (1/4 to 1/3 of a standard deviation superiority for the treatment group outcome compared with the control group outcome). See also the early discussion of the Andrews et al. (1990) meta-analysis in this chapter.

of the literature through an exhaustive search for relevant studies; and, (2) coding sufficient detail from each eligible study.

Among other criteria, the studies included in Lipsey's analysis were those that provided some intervention or treatment that had as its aim the reduction, prevention, treatment, or remediation of delinquency or antisocial behavior problems similar to delinquency. Delinquency was defined as behavior chargeable under applicable laws. Studies were included in the analysis only if the majority of the subjects were between the ages of twelve and twenty one.

Findings from the Lipsey (1992) study revealed that overall in 64.3 percent of the studies the treatment group did better (in most cases this refers to a reduction in recidivism) than the control group. The mean effect size for the studies was .172 which was comparable to previous meta-analyses of more highly selected sets of studies. One way to understand this effect size is to translate it into a comparison to a baseline of 50 percent. This effect size is equivalent to an average reduction in recidivism from 50 to 45 percent. That is, considering all treatment program studies combined, 45 percent of those who received treatment would be expected to recidivate in comparison to 50 percent of the non-treated control group.

In more detailed analyses, Lipsey worked to identify those characteristics most important in determining differences among treatment and control groups. Table 7 shows the estimated recidivism rates for the treated group if 50 percent of the control group had recidivated. He examined both methodological aspects of the study (sample size, equivalence of groups, attrition, outcome measures, etc.) and treatment aspects (subjects, dosage, treatment modality, philosophy). As expected, differences in study methodology were associated with effect sizes. More important for purposes here are the findings for the treatment effects (once the methodology effects are controlled). As shown in Table 7, the more effective programs were predicted to reduce recidivism substantially. For instance, in comparison to 50 percent recidivism rate for the control group, only 32 to 38 percent of the juveniles who were given employment, multi-modal and behavior programs were estimated to recidivate.

Overall, the results of the meta-analysis indicate that more effective programs were:

- o Judged to provide larger amounts of meaningful contact (treatment integrity) and were longer in duration (more dosage);
- o Provided by the researcher or in situations where the researcher was influential in the treatment setting;
- o Behavioral, skill-oriented and multi-modal treatment.

There was also some evidence that more effective programs targeted higher risk juveniles but this effect was small and nonsignificant. On the other hand, treatment in public facilities,

custodial institutions, and in the juvenile justice system were less effective than other alternatives. This suggests that treatment provided in community settings may be more effective. However, Lipsey cautions that this conclusion is confounded with dosage (intensity) and needs a more refined breakdown before definite conclusions can be drawn.

It is interesting that effective programs were those that were either provided by the researcher or where the researcher was influential in the treatment setting. This may indicate that treatment delivered or administered by the researcher was better implemented than typical programs.

Table 9-7 shows his results for individual treatment modalities. Lipsey cautions the reader to interpret the individual categories carefully because crude descriptions of treatment programs in the studies as well as the multiple elements in some programs made coding extremely difficult. He suggests instead that the reader examine the broader patterns of the rankings of treatment modalities. From this perspective, the more structured and focused treatment (e.g., behavioral, skill-oriented)⁷ and multi-modal treatments⁸ seem to be more effective than the less structured and focused approaches (e.g., counseling). Interestingly, while programs that emphasized employment are near the top in effectiveness, vocational treatment programs were associated with increased recidivism for the treated group. The reason for this is difficult to determine. Possibly the employment programs were more directly related to skills needed to find and keep jobs while the vocational training programs were school based and less directly associated with obtaining employment.

The best treatment types show delinquency effects of meaningful practical magnitude, in the range of 10 to 20 percentage points reduction in recidivism. On the other hand, there is no evidence that programs emphasizing deterrence treatments are effective and, in fact, such programs were estimated to increase recidivism (e.g., 62 percent of those who received a deterrence program were estimated to recidivate in comparison to 50 percent of the controls).

In comparing his results to the earlier findings by Andrews et al. (1990), Lipsey asserts that with few exceptions the largest effect sizes occurred for treatment that would be classified by Andrews et al. as clinically relevant. Similarly, as found by Andrews et al., deterrence treatments were associated with negative effects (e.g., an increase in recidivism). Few studies of interventions deal exclusively with the most serious or most violent juvenile offenders so, at this point, little can be said about the effectiveness of programs for these offenders.

⁷ Behavioral interventions are strategies that focus on changing behaviors by setting behavioral goals and using positive and negative reinforcement to encourage or discourage clearly identified behaviors.

⁸ Multi-modal or multi-components treatment programs are those that combine several different treatment strategies in one program.

Table 9-7. Effect size estimates for different treatment modalities after controlling for study methodology for juvenile delinquency treatment programs (Lipsey, 1992).

Treatment Modality	Estimated Recidivism Treated Group/Control Group
Employment	32/50
Multi-modal	38/50
Behavioral	38/50
Institutional, other	40/50
Skill-oriented	40/50
Community residential	42/50
Any other juvenile justice	43/50
Probation/Parole, release	45/50
Probation/Parole, reduced caseload	46/50
Probation/Parole, restitution	46/50
Individual counseling	46/50
Group counseling	47/50
Probation/Parole, other enhancement	47/50
Family counseling	49/50
Vocational	59/50
Deterrence programs	62/50

7.2 Juvenile Residential Programs

One type of program particularly popular during the late 1970s and early 1980s was the wilderness or outward bound-type programs. These programs emphasize physical challenge and demand that individuals excel beyond what they feel they can do. Winterdyk and Roesch report that they found well over one hundred wilderness programs for treating delinquent youths in North America in the early 1980s. Outcome evaluations have been extremely rare (Gendreau and Ross 1987). Recently, several other wilderness-type programs have been studied. The results are shown in Table 8. All of these programs consider themselves wilderness programs. Perhaps the most frequently cited study of this type of program in the VisionQuest study by Greenwood and Turner (1987). They examined the behavior of the juveniles during the six to 18 months after release from the program (controlling for prior arrests). Youth from VisionQuest had fewer rearrests than youth who had served time in a probation camp or who had refused to accept the VisionQuest placement and were placed in other programs. While the results appear positive, as noted on the table the research methodology makes it impossible to draw conclusions regarding the program's effectiveness.

In a more recent study, Deschenes, Greenwood and Marshall (1996) examined the Nokomis Challenge Program in the Michigan Department of Social Services. Nokomis was designed as an intensive treatment program for low to medium risk juveniles. The focus of the program was on relapse prevention. Male youth were expected to spend less time in the residential facility but a longer time in community treatment when compared with youth in the training schools. Findings (see Table 9-8) indicated that the Nokomis youth had more felony arrests after release than did the comparison (significant). It is important to note that the examination of the implementation of the program revealed that the aftercare phase of the program failed to provide many of the expected treatment programs. There was limited substance abuse treatment and control group youth had more family counseling than the treatment group.

Castellano and Soderstrom completed a study of the Spectrum program in Illinois. This wilderness program was modeled after outward bound. The thirty day course focuses on teaching wilderness survival and group living skills to pre-delinquent and delinquent juveniles. A comparison of recidivism rates indicated that 75 percent of the Spectrum participants were rearrested in the follow-up period compared with 62.6 percent of the matched comparison group (nonsignificant).

In a random assignment study, RAND researchers examined the effectiveness of the Paint Creek Youth Center (PCYC) in southern Ohio (Greenwood and Turner 1993). The program targeted youth convicted of serious felonies who were required to spend an average of almost a year in residential treatment. While the program was located in a rural setting, it would not be classified as a wilderness or challenge program because these activities were not a major component of the program. The distinguishing features of the PCYC were: small size, problem

oriented focus, cognitive/behavioral methods, family group therapy and intensive community reintegration and aftercare. Youth were randomly assigned to either the PCYC or regular training schools. Their behavior in the community after release was compared. The design was weakened because a relatively large number of the youth (25 percent) were removed from the PCYC and sent to the training schools to serve the remainder of their term. Furthermore, 27 percent of the remaining youth did not complete all three phases of the residential program. Official records of recidivism indicated that 50.7 percent of the PCYC youth (including those who were removed) and 61.3 percent of the control group had been arrested during a one-year follow-up. The difference was nonsignificant. The small numbers of offenders in the study limits the power to detect differences between groups. This along with the loss of 25 percent of the PCYC youth makes it difficult to draw any definitive conclusions from the research.

Overall, these studies of juvenile residential programs had very mixed results. Although several of the studies were well designed, problems with the small number of subjects, attrition and program implementation limit the conclusions that can be drawn about the effectiveness of the programs in preventing crime. The one program that included both a strong research design and a reduction in recidivism, although this difference was not significant, was Paint Creek. Interestingly, this program followed many of the principles proposed by Andrews et al. (1990). High risk youth were targeted for participation in the intensive program that used a cognitive/behavioral mode of treatment. However, problems with the research design severely limited the potential for detecting differences even if the program had indeed been effective. Most notably, the focus of the program was not on wilderness or challenge activities.

The other programs reviewed in this section either targeted individuals who were lower risks for recidivism (Nokomos, Spectrum), were of short duration (Spectrum), were less behavioral in treatment philosophy, or focused on non-criminogenic factors such as physical challenge (Spectrum). Thus, from the perspective of the research on rehabilitation (see section on rehabilitation and the Andrews et al. 1990 study), we would not expect them to be effective in reducing future criminal behavior.

Table 9-8. Studies of youth residential programs showing scientific methods score and findings.

Study	Scientific Methods Score	Findings
Greenwood and Turner (1987)	2	VisionQuest (39%) fewer arrests than YCC Control (71%), S.
Deschenes et al (1996)	3	Nokomis group (48%) had more arrests than control (23%), S.
Greenwood and Turner (1993)	3	Paint Creek youth had fewer official arrests (51%) than control youth (61%), NS. Paint Creek youth self-reported more serious offenses (75%) than control (62%), NS.
Castellano and Soderstrom (1992)	2	Spectrum youth did not differ from control youth in recidivism, NS.

Note: NS=nonsignificant, S=significant

7.3 Community Supervision and Aftercare for Juveniles

Approximately 55 percent of adjudicated juveniles are given probation (Butts, Snyder, and Finnegan 1994). Furthermore, those knowledgeable about juvenile corrections increasingly argue for aftercare and transitional services for juveniles following a period of incarceration. Both of the recent meta-analyses (e.g., Andrews et al. 1990; Lipsey 1992) suggest there will be greater reductions in recidivism if treatment is provided in community settings instead of in institutions. However, national surveys of intensive supervision and aftercare programs for juveniles completed during the 1980s revealed that few programs had been evaluated (Armstrong, 1988; Krisberg et al., 1989). Additionally, the evaluations that had been completed were severely limited in scientific rigor. Two exceptions to this were the New Pride Study sponsored by NIJ and OJJDP (NIJ, 1985) and The Violent Juvenile Offender Study implemented by OJJDP (Fagan et al., 1988). However, in neither study did the group who received the additional aftercare or supervision have significantly lower recidivism rates.

Most recent studies of community programs have focused on the increased surveillance and restraint aspects of the programs and not the enhanced services. While some of the programs enhance services, the research is designed to compare the increased surveillance and restraint with or without increased services. For this reason, the research is included in this section on community restraints instead of the rehabilitation section. The treatment and restraint components cannot be untangled, and since the research designs focus on surveillance the outcomes are more indicative of the effectiveness of restraints than rehabilitation. Additionally, when the treatment integrity is examined, few differences are found between the experimental program and the control in either the services delivered or the impact on risk factors. For example, in the Greenwood et al. (1993) study described below researchers did not find that the aftercare program they studied had an effect on the targeted risk factors. This section examines some of the recent studies of increased restraints over juveniles in the community (see Table 9-9).

Using a random assignment design, Land, McCall and Williams (1990) examined the North Carolina Court Counselors' Intensive Protective Supervision Project (ISP). The majority of the subjects were status offenders who entered the program as runaways or truants. The program was designed to enhance both the surveillance and services provided to the juveniles. As shown in Table 9-9, the results indicated that youth with no prior delinquent offenses had fewer delinquent offenses compared to the control group (11.9 percent to 27.5 percent) but the ISP youth with prior delinquent offenses had more delinquent offenses (57.1 percent compared to 33.3 percent). However, there were only a small number of youth with prior delinquencies. Whether the results were the effect of surveillance or services could not be distinguished in the research design.

In another study of youth in the community, Wiebush (1993) compared the performance of youth on intensive supervision (ISP) with comparison groups of youth on probation and

parole. During the 18 month follow-up, a larger percent of the ISP youth received felony complaints (50.6 percent) than the probationers (37.9) but fewer felonies than the parolees (56.6 percent). Similarly, a larger percent of the ISP group were adjudicated (76.5) when compared to the probationers (61.6 percent) but fewer than the parolees (77.6). The results were not significant. Furthermore, it is difficult to draw conclusions because the groups were not randomly assigned and the groups differed prior to the treatment.

Sontheimer and Goodstein (1993) examined whether a juvenile intensive supervision program (ISP) in Pennsylvania had an impact on juvenile's propensity to reoffend (a rehabilitative or deterrent effect) or whether the restraints provided by the officers limited the opportunity juveniles had to reoffend. The program was an intensive aftercare program for serious juvenile offenders. Probationer officers supervising juveniles in the aftercare program were required to have frequent contacts with the juveniles and significant others; however, other than these additional contacts, there was no statement of the mission or philosophy of the program. Significantly fewer of the experimental group were rearrested (50 percent) than the controls (74 percent) and their mean number of rearrests were fewer (1.02 compared to 2.07 for the controls). The researchers interpret their findings as support for the restraining effect of ISP and not necessarily a reduction in the criminal propensity of the juveniles.

There were problems with the implementation of the program studied by Sontheimer and Goodstein. Contacts were substantially less than the mandated number and there was a large turnover of staff. This turnover would be expected to create turmoil for participants and uneven staff training and accountability. This combined with the failure to clearly define the mission of the program led the researchers to question whether the results were indicative of problems in the implementation of the treatment components of the program and not what could be achieved in such programs.

Minor and Elrod (1990,1992) examined the impact of an enhanced treatment program for juveniles on intensive and moderate levels of supervision. While there were no significant differences between the groups, juveniles in the enhanced treatment ISP program had more criminal offense complaints than the juveniles on ISP but without the enhanced treatment. Follow-up analyses also indicated that the intervention did have an effect on those who had more lengthy criminal backgrounds (e.g., the higher risk group). The major problem with this research was the number of subjects was so small there was no power to detect any difference that might have existed.

Greenwood, Deschenes and Adams (1993) studied the Skillman aftercare program in Michigan and Pennsylvania. The programs were designed to provide treatment components, hence the term "aftercare", along with intensive supervision. Subjects were randomly assigned to either the aftercare ISP or the control. Results indicated no significant difference between the experimental and control groups in the proportion of the youth who were rearrested, or who self-reported either offending or drug use in a one year follow-up period. However, an examination

of what the programs provided for the youth indicated that in comparison to the control group the aftercare group: did not participate more in education or work activities; had little family support; and did not associate less with delinquent peers. Thus, despite the fact that the program was designed to promote changes in these risk factors there was little evidence of such change. Consistent with the previous meta-analyses of rehabilitation, it appears that the program did not have the required "treatment integrity" to bring about the changes in the risk (criminogenic) factors associated with criminal behavior.

The above studies compared the ISP programs in the community to other community alternatives. The following studies were designed to compare the recidivism of those who spent time on community supervision with others who had spent time in training schools.

Barton and Butts (1990) evaluated an in-home ISP program compared to commitment to traditional training schools in a random assignment study. They found that the ISP groups had a higher mean number of charges but the mean seriousness of the charges was greater for the control group. These differences were not significant when time in the community was controlled in the statistical analysis.

Gottfredson and Barton (1993) used a nonequivalent comparison group design to compare the effect of the closing of a juvenile training facility to the performance of juveniles who were then managed in the community. They found that the juveniles who had spent time in the institution had significantly lower recidivism rates than the comparison group. It is important to note that the comparison group was not intensively supervised in the community and there is little information about what services they may have received in the community.

In summary, most of the results reveal no significant difference between the experimental condition and the controls. In part, this reflects the small number of subjects in the studies so there is little power to detect any differences that might exist between the groups. The two studies by Land et al. (1990) and Sontheimer and Goodstein (1993) did find lower recidivism rates for the experimental groups. In both cases it appears that the experimental group received more services than the comparison. Again, this suggests the importance of meeting the rehabilitative needs of such offenders. This may also be why the institutionalized juveniles in the Gottfredson and Barton (1993) study had lower recidivism rates -- because of the services and rehabilitation they received when they were in the institution. Whether or not the juvenile is in a facility or on ISP may not be as important as whether appropriate rehabilitation programs are a part of the correctional option.

Table 9-9. Studies of juvenile community supervision and recidivism showing scientific methods score and findings.

Study	Scientific Methods Score	Findings
Land et al (1990)	5	ISP youth (mostly status offenders) with no prior delinquent offenses had fewer delinquent offenses (12%) than control group (28%), S. ISP youth with prior delinquent offenses had more delinquent offenses (57%) than control group (33%), NS.
Weibush (1993)	3	ISP youth had more felony complaints (51%) than probationers (38%) but fewer than parolees (57%), NS. ISP youth had more adjudications (77%) than probationers (62%) but fewer than parolees (78%), NS.
Sontheimer and Goodstein (1993)	5	ISP juveniles had fewer rearrests (50%) than parolees (74%), S.
Minor and Elrod (1990)	2	ISP group had more self-reported criminal and status offenses, NS.
Elrod and Minor (1992)	2	ISP group had fewer status offenses but more criminal offenses (68%) than control group (67%), NS.
Barton and Butts (1990)	5	ISP juveniles had more charges but control group had more serious charges, NS.
Greenwood et al (1993)	5	Detroit: Aftercare group (22%) had more arrests than controls (18%), NS. Pittsburgh: Aftercare group had fewer arrests (49%) compared to controls (48%), NS.
Gottfredson and Barton (1993)	4	Institutionalized juveniles had fewer arrests than non-institutionalized, S.

Note: NS=nonsignificant, S=significant

8. DRUG-INVOLVED OFFENDERS

8.1 Treatment in Prison

Advocates of treatment and rehabilitation have perhaps made the strongest arguments in favor of increased treatment for substance abusing offenders. The need for treatment is demonstrated by the large body of research indicating the relationship between criminal activity and use of alcohol and other drugs (Chaiken 1986; Chaiken and Chaiken 1982; Inciardi 1979; Johnson and Wish 1986; Nurco, Kinlock and Hanlon, 1990; Speckart and Anglin, 1986). Furthermore, the National Institute of Justice (NIJ)'s Drug Use Forecasting (DUF) program consistently finds high rates of illicit drug use among arrestees in the 24 participating cities. In 1995, between 47 and 78 percent of the men and 44 to 85 percent of the women test positive for use of illegal drugs.

Documentation of this high level of use and the strong association between drug use and crime clearly indicates the critical need for treatment for these offenders. However, the recent focus of criminal justice policies on incapacitation and deterrence did not easily provide the necessary funds. In 1987, approximately 11 percent of prison inmates were involved in some type of drug treatment (Chaiken 1989). Although the numbers are sizeable (51,500), the majority of inmates with substance abuse problems still do not receive treatment while in prison. In 1991, 48 percent of state prisoners and 43 percent of the Federal prisoners reported that they had been in a drug program since admission to prison (BJS 1994). Yet the intensity and quality of these treatment programs is unknown.

Despite the fact that many drug-involved offenders are not treated while they are under the control of the criminal justice system, a growing body of research indicates that treatment for substance-involved offenders can effectively reduce substance use and criminal recidivism (Gerstein and Harwood 1992). Effectiveness of drug treatment is directly related to the length of time an individual remains in treatment. This is true for various treatment modalities. Furthermore, the treatment is effective whether the offender enters voluntarily or under some form of coercion (Anglin and Hser 1990a, b; Anglin and Maugh 1992; Falkin, Wexler, and Lipton 1992; Leukefeld and Tims 1992; Travis, Wetherington, Feucht, and Visser 1996). From this perspective, the criminal justice system presents an ideal opportunity to require offenders to participate and remain in treatment.

Some of the most promising evaluations of drug treatment for criminal justice have focused on the effectiveness of prison-based therapeutic communities (TCs) that operate as 24-hour live-in facilities within the prison. We examined evaluations of five such programs (Wexler et al. 1992; Martin et al. 1995; Wexler et al. 1995; Field 1989; Eisenberg and Fabelo 1996). As shown in Table 9-10, the studies were judged to be of sufficient rigor to draw conclusions about the effectiveness of the treatment programs. In all studies, the researchers found that the graduates of the programs had lower recidivism rates than those who spent less time in the

programs. They concluded that the programs were effective in reducing recidivism of the offenders (See Table 9-10).

Although these studies are widely cited as evidence of the success of drug treatment, there are some concerns about the research methodology. In particular, the programs have high attrition rates (large numbers of offenders leave the programs before completing). Many of the research designs do not take this attrition into account in the data analysis. As a result, it is difficult to conclude that the programs are effective in reducing recidivism. The alternative conclusion is that the programs identify those who are ready to change and these will be the individuals who will be successful in the community. That is, the research design does not permit one to draw conclusions about the effect of the program because offenders who complete the TC program may be very different from those who do not, a difference which could have existed prior to the program. More work needs to be done to examine program attrition and how programs can be carefully matched to the needs of offenders so that larger numbers will complete the program. It may also be possible to use the power of the criminal justice system to coerce offenders to remain in programs.

In summary research examining the effectiveness of drug treatment shows:

- o Drug treatment is effective in reducing the recidivism of offenders;
- o Offenders coerced into treatment by the criminal justice system do as well as those who enter voluntarily.

Dropouts from treatment present a major problem in terms of both evaluating the effectiveness of the programs and in determining how successful the program will be.

Table 9-10. Studies of in-prison therapeutic communities for drug treatment and recidivism showing scientific methods score and findings.

Study	Scientific Methods Score	Findings
Wexler, et al. (1992)	4	Males: Therapeutic Community had fewer rearrests (27%) compared to Milieu (35%), S; Counseling (40%), S; No Treatment (41%),S; and all groups combined, S. Females: Therapeutic Community had fewer rearrests (18%) compared to counseling group (29%), S; No Treatment (24%)NS: and both groups combined, S.
Martin, et al. (1995)	3	Combined KEY-CREST (3%) fewer rearrests than Comparison group, S; KEY (19%) fewer rearrests than Comparison group(29%), NS.
Wexler, et al. (1995)	3	Fewer Treatment (Amity TC) plus Aftercare (Vista) participants (26%) returned to prison than control group (63%); than Treatment Drop-outs (50%), and Treatment Only (43%), S.
Field (1989)	2	Cornerstone graduates had fewer rearrests (63%) than non-graduates with 6+ months of exposure (79%); than non-graduates with 2 to 6 months of exposure (88%); and than non-graduates with 0 to 2 months of exposure, (92%). No significance tests.
Eisenberg and Fabelo (1996)	2	Texas Initiative graduates had fewer rearrests (13%) than non-completers (31%), S; and than comparison group (29%), S. Texas Initiative graduates had fewer reincarcerations (7%) than non-completers (19%), S; and than comparison group (19%),S.

Note: NS=nonsignificant, S=significant

8.2 Urine Testing

There are a wide array of drug testing technologies including urinalysis, hair assays, and other emerging technologies such as saliva tests and sweat patches (Travis, Wetherington, Feucht, Visher 1996). These technologies are viewed as an important component of criminal justice programming for drug-involved offenders because they provide objective evidence of drug use independent of self-reports. While the new technologies hold great promise for overcoming some of the limitations of urinalysis, at this point in time urinalysis is the most commonly used testing technology.

Urine testing is currently applied throughout the criminal justice system in order to achieve a variety of program objectives. From the perspective of crime prevention, urine testing can be useful to help assess risk or to deter offenders from continued use of drugs and the associated criminal activities.

During the pretrial period, urine testing can be used as a tool for assessing the risk that defendants will reoffend or fail to appear in court. This information could be used to make decisions about who to release from jail during the pretrial period. Evaluations of the efficacy of such use of urine testing show mixed results (Travis et al. 1996; Rhodes, Hyatt and Scheiman 1994). There is some evidence that recent use of cocaine is associated with an increased risk of failure to appear for trial but this is true in only some jurisdictions. Additionally, it does not seem to be the case with other drugs. Similarly, there has been some evidence that opiate use predicts pretrial re-offending but this is not true of other drugs nor is it the case in all jurisdictions. However, in a recent study in Washington, D.C., Smith and Polsenberg (1992) found that arrestees who tested positive for any drug were significantly more likely to be rearrested before trial.

Offenders on probation or parole in the community are often required to submit to urine tests. Deschenes, et al. 1996 evaluated the effect of 3 levels of urine testing on recidivism rates for drug offenders on probation. All subjects were sentenced to standard probation supervision and then randomly assigned to one of the levels of testing conditions. Group one received no urine testing (n=168). Group two received random monthly urine testing (N=141) and group three received twice weekly, scheduled testing (N=145). Rearrest rates for "any technical violation" after 12 month follow-up were: "No Test" 39.9%, "Low-Rate" 44.7%, and "High-Rate" 54.5%. There was a significant difference between "No" and "High-Rate" testing ($p<.05$). Average number of violations also showed a significant difference between "No" and "High-Rate" (2.1, 4.1, $p<.05$), as well as between "Low" and "High-Rate" testing, (2.5, 4.1, $p<.05$). While there were several other recidivism outcome measures, such as "average number of arrests and "percent with any arrest", there were no other significant differences among the groups, in terms of criminal recidivism. The authors conclude that increased testing frequency does not effect arrest or conviction rates. They suggest that increased testing does serve to identify sooner, rather than later, offenders "who continue to use drugs while on probation".

9. COMBINING REHABILITATION AND RESTRAINT

Some programs have begun to combine components of community restraints or challenge programs with rehabilitation. As previously reported, there is some evidence, not yet fully tested, suggesting that ISP programs that combine surveillance and treatment may be successful in reducing the recidivism of offenders. Similarly, correctional boot camps that combine the military aspects of the camps with rehabilitation and aftercare show some promise for reducing recidivism. Programs combining urine testing and treatment and the relatively new drug courts are examples of programs designed to combine restraints with rehabilitation. The research examining the crime prevention effectiveness of such programs is described in the following sections.

9.1 Urine Testing and Drug Treatment

Drug testing in combination with drug treatment can be useful as a method of monitoring progress in treatment and holding offenders accountable for treatment participation. The question is whether such testing can reduce the criminal activities of offenders while they are in treatment. As shown in Table 11, four studies were identified that used testing and treatment interventions for offenders in the community.

Nurco, Hanlon, Bateman, and Kinlok (1985) used an experimental design to examine the effectiveness of drug abuse treatment coupled with urine monitoring compared to two groups: (1) an intensive urine-monitoring and (2) routine parole involving random urine monitoring. While the group receiving treatment and urine monitoring had fewer revocations (48 percent) than the two control groups of intensive monitoring (50 percent) and routine parole (56 percent), the differences were not significant. The study is a preliminary report and so the results are based on a small number of subjects.

In a study funded by NIJ, Hepburn and Albonetti (1994) examined the effectiveness of drug monitoring and treatment compared to drug monitoring alone using 718 probationers. While the study was designed to use random assignment, the procedure was not followed. The researchers statistically controlled for sample differences; however, this greatly reduced the scientific rigor of the study. Furthermore, the researchers describe the intervention as relatively weak.

Taxman and Spinner (1996) used a random assignment study to compare a jail-based treatment program using TASC (Treatment Alternatives to Street Crime). Approximately 80 percent of the offenders underwent drug testing while they were in community treatment programs. The experimental group who received jail-based treatment as well as follow-up treatment and urine monitoring in the community had fewer rearrests than comparison groups.

The fourth study, by Anglin, Longshore, Turner, McBride, Inciardi, and Pendergast (1996) examined the impact of five TASC programs on recidivism and drug use. Groups were randomly assigned in two sites and a quasi-experimental design was used in the remaining sites. There was no evidence that treatment plus testing decreased recidivism.

Overall, of the four programs only the jail-based treatment programs showed a significant impact on rearrests.

9.2 Drug Courts

Faced with the enormous growth and impact of drug-related criminal caseloads in most jurisdictions across the United States, many court systems have searched for alternatives to traditional methods of processing the drug-involved offenders. One solution has been drug courts. Earlier versions of drug courts were designed to rapidly process offenders through the system. However, the recently developed drug courts are treatment-oriented courts that seek to bring substance abuse treatment to bear on the problems of drug-involved felony defendants in a diversionary, alternative processing approach. A courtroom-based team approach with specially adapted outpatient drug abuse treatment is used to coerce offenders into treatment. Judges play a central and active role in the team in the unorthodox courtroom approach that brings the defense, prosecution, treatment, and other court-related agencies together. This approach combines elements of both criminal justice and drug treatment -- two perspectives accustomed to different methods and sometimes competing aims regarding drug-involvement and its reduction. Drug use is monitored through urine testing and the results are reported to the court. Frequently the courts emphasize individual accountability through a system of rewards and graduated sanctions for misbehavior.

The relatively recent development of these programs means there has been little time for outcome evaluations (see Table 9-12). We could identify only four evaluations. Harrell and Cavanagh (1996) are studying the DC Superior Court Drug Intervention Program under a grant from the NIJ. Preliminary data are encouraging because offenders who receive treatment and sanctions for noncompliance with the drug-free requirements, as well as those who receive only sanctions, test free of drugs more often than those who are on standard dockets. However, recidivism data are not yet available from this study.

Table 9-11. Studies of drug treatment and urine testing showing scientific methods score and findings.

Study	Scientific Methods Score	Findings
Nurco et al. (1995)	3	Treatment with urinalysis had fewer revocations (48%) than intensive urine monitoring (50%) and routine supervision (56%), NS.
Hepburn and Albonetti (1994)	2	No differences in revocations when treatment with urinalysis was compared to two urinalysis only conditions, NS.
Taxman and Spinner (1996)	5	Treatment with urinalysis reduced rates of new arrests (55.1%) compared to the no treatment condition (68.1%), S.
Anglin et al (1996)	3	TASC treatment with urinalysis did not reduce re-arrest rates at any site, NS.

Note: NS=nonsignificant, S=significant

Gottfredson, Coblenz and Harmon (1996) examined the Baltimore City Drug Treatment Court Program. While the numbers are quite small, the results suggest that the program may have very different impacts depending upon the court and characteristics of the offenders involved. Males in the circuit and district courts had fewer arrests and convictions than their comparison groups when their criminal risk was controlled in the statistical analysis. On the other hand, women in these two drug courts and cases that entered as probation violators had fewer new arrests and convictions than their comparisons.

Goldkamp (1994) completed a study of the original Miami Drug Treatment Court in Dade County co-funded by the State Justice Institute and The NIJ. As shown in Table 9-12, the results demonstrate a lower rearrest rate for participants in the drug court. However, there were several problems with the study making it difficult to definitely conclude that the effect can be attributed to the drug court. In particular, the groups were not randomly assigned, and, furthermore, the failure to report rates differed tremendously between the drug court participants (55 percent) and the comparisons (9 percent).

Unlike many drug courts the Maricopa County (Arizona) Drug Court is a post-adjudication program for probationers with a first-time felony conviction for drug possession. Participants are required to participate in an outpatient comprehensive drug treatment program and their progress is monitored by the judge. Under a grant from the NIJ, Deschenes, Turner and Greenwood (1996) completed a random assignment study of this court. The analysis of recidivism after twelve months indicated that drug court participants had fewer rearrests (nonsignificant) and fewer incarcerations (significant) in comparison to the control group offenders (see Table 9-12).

In contrast to many of the other intermediate sanctions, drug courts attempt to combine increased surveillance with treatment. The court's responsibility for oversight of the offender, the treatment programs, and the supervising agents also means that all involved can be held accountable for outcomes. There is yet little research to examine how effective the programs are in reducing crime but the early results appear hopeful.

Table 9-12. Studies of drug courts showing scientific methods score and findings.

Study	Scientific Methods Score	Findings
Goldkamp (1994)	2	Fewer Miami Drug Court participants were rearrested (33%) than comparisons (52%), S. More Miami Drug Court group failed to appear (52%) than comparisons (9%).
Deschenes et al. (1995)	4	Fewer Drug Court participants were rearrested than probationers, NS. Fewer Drug Court arrestees sentenced to prison (9%) compared to probationer arrestees (23%), S.
Gottfredson et al. (1996)	3	When seriousness was statistically controlled, male: drug court participants had fewer rearrests, NS, and fewer convictions than comparison, NS; female drug court participants had fewer rearrests, S, and fewer convictions, NS.

Note: NS=nonsignificant, S=significant

10. SUMMARY AND RECOMMENDATIONS

10.1 Scientific Conclusions

It is obvious from this review of the research on crime prevention in the criminal justice system that no one strategy is appropriate for all offenders and all situations. Careful system planning is required to maximize the crime prevention potential of these different strategies. Shown in Table 9-13, are some of the issues that remain unresolved in the research on these strategies. What has not been addressed in this review of the scientific evidence supporting these strategies is the differential impacts of the strategies. For example, important in any consideration of the combination of incapacitation and deterrence strategies is the effect these policies have had on the minority community (Tonry, 1995) and the unintended effect of incarceration of inmates' families (Clear, 1996). Similarly, types of rehabilitation programs may be more effective with some offenders than others. Differences in gender, mental illness, or risk level, for instance, may be associated with program effectiveness.

Despite the fact that many such topics have had to be omitted due to time and length constraints, some conclusions can be offered regarding the crime prevention effects of the different criminal justice strategies reviewed.

What works? The research examined herein provides evidence that the following strategies are effective in reducing crime in the community:

- o Rehabilitation programs with particular characteristics;
- o Prison-based therapeutic community treatment of drug-involved offenders;
- o Incapacitating offenders who continue to commit crimes at high rates.

There is now substantial evidence that rehabilitation programs work. There is a body of research supporting the conclusion that some treatment programs work with at least some offenders in some situations. Effective rehabilitation programs:

- o Are structured and focused, use multiple treatment components, focus on developing skills (social skills, academic and employment skills), and use behavioral (including cognitive-behavioral) methods (with reinforcements for clearly identified, overt behaviors as opposed to non-directive counseling focusing on insight, self esteem, or disclosure); and,
- o Provide for substantial, meaningful contact between the treatment

personnel and the participant.

The best treatment programs reduced recidivism by as much as 10 to 20 percentage points.

However, in order to be effective, treatment must follow some important principles. Programs must be designed to address the characteristics of the offenders that can be changed and that are associated with the individual's criminal activities. Furthermore, the treatment provided to offenders must be of sufficient integrity to insure that what is delivered is consistent with the planned design.

The research demonstrates that drug treatment is effective in reducing the criminal activities of offenders. The current examination of prison-based therapeutic community treatment for drug-involved offenders demonstrates that these programs are an effective method of providing prison-based treatment. These intensive, behaviorally-based programs target offenders' drug use, a behavior that is clearly associated with criminal activities.

Incapacitating offenders who will continue to commit crimes at a high rate and who are not at the end of their criminal careers is effective in reducing crimes in the community. Studies investigating the effectiveness of these incapacitation techniques show there are advantages in locking up the high-rate career criminals who commit serious crimes. The difficulty is in identifying who these high-rate offenders are, and the diminishing return on invested dollars with the increased incarceration rates. It is clear that the most serious offenders such as serial rapists should be incapacitated. However, locking up those who are not high-rate, serious offenders or those who are at the end of their criminal careers is extremely expensive.

Table 9-13. Different strategies for preventing crime by the courts and corrections showing issues unresolved by the research.

CRIME PREVENTION BY THE COURTS AND CORRECTIONS						
	Incapacitation	Deterrence	Rehabilitation	Community Restraints	Structure, Discipline and Challenge	Combining Restraints and Rehabilitation
UNRESOLVED ISSUES	Limited ability to predict future high risk offenders. Financial costs and increases in imprisonment rates. Diminishing returns with increased incarceration rates. Adequacy of estimates of length of criminal career and rates of offending unknown. Negative impact on minorities Unintended Consequences. Increased use may decrease deterrent effects. Self-reported crime rates of those monitored in the community.	What types of deterrents (e.g., day fines) are effective with what types of offenders (e.g., DWI)?	Retaining offenders in treatment. How to insure well-implemented intensive rehabilitation programs. Most effective targets(attitudes, values, employment) for change. Most effective service delivery methods for change.	How to combine with treatment. Does increased surveillance reduce criminal activities? Do violations of conditions of supervision "signal" new criminal activity?	Do such programs enhance or conversely reduce the effectiveness of treatment? What components are associated with success or failure?	How to provide coercion. How to insure well-implemented rehabilitation program. How to coordinate treatment and surveillance to maximize the effectiveness of each.

What Does Not Work? Studies of poorly implemented rehabilitation programs given to low risk offenders using vague behavioral targets were not be effective in reducing crime. Nor were programs that emphasized characteristics such as discipline, structure, challenge, and self esteem that are not directly associated the offender's criminal behavior. Rehabilitation programs that did not reduce the recidivism of offenders:

- o Emphasized specific deterrence such as shock probation and Scared Straight;
- o Used vague, nondirective, unstructured counseling.

Studies demonstrate little evidence that continuing the policies of the past several decades emphasizing the increased use of incarceration will have a major impact on reducing crimes at this point in time. As incarceration rates grow there appear to be diminished returns (e.g., reduced impact on crime rates) because lower rate offenders are being locked up. It may also be counterproductive by limiting the deterrent effect of prison because people have less fear of incarceration. The impact on minority communities has been disastrous. An additional difficulty with the strategy is that, at this point in time, we cannot intelligently make the distinction between those who will commit serious crimes in the future and those who will not.

Community restraints without programming and services were not effective in reducing the recidivism rates of offenders. There is now an extensive body of research examining the crime prevention effects of community sanctions designed to restrain offenders while they are in the community. The studies are scientifically rigorous, so it is possible to draw conclusions about the effectiveness of these efforts. The following programs were not effective in reducing the criminal activities of either adult or juvenile offenders, if they were not combined with rehabilitation:

- o Intensive supervised probation or parole (ISP)
- o Home confinement
- o Community residential programs
- o Urine testing

Evaluations of these programs have focused on the impact of increased control. The results have been discouraging because there are usually no differences between those in the intermediate sanctions and the comparison groups. In fact, in many cases the group receiving the intermediate sanction has had more technical violations. It is important to note that, while these sanctions may not reduce recidivism, they do not do any worse than other forms of "management as usual" and they may have other advantages when compared to incarceration such as reduced costs. The

failure to find differences in recidivism means these sanctions do not result in increased public safety concerns by increasing the recidivism. Therefore, they may compare favorably with other sanctions on grounds other than recidivism.

Other programs that were not shown to be effective (again, if they were not combined with rehabilitation) are those emphasizing structure, discipline and challenge such as:

- o Correctional boot camps using the old-style military model
- o Juvenile wilderness programs

As with the research examining community restraints, there are a reasonable number of scientifically credible studies that have been completed, so conclusions about the effects of the programs are clear. It is unclear why these programs have failed to show crime reduction effects. Possibly individuals in the programs spend more time in the physical challenge activities and not in therapeutic activities that would more directly address the problems they have that are associated with their criminal activities. Another possibility is that the programs are group-oriented and do not offer enough individualized programming to address specific difficulties of the individual participants.

Deterrence programs that increase the punitive impact of the sentence such as Scared Straight or shock probation do not reduce crime. Reviews of the literature on these programs as well as the meta-analyses of rehabilitation continually show that these programs are not effective in preventing crime. In fact, some research suggests that such programs are associated with increases in the later criminal activities of the participants (see the meta-analysis by Lipsey, 1992).

What's promising? There are, however, some promising signs. Several strategies have been shown in only one study to reduce recidivism of offenders so we classify these as promising. The following are promising programs:

- o Drug courts combining both rehabilitation and criminal justice control.
- o Day fines
- o Juvenile aftercare
- o Drug treatment combined with urine testing

What we don't know. We do not know whether rehabilitation combined with ISP or with boot camps will be effective in reducing the recidivism of offenders because the research has been exploratory in nature (e.g., a one or two on our scale). Research examining these

programs reveals that these combinations may be effective in preventing the criminal activities of offenders. The exploratory follow-up studies of ISP have investigated the differences in recidivism that can be attributed to treatment. The results from these investigations suggest that rehabilitation programs combined with community restraint programs may be effective in reducing recidivism. Similarly, the research from the discipline, structure and challenge programs suggests that combining these programs with rehabilitation may effectively reduce the later criminal behavior of participants. The idea of combining control and rehabilitation is also supported by the drug treatment research revealing that substance abusing offenders who are coerced into treatment stay in treatment longer and they do as well as others who were not coerced.

From this perspective, intensive supervision programs, and correctional boot camps may be effective in reducing recidivism if the programs incorporate treatment programs that follow the principles of effective rehabilitation. The question is how to combine the programs so that the integrity of the treatment program is not lost. Those responsible for the control and surveillance and those responsible for providing the treatment will have to be held accountable for the component of the program they are expected to deliver. Furthermore, there will have to be close coordination between the groups to insure a close working relationship between the treatment and control providers.

Day reporting programs also hold potential program for combining the treatment and community control of offenders. However, to date there are no studies showing whether these can be effective. Furthermore, there is a possibility that the programs will emphasize the control and surveillance aspects of the program and not the combination of treatment and control.

10.2 The Effectiveness of DOJ Programs.

Research on the effectiveness of different strategies of crime prevention in the courts and corrections, much of it supported by the Office of Justice programs (OJP), has provided some clear guidance for the next steps in crime prevention in this setting. Shown in Table 9-14, are some of the major funds provided by OJP bureaus for programs in courts and correctional. Most of the funding goes to prison construction, correctional boot camps, residential substance abuse treatment for state prisoners, correctional alternatives, graduated sanctions and aftercare for juveniles, and drug courts. The following sections examine these programs based on the scientific evidence of effectiveness.

Alternative sanctions and community restraints. The OJP bureaus have completed exemplary work examining the effectiveness of restraint-type programs for offenders in the community and old-style military boot camps models. There is an considerable body of high quality research examining various community restraint-type programs. The results point clearly toward the ineffectiveness of these programs in reducing criminal activities of offenders, at least

as measured by official measures of recidivism. The research has focused on the restraint and control of offenders in the community. That is, the research has been designed to compare those in a restraint program versus those who are not. There has been little focus on the quality of the therapeutic programming within the different correctional options. Nor have studies examined other measures of criminal activities, such as self-reported crimes.

Under the Byrne Grant Funding, BJA has funded the local development of alternative sanctions and correctional options. The research evidence does not demonstrate that the programs will be effective in reducing the criminal activities of offenders unless they are combined with treatment. Much of research appears to replicate earlier studies examining the effectiveness of the restraint aspect of the programs. Thus, it does not provide additional information about how to improve the programs in order to maximize the crime prevention potential.

What is needed in the future are high quality studies with experimental assignment of subjects to programs with different rehabilitation components focusing on participants with varying characteristics. The meta-analyses reviewed in this manuscript suggest that it will be important to have researchers involved in the program design and implementation. Certainly the research on rehabilitation suggests that many offenders will benefit from treatment programs. Again, it is important to note that future research on rehabilitation will have to consider the costs and benefits of such programs.

OJJDP's Intensive Community-Based Aftercare. When intensive supervision programs are combined with treatment and follow a term in an institution, they are often referred to as "aftercare" programs. The as OJJDP aftercare program was designed first to document information about aftercare in various jurisdictions throughout the U.S. This information was used to develop a model aftercare program that will be tested in selected jurisdictions. The program targets chronic and serious juvenile offenders who initially require secure confinement; the community aftercare follows this period of confinement. A prototype model for the aftercare has been developed. According to the model, aftercare planning begins when the juvenile first enters a facility. Each youth is assessed for risk and service needs, and an individualized plan is developed to address the identified needs.

If this program is studied with a experimental design that will compare experiences of the juveniles who receive the aftercare to others, it will provide important information about the combination of rehabilitation and community restraint. The intensive aftercare for high-risk juveniles proposes a model of treatment that is consistent with successful treatment programs according to our review of the rehabilitation literature. The model fits many of the principles identified as necessary for effective rehabilitation programs by the meta-analysis by Andrew and his colleagues. It targets high risk juveniles for an intensive program. Surveillance and services are integrated in an attempt to coerce the juveniles to participate in rehabilitation programs.

Table 9-14. Major Federal Funding of the Office of Justice Programs for Corrections and Court Programs FY96 and FY97.

DOJ Office and Program	Purpose Areas	Total Funding
Corrections Program Office	Residential Substance Abuse Treatment for State Prisoners	FY96 \$ 27 million FY97 \$ 30 million
	Prison Construction	FY96 \$405 million
	Correctional Boot Camps	FY95 \$ 24.5 million
Violence Against Women Office	Training Programs for Probation and Parole Offices to Work With Released Sex Offenders	FY96 \$ 1 million FY97 \$ 1 million
Drug Courts Program Office	Drug Courts	FY95 \$ 12 million FY96 \$ 15 million FY97 \$ 30 million
Bureau of Justice Assistance		
Byrne Grant Funding ¹	Courts, Corrections, Drug Treatment	FYL96 \$109 million
Local Law Enforcement Block Grants	Drug Courts	Unable to determine portion allotted to specific programs
Office of Juvenile Justice and Delinquency Prevention		
Title V Comprehensive Strategy for SVCs	Graduated Sanctions for SVCs	unable to determine portion allotted to these two programs
Intensive Community-Based Aftercare	Aftercare for Juveniles	

¹ These amounts were extrapolated from the Dunworth, et al. (1997) analysis of the award of grants in 1989-94, proportionately applied to the FY96 allocation of \$475 million.

Correctional Boot Camps. There are a reasonable number of evaluations demonstrating that the boot camps do not have an impact on the recidivism rates of offenders. The only hopeful sign is in one follow-up study examining programs that provided intensive rehabilitation-type activities in the boot camp and aftercare upon release. The scientific rigor of this analysis was low as it was an exploratory analysis but it did suggest that such enhancements may reduce the recidivism of participants. Again, most of the research focus has been on the control aspects of the programs and not the rehabilitation components. It appears that these programs will have to be changed if they are going to have an impact on reducing crimes in the community.

During FY95, as directed by Congress, all prison construction money appropriated to OJP was given for the construction and planning of correctional boot camps. Prior to that time NIJ and OJJDP had funded studies of adult and juvenile correctional boot camps. The programs were not effective at reducing the recidivism of the participants once they were released. Using this results of this research, and the research on rehabilitation, OJP held meetings for interested applicants for the prison construction money. At these meetings, those who were developing boot camp programs were informed of the results of the research and they were encouraged to develop "new generation" models of correctional boot camps. These models would move the focus of the boot camps from the traditional old-style military boot camps that are not effective to new models emphasizing leadership, restorative justice or work skills.

We do not know if adding therapeutic programming into the boot camps will be more or less effective than similar programs that have the therapy but not the military aspects of the correctional boot camps. This is an ideal area for random assignment studies and several such studies are currently underway.

Prison construction. Approximately \$471 million will be available in 1997 for formula grant awards to build or expand correctional facilities for violent offenders; build or expand temporary or permanent correctional facilities for nonviolent offenders and criminal aliens to free prison space for violent offenders; and build or expand jails.⁷ Whether these funds will help prevent serious crime remains a matter of great debate and small scientific evidence.

From 1980 until 1995, there was an overall 242 percent increase in prison populations. In 1980 the total inmate population was 330,000, but by 1995 this had grown to approximately 1.1 million inmates. Reflecting this growth in inmate populations, U.S. prison annual operating costs have swelled from \$3.1 billion in fiscal year 1980 to about \$17.7 billion in fiscal year 1994. Forecasting groups anticipate that the growth will continue at least for the foreseeable future. According to a recent report by GAO (1996), the growth is a function of factors such as crime

⁷ Office of Justice Programs Crime Act Programs Fiscal Year 1997 Update.

levels, sentencing laws and law enforcement policies, most recently it can be traced to major legislation intended to get tough on criminals, particularly drug offenders (GAO). The question is whether the increased funding for prison construction for such offenders will reduce crime in the community.

The research suggests that this massive increase in imprisonment does reduce the number of crimes because some offenders who would be active criminals will instead be locked in prison. However, the question is whether the incarceration rate has grown so large that now there is a diminished return on every dollar invested. That is, the offenders now sent to prison may be those who would be committing few crimes if they were in the community. Thus, relatively few crimes will be prevented by the continued expansion of the capacity to incarcerate. Furthermore, little is said about who will be incarcerated in the prisons built by the monies provided for prison construction. Studies reveal that the effectiveness of incapacitation will be dependent upon identifying and incarcerating high frequency offenders who are not at the end of their criminal careers. Researchers have not been able to identify these individuals so that the effectiveness of this strategy can be maximized.

Many state and local jurisdiction have begun to invest time and money into system planning in order to rationally distribute offenders in prisons and alternatives (boot camps, intensive supervision, etc.). There is little research examining the effectiveness of such system planning. What research there is focuses on descriptive studies and not the impact of such policies. This would be a fruitful avenue for future research if it uses rigorous research designs to examine impact.

Drug Courts. Given the enormous number of drug-involved offenders that are arrested each year, the association between drug involvement and criminal activities, and the enormous number of these offenders in prisons, one important body of research focuses on the drug-involved offenders. Two OJP funding programs address drug-involved offenders: drug courts and residential drug treatment for state prisoners. Both programs move beyond the deterrence options and increased restraints that have failed to reduce the criminal activities of these offenders. Substantial scientific evidence shows that drug treatment is an effective method of reducing both drug use and crime by these offenders. Furthermore, the criminal justice system can coerce offenders to remain in treatment longer. The longer they stay in treatment the better they do later, and those who are coerced do as well as comparisons who volunteer for treatment. One advantage of drug courts is that the court can oversee and supervise the coordination of the treatment and the community restraint. Theoretically the court has the authority to hold each provider accountable for their responsibilities in an effort to force the offender to change.

We rank the current scientific evidence on the effectiveness of drug courts as promising. While evaluations to date show encouraging results, the studies were of limited scientific rigor. Drug courts also vary widely in the services provided, populations served, and when interventions are offered. Given these large differences in programs, it will be crucial to examine

what components of programs are effective for what target population using what intervention.

As with the boot camps, it is anticipated that the people developing the programs will be hesitant to initiate a rigorous experimental design to examine these programs. Yet, this will be required in order to determine the effectiveness of the programs and to justify the proliferation of such courts without evidence of effectiveness. Programs that will be used as models for other new drug courts should be required to provide evidence of the effectiveness of the programs.

Residential Substance Abuse Treatment for State Prisoners. As with the drug courts, the prison-based substance abuse programs appear to be a promising way to reduce the drug use and associated criminal activities of offenders, once they leave prison. In general, the studies of in-prison therapeutic community programs demonstrated that such programs reduced the recidivism rates of offenders once they were released. While the studies suffered from design problems such as attrition and comparison group deficiencies, several used sufficiently strong methodology to warrant the conclusion that they successfully reduced the recidivism rates of participants. All of the programs studied provided intensive programming for participants in prison. Further reductions in recidivism were associated with the length of time offenders spent in the programs, and whether they participated in aftercare following release from prison.

Future research needs to focus on determining whether offenders who are at different stages in the change process would benefit from different types of programs. In addition, research should focus on methods of keeping offenders in the programs, once they have decided to enter.

10.3 Improving The Effectiveness Through Research

The development of more effective crime prevention in the courts and corrections would be improved if the following steps were taken.

Support research on incapacitation.

Large-scale research studies examining the effects of increasing the capacity of prisons are needed to determine the effects of incapacitation strategies. There has been little rigorous research examining the impact of incapacitation strategies. This is evident in a recent study of research articles published on the topic of deterrence, rehabilitation and incapacitation. Zimring and Hawkins (1995) examined the titles of articles found in Social Scisearch (SOSCISCH) system. From 1980 until 1989, over 4,000 studies had rehabilitation/recidivism in the title, 610 had deterrence but only 45 had incapacitation/preventive detention.

Self-report studies of the criminal activities of offenders are needed to determine crime rates after arrest or when offenders are serving time on probation, parole or in some alternative

sanction in the community.

Require (and provide the substantial financial investment to enable) rigorous evaluation using experimental designs of rehabilitation models that are guided by the principles of effective programs revealed in meta-analyses.

While there appear to be an enormous number of studies examining the effectiveness of rehabilitation (see for instance, the Zimring and Hawkins study described above), researchers completing reviews of the literature and meta-analyses report that there are a relatively limited number of studies that use a scientifically adequate methodology. As a result, it is impossible to draw unequivocal conclusions about the effectiveness of the programs.

Support the development of a methodology to study the therapeutic integrity (implementation, staff training, treatment modality) of rehabilitation to insure that programs can be held accountable for implementing programs that are effective in reducing recidivism.

Many times the evaluation of programs is unsuccessful because the program is not implemented as designed or is designed so poorly that it would reasonably be expected to have an impact on the individual participants. More research needs to be completed to identify methods of holding rehabilitation programs accountable for the treatment and services delivered.

Provide funding for research test sites that enable researchers to be intimately involved in the design and implementation of programs.

Congress has earmarked funds for many of the OJP programs like prison construction, drug courts and boot camp prisons. To insure that these programs will be evaluated, OJP has transferred money to NIJ to be used for evaluations. For example, in FY 1996 OJP transferred over \$3 million to NIJ for corrections. For some of the programs, jurisdictions receiving funding have been required to agree to participate in an evaluation. This arrangement between NIJ and the programming money causes some difficulties that require researchers to play "catch-up" in trying to design the research and obtain agreements from sites. Many programs would benefit greatly if the researchers were involved from the beginning and the money was tied to the requirement that sites would participate in studies. Such test-site research would insure close cooperation between the programs and the research. This is a particular concern with the funding for the boot camps and drug courts because the effectiveness of these programs have not been demonstrated.

Research examining intermediate sanctions, alternative punishments or correctional options should be carefully designed to address the questions that are still unanswered by the research.

These programs are not effective in reducing the recidivism rates of offenders as measured by official records. Self-report measures of criminal activities may reveal that the crime rates are reduced for offenders in such alternatives but that the increased attention to offenders means their misbehavior is more apt to be detected. Furthermore, research should examine whether combining these options with rehabilitation is successful in reducing criminal activity.

More research is need on the programs identified as promising in this report: Drug Courts; Day Fines; Juvenile Aftercare; and, Drug Treatment combined with Urine Testing.

In summary, what is clear from this report is that none of these strategies should be eliminated as an option. In particular situations, each strategy has some support for successfully reducing crime in the community. What will be important is a strategic plan defining who should be incapacitated, who should be rehabilitated, who can be deterred, and how to combine restraint and rehabilitation to effectively reduce crime. Important in this plan will be measures to insure that each program is held accountable for the expected outcome. The question is whether we can reduce the future criminal activities of offenders by holding the individual accountable for his or her own behavior, the treatment program accountable for outcomes and the criminal justice system for sanctioning offenders who do not comply with requirements. Equally as important are questions addressing the differential impacts of programs for individuals who differ in characteristics such as gender, home community (urban/rural), race/ethnicity and age. The argument is not which of these different strategies of crime prevention should be used, but when and where the effect of each strategy can be used to maximally prevent crime in the community.

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Chapter Ten

CONCLUSION:

THE EFFECTIVENESS OF LOCAL CRIME PREVENTION FUNDING

by Lawrence W. Sherman

The effectiveness of most crime prevention strategies will remain unknown until the nation invests more in evaluating them. That is the central conclusion of this report. The inadequacy of that investment to date prevents a judgment for or against the effectiveness of the \$3 Billion in federal crime funds, at least to a reasonable degree of scientific certainty. Using "rigorous and scientifically recognized standards and methodologies"--the mission Congress set out for this report--the review of over 500 impact evaluations reveals only a handful of conclusions that can be generalized from those studies to similar programs around the nation. By scientific standards, there are very few "programs of proven effectiveness."

This lack of evidence is not a reflection on the DOJ programs themselves. Nor does it reflect the quality of their administration. It is a direct consequence of the legislative plan for federal funding of local crime prevention. That consequence was not by Congressional intent. For over a quarter century, the Congress has asked the Department of Justice to evaluate the effectiveness of local crime prevention funding. But as the preceding Chapters show, the Congress has never provided the tools needed to get the job done. Those tools include adequate funding for program evaluation, and a structure of federal program funding that permits controlled testing of crime prevention effectiveness.

In order for Congress to learn whether DOJ programs are effective, it must provide a more balanced approach to program funding and evaluation. The latter cannot be accomplished without some small compromise in the principle of State and local control over how most of the federal funding is spent. While this principle may have many merits for the federal support of State and local **operations**, it is a roadblock to federal production of sound **guidance** on what works to prevent crime. Exclusively local control of funding conflicts with the scientific principles of controlled field testing, preventing DOJ-funded program evaluations from using "rigorous and scientifically recognized standards and methodologies." A statutory evaluation plan can remove this obstacle by setting aside just ten percent of operational funding for federal-local partnerships to accomplish scientifically controlled field tests. This would allow DOJ to control program funding in ways that will help insure reliable evaluation results.

A secondary legislative obstacle to evaluating crime prevention is insufficient funding for employing scientifically recognized standards and methodologies. There are substantial costs of using such scientific evaluation techniques as victimization surveys, systematic observations of program implementation, field interviews of offenders and case screening for randomized controlled trials. These techniques can make evaluations cost as much as or more than the programs being evaluated. Under-funding of DOJ evaluations is

ultimately wasteful, spending substantial amounts for descriptive evaluations but not enough to answer the primary questions about program effectiveness. Congress can solve this problem by limiting the scope of required evaluations, but requiring that evaluations that are funded receive sufficient funding levels to answer the important questions. In order for this approach to be effective, Congress must also match the ten percent of program funding earmarked for field-tested programs with another ten percent to pay for the evaluations.

The third legislative obstacle to evaluating crime prevention is the structural separation of research and program funding. From an evaluation perspective, this has often put the cart before the horse, forcing evaluators to play "catch-up" or "patch-up" in evaluating programs that are implemented too quickly or not at all. Evaluator control of operational funding for field testing programs is the standard approach in private industry and has good precedents within DOJ. Congress can remove the obstacle to this approach by appropriating the ten percent for field-tested operations and ten percent for evaluating those operations to the direct control of a central evaluation office within the Office of Justice Programs. Such an office can then be held directly accountable for the amount and strength of scientific evidence it produces.

This chapter summarizes what is known about the effectiveness of local operations supported by various DOJ funding mechanisms. The specific findings are reported in detail at the end of each of the seven preceding chapters. This chapter integrates those findings into a more critical assessment of the effectiveness of DOJ programs in addressing the known risk factors for crime and delinquency, especially youth violence, in each of those settings. This analysis centers on two key questions:

1. **Using knowledge.** How well do DOJ-funded programs correspond to what is known about causes and prevention of crime?
2. **Creating Knowledge.** How well do DOJ-funded programs help to increase what is known about the effectiveness of crime prevention?

In general, DOJ-funded programs do a better job of using than creating knowledge. The answers to the first question show increasing responsiveness to accumulating research evidence on the risk factors associated with crime, and the systematic use of evaluation results in designing prevention programs. The exceptions to that conclusion are duly noted in each section below.

The answers to the second question are much less encouraging. Despite substantial improvements in DOJ's institutional capacity for crime prevention evaluation science, the legislative obstacles to using scientifically recognized methodologies have prevented DOJ from measuring the impact of most of its programs on crime. The chapter extends this conclusion into an analysis of the scientific requirements for improving the answers to the second question, concluding with the recommendation for the statutory evaluation plan summarized at the Chapter's outset.

THE EFFECTIVENESS OF DOJ FUNDING FOR CRIME PREVENTION

The national debate over DOJ funding for crime prevention primarily concerns the relative effectiveness of investment in the different institutional settings. The current legislative outcome of that debate allocates more than half of all DOJ local assistance prevention funding to the police, and another quarter to the rest of the criminal justice system (including prisons). It would be helpful to draw upon a substantial body of evidence to assess the effectiveness of that allocation, but that evidence is unavailable. The current state of crime prevention science does not allow comparisons of crimes prevented per taxpayer dollar across different strategies in different institutional settings. A lack of comparable measures on lifetime effects of each program is compounded by problems in generalizing from local to national samples. For example, while the prevention effect of home nurse visitation is known for a sample of high-risk rural families, the national benefit of that program for all families on average is not known. Some simulations and estimates have been offered comparing early childhood to early adult prevention strategies (Greenwood, et al, 1996), but the empirical basis for such analysis is too limited to make such direct comparisons as police to infant visitation nurses, or school-based prevention programs to prison.

This report does suggest that the most money is going to settings where we have the most evidence about preventing **serious** crime. The only direct evidence showing programs that work to prevent predatory stranger violence is about police and prisons. While there are good theoretical reasons to believe that communities, families, schools, labor markets and places could be even more effective in preventing predatory stranger violence, that theory has not yet been turned into successfully tested practice. That gap may itself reflect a failure of imagination, or a bias toward testing as well as funding police and criminal justice programs. But in the current state of the evidence, it is fair to say we do not yet know how to spend a large operational investment in other institutional settings that may have profound effects on serious crime.

What we do know how to do is to create such knowledge, by investing substantial funding in rigorous tests of program innovations. The prime opportunities for that investment are clearly indicated by available research, such as universal infant visitation combined with parental-involvement preschool programs. While there is strong evidence that small pilot programs of this kind are effective in preventing child abuse and later delinquency, we do not have a tested model for operating such programs on a large scale. Creating such tests would be the next scientific step for providing the evidence appropriate to the large scale funding required. Unless new legislation is passed to authorize DOJ to pursue a "big science" program of testing universal early prevention, however, it seems likely that federal funding for crime prevention will continue to focused mostly on criminal justice and police--and perhaps miss the most effective approach to preventing serious violence.

Community-Based Prevention: OJP Discretionary Programs

The community is an institutional setting in which the Congress has given a clear mandate to DOJ for developing crime prevention strategies. Viewed from the perspective of a priority on youth violence, however, current legislation could provide more effective tools for using available knowledge, and especially for creating new knowledge, about what works in community-based prevention.

Using Knowledge. The relatively modest amounts of DOJ-funded discretionary programs focused on high-crime neighborhoods effectively use much available scientific knowledge about crime. Operation Weed and Seed, BJA's Comprehensive Communities Program, and OJJDP's Title V Incentive Grants all attempt to concentrate federally funded effort in the small number of communities where the national problems of serious youth violence are most heavily concentrated. Local grantees appear to vary in their use of serious violence as the primary criterion for selecting program neighborhoods, and the programs themselves vary in the extent to which such a focus is called for. Operation Weed and Seed is apparently the most focused on such areas, while all of them share a concern with addressing risk factors cutting across settings: families, schools, labor markets, places, police and criminal justice. While these programs are only a beginning of the long-term effort needed to learn how to combat the interdependent risk factors of hypersegregated urban poverty areas, they are clearly pointed in the direction indicated by the available science. The concentration of resources in high-risk areas makes better use of epidemiological knowledge about violence than the more costly Byrne Formula Grant population-based allocations across States and localities.

Congressional earmarks for community-based DOJ discretionary programs make less effective use of knowledge when allocating funds to programs for recreation, mentoring and crime prevention advertising. There is no strong evidence that these programs are effective in preventing serious youth violence, although Big Brothers/Big Sisters mentoring is "promising" for preventing substance abuse and recreation (Boys and Girls Clubs) is promising for reducing housing project vandalism. While it is possible that this approach is effective, there have simply been no longer term tests providing an adequate scientific basis for evaluation.

Community-based discretionary programs could be more effective in using knowledge about community risk factors if they did not define "comprehensive" programs primarily in terms of interagency collaboration. A more scientifically informed definition would be tied to effective impact on each of the institutional settings affecting community risk factors. This is particularly true of labor markets and families (see below). Finally, discretionary programs with anti-gang components could make more effective use of the available results from gang prevention and intervention evaluations, especially in cautioning grantees against programs that could increase gang cohesion.

Creating Knowledge. Community-based discretionary prevention programs are the prime

example of the need for a Congressionally mandated evaluation plan. The current programs are not effective in creating knowledge about what works. Insufficient resources are available for the scientific techniques required to measure program content and impact. Insufficient federal control of the mix of local program elements prevents scientifically controlled comparisons within cities. Insufficient evaluator control of site selection prevents valid comparisons of results across cities, making the data in each site much less useful as a basis for drawing general conclusions about what works. The fact that no controlled experiment in crime prevention has ever used cities, or communities across cities, as a unit of analysis indicates the severe constraints the present legislation imposes upon the work needed to create useful knowledge about program impact.

Community-Based Prevention: OJP Formula Grants

Using Knowledge. DOJ-funded formula grants for community-based prevention may be less effective than the discretionary grants. The available, if moderately weak, scientific evidence shows that community mobilization strategies are ineffective, especially in high-crime neighborhoods. Statutory purpose areas for Byrne formula and Local Law Enforcement Block Grants include community crime prevention initiatives, funded at an estimated \$50 million in FY 1996. Programs supported by these funds are most likely to be ineffective, and the funding could be better spent on creating knowledge about more effective approaches to community prevention.

The statutory plan for Byrne Formula Grants also fails to make effective use of epidemiological evidence on the geographic concentration of crime within States. Statutory allocation plans for Local Law Enforcement Block Grants make better use of that evidence in allocations across cities. Neither program incorporates the evidence on geographic concentrations within cities, by neighborhood and even specific places, which inform the Discretionary DOJ programs. Congressional direction of funding to high crime neighborhoods or Census tracts seems likely to be more effective than the current allocations, which may allow State and local decisions to put substantial funding in moderate to low-crime areas.

Creating Knowledge. The current formula grant legislation for community-based prevention lacks a viable statutory plan for evaluating that funding using scientifically recognized standards and methodologies. The current requirement that **all** Byrne Formula Grants include an evaluation is at best meaningless and at worst wasteful. While some States have attempted to invest more Byrne resources in scientific impact evaluations, the legislation offers no protection against the inevitable political pressures to spend as much money as possible on operational purposes. A quarter-century of State-level evaluation requirements and hundreds of millions of dollars spent for such purposes (Rubinstein, 1977a; Feeley and Sarat, 1980) has failed to produce scientifically rigorous, published impact evaluations that can increase the effectiveness of crime prevention. Uneven capacity across states in their institutional infrastructure needed for rigorous evaluation science compounds the insufficient funding and control needed to learn what works with Formula

Grants for local crime prevention.

Family-Based Delinquency Prevention

The family is an institutional setting for crime prevention in which the Congressional mandate to DOJ is not clear. While the Office of Juvenile Justice and Delinquency Prevention has long worked on programs involving families in delinquency prevention, the appropriated funding emphasis has been more on criminal sanctions than family life. Requests by State and local juvenile justice officials for more prevention funding resulted in the 1992 enactment of the Title V delinquency prevention grants, but that program's mandate to work with families is enmeshed in a broader mandate for comprehensive mobilization of local youth-serving agencies. Similarly, the 1994 Crime Act's Violence Against Women grants imply a great deal about family-based prevention, but without a clear mandate for DOJ to work with families. Traditionally the domain of the Department of Health and Human Services, which has funded much of the available delinquency prevention research, the family is the new frontier of crime prevention science. The long-term effectiveness of the national effort to prevent crime may depend on both clarifying and expanding the mandate for DOJ support of family-based prevention efforts, perhaps in closer collaboration with HHS.

Using Knowledge. DOJ discretionary funding of family-based delinquency prevention appears effective in its use of available scientific knowledge. The five-year OJJDP Safe Futures Program in six cities (in collaboration with the Violence Against Women Grants Office and the Executive Office of Weed and Seed) provides much of the research results reviewed in this report to local grantees designing specific programs. The possibility that local grantees, in turn, do not make the best use of the scientific evidence is a risk that results from the current statutory framework of local control. The Operation Weed and Seed plan to replicate the Rochester University early infancy home nurse visitation plan is also consistent with the strongest scientific evidence. The Title V OJJDP support of parent training strategies for troublesome pre-adolescents is also informed by scientific evidence showing success at reducing risk factors. These pre-adolescent efforts are all the more important in light of the strong scientific evidence of the failure of massive investment in adolescent prevention for high-risk youth in high crime areas (Harrell, 1996).

These discretionary programs, however, constitute a very small part of the total DOJ funding to prevent crime. There are no corresponding large scale formula grants making use of the strong scientific evidence now available. Nor is there a legislative basis for DOJ to pursue a "big science" program of developing a universal program of delinquency prevention support of all families, from early infancy onward. The scientifically recognized evidence on developmental crime prevention is now sufficiently strong for the Congress to consider a major effort to discover cost-effective means of family-based prevention.

Creating Knowledge. Congressional attention to family-based prevention of youth violence should also recognize the current weaknesses in creating knowledge. The current

structure of funding does not generally provide sufficient funding or control for scientifically recognized methodologies in evaluating family-based prevention. Family programs are often included in a mix of other treatments, making it difficult to separate the effects of each ingredient in the mix. While a commitment to comprehensive programming makes theoretical sense in the long run, it is scientifically problematic in the short run. A more explicit commitment to knowledge building in family-based prevention would allow the accumulation of strong evidence about each specific approach, both separately and in combination with other elements. The funding and statutory mandate for such a big science effort has not been available to DOJ, and the creation of new knowledge with DOJ funds has thus been limited in this area.

The most practical question emerging from the available evidence is how to deliver a universal home visitation-preschool program similar to those already found effective in reducing delinquency. Issues of implementation, such as training and recruitment of effective staff, are as important to answering that question as issues of long-term impact. Collaboration between DOJ and other agencies appears essential, especially if one model to be evaluated would be an extension of the Head Start program. But rapid advances in this direction seem unlikely to occur absent a Congressional mandate.

It is important to note that both OJJDP and NIJ have made significant contributions to basic science of family factors in delinquency causation over the last decade. The OJJDP Program of Research on the Causes and Correlates of Delinquency birth cohort studies in Denver, Rochester and Pittsburgh, and the NIJ-MacArthur Foundation partnership Program on Human Development in Chicago Neighborhoods are both likely to inform the design of delinquency prevention strategies for years to come. The success of these research programs are an indicator of the substantial capacity for rigorous science within DOJ. Applying the same standards of scientific evidence to program evaluation, however, will require more powerful statutory tools for controlled field testing.

Preventing Family Violence

Using Knowledge. The challenge of this task is that there is little knowledge to use. The Congressional mandate for DOJ to prevent family violence, especially against women, is undermined by the paucity of scientific impact evaluations (Reiss and Roth, 1993; Crowell and Burgess, 1996). Most of what is being funded under current programs is therefore necessarily of unknown effectiveness. In recognition of this problem, the Assistant Attorney General for OJP has transferred modest portions of Crime Act funding to the National Institute of Justice for research and program evaluation. At the current rate of investment in program evaluation, however, it will be many years before the development of scientifically recognized impact evaluations to guide some \$200 million in annual funding.

Creating Knowledge. The Congress has requested, and the Department of Justice has very recently supplied, a National Academy of Sciences report on a research agenda for

preventing violence against women, including family violence (Crowell and Burgess, 1996). The Congress has not, however, yet had an opportunity to respond to that report, which seems likely to require authorizing DOJ to expend \$50-60 million to carry out the agenda. Congressional action on that report's recommendations in FY 1998 would therefore be the most effective federal strategy for preventing family violence.

School-Based Prevention

The Congressional mandate to DOJ for school-based crime prevention is even less clear than the mandate for family-based prevention. Despite substantial scientific evidence of the effectiveness of some school-based programs, it remains an opportunity the Congress has lost for preventing crime. The Congressional mandate in this setting for DOJ is for less than \$25 million per year, and supports some of the least effective programs available. This includes the earmarked \$1.75 million Byrne Discretionary Program funding of Drug Abuse Resistance Education (DARE), as well as the estimated \$20 million annual Byrne Formula Grants for the education purpose area (including DARE). These expenditures are small in comparison to over \$500 million in annual school-based prevention funds appropriated through DOE and DHHS, and tiny compared to \$2 billion invested in police strategies. Given the potential to integrate school-based prevention into a comprehensive strategy on youth violence, the Congress could profitably consider expanding the DOJ role in advancing this area.

Using Knowledge. Congress has not made effective use of available evidence from scientific evaluations. In choosing to support DARE, Congress has passed over other school-based prevention programs with scientific evidence of greater crime prevention effectiveness than DARE. The most widely used version of DARE has been found ineffective at preventing substance abuse. Other DOJ-supported school-based programs have been evaluated, but the evaluation methods were not scientifically adequate for drawing conclusions about program impact. The following programs are therefore of unknown effectiveness: Law-Related Education, Gang Resistance Education and Training, and Cities in Schools. In addition, Byrne funds may be supporting prevention programs that are reasonably certain to be ineffective: peer-group counseling, recreation, and programs based on fear arousal or moral appeal.

The more general conclusion about the legislation funding school-based prevention is that it takes a piecemeal approach. Scientific evidence shows this approach is less likely to be effective than comprehensive interventions in a school's capacity to teach behavioral norms and social competency skills. Stand-alone programs for preventing specific problems, from drugs to shootings, fare less well in the evaluation literature than programs changing the overall climate and order of the school. Many schools, particularly in disorganized urban areas, lack the organizational infrastructure even to provide adequate instruction in basic skills. These schools are staffed by demoralized adults whose failure to exercise control over rebellious students results in chaos, violence, and fear. Schools' failure as agents of social control perpetuates community disorganization,

poverty, and crime. Research shows that building schools' organizational capacity to conduct their basic function in society is an effective crime prevention strategy. Programs for communicating and clarifying norms, such as anti-bullying campaigns, are also effective elements of delinquency prevention programs in schools, as are programs for teaching self-control. Yet DOJ currently lacks Congressional appropriation for investing in these programs of proven effectiveness.

Creating Knowledge. DOJ funding for school-based prevention is least effective in creating new knowledge. Appropriation levels for evaluations have been too low for scientifically recognized methods to be employed. This common problem arises from a good faith effort to support evaluation, within constraints that defeat the purpose of trying to measure program impact. A prime example is the "catch-up" evaluation (post-test only, non-equivalent treatment and control group) design of the \$16.2 million Gang Resistance Education and Training program. Funded at only \$265,000 for eleven cities with less than a year to produce a Congressionally-mandated report, the evaluators (Esbensen and Osgood, 1996) were compelled to use such a weak evaluation design (Scientific Methods Score = 2) that it has almost no value in measuring the prevention effects of the program (Cook and Campbell, 1979).¹

Similarly, the "national evaluation" of DARE commissioned by NIJ in the early 1990s was designed to be a secondary analysis of evaluations that were far too weak scientifically to merit such investment. A higher level of funding for a controlled, long-term field test still remains a high priority for evaluating DARE, especially in comparison to other programs shown to have larger preventive effects. The cost-effectiveness of such approaches is clear. DARE is a well-institutionalized program, nationally and internationally (Lindstrom, 1996). It seems likely to continue with a wide diversity of funding sources, regardless of whether Congress continues to fund it. But only Congress has the capacity to provide a sufficient investment of scientific resources to allow an objective test of the long-term effectiveness of the program at preventing substance abuse.

Evaluations of efforts to implement the elements of school life known to prevent crime also merit a high priority. Programs for increasing school order, and teaching social competency, face a wide range of obstacles in different school systems, especially in high crime neighborhoods. Learning how to overcome those obstacles could clear the way for more schools to prevent more crime. Many schools, particularly in disorganized urban areas, lack the organizational infrastructure even to provide adequate instruction in basic

¹ Here again, legislative requirements cause poor science. The Treasury Department bill funding GREAT contained the following clause: "The Committee further instructs ATF to provide semi-annual reports evaluating the programs and identifying the affect [sic] GREAT has had on deterring gang violence." This requirement included no appropriation for evaluations. But even with massive appropriations for evaluation, the concept of semi-annual evaluations of program effects has no precedent under scientifically recognized standards and methodologies.

skills. These schools are staffed by demoralized adults whose failure to exercise control over rebellious students results in chaos, violence, and fear. Schools' failure as agents of social control perpetuates community disorganization, poverty, and crime. Research shows that building schools' organizational capacity to conduct their basic function in society is an effective crime prevention strategy. Programs for communicating and clarifying norms, such as anti-bullying campaigns, are also effective elements of delinquency prevention programs in schools, as are programs for teaching self-control,

Labor Markets

Labor markets are the institutional setting some analysts stress the most in causing serious youth violence (Wilson, 1996). This setting also has the least DOJ history of a Congressional mandate. The available evidence suggests that including this setting in DOJ's mandate will increase the effectiveness of programs focused on high-crime areas. It also suggests that most other approaches to using labor markets to prevent crime have been ineffective.

Using Knowledge. The available evidence supports DOJ's limited involvement in labor market strategies. Employment programs aimed at older male ex-offenders no longer under court supervision appear effective at preventing crime. Such programs cannot prevent serious youth violence, but they are at least known to be a profitable investment for older males. More speculative, but theoretically supported, is the labor market component of Operation Weed and Seed, in which DOJ funding serves as seed money to attract other federal and private funds. This may enhance labor force participation rates in high crime areas, and provide more social capital for the community to encourage individuals to enhance their human capital job skills. This same rationale supports expanded DOJ participation in interagency Enterprise Zones and Empowerment Communities programs, especially to the extent that such programs serve high crime areas.

The evidence is also fairly strong that stand-alone investments in human capital--job skills--will not reduce crime. Rigorous scientific impact evaluations funded by the Department of Labor have generally found no effects of job training on crime rates for high-risk youth. The major exception is the moderately strong evaluation evidence on the Job Corps, a residential employment training program found to produce lower crime rates in program clients than similar persons not provided with Job Corps experiences. There is also mixed evidence on transitional aid programs for inmates leaving prison; while it is possible that DOJ Correctional Options funds spent in this manner are effective, the actual effects remain unknown.

Creating Knowledge. The most important mandate Congress could give DOJ on labor markets and crime risk factors is to add the issue of crime to the agenda of unemployment programs. A wide range of federal initiatives are attempting to solve problems of unemployment. Many of these are being evaluated. Few of them are providing adequate measurement of crime prevention effects. These programs include the 1996 major reform

of the welfare system, Community Development Block Grants, reverse commuting, school-to-work programs, employment bonds and targeted wage subsidies. DOJ funded evaluations of these programs from a crime prevention perspective would give the Congress critically important knowledge about the effects of these programs on crime.

Place-Based Prevention

Basic research supported by NIJ for a quarter century has shown increasing evidence that crime is highly concentrated not just in neighborhoods, but at specific premises (see Chapter Two). Extensive investment by the British government in testing place-based crime prevention strategies, as well as increasing numbers of evaluations in the US, show consistent, but scientifically weak, evidence that such programs can be effective. Cameras, cash control, guards, fences, lighting, and other preventive devices are still of unknown effectiveness, but worthy of further evaluation. The promise of the consistently positive but scientifically weak available findings must be treated with appropriate caution, especially given the differences in gun crime between Britain and the US. The growing public and private investment in such strategies, however, suggests that a clearer Congressional mandate to DOJ in this area may be warranted. Recent findings showing the effectiveness of place management strategies in combating drug dealing and alcohol-related violence provides further evidence of the need for more DOJ attention to crime prevention at places.

Using Knowledge. The federal funds provided to New York City police under the initial COPS programs made use of this DOJ-produced knowledge to focus their resources on high-crime locations. How much if any of New York's 50 percent reduction in homicide was caused by the federal funds cannot be determined with reasonable scientific certainty. But to the extent that place-focused crime strategies are supported by Byrne Formula, Weed and Seed, and Local Law Enforcement Block Grants, there is modest evidence that the funding has some potential to be effective. NIJ support of the Drug Market Analysis Program (DMAP), a computerized crime mapping strategy, has been put to widespread use as police agencies around the country employ similar software to identify and "problem-solve" high crime places. What is still unknown is the extent to which any particular strategy of problem-solving is effective in any particular kind of place with any particular kind of crime problem.

Building Knowledge. With sufficient resources and a clear mandate, a central research arm of NIJ could build a body of scientifically rigorous impact evaluations of place-based prevention strategies. Systematic observations of high crime locations, large samples of similar places with similar problems with half randomly assigned the tested prevention systems, and other scientific techniques are necessary for creating reasonable certainty about the effectiveness of prevention at places. DOJ has been able to produce some knowledge of this kind about police efforts against places. More of it is needed about efforts by owners, managers, residents, liquor licensing boards and other branches of government to develop place-based prevention strategies.

Policing for Prevention

Current appropriations invest far more federal funds in the police than in any other crime prevention institution. The estimated \$2 billion annually for police is more than half of all federal assistance for local crime prevention. While there is growing evidence that police can be effective in preventing crime, there are still many questions about how to use the federal funding most effectively. Depending upon how each police agency elects to use its federal funding, the taxpayer investment in that strategy may be more or less effective at preventing crime.

Using Knowledge. There is reasonable scientific certainty that the following police practices prevent crime: extra police focused on high crime "hot spots," police units focused on serious repeat offenders, proactive enforcement of drunk driving laws, and arrests of employed suspects for misdemeanor domestic violence. There is also reasonable certainty that the following practices are ineffective: increased random patrols of entire beats, more rapid response time to 911 calls, neighborhood watch, arrests of some juveniles for minor offenses, arrests of unemployed suspects for domestic assault, arrest crackdowns at drug markets, and community policing programs with no clear focus on crime risk factors. There is no certainty, however, that the current federal legislation produces more police effort with the effective practices than with the practices known to be ineffective.

The accumulated body of police practice evaluations, largely funded by NIJ, provides one of the best examples of using science to identify programs of proven effectiveness. Under the principles of local control, however, there is no requirement that federal funds be used for practices proven effective, except under the Byrne Formula Grants. Even there, lack of statutory clarity about the definition of proven effectiveness makes it little different from programs without that legislative requirement.² A key question for Congress is therefore whether to use the available scientific knowledge to limit the eligible purpose areas for federal funding of local police. This would not be possible, however, at the level of generality of the current 33 purpose areas under the Byrne and LLEBG programs. Police overtime, for example, cannot be evaluated as a crime prevention practice, but various uses of police overtime can be. Thus within each purpose area it could be possible to distinguish proven and unproven areas of effective practice.

The most basic issue of DOJ funding effectiveness at addressing crime risk factors is the formula basis for allocating police assistance, noted above. Concentrating police

² The 1988 Anti-Drug Abuse Act's statutory definition of "proven effectiveness" is as follows: "a program, project, approach, or practice has been shown by analysis of performance and results to make a significant contribution to the accomplishment of the objectives for which it was undertaken.." 42 U.S.C. 3782 Sec. 801 (b) (19).

funding in the census tracts, and not just the cities, with the highest rates of serious crime and youth violence, would appear to be more effective than present formulas based on population size. Promising evidence on reductions in gun crime from such concentrations lends further support to the value of testing the hypothesis that putting police where crime is most serious would be the most cost-effective means of combating the national epidemic of violence.

Creating Knowledge. DOJ has been generally effective in creating new knowledge about the impact of police practices on crime. This reflects a substantial commitment of resources to several large and costly projects over the past two decades. The results are encouraging evidence that DOJ has a substantial capacity for big science in this area, including controlled evaluations using city-wide police practices (such as traffic enforcement or gun seizures) as the unit of analysis. This capacity could be put to even better use if NIJ had control over some portion of federal funding for local police overtime or extra hiring to allow it to structure controlled tests of patrol dosage and tactics in high-crime areas. Scientific evidence produced by this kind of evaluation design would directly address the key Congressional issue of how best to allocate the federal funds for police. While the COPS office has transferred 1 percent of program funds to NIJ for evaluation purposes in FY 1996, the scientific strength of those evaluations will be limited in the absence of statutory authority to allocate program funds for evaluation purposes.

Additional appropriations are needed for NIJ to replicate the growing number of strategies rated as "promising:" police traffic enforcement patrols to detect illegally carried handguns, "Chicago-style" community policing, community policing efforts for increasing police legitimacy in minority poverty areas, "zero-tolerance" enforcement of minor violations, and adding extra police to cities or areas, regardless of what they do. Untested but theoretically promising strategies such as community-based restorative justice for minor juvenile offenses are also high priorities for creating new knowledge about policing. Several police strategies for preventing serious domestic violence are ready to be evaluated if sufficient funds are available.

Criminal Justice and Crime Prevention

The Congressional mandate for DOJ to fund prisons and other criminal sanctions is clear. What remains unclear is how to spend that money most effectively. Based on the review of the available scientific evidence, the effectiveness of current legislation in funding criminal justice to prevent crime is mixed, but more remains unknown than known.

Using Knowledge. There is reasonable scientific certainty that federal funding is effective to the extent that it supports three broad strategies: prison-based therapeutic community treatment of drug-involved offenders, incapacitation of high-rate serious repeat offenders, and structured rehabilitation programs focused on individual risk factors. These strategies can be supported under DOJ funding for Drug Courts, Residential Substance Abuse Treatment for State Prison Inmates, OJJDP's Intensive Community-Based Aftercare, Byrne

Formula Grants under the drug treatment purpose area, and the Violent Offender Incarceration Grant Program (prison construction). Whether the funding is actually used in the ways the scientific evidence finds effective, however, is up to the local control of the grantees.

One of the major concerns about prison construction, for example, is whether it will actually produce incapacitation of the most serious offenders. If increased capacity is eventually used to increase the incarceration of **non-violent** offenders, there may at least be a pattern of diminishing returns, and at worst a very expensive investment in locking up low-risk offenders when the money could be spent more effectively on other forms of prevention.

There is also reasonable scientific certainty that the following programs are ineffective in preventing crime: correctional boot camps using military basic training models, other "harshness" programs like "Scared Straight" and shock probation, and community-based alternative sanctions lacking treatment programs and services. The latter include Intensive Supervised Probation or Parole (ISP), home confinement, urine testing, community residential programs, and juvenile wilderness programs. (Urine testing combined with drug treatment, however, enjoys scientific evidence that is promising.) These ineffective programs can be supported by DOJ funding under the Byrne Formula Grants for the alternative sanctions and drug testing purpose areas Program, and by the prison construction grants.

Creating Knowledge. Scientific conclusions can be drawn about only a small portion of all correctional strategies and federal funding. The effects of sanctioning on repeat offending are generally found to vary by type of offense, type and dosage of sanction, type of offender, and the characteristics of the communities to which incarcerated offenders return upon release from prison. The identification and codification of the full range of these effects is a massive task that has barely begun, but can be accomplished by a systematic long-term investment in controlled testing of sanctions.

The biggest obstacle to such a program of systematic impact evaluations may not be federal funding, but State and local cooperation with controlled testing. The widespread resistance to controlled testing of early boot camp programs is indicative of the difficulty of creating such partnerships. The major advantage DOJ could bring to creating such knowledge is conditional program funding, which would only be made available to grantees if they cooperated with a controlled field test design. Using DOJ local assistance funding in this way would be particularly helpful in producing controlled tests of programs found promising in Chapter Nine: drug courts, day fines, juvenile aftercare, and drug treatment combined with urine testing. Current evaluations of these programs without scientific controls will not be useful for creating knowledge about their effectiveness.

STRONGER PROGRAM EVALUATIONS

In the three decades of DOJ funding for local crime prevention assistance, four prior reports have made recommendations for improving program evaluation. Each report was followed by Congressional or administrative action to implement the recommendations, at least in part. Yet as the evidence reviewed in this report suggests, the Congressional mandate to evaluate has yet to be satisfactorily accomplished. This section briefly reviews the prior reports, as well as the conditions needed for effective program evaluation. The report then closes with recommendations for a statutory plan that would create those conditions, and improve the effectiveness of federal funding through stronger evidence on program effectiveness. The prime example of this approach is a comprehensive program for cooling off "hot spot" neighborhoods.

Previous Reports on DOJ Crime Prevention Evaluations

From the earliest days of the Law Enforcement Assistance Administration (LEAA), the issue of evaluation has been paramount. Lacking a large body of scientific knowledge on the effectiveness of crime prevention programs, LEAA was forced to invent new ideas under conditions of high public visibility and enormous Presidential pressure to reduce crime. The results of those programs were crucial to the public debate. By 1972, Congress amended the Safe Streets Act to require LEAA to conduct evaluations of its action grants (Feeley and Sarat, 1980: 113). It also increased the amount of money the States could spend evaluating their LEAA-funded grants. This model of giving primary responsibility for evaluating each and every grant to the State Planning Agencies (SPAs) administering the funds remains largely unchanged today.

The State-level evaluation tasks were supplemented a year later with national evaluation tasks to be performed within DOJ. In 1973 a Columbia University symposium on LEAA concluded the worst flaw in the program was the lack of useful evaluations (Rubinstein, 1977: 148). The Congress responded by amending the Crime Control Act that year to require that the National Institute of Law Enforcement and Criminal Justice (the predecessor to NIJ) "undertake, where possible, to evaluate the various programs and projects carried out under this title." A year later, two GAO reports criticized the Institute for its continued inability to conduct **outcome** evaluations of the more than 30,000 LEAA-funded grants awarded in the agency's first five years. GAO called the available evaluations inconsistent and relatively useless (Rubinstein, 1977: 148).

At that point the LEAA administrator released a new report on program evaluation policy.³ The report assigned to the National Institute the Congressional mandate to

³ U.S. Department of Justice (1974), LEAA Evaluation Policy Task Force, LEAA EVALUATION POLICY TASK FORCE REPORT. Washington, D.C.: USDOJ.

evaluate, focused in its new Office of Evaluation (OE). The Report gave that office three goals: obtain and disseminate information on the cost and effectiveness of crime prevention, ensure that the information gets used in program planning, and develop a capacity for evaluation in state and local units of the criminal justice system. As a National Academy of Sciences report later concluded about this plan, it was an enormous challenge (Rubinstein, 1977: 149):

OE found itself with limited resources confronting a field fraught with uncertainty and controversy. Evaluation of social action projects was a relatively new field; evaluation in criminal justice was in its infancy. OE's mandate was so broad as to be undelineated.

Perhaps the greatest challenge was to develop a capacity to carry out evaluations in operational agencies at a time when the capacity did not even exist in most research universities. The Institute was unable to give \$2 million to the LEAA State and Regional Planning Agencies to develop evaluation units; only 12 of the 500 eligible units even applied for the money. The program succeeded in at least spreading the definition of evaluation as a scientific assessment of effects caused by the program (Feeley and Sarat, 1980: 114), but few of the evaluations done by State agencies to comply with federal rules ever came near that definition.

By 1977, the National Academy of Sciences evaluation of the National Institute of Law Enforcement and Criminal Justice (White and Krislov, 1977) recommended that the Institute try to get away from program evaluation and focus on basic research. Describing the quality of Institute research at that point as "parochial and, overall, mediocre," the report attacked the Institute's emphasis on "immediate solution applied research" (White and Krislov, 1977: 94-95). This report moved the Institute into peer-reviewed competitions for awarding research grants, and established research programs on basic questions like deterrence. Many grants funded under these "basic" research programs, such as the domestic violence arrest experiments, were later treated as "evaluations" (Reiss and Roth, 1993: chapter 7)--thereby suggesting the limitations of the distinction. The 1977 report recommended that evaluation functions be integrated into the broader research programs of the Institute.

To a large extent, NIJ has followed the blueprint of the 1977 report for two decades. Congressional decisions to cap available funding levels and maintain structural separation of NIJ from the DOJ program funding bureaus have helped to constrain NIJ in that direction. That path was not changed despite a bipartisan 1981 Report of the Attorney General's Task Force on Violent Crime that recommended a very different role for evaluation as the centerpiece of federal crime control policy. On August 17, 1981, President Ronald Reagan's Attorney General, William French Smith, received the report of his bipartisan Task Force on Violent Crime, co-chaired by former Attorney General Griffin Bell and Illinois Governor James R. Thompson. The report said this about the federal role in evaluating crime prevention (p. 73):

Recommendation 53. The Attorney General should ensure that

a. Adequate resources are available for the research, development, demonstration, and independent evaluation of methods to prevent and reduce serious crime.... *We are in unanimous agreement that the federal government has a unique responsibility to conduct research on criminal justice issues, to develop creative programs based on research findings, to test and evaluate these programs rigorously* [italics added], and to demonstrate them in several jurisdictions with varying characteristics to be sure that the programs would be successful if implemented in other jurisdictions. At present, research directly applicable to the problems of state and local criminal justice systems is performed by the National Institute of Justice (NIJ), the National Institute of Corrections (NIC), and the National Institute of Juvenile Justice and Delinquency Prevention (NIJDP). NIJ and NIC do not have the funds needed to support the substantial testing, demonstration, and independent evaluation we believe are necessary. The Attorney General should ensure that adequate funds are available for these agencies to bring research ideas to the stage at which they become demonstrated, independently evaluated programs that can be implemented in state and local jurisdictions.

Put another way, the 1981 Task Force recommended that the federal role should be to advise local governments about proven programs of crime prevention, based on a scientific process of basic research, program development, and--most important--rigorous independent field tests of demonstration programs in several different jurisdictions. Based on our review of the scientific evidence underlying crime prevention programs in 1996, we can only conclude that this recommendation has been ignored. We are unable to find a single program for which the federal government has played the role recommended in 1981. There are numerous programs that have been developed based upon research and implemented in several jurisdictions. What has been lacking is the statutory structure and resources needed to carry out the scientifically rigorous evaluations the Attorney General's Task Force recommended.

In 1988, the passage of the Anti-Drug Abuse Act saw yet another plan for program evaluation enacted into law. The Act required that States conduct evaluations of each grant, but did not require that a certain percentage of Byrne Formula funds be used for that purpose. It also called upon NIJ and BJA to sponsor "a reasonable number of comprehensive evaluations of programs" funded under both formula and discretionary grants.⁴ **The Congress did not however, appropriate any funding for NIJ or BJA to evaluate what is now \$475 million in annual formula grants, forcing them to draw on their general appropriations for that purpose.** Of the first 5,000 Byrne Grants, NIJ and BJA were able to sponsor evaluations of 150. Once again, the federal agencies attempted to compensate for limited evaluation funding by developing an evaluation capacity in the State Planning Agencies. Just as it did in 1974, NIJ invited States to seek evaluation

⁴ 42 U.S.C. S 3766 (a)(2); 3782 (b).

funding. But in 1990 when the proposals were submitted, as a recent NIJ report on the Byrne Program reported, most were methodologically weak, and as a result few were funded. Not surprisingly, this suggested that many State agencies did not have the research staff necessary to conduct evaluations (Dunworth, et al, 1997: 8).

Once again, as the Institute did in 1974, NIJ and BJA have undertaken "technical assistance programs to expand State evaluation capabilities" (Dunworth, et al, 1997: 8). Also, an annual NIJ-BJA conference on program evaluation funded by BJA brings State Planning officials to Washington to hear the most recent evaluation findings. But these steps can do little to deal with the four underlying structural factors limiting DOJ's capacity to generate satisfactory evaluations of Byrne Grant programs (Dunworth et al, 1997: 8-9): 1) state legislators often resist spending Byrne funds on evaluations, believing the money should be spent for program purposes; 2) Congress has not given NIJ or BJA any funding for Byrne evaluations; 3) insufficient evaluator control over program conditions often compromises the scientific integrity of evaluation results; 4) information on evaluation results has not been accessible to those who need it.

The Crime Act of 1994 began to address at least one of those obstacles, lack of appropriated funding. The Act created the first set-aside directing evaluation of program funding, authorizing the Attorney General to use up to 3 percent of COPS program funds in any given year for studies or evaluations...in furtherance" of the purposes of the COPS program.⁵ The law also contained authority for evaluations to be funded from the Violence Against Women Act, the Drug Courts program, and the Corrections Title. But these steps do not address the structural issue of control over program funds that is central to the scientific standards of an evaluation. Thus despite repeated reports and legislation, the nation still lacks a satisfactory solution to the problem of achieving the Congressional mandate to evaluate--using scientific standards. The next section describes those standards and the statutory elements needed to create them.

Scientific Standards of Program Evaluation

The Omnibus Crime Control and Safe Streets Act of 1968 defines an "evaluation" as follows:

the administration and conduct of studies and analyses to determine the impact and value of a project or program in accomplishing the statutory objectives of this chapter⁶

By this definition, an evaluation cannot be only a description of the implementation

⁵ 42 U.S.C. Section 3793 (a)(11)(B).

⁶ 42 U.S.C. Section 3791 (10)

process, or "monitoring" or "auditing" the expenditure of the funds. The terms "impact" and "accomplishing" require claims about cause and effect. The scientific standards for inferring causation have been clearly established in the literature on research design and methods (Cook and Campbell, 1979; Federal Judicial Center, 1981). They include, at minimum, the following:

- 1) the ability to measure the dosage, timing and content of the project or program,
- 2) the ability to gather baseline data prior to the start of the project, if necessary, and
- 3) the ability to gather comparable data from both the program group and appropriate comparison groups where the program is not operating.

These elements of science are not unrealistic for crime prevention program evaluations. They do not rise to the "gold standard" of level 5 scientific methods scores used by the Food and Drug Administration in testing new drugs. Rather, these elements constitute the requirements for a level 3 evaluation, the agreement of two of which generally satisfied this report's criteria for programs that "work"--programs of proven effectiveness.⁷ Crime prevention program evaluation would be better served by raising that scientific standard to level 4, with this additional element:

- 4) the ability to eliminate or control for most known rival hypotheses that could account for the same results other than the program or project being evaluated

It would even be better to adopt the gold standard, in which the evaluator is given this capacity:

- 5) the ability to select program and comparison groups in advance of the program by use of equal probability formulas.

But the basic task of the Congress in fulfilling the mandate to evaluate is to insure that the first three elements can be achieved with reasonable certainty whenever DOJ funds a program evaluation. That is not the case at present. The structural separation of program administration and evaluation, combined with local control over the expenditure of grant funds, makes the first three elements extraordinarily difficult to achieve. Thus despite three decades of defining evaluation in these scientific terms, the Safe Streets Act has never included a realistic statutory plan for achieving adequate impact evaluations. The next section offers such a plan, based upon "rigorous and scientifically recognized standards and methodologies."

⁷ It was also necessary that the preponderance of the other evidence be in accord with the results of the two level 3 or higher evaluations.

A Statutory Evaluation Plan

Three principles for evaluating crime prevention programs emerge from the evidence reviewed for this report. One principle is that not every grant needs to be evaluated. A second is that scarce evaluation funds should generally be conserved for strong scientific evidence of program impact. The third principle is that every impact evaluation should be done at a scientific methods score of no less than level 3, and where possible at level 4 or 5.

Not every grant requires an evaluation. Since the early days of LEAA, the use of the term evaluation has been confused by the requirement that every grant be evaluated. Absent the resources and the skill needed for achieving the statutory definition of an evaluation as an impact assessment, the requirement that everything be evaluated has resulted in almost nothing being evaluated. There are enough similarities in program content across sites so that the Attorney General's Task Force on Violent Crime recommendation is a reasonable one. Testing a program in several different sites under different conditions provides an adequate basis for recommending that the program can be used generally, if the results are consistently favorable. Spending large amounts of money for strong evaluations in a few sites is far more cost-effective than spending little amounts of money for weak evaluations in thousands of sites.

Evaluation Funds Should be Conserved for Impact Assessments. Inadequate funding levels have forced DOJ to choose between many descriptive evaluations or a few impact evaluations. In general, the choice has been to appropriate \$200,000-\$300,000 for a national evaluation of each major program, regardless of how much or little can be learned for that amount. Very little can be learned about the impact of JUMP (Juvenile Mentoring Program) for the less than \$200,000 that was available for its evaluation. Even less can be learned about the HIDTA (High Intensity Drug Trafficking Area) program for the \$200,000 budgeted for a national evaluation of a \$100 million program operating in six sites. That funding level limits an evaluation to only the most superficial description of what the program is doing, and cannot say anything about its impact. While funding for basic research must be preserved, and while methods for tracking field innovations should be included, studies of specific federal funding programs do not provide Congress with the information it requires unless there is enough funding for a scientifically valid impact assessment. Such studies routinely cost \$15 million or more in other agencies, but there is no precedent for such "big science" at DOJ.⁸ Since there was no precedent for a \$30 Billion Crime Bill either, there is clearly room for adopting a new approach to evaluation.

Impact Evaluations Should Be Conducted at a Level Three Scientific Methods Score or Higher. If the Congress needs to know the effectiveness of a program, it needs to know

⁸ For example, several of the Department of Labor job training experiments have cost in excess of \$15 million.

that answer to a reasonable degree of scientific certainty. Just as the U.S. Supreme Court has asked Federal Judges to be the gatekeepers of valid science to be placed in the hands of a jury,⁹ Congress can ask that independent peer review panels serve the same function for Congressional evidence. The panels can be asked to certify that impact evaluations recommended for funding by DOJ are at least designed with a Scientific Methods Score of 3 or more. The criteria employed by this report for assigning that score are sufficiently broad as to correspond to the "flexible inquiry" the court requested of the federal bench into the validity of scientific evidence. But they are also sufficiently clear as to change the current pattern of funding descriptive studies and calling them "evaluations." Imposing this standard will force the issue back to its proper decision point: the Congress. The issue of evaluation funding levels will become much clearer in light of a bright line between impact evaluations and all other ways of studying federal programs.

All three principles should be firmly established by their enactment in a legislative plan for program evaluation. But in order to make the third principle possible, the statutory plan must restructure the entire evaluation process as a central purpose of the federal role in crime prevention. That restructuring can meet the scientific requirements for achieving that goal with a ten percent set aside of program funding for evaluated programs, a ten percent set-aside for program evaluations, and a structural location of both set-asides in a central research office within OJP. This plan closely tracks the 1981 recommendation of the Attorney General's Task Force on Violent Crime, as well as modern business practices in large corporations.

The Business Precedent: Beta Sites. The Attorney General's Task Force recommendation reflects a pattern of new product development widely used by large American corporations, called "beta sites." This pattern employs test sites as a means to determine the potential success of a new product, and possible conditions in local markets that could predictably affect sales. For example, in recent years the McDonalds' restaurant chain developed a new low-fat hamburger, then tested its customer appeal in a limited number of cities. These tests apparently found some demographic correlates for the success of the product. The product was subsequently offered in many, but not all, local markets nationwide, with selections made on the basis of local market demographic factors revealed by the beta site testing. Similar variations in the effectiveness of crime prevention programs could be revealed by the use of such a strategy, but only if the program "beta sites" are selected for the explicit purpose of conducting a test, rather than just supporting local operations.

This model can be achieved by Congressional enactment of the following recommendations:

⁹ Daubert v. Merrell Dow, 113 S. Ct. 2786 125 L. Ed. 2d 469 (1993).

1. Set aside ten percent of all DOJ funding of local assistance for crime prevention (as defined in this report) for operational program funds to be controlled by a central research office within OJP. This recommendation solves the inadequate evaluator control over program conditions for inferring cause and effect. A wide variety of strong scientific research designs become possible when program funding is available as an incentive for local agency evaluation partnerships. Police overtime, prison treatment programs, school-based prevention strategies could all be implemented in ways that may be less than optimally convenient for the local operational units, but which greatly increase the strength of the scientific evidence.

2. Authorize the research office to distribute the ten percent "evaluated program" funds on the sole criteria of producing rigorous scientific impact evaluations, the results of which can be generalized to other locations nationwide. Allocating these funds for research purposes simply adds to the total funding for which any local jurisdiction is eligible. Thus the "evaluated program" funding becomes an additional incentive to cooperate with the research plan on a totally voluntary basis.

3. Set aside an additional ten percent of all DOJ local assistance appropriations for crime prevention as defined in this report to fund the scientific evaluation costs. This recommendation makes clear the true expense of using rigorous scientific methods to evaluate program impact. The imperfections of most indicators of crime and justice require multiple measurement, already reflected in the statutory language authorizing COPS program evaluations. Victimization interviews, offender self-reported offending, systematic observation of high crime locations, observations of citizen-police interaction, and other methods can all cost as much or more than the program being evaluated. The costs can also be amortized over the many years of use to which strong scientific evidence can be put in guiding effective crime prevention.

A prime example of the value of this approach is implied by the central hypothesis that emerges from this report: that serious youth crime in America can be reduced most substantially by a simultaneous investment in all seven institutional settings for crime prevention, focused on the small number of neighborhoods in the nation where serious youth violence is concentrated. The results of the Children at Risk evaluation (Harrell, 1996) suggests that programs focused only on individual adolescents at risk may be unable to succeed because the neighborhood around them does not change. It may be that the best results would come from an expanded version of Weed and Seed, in which a systematic effort to build community social capital includes

- o helping families to establish clear and consistent discipline and emotional bonding, using home visits and preschool involvement from early infancy
- o helping schools to establish a capacity for self-regulation of student conduct with clear norms and expectations, as well as adequate physical security
- o helping labor markets to raise labor force participation rates in the neighborhood from 20% to 80%,

- o using physical and other place-based prevention to reduce opportunities for crime,
- o using massive increases in neighborhood police patrols (and respectful interactions with youth) to get guns off the streets and maintain high standards of civil conduct in public places, and
- o using courts and corrections to provide highest priorities to cases arising from these neighborhoods for effective treatment and control of convicted offenders.

This "hot spots" hypothesis has substantial support from theoretical models and the indirect evidence supporting those models. It can only be tested in practice, however, by the kind of statutory evaluation plan recommended above. Only a large number of neighborhoods with and without such a program can provide an adequate sample for using scientifically recognized standards and methodologies. And if only such a program can make a long-term difference in serious youth violence, the Congress has a clear opportunity to consider. For if the hypothesis is correct, a comprehensive program to cool off the nation's hot spots of youth violence could not only lower the national crime rate. It may also create a tipping point against an epidemic of youth violence, and make the rest of the nation safer as well.

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APPENDIX I: RESEARCH METHODS

by Lawrence W. Sherman and Denise Gottfredson

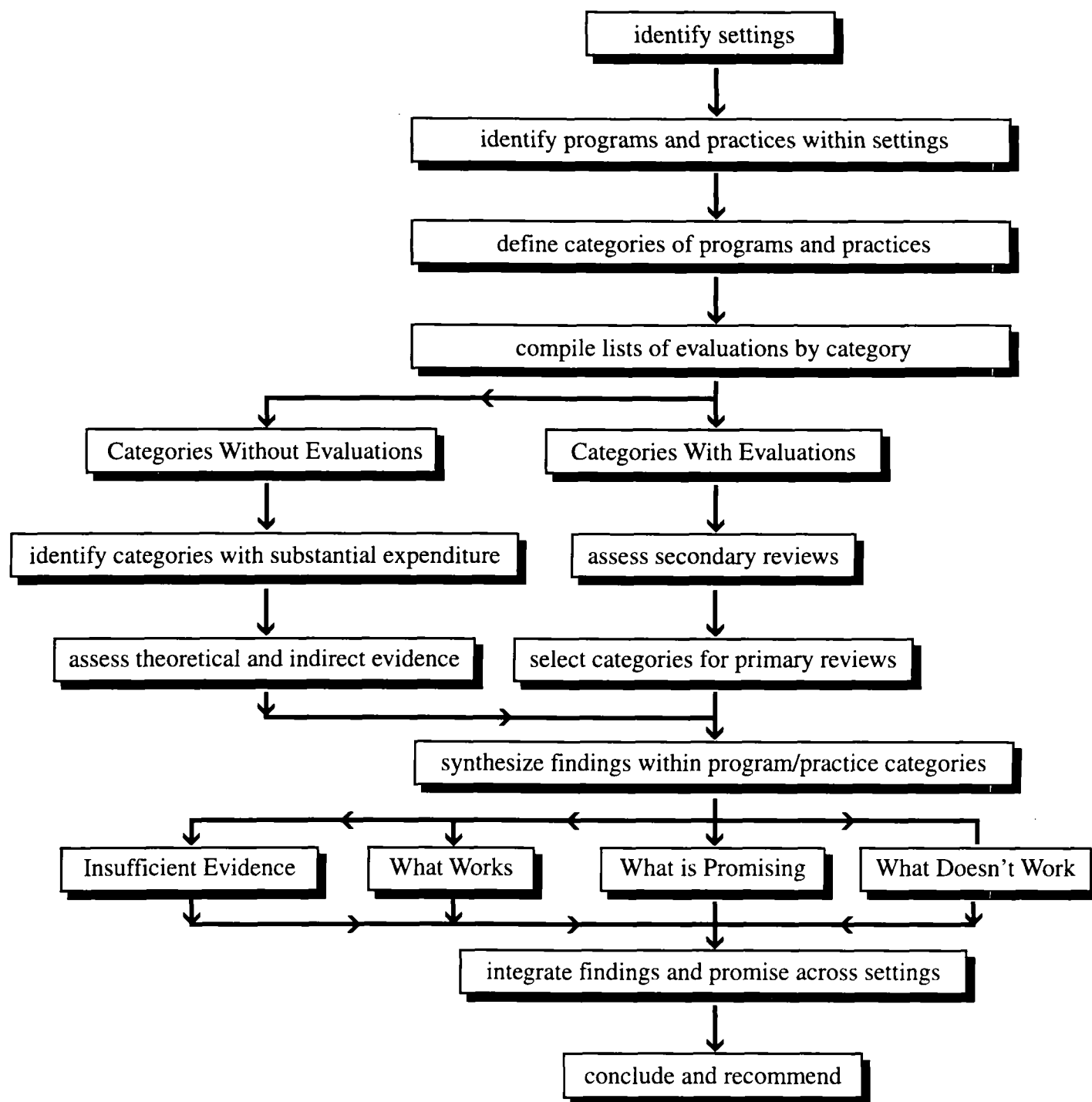
The challenge of this review is to make a substantial contribution to science in a very short time frame. The US Congress only allowed the Attorney General nine months for a comprehensive scientific review of crime prevention programs. While the time frame may be appropriate for the legislative process, it is virtually unprecedented in science. Similar reviews performed for the Congress by panels of the National Academy of Sciences typically last several years, and even those are usually much narrower in the scope of the research questions considered. Few scientists would expect a team of senior scholars and graduate students to even locate copies of all relevant evaluations of crime prevention programs in the available time frame, let alone to code them carefully and reliably for the purpose of a systematic review.

Our approach strikes a compromise between breadth and depth, without any compromise in scientific integrity. It attempts to rely as much as possible on other recently completed reviews of the literature we find generally reliable. Given the limited time to undertake intensive review of primary evaluation research, we reserve that method for only the highest priority program areas. This appendix provides a rationale for that strategy and the criteria employed for setting the priorities.

This review makes hard choices at four levels of analysis. One is the level of institutional settings, the rationale for which is described in Chapter Two. The next level is the choice of high and medium priority program areas of crime prevention within each setting. The third level, found within each high priority program area, is the kinds of evidence most worth relying on in assessing the effectiveness of that kind of program. The fourth level, found within each medium priority program, is how much to rely on secondary reviews of the literature, in which the federal government has recently invested millions of dollars. What follows next describes the process and criteria for making the last three of those choices. Figure 1 provides a flow chart illustrating the various steps in the process which lead us to our conclusions and recommendations in this review.

Figure 1

Diagram of Assessment Process



Sorting Programs and Practices

Our standard method for each chapter begins with a review of the literature, culminating in a list of all categories of crime prevention programs and practices in that institutional setting. We annotate each category on the list with definitions and illustrations. We circulate the list and its annotations among colleagues in our own department, and nationally-known experts chosen for the purpose. Based on their feedback, we revise the categories or definitions.

Unit of Analysis. Note that the basic unit of analysis we employ throughout is the **category** of program or practice that is conceptually coherent and subject to evaluation. Basic institutional "practices" such as police patrols, and innovative "programs" experimentally added to institutional practice such as home nurse visitation, can both be defined as analytic categories of factors potentially affecting crime prevention. The list of such categories need not distinguish programs and practices, since the two are often merged in actual practice (as in the COPS program). What our method attempts is a theoretically clear definition of the independent variable hypothesized to produce crime prevention consequences.

Evidence and Resources. In the process of constructing the list of program and practice categories, we develop a rough estimate of both the volume and quality of the scientific evidence on the effectiveness of that category. We also acquire some data on level of governmental and private resources, especially the Office of Justice Programs, is investing in programs in each category.

Based on these data, we sort categories according to the available evaluation evidence. If evidence is available, we retain the category for potential discussion and analysis in the chapter. For programs and practices with no available evidence, we sort on the basis of public (or in some cases private) resources expended on that category. If the resources are substantial, we retain the category for potential discussion in the chapter. Categories with neither evidence available nor substantial resources are set aside at that point. For the categories with evidence, regardless of resource levels, we engage in one process. For programs without evidence, we engage in another.

Categories With Evidence

The first step for categories with evidence is to consult recent secondary reviews wherever possible. The reviews themselves can be evaluated on the basis of their reliability, based on such criteria as the level of detail they provide and the completeness and accuracy of the discussion of primary sources known to our review team. If a secondary review is deemed reliable, we rely on it for a determination of the strength of the evidence about the category. If there is no secondary review available for a category, we conduct a primary evidence analysis.

Primary Evidence Analysis. For the selected categories subjected to full assessment of primary evidence, the chapter research team identifies every primary evaluation it can locate from all sources. These evaluations are reviewed for a basic in-versus-out decision. The "in" decision is based solely on whether the study reports data on outcomes measuring crime or risk and protective factors in relation to the program being evaluated. Studies which contain only process measures are excluded from any data collection other than citation data and the reason for exclusion. Studies which include outcome measures are coded using an instrument (shown at the end of this appendix) adapted for this study from an instrument designed for the National Structured Evaluation of Drug Abuse Programs, which previous research has found to produce acceptable inter-rater reliability (Center For Substance Abuse, 1995). A codesheet for each study is prepared by at least one graduate student and reviewed by a faculty member. An overall rating of methodological rigor for each study is obtained from item #8 in Section II of this codesheet.

Standard Measures of Effect Size. Given the variation in the reporting of effects discussed above, our method does not impose a standard definition of effect size across all analyses. Some chapters report effects in terms of statistical significance as well as percentage differences or percentage reductions in rates of offending. Chapters for which measures of criminal offending are rare (e.g., the school chapter) attempt to translate effects for the array of possible outcomes into standardized effects sizes using, to the extent possible, Cohen's *d*, defined as treatment group mean minus control group mean, divided by the pooled groups' standard deviation. Information on the statistical significance of and the magnitude of the effects are coded for each study using Section III of the codesheet. The decision about which metric to use for reporting on the magnitude of the effect is left to the senior author of each chapter.

Integration of Evidence. The end product of the analysis of empirical evidence contains a range of findings with respect to effectiveness. In the interests of clarity of presentation for policy analysis purposes, we organize the presentation of material in each chapter by the content of the findings, rather than the priority of the program. The content is defined both the strength of the scientific evidence and the strength (and direction) of the program effects. We ultimately report on four categories of effectiveness.

Program categories are sorted into these effectiveness categories using the following rule:

Works (1): At least two studies with methodological rigor greater than or equal to "3" reporting significance tests have found crime prevention effects for the program condition, and where effect sizes are available, the effect is at least one-tenth of one standard deviation (e.g., effect size = .1) better than the effects for the control condition, and the preponderance of the evidence supports the same conclusion.

Doesn't Work (2): At least two studies with methodological rigor greater than or equal to "3" reporting significance tests have found no effect favoring the program condition, and the preponderance of other evidence supports the same conclusion.

Promising (3): At least one study with methodological rigor greater than or equal to "3" reporting conventional significance levels has found crime prevention effects for the program condition, and where the effect size is available, the effects are at least one-tenth of one standard deviation better than the effects for the control condition OR the preponderance of evidence favors the program.

Don't Know (4): Categories with empirical evidence which do not fit one of the above are included in this residual category.

We must, of course, be extremely careful in labeling any program category as highly certain to be good or bad in its effects. Yet we must also be clear enough to make our conclusions useful, no matter how much we anticipate that science is always provisional and that our conclusions may be changed by next year. The large number of programs to be reviewed almost guarantees that some have strong evidence of extreme effects, both positive and negative. Yet most extreme results are from single, unreplicated studies. It is just as important not to conclude too much from a single negative result as from a single positive one. A single evaluation, even with strong evidence, cannot be assumed to generalize to all or most other settings. The primary objective of identifying promising results should be to foster replications, and the more promising the results the greater the replication need. Where there is substantial consistency of evidence in one direction, the senior author of each chapter makes a judgement and defends it in the text.

The code sheet employed in primary coding is attached. The coding format was adapted by the research team from the instrument used by the Center For Substance Abuse Prevention. In cases of secondary analysis, effect sizes have been estimated in some chapters where sufficient detail about research design has been provided in the secondary review. This method is not without some risk of error, but it is more informative given time constraints than the alternative of not ranking studies reported in detail in secondary reviews. Where the level of detail reported in secondary reviews about the primary source research design is too low, the studies are reported as scientific methods score unranked.

Categories Without Evidence

For categories without evidence, the chapter conclusions reflect some theoretically based assessments. The report makes less use of such assessments than it might, given the concern for potential bias in assessments. Where theoretical rationales are embodied in conclusions, they are usually well-supported by empirical evidence, such as the concentration of serious youth violence in urban areas of concentrated poverty.

I. Identifying Information and Funding Source

- Coder Initials: _____ Time Begin: _____
1. Document # _____
 2. First author last name: _____
 3. Institutional setting: _____ (1-7)
 4. Type of publication: _____ (1-3)
 5. Type of funding: _____ (numbers for all that apply)
 6. Number of different "modules" included in report. _____

II. Methodological Rigor

1. Sample size
 Sum of the treatment and comparison units (record range):
 individuals _____ families _____
 classrooms _____ schools _____
 blocks, cities, states, or other geographical units _____
 communities _____ other collectivity (specify) _____
2. Presence of comparison group(s) _____ (1-5)
3. Use of control variables to account for initial group differences _____ (1-5)
4. Variable measurement _____ (1-5)
5. Control for effects of attrition from study _____ (1-5)
6. Post-treatment measurement period
 Length of time from end of treatment to last follow-up (in months) _____
7. Use of statistical significance tests _____ (0-1)
8. Overall evaluation methodology _____ (1-5)

III Identification of Outcome Measures

Check here if no comparison is available _____

1. Level of criminal involvement of targeted population _____ (1-4)
2. Measure of Problem Behavior. Fill in number and letter for all that apply:

3. Risk or protective factors. Fill in letters for all that apply:

IV. Program Effects and Effect Size Computation

Number, letter and name for up to three selected outcomes:

- A: _____
 B: _____
 C: _____

DRAFT

Document # _____

Outcome Measure ____ (A, B, or C):

1. Base rate:

Pre-treatment for treatment group:

Mean _____ Standard deviation _____
Time period covered, in months (e.g., 12 months, 24 months) _____

Comparison group:

Mean _____ Standard deviation _____
Time period covered, in months (e.g., 12 months, 24 months) _____

2. Post-treatment measurement period: _____

3. Effect size:

For pre to post comparison for the treatment group: _____
For pre to post comparison for the comparison group: _____
For post-treatment comparison of treatment and comparison group: _____

4. Means and standard deviations or proportion (for rates) for the outcome measure for the treatment and comparison groups:

Treatment group mean or proportion: _____
Comparison group mean or proportion: _____
Treatment group
standard deviation: _____ or variance: _____

Comparison group
standard deviation: _____ or variance: _____

Pooled standard deviation _____ or
variance _____ for treatment and comparison groups

5. Means and standard deviations or proportion (for rates) for the pre- and post measures for the treatment group:

Post-treatment group mean or proportion: _____
Pre-treatment group mean or proportion: _____
Post-treatment group
standard deviation: _____ or variance: _____

Pre-treatment group
standard deviation: _____ or variance: _____

Pooled standard deviation _____ or
variance _____ for pre- and post

6. Pearson correlation: _____

7. Statistical tests:

(A) Chi-square statistic (with one degree of freedom, i.e. from a 2X2 table):

chi-square value _____ Total study sample size _____

Exact 2-tailed p-level: _____

Nominal significance level (2-tailed; circle one):

p<.05: Yes or No

p<.01: Yes or No

(B) t statistic (for difference between means):

t-value: _____

degrees of freedom _____

or sample size for each condition:

Treatment group or post-condition "n": _____

Comparison group or pre-condition "n": _____

Exact 2-tailed p-level: _____

Nominal significance level (2-tailed; circle one):

p<.05: Yes or No

p<.01: Yes or No

(C) ANOVA :

F-statistic: _____

degrees of freedom in the numerator: _____

degrees of freedom in the denominator: _____

eta: _____ or eta squared: _____

sum of squares in the numerator: _____

sum of squares in the denominator: _____

number of cases in each condition:

treatment group or post-condition "n": _____

comparison group or pre-condition "n": _____

Exact 2-tailed p-level: _____

Nominal significance level (2-tailed; circle one)

p<.05: Yes or No

p<.01: Yes or No

(D) Other statistical test used:

Name of test: _____

Exact 2-tailed p-level: _____

Nominal significance level (2-tailed; circle one)

p<.05: Yes or No

p<.01: Yes or No

8. Direction of effect:

For treatment/comparison group designs: (Check one)

Treatment group has less problem behavior at post-test than comparison group: _____

Comparison group has less problem behavior at post-test than treatment group: _____

No difference exists between groups at post-test: _____

For pre-post designs: (Check one)

Post-level of problem behavior is lower than pre-level: _____

Pre-level of problem behavior is lower than post-level: _____

No difference exists between pre- and post-measures: _____

Time ended: _____

Grade level of treatment group: Code 0 (No) or 1 (Yes) for each grade level:

_____ Mostly early elementary (K-3)

_____ Mostly upper elementary (4-5)

_____ Mostly middle school (6-8)

_____ Mostly high school (9-12)

Range of grade levels included in treatment:
group: _____ to _____