The Future of Crime Prevention:

Developmental and Situational Strategies

Brandon C. Welsh

School of Criminology and Criminal Justice

Northeastern University

David P. Farrington

Institute of Criminology

Cambridge University

Prepared for National Institute of Justice

Final: December 11, 2010

Acknowledgments: An earlier version of this paper was presented at the National Institute of Justice's crime prevention working group meeting in Bethesda, Maryland, October 7-8, 2010. We are extremely grateful for comments from meeting participants and organizers, with special mention to Ron Clarke and Patrick Clark.

I. INTRODUCTION

Crime prevention means many different things to many different people. Programs and policies designed to prevent crime can include the police making an arrest as part of an operation to deal with gang problems, a court disposal to a secure correctional facility, or, in the extreme case, a death penalty sentence. These measures are more correctly referred to as crime control. More often crime prevention refers to efforts to prevent crime or criminal offending in the first instance – before the act has been committed. Both forms of crime prevention share a common goal of trying to prevent the occurrence of a future criminal act, but what distinguishes crime prevention from crime control is that prevention typically operates outside of the confines of the formal justice system. There are, of course, exceptions, as in the case of problem-oriented policing initiatives that incorporate prevention measures (Braga, 2008; Braga and Weisburd, 2010; Weisburd et al., 2010). In this respect, prevention is considered the fourth pillar of crime reduction, alongside the institutions of police, courts, and corrections (Waller, 2006). This categorization draws attention to crime prevention as an alternative approach to the more traditional responses to crime.

There are many possible ways of classifying crime prevention programs. One of the first efforts drew upon the public health approach to preventing diseases and injuries (Brantingham and Faust, 1976; see also Moore, 1995). This divides crime prevention activities into three categories: primary, secondary, and tertiary. Primary prevention involves measures focused on improving the general well-being of individuals, secondary prevention focuses on intervening with children and youth who are at risk for becoming offenders or victims, and tertiary prevention involves measures directed toward those who have already been involved with crime or victimization.

Van Dijk and de Waard (1991) expanded on this classification system to include a second dimension: the target group or focus of crime prevention programs. Influenced by routine activity theory (Cohen and Felson, 1979), this second dimension distinguished among offender-, situation-, and victim-oriented activities. This "two-dimensional" typology allows programs to be organized by the different stages of the development of criminal activity (primary, secondary, or tertiary) and the target group. In many respects, the key contribution of this new typology was to reaffirm the need that efforts to prevent crime must also consider the crime victim (or potential victim) alongside the more traditional targets of offender (or potential offender) and place.

Ekblom (1994) attempted to reconcile these earlier versions with the mechanism- and context-based evaluation approach advocated by Pawson and Tilley (1994; 1997). Three characteristics of prevention programs were relevant: (1) its ultimate objective; (2) "final intermediate objectives" if multiple interventions were employed; and (3) the actual methods used, from development to intervention. Ekblom's approach was not meant as a "rigid 'take it or leave it' classification" but rather a "conceptual toolkit which can be realized in a number of ways in relation to both form and content according to a wide range of needs" (p. 227).

Another classification scheme distinguishes four major prevention strategies (Tonry and Farrington, 1995*b*). Developmental prevention refers to interventions designed to prevent the development of criminal potential in individuals, especially those targeting risk and protective factors discovered in studies of human development (Tremblay and Craig, 1995; Farrington and Welsh, 2007*b*). Situational prevention refers to interventions designed to prevent the occurrence of crimes by reducing opportunities and increasing the risk and difficulty of offending (Clarke, 1995*b*; Cornish and Clarke, 2003). Community prevention refers to interventions designed to change the social conditions and institutions (e.g., families, peers, social norms, clubs,

organizations) that influence offending in residential communities (Hope, 1995). Criminal justice prevention refers to traditional deterrent, incapacitative, and rehabilitative strategies operated by law enforcement and criminal justice system agencies (Blumstein et al., 1978; MacKenzie, 2006).

In *Building a Safer Society: Strategic Approaches to Crime Prevention*, Tonry and Farrington (1995*a*) purposely did not address criminal justice prevention in any substantial fashion. This was because this strategy had been adequately addressed in many other scholarly books. Also, there was a growing consensus on the limited effects of this approach (at least in terms of the more punitive elements) as well as the need for governments to strike a greater balance between these emerging and promising alternative forms of crime prevention and the more traditional responses to crime.

For some of the same reasons, we do not address criminal justice prevention in this paper. Additionally, we focus exclusively on developmental and situational crime prevention; community crime prevention is not covered in any extensive fashion. There are two reasons for this. First, community prevention often overlaps with developmental and situational prevention (Bennett, 1998). Developmental and situational prevention can be delivered in a community setting, but, because they do not address community processes, they are not considered community approaches. Second, much less is known about effective community prevention programs that target the social processes that influence offending (Sherman, 1997; Welsh and Hoshi, 2006).

In this paper we set out to address three main questions as they relate to developmental and situational crime prevention today and in the years to come:

1. What do we know? This pertains largely to the effectiveness of the two strategies.

2. What do we need to know? This concerns gaps in knowledge on effectiveness and related key issues.

3. How can we find out? This final question has to do with research strategies to address the gaps in knowledge and priorities for research.

II. WHAT DO WE KNOW?

There are a great many developmental and situational crime prevention programs and projects that have been evaluated over the years and reported a desirable impact on crime. A smaller number of these effective programs have been evaluated with more rigorous experimental and quasi-experimental designs. This holds true for both situational prevention (Eck, 2006; Guerette, 2009) and developmental prevention (Farrington and Welsh, 2007; Piquero et al., 2009). The respective strategies have also benefited from a good number of literature reviews that have assessed the effectiveness of the accumulated scientific evidence on specific program types or modalities or even domains or contexts in which prevention is delivered. Reviews have also focused on key issues related to effectiveness, including displacement and diffusion effects (Guerette and Bowers, 2009), anticipatory benefits (Smith et al., 2002), and monetary costs and benefits (Drake et al., 2009). Many of these reviews have taken the narrative form, providing rich details on program features but are less authoritative on whether or not the program type is effective, under what conditions or in what contexts it may be effective, and why. Some use rigorous methods for locating, appraising, and synthesizing evidence from prior evaluation studies. These are called systematic reviews and they often incorporate the quantitative technique of meta-analysis.

In this part, we set out to assess what is known about the effectiveness of developmental and situational crime prevention strategies. We do not carry out a systematic review of these extensive literatures. This would far exceed the scope and resources of this project. Importantly, we focus on the highest quality research studies (i.e., experiments and quasi-experiments) and, whenever possible, the most rigorous reviews (i.e., systematic and meta-analytic) that include only high quality projects. This ensures that conclusions are based on the best available evidence.

A. Developmental Crime Prevention

In recent years, most developmental prevention efforts have targeted early risk factors for offending. Risk factors are prior factors that increase the risk of occurrence of the onset, frequency, persistence or duration of offending (Kazdin et al., 1997). Longitudinal data are required to establish the ordering of risk factors and criminal career features. Many risk factors for offending are well established and highly replicable. For example, a systematic comparison of two longitudinal surveys in London and Pittsburgh (Farrington and Loeber, 1999) showed numerous replicable predictors of delinquency over time and place, including impulsivity, attention problems, low school attainment, poor parental supervision, parental conflict, an antisocial parent, a young mother, large family size, low family income, and coming from a broken family. Less well established are the causal mechanisms linking risk factors and offending. For example, does large family size predict offending because of the consequent poor supervision of each child, overcrowded households, poverty, or merely because more antisocial people tend to have more children than others?

One methodological problem is that most knowledge about risk factors is mainly based on variation between individuals, whereas prevention requires variation (change) within individuals. Kraemer et al. (1997) argued that only risk factors that can change within individuals can have causal effects. It is not always clear that findings within individuals would be the same as findings between individuals. To take a specific example, unemployment is a risk factor for offending between individuals, since unemployed people are more likely than employed people to be offenders (West and Farrington, 1977). However, unemployment is also a risk factor for offending within individuals, since people are more likely to offend during their periods of unemployment than during their periods of employment (Farrington et al., 1986). The within-individual finding has a much clearer implication for prevention, namely that a reduction in unemployment should lead to a reduction in offending. This is because it is much easier to demonstrate that a risk factor is a cause in within-individual research. Since the same individuals are followed up over time, many extraneous influences on offending are controlled (Farrington, 1988).

In the Pittsburgh Youth Study, in which 1,500 Pittsburgh males were followed up from age 7 to age 25, risk factors for delinquency were compared both between individuals and within individuals (Farrington et al., 2002). Peer delinquency was the strongest correlate of delinquency in between-individual correlations but did not predict delinquency within individuals. In contrast, poor parental supervision, low parental reinforcement, and low involvement of the boy in family activities predicted delinquency both between and within individuals. It was concluded that these three family variables were the most likely to be causes, whereas having delinquent peers was most likely to be an indicator of the boy's offending.

The basic idea of risk-focused prevention is very simple: Identify the key risk factors for offending and implement prevention methods designed to counteract them. There is often a related

attempt to identify key protective factors against offending and to implement prevention methods designed to enhance them. Typically, longitudinal surveys provide knowledge about risk and protective factors, and experimental and quasi-experimental studies are used to evaluate the impact of prevention and intervention programs. Thus, risk-focused prevention links explanation and prevention, links fundamental and applied research, and links scholars, policy makers, and practitioners (Farrington, 2000). The book *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions* (Loeber and Farrington, 1998) contains a detailed exposition of this approach as applied to serious and violent juvenile offenders.

Risk-focused prevention was imported into criminology from medicine and public health by pioneers such as Hawkins and Catalano (1992). This approach has been used successfully for many years to tackle illnesses such as cancer and heart disease. For example, the identified risk factors for heart disease include smoking, a fatty diet, and lack of exercise. These can be tackled by encouraging people to stop smoking, to have a more healthy low-fat diet, and to take more exercise. Interventions can be targeted on the whole community or on persons at high risk. Typically, the effectiveness of risk-focused prevention in the medical field is evaluated using the "gold standard" of randomized controlled trials, and there has been increasing emphasis in medicine on cost-benefit analyses of interventions. Not surprisingly, therefore, there has been a similar emphasis in criminology on high quality evaluations and on cost-benefit analyses (Welsh et al., 2001; Sherman et al., 2006).

Risk factors tend to be similar for many different outcomes, including violent and non-violent offending, mental health problems, alcohol and drug problems, school failure and unemployment. Therefore, a prevention program that succeeds in reducing a risk factor for offending will in all probability have wide-ranging benefits in reducing other types of social

problems as well. Because of the interest in linking risk factors with prevention programs, risk factors that cannot be changed feasibly in such programs (e.g. gender and race) are of little interest in this paper, except to the extent that they act as moderators (e.g. if the effect of a risk factor is different for males and females).

A major problem of risk-focused prevention is to establish which risk factors are causes and which are merely markers or correlated with causes (Farrington, 2000). It is also desirable to establish mediators (intervening causal processes) between risk factors and outcomes (Baron and Kenny, 1986). Ideally, interventions should be targeted on risk factors that are causes; interventions targeted on risk factors that are markers will not necessarily lead to any decrease in offending. The difficulty of establishing causes, and the co-occurrence of risk factors, encourages the blunderbuss approach: interventions that target multiple risk factors. However, there is also evidence that integrated or multi-modal intervention packages are more effective than interventions that target only a single risk factor (Wasserman and Miller, 1998).

In principle, a great deal can be learned about causes from the results of intervention experiments, to the extent that the experiments establish the impact of targeting each risk factor separately (Robins, 1992). For example, Najaka et al. (2001) attempted to draw conclusions about causality by analyzing relationships between risk factors and antisocial behavior in school-based experiments. Ideally, intervention experiments need to be designed to test causal hypotheses, as well as to test a particular intervention technology. However, there is a clear tension between maximizing the effectiveness of an intervention (which encourages a multiple component approach) and assessing the effectiveness of each component and hence drawing conclusions about causes (which requires disentangling of the different components).

Here, we describe some of the most important programs that have been evaluated using the "gold standard" of randomized experiments. We make special reference to programs that have carried out a cost-benefit analysis, because of our belief in the importance of such analyses. We will also report the results of systematic reviews where they are relevant.

1. *Individual and Family Programs*

Four types of programs are particularly successful: parent education (in the context of home visiting), parent management training, child skills training, and preschool intellectual enrichment programs (Farrington and Welsh, 2007). Generally, the programs are targeted on the risk factors of poor parental child-rearing, supervision or discipline (general parent education or parent management training), high impulsivity, low empathy and self-centeredness (child skills training), and low intelligence and attainment (preschool programs). The systematic review by Piquero et al. (2009) shows that many of these programs are effective.

General parent education. The best known home visiting program (and the only one with a direct measure of delinquency) is the Nurse-Family Partnership carried out in the semi-rural community of Elmira, New York, by David Olds and his colleagues (1998). This program was designed with three broad objectives: (1) to improve the outcomes of pregnancy; (2) to improve the quality of care that parents provide to their children; and (3) to improve the women's own personal life course development (completing their education, finding work, and planning future pregnancies) (Olds et al., 1993, p. 158).

The program enrolled 400 women prior to their 30th week of pregnancy. Women were recruited if they had no previous live births and had at least one of the following high-risk

characteristics prone to health and developmental problems in infancy: under 19 years of age, unmarried, or poor. The women were randomly assigned to receive home visits from nurses during pregnancy, or to receive visits both during pregnancy and during the first two years of life, or to a control group who received no visits. Each visit lasted about one and one-quarter hours and the mothers were visited on average every two weeks. The home visitors gave advice about prenatal and postnatal care of the child, about infant development, and about the importance of proper nutrition and avoiding smoking and drinking during pregnancy.

The results of this experiment showed that the postnatal home visits caused a significant decrease in recorded child physical abuse and neglect during the first two years of life, especially by poor, unmarried, teenage mothers; 4% of visited versus 19% of non-visited mothers of this type were guilty of child abuse or neglect (Olds et al., 1986). This last result is important, partly because children who are physically abused or neglected have an enhanced likelihood of becoming violent offenders later in life (Widom, 1989). In a 15-year follow-up (13 years after program completion), which included 330 mothers and 315 children, significantly fewer experimental compared to control group mothers were identified as perpetrators of child abuse and neglect (29% versus 54%), and, for the higher risk sample only, significantly fewer treatment mothers in contrast to the controls had alcohol or substance abuse problems or were arrested (Olds et al., 1997). At the age of 15, children of the higher risk mothers who received prenatal or postnatal home visits or both had incurred significantly fewer arrests than their control counterparts (20 as opposed to 45 per 100 children; Olds et al., 1998).

Several benefit-cost analyses show that the benefits of this program outweighed its costs for the higher risk mothers. The most important are by Greenwood et al. (2001; see also Karoly et al., 1998) and Aos et al. (2004). Greenwood et al. measured benefits to the government or

taxpayer (welfare, education, employment, and criminal justice) not benefits to crime victims consequent upon reduced crimes. Aos et al. measured a somewhat different range of benefits to the government (education, public assistance, substance abuse, teen pregnancy, child abuse and neglect, and criminal justice), as well as tangible benefits to crime victims. Both reported that, for every dollar spent on the program, the benefits were about three to four times greater; $4.06 according to Greenwood et al. and $2.88 according to Aos et al.

In order to test the generalizability of the results of the Elmira study, two urban replications are currently under way: one in Memphis, Tennessee (Olds et al., 2004a), and the other in Denver, Colorado (Olds et al., 2004b). Early follow-up results of both replications (four and two years after program completion, respectively) show continued improvements on a wide range of outcomes for both nurse-visited mothers and their children compared to their control counterparts.

Preschool programs. The most famous preschool intellectual enrichment program is the Perry project carried out in Ypsilanti (Michigan) by Schweinhart and Weikart (1980). This was essentially a Head Start program targeted on disadvantaged African American children, but did not included the medical or health aspects of Head Start. A sample of 123 children were allocated (approximately at random) to experimental and control groups. The experimental children attended a daily preschool program, backed up by weekly home visits, usually lasting two years (covering ages 3-4). Parents were also actively engaged in educational activities involving Perry Preschool. The aim of the "plan-do-review" program was to provide intellectual stimulation, to increase thinking and reasoning abilities, and to increase later school achievement.

This program had long-term benefits. Berrueta-Clement et al. (1984) showed that, at age

19, the experimental group was more likely to be employed, more likely to have graduated from high school, more likely to have received college or vocational training, and less likely to have been arrested. By age 27, the experimental group had accumulated only half as many arrests on average as the controls (Schweinhart et al., 1993). Also, they had significantly higher earnings and were more likely to be home-owners. More of the experimental women were married, and fewer of their children were born out of wedlock.

The most recent follow-up of this project, at age 40, which included 91% of the original sample, found that the program continued to make an important difference in the lives of the participants (Schweinhart et al., 2005). Compared to the control group, experimental participants had significantly fewer lifetime arrests for violent crimes (32% vs. 48%), property crimes (36% vs. 58%), and drug crimes (14% vs. 34%), and were significantly less likely to be arrested five or more times (36% vs. 55%). Improvements were also recorded in many other important life course outcomes. For example, significantly higher levels of schooling (77% vs. 60% graduating from high school), better records of employment (76% vs. 62%), and higher annual incomes were reported by the program group compared to the controls. A benefit-cost analysis at age 40 found that the Perry project produced just over $17 benefit per dollar of cost, with 76% of this being returned to the general public – in the form of savings in crime, education, and welfare, and increased tax revenue – and 24% benefiting each experimental participant. Desirable results were also obtained in other preschool evaluations (Campbell et al., 2002; Reynolds et al., 2001).

Day care programs. One of the very few prevention experiments beginning in pregnancy and collecting outcome data on delinquency was the Syracuse (New York) Family Development Research Program of Lally et al. (1988). The researchers began with a sample of pregnant women

(mostly poor African American single mothers) and gave them weekly help with child-rearing, health, nutrition and other problems. In addition, their children received free full-time day care, designed to develop their intellectual abilities, up to age 5. This was not a randomized experiment, but a matched control group was chosen when the children were aged 3.

Ten years later, about 120 treated and control children were followed up to about age 15. Significantly fewer of the treated children (2% as opposed to 17%) had been referred to the juvenile court for delinquency offences, and the treated girls showed better school attendance and school performance. However, the benefit-to-cost ratio of this program was only 0.3 according to Aos et al. (1999). This was largely because of the cost of the program ($45,000 per child in 1998 dollars, compared with $14,000 for Perry and $7,000 for Elmira); providing free full-time day care up to age 5 was very expensive. Against this, it is important to note that the early findings of Aos et al. (1999) tend to underestimate the benefit-to-cost ratio.

Parent management training. Perhaps the best known method of parent training was developed by Patterson (1982). Parents were trained to notice what a child is doing, monitor behavior over long periods, clearly state house rules, make rewards and punishments contingent on the child's behavior, and negotiate disagreements so that conflicts and crises did not escalate. His treatment was shown to be effective in reducing child stealing and antisocial behavior over short periods in small-scale studies (Patterson et al., 1982, 1992).

Webster-Stratton and Hammond (1997) evaluated the effectiveness of parent training and child skills training with about 100 Seattle children (average age 5) referred to a clinic because of conduct problems. The children and their parents were randomly allocated to receive either (a) parent training, (b) child skills training, (c) both parent and child training, or (d) to a control group.

The skills training aimed to foster prosocial behavior and interpersonal skills using video modelling, while the parent training involved weekly meetings between parents and therapists for 22 - 24 weeks. Parent reports and home observations showed that children in all three experimental conditions had fewer behavior problems than control children, both in an immediate and in a one-year follow-up. There was little difference between the three experimental conditions, although the combined parent and child training condition produced the most significant improvements in child behavior at the one-year follow-up.

Scott et al. (2001) evaluated the Webster-Stratton parent training program in London, England. About 140 children aged 3-8 who were referred for antisocial behavior were allocated to receive parent training or to be in a control group. The program was successful. According to parent reports, the antisocial behavior of the experimental children decreased, while that of the control children did not change. Since this program is relatively cheap (£571 per child for a 12-week program), it is likely to be cost-effective. Encouraging results were also obtained by Gardner et al. (2006), who evaluated the success of the Webster-Stratton program in Oxfordshire. Also, the systematic review by Piquero et al. (2009) concluded that parent training is effective in reducing children's antisocial behavior.

Skills training. One of the most successful early skills training programs that measured the effects on crime is the Montreal Longitudinal-Experimental Study of Tremblay et al. (1995, 1996). This program combined child skills training and parent training. Tremblay et al. (1996) identified disruptive (aggressive/hyperactive) boys at age 6 (from low socioeconomic neighborhoods in Montreal) and randomly allocated over 300 of these to experimental or control conditions.

Between ages 7 and 9, the experimental group received training designed to foster social skills and self-control. Coaching, peer modeling, role playing, and reinforcement contingencies were used in small group sessions on such topics as "how to help," "what to do when you are angry," and "how to react to teasing." Also, their parents were trained using the parent management training techniques developed by Patterson (1982). Parents were taught how to provide positive reinforcement for desirable behavior, to use nonpunitive and consistent discipline practices, and to develop family crisis management techniques.

By age 12 (three years after treatment), the experimental boys committed significantly less burglary and theft, were significantly less likely to get drunk, and were significantly less likely to be involved in fights than the controls. Also, the experimental boys had significantly higher school achievement (McCord et al., 1994; Tremblay et al., 1992). At every age from 10 to 15, the experimental boys had significantly lower self-reported delinquency scores than the control boys. Interestingly, the differences in delinquency between experimental and control boys increased as the follow-up progressed. Boisjoli et al. (2007) showed that fewer experimental boys had a criminal record by age 24. The systematic review by Lösel and Beelman (2006) also concluded that skills training is effective in reducing delinquency, and Landenberger and Lipsey (2005) found that cognitive-behavioral skills training reduced reoffending in delinquent samples.

2. Peer, School, and Community Programs

Two types of programs are particularly successful: school-based parent and teacher training, school-based anti-bullying programs, and multi-systemic therapy (MST). Generally, the programs are targeted on the risk factors of poor parenting and poor school performance (school-based parent

and teacher training), bullying (school-based anti-bullying), and intra-personal (e.g., cognitive) and systemic (family, peer, school) factors associated with antisocial behavior (MST).

Peer programs. There are no outstanding examples of effective intervention programs for delinquency or later offending based on peer risk factors. The most hopeful programs involve using high-status conventional peers to teach children ways of resisting peer pressure; this has been effective in reducing drug use (Tobler et al., 1999). However, putting antisocial peers together can have harmful effects (Dodge et al., 2006).

The most important intervention program whose success seems to be based mainly on reducing peer risk factors is the Children at Risk program (Harrell et al., 1999), which targeted high risk youths (average age 12) in poor neighborhoods of five cities across the U.S. Eligible youths were identified in schools, and over 670 were randomly assigned to experimental or control groups. The program was a multiple-component community-based prevention strategy targeting risk factors for delinquency, including case management and family counseling, family skills training, tutoring, mentoring, after-school activities and community policing. The program was different in each neighborhood.

The initial results of the program were disappointing (Harrell et al., 1997), but a one-year follow-up showed that (according to self-reports) experimental youths were less likely to have committed violent crimes and used or sold drugs (Harrell et al., 1999). The process evaluation showed that the greatest change was in peer risk factors. Experimental youths associated less often with delinquent peers, felt less peer pressure to engage in delinquency, and had more positive peer support. In contrast, there were few changes in individual, family or community risk factors, possibly linked to the low participation of parents in parent training and of youths in mentoring and

tutoring (Harrell et al., 1997, p. 87). In other words, there were problems of implementation of the program, linked to the serious and multiple needs and problems of the families. No benefit-cost analysis of this program has yet been carried out, but its relatively low cost ($9,000 per youth) and its targeting of high-risk youths suggest that its benefits may possibly outweigh its costs.

School programs. The meta-analyses by Wilson et al. (2001) and Gottfredson et al. (2006) identified four school interventions that were effective in preventing delinquency among youths in middle school and high school: school and discipline management, classroom or instructional management, reorganization of grades or classes, and increasing self-control or social competency with cognitive behavioral or behavioral instructional methods. One of the most important school-based prevention experiments was carried out in Seattle by Hawkins et al. (1991). They implemented a multiple component program combining parent training, teacher training and child skills training. About 500 first grade children (aged 6) in 21 classes in 8 schools were randomly assigned to be in experimental or control classes. The children in the experimental classes received special treatment at home and school which was designed to increase their attachment to their parents and their bonding to the school. Also, they were trained in interpersonal cognitive problem-solving. Their parents were trained to notice and reinforce socially desirable behavior in a program called "Catch them being good". Their teachers were trained in classroom management, for example to provide clear instructions and expectations to children, to reward children for participation in desired behavior, and to teach children prosocial (socially desirable) methods of solving problems.

This program had long-term benefits. O'Donnell et al. (1995) focused on children in low income families and reported that, in the sixth grade (age 12), experimental boys were less likely to

have initiated delinquency, while experimental girls were less likely to have initiated drug use. In a later follow-up, Hawkins et al. (1999) found that, at age 18, the full intervention group (receiving the intervention from grades 1-6) admitted less violence, less alcohol abuse and fewer sexual partners than the late intervention group (grades 5-6 only) or the controls. A benefit-cost analysis of the program by Aos et al. (2004) found that, for every dollar spent on the program, more than $3 was saved to government and crime victims.

School bullying, of course, is a risk factor for offending (Farrington, 1993). Several school-based programs have been effective in reducing bullying. The most famous of these was implemented by Olweus (1994) in Norway. It aimed to increase awareness and knowledge of teachers, parents and children about bullying and to dispel myths about it. A 30-page booklet was distributed to all schools in Norway describing what was known about bullying and recommending what steps schools and teachers could take to reduce it. Also, a 25-minute video about bullying was made available to schools. Simultaneously, the schools distributed to all parents a four-page folder containing information and advice about bullying. In addition, anonymous self-report questionnaires about bullying were completed by all children.

The program was evaluated in Bergen. Each of the 42 participating schools received feedback information from the questionnaire, about the prevalence of bullies and victims, in a specially arranged school conference day. Also, teachers were encouraged to develop explicit rules about bullying (e.g. do not bully, tell someone when bullying happens, bullying will not be tolerated, try to help victims, try to include children who are being left out) and to discuss bullying in class, using the video and role-playing exercises. Also, teachers were encouraged to improve monitoring and supervision of children, especially in the playground. The program was successful in reducing the prevalence of bullying by half.

Ttofi and Farrington (2010) completed a systematic review of the effectiveness of anti-bullying programs in schools. They found 89 high-quality evaluations of 53 different programs. They concluded that, overall, anti-bullying programs were effective. The results showed that bullying and victimization were reduced by about 17-23% in experimental schools compared with control schools.

Community programs. There are a few types of community-based programs that are successful. Mentoring is one example. Big Brothers Big Sisters (BBBS) of America is a national youth mentoring organization that was founded in 1904 and is committed to improving the life chances of at-risk children and teens. One BBBS program brought together unrelated pairs of adult volunteers and youths, ages 10 to 16. Rather than trying to address particular problems facing a youth, the program focused on providing a youth with an adult friend. The premise behind this is that the "friendship forged with a youth by the Big Brother or Big Sister creates a framework through which the mentor can support and aid the youth" (Grossman and Tierney, 1998, p. 405). The program also stressed that this friendship needs to be long lasting. To this end, mentors met with youths on average three or four times a month (for 3 to 4 hours each time) for at least one year.

An evaluation of the BBBS program, by Grossman and Tierney (1998), took place at eight sites across the United States and involved randomly assigning more than 1,100 youths to the program or to a control group that did not receive mentoring. At program completion, it was found that those youths who received the intervention, compared to their control counterparts, were significantly (32%) less likely to have hit someone, initiated illegal drug use (46% less), initiated alcohol use (27% less), or truanted from school (30% less). The experimental group

members were also more likely (but not significantly) than the controls to do better in school and have better relationships with their parents and peers. A benefit-cost analysis of this program by Aos *et al*. (2004) found that for every dollar spent on the program more than $3 was saved to the government and crime victims.

A systematic review and meta-analysis of 18 mentoring programs by Jolliffe and Farrington (2008) concluded that this was an effective approach in preventing delinquency. The weighted mean effect size was $d = .21$, corresponding to a significant 10% reduction in delinquency. Mentoring was more effective in reducing offending when the average duration of each contact between mentor and mentee was greater, in smaller scale studies, and when mentoring was combined with other interventions.

One of the most important community-based treatment programs is MST, which is a multiple component program (Henggeler et al., 1998). The particular type of treatment is chosen according to the particular needs of the youth; therefore, the nature of the treatment is different for each person. The treatment may include individual, family, peer, school and community interventions, including parent training and child skills training. The treatment is delivered in the youth's home, school, and community settings.

Typically, MST has been used with juvenile offenders. For example, in Missouri, Borduin et al. (1995) randomly assigned 176 juvenile offenders (mean age 14) either to MST or to individual therapy, focusing on personal, family and academic issues. Four years later, only 29% of the MST offenders had been rearrested, compared with 74% of the individual therapy group. According to Aos et al. (2001), the benefit-to-cost ratio for MST is very high, largely because of the potential cost savings from targeting chronic juvenile offenders. For every dollar spent on this program, $13 were saved in victim and criminal justice costs. However, two recent

meta-analyses of the effectiveness of MST reached contradictory conclusions. Curtis et al. (2004) found that it was effective, but Littell (2005) reported that it was not.

B. Situational Crime Prevention

Situational prevention stands apart from developmental prevention by its singular focus on the setting or place in which criminal acts take place as well as its crime-specific focus.[1] Related to this is the widely held finding that crime is not randomly distributed across a city or community, but is instead highly concentrated at certain places known as crime "hot spots" (Sherman et al., 1989). For example, it is estimated that across the U.S. 10% of the places are sites for around 60% of the crimes (Eck, 2006, p. 242). In the same way that individuals can have criminal careers, there are also criminal careers of places (Sherman, 1995).

Situational crime prevention has been defined as "a preventive approach that relies, not upon improving society or its institutions, but simply upon reducing opportunities for crime" (Clarke, 1992, p. 3). Reducing opportunities for crime is achieved essentially through some modification or manipulation of the physical environment in order to directly affect offenders' perceptions of increased risks and effort and decreased rewards, provocations, and excuses (Cornish and Clarke, 2003). These different approaches serve as the basis of the highly detailed classification system of situational crime prevention, which can further be divided into 25 separate techniques, each with any number of examples of programs (Cornish and Clarke, 2003).

The theoretical origins of situational crime prevention are wide-ranging (see Newman et al., 1997; Garland, 2000), but it is largely informed by opportunity theory. This theory holds that

[1] It is important to note that situational crime prevention is equally concerned with products (e.g., installation of immobilizers on new cars in some parts of Europe, action taken to eliminate cell phone cloning in the U.S.) and to some extent large-scale systems (e.g., improvements in the banking system to reduce money laundering) (Clarke, 2009). In this paper, we have purposely limited our coverage of situational crime prevention to its focus on places or facilities (for an excellent review, see Ekblom, 2008).

the offender is "heavily influenced by environmental inducements and opportunities and as being highly adaptable to changes in the situation" (Clarke, 1995*a*, p. 57). Opportunity theory includes several more specific theories. One of these is the rational choice perspective. This perspective appears to have had the greatest influence on the pragmatic orientation of situational crime prevention, as articulated by its chief architect, Ron Clarke (1995*a*, *b*, 1997).

The situational approach is also supported by theories that emphasize natural, informal surveillance as a key to crime prevention. For example, Jacobs (1961) drew attention to the role of good visibility combined with natural surveillance as deterrents to crime. She emphasized the association between levels of crime and public street use, suggesting that less crime would be committed in areas with an abundance of potential witnesses.

Lighting improvements, for instance, may encourage increased street usage, which intensifies natural surveillance. The change in routine activity patterns works to reduce crime because it increases the flow of potentially capable guardians who can intervene to prevent crime (Cohen and Felson, 1979). From the potential offender's perspective, the proximity of other pedestrians acts as a deterrent since the risks of being recognized or interrupted when attacking personal or property targets are increased. From the potential victim's perspective, the perceived risks and fears of crime are reduced.

Eck's (2006) review of situational crime prevention programs is the most comprehensive that has been carried out thus far. It focused on the full range of situational measures implemented in both public and private settings. It included both published and unpublished studies. In keeping with its evidence-based approach (see Welsh and Farrington, 2011), it included only the highest quality evaluations in arriving at conclusions about what works and what does not. This had the effect of excluding many situational measures with demonstrated

preventive effects – including steering column locks, redesigned credit cards, and exact-change policies (see Clarke, 1997). Some of these first generation situational prevention measures employed weak evaluations that could not support the assertion that the program produced the reported effect. Eck found that two types of programs were effective and another seven were promising[2] in preventing crime. Nuisance abatement and improved street lighting were the effective ones. Since Eck's review a number of others have been carried out to assess the effectiveness of specific situational interventions, and findings from these will be integrated here.

1. *Nuisance Abatement*

Nuisance abatement involves the use of civil law to curtail drug dealing and related crime problems in private residential premises. It is considered a situational crime prevention measure because of its place-specific focus, as well as its use of the threat of civil action to curtail the problem. It would fall under the strategy of decreasing excuses for committing a crime in Cornish and Clarke's (2003) taxonomy of situational prevention. Four high quality evaluations, including two randomized experiments, were identified, and each of the four showed evidence of reduced drug-related crime. In one of the randomized experiments, in Oakland, California, Mazerolle et al. (1998) compared the impact in controlling social disorder of civil remedies (police working with city agency representatives to inspect drug nuisance properties, coerce landlords to clean up blighted properties, post "no trespassing" signs, enforce civil law codes and municipal regulatory rules, and initiate court proceedings against property owners who failed to comply with civil law citations) versus traditional police tactics (surveillance, arrests, and field interrogations). Observations of street blocks showed that conditions improved in the

[2] Promising programs are those in which the level of certainty from the available scientific evidence is too low to support generalizable conclusions, but there is some empirical basis for predicting that further research could support such conclusions (Farrington et al., 2006, p. 18).

experimental places compared with the control places. In the most direct measure of offending, observed drug selling, there was a significant reduction in prevalence in experimental blocks compared to control blocks.

2. *Improved Street Lighting*

Two more recent reviews confirm Eck's finding that improved street lighting is effective. Clarke (2008) found that better lighting can produce reductions in crime, disorder, and fear of crime. Welsh and Farrington's (2009*a*; see also Farrington and Welsh, 2007*a*) systematic review and meta-analysis (based on 13 high-quality evaluations from the U.S. and the U.K.) found that improved street lighting is effective in city and town centers, residential areas, and public housing communities, and is more effective in reducing property crimes than in reducing violent crimes. In pooling the effects of all 13 studies, it was found that improved street lighting lead to a 21% reduction in crime.

Interestingly, both nighttime and daytime crimes were measured in 9 of the 13 studies. These 9 night/day studies also showed a significant desirable effect of improved lighting on crime, almost a one-third (30%) decrease in crimes in experimental areas compared with control areas. However, the studies that only measured nighttime crime showed no effect. These findings suggest that a theory of street lighting focusing on its role in increasing community pride and informal social control may be more plausible than a theory focusing on increased surveillance and increased deterrence.

One of the most effective lighting schemes took place in Stoke-on-Trent, U.K. (Painter and Farrington, 1999). The study included both adjacent and non-adjacent control areas, which allows for the most accurate measurement of any displacement or diffusion effects. Victim

surveys were used, with an 84% response rate before and an 89% response rate after (of those interviewed before). The incidence of crime decreased by 43% in the experimental area, by 45% in the adjacent area, and by only 2% in the control area. When differences in the pre-test victimization rates (prevalence and incidence) in all three areas were controlled, it was found that the changes in experimental and adjacent areas were significantly greater than in the control area. Police records also showed a decrease in crime of only 2% in the larger police area containing all the project areas. It was concluded that improved street lighting had caused a decrease in crime in the experimental area and that there had been a diffusion of benefits to the adjacent area, which was not clearly delimited from it.

In two studies (Dudley and Stoke-on-Trent), cost-benefit analyses showed that the financial savings from reduced crimes greatly exceeded the financial costs of the improved street lighting (Painter and Farrington, 2001). In the case of Dudley, total monetary benefits were 6.2 times as great as the total costs of the project, including the full capital expenditure. In other words, for each dollar (or British pound in this case) that was spent on the improved lighting scheme, $6.19 was saved to the local council and victims of crime in one year. In the same one year time frame, the Stoke lighting scheme produced a slightly lower return on investment: for each dollar spent on the project, $5.43 was saved to the local council and crime victims. These returns on investment are even more impressive because in each case the capital costs of installing the lighting improvements were taken into account in full, instead of the standard practice of including only the annual debt payment on the capital expenditure calculated over a reasonable life expectancy of the scheme.

3. *Closed-Circuit Television (CCTV)*

CCTV cameras have also been shown to be an effective form of situational prevention, but under much more limited conditions. In a systematic review of 44 high-quality evaluations from the U.S., U.K., and several other Western countries, it was found that CCTV is most effective in reducing crime in car parks, is most effective in reducing vehicle crimes, and is more effective in reducing crime in the U.K. than in other countries (Welsh and Farrington, 2009*a*; see also Welsh and Farrington, 2009*b*). Other reviews by Ratcliffe (2006) and Wilson and Sutton (2003) also conclude that CCTV is effective under similar conditions.

The exact optimal circumstances for effective use of CCTV schemes are not entirely clear at present, and this needs to be established by future evaluation research. It is interesting to note that the success of the CCTV schemes in car parks was mostly limited to a reduction in vehicle crimes (the only crime type measured in 5 of the 6 schemes) and camera coverage was high for those evaluations that reported on it. In the national British evaluation of the effectiveness of CCTV, Farrington et al. (2007) found that effectiveness was significantly correlated with the degree of coverage of the CCTV cameras, which was greatest in car parks. Furthermore, all 6 car park schemes included other interventions, such as improved lighting and security officers. It is plausible to suggest that CCTV schemes with high coverage and other interventions, targeted on vehicle crimes, are effective.

Three of the 6 car park schemes were evaluated by Tilley (1993) in the British cities of Hartlepool, Bradford, and Coventry. Each scheme was part of the British Government's Safer Cities Programme, a large-scale crime prevention initiative that operated from the late 1980s to mid-1990s. In Hartlepool, CCTV cameras were installed in a number of covered car parks and the control area included a number of non-CCTV covered car parks. Security personnel, notices of CCTV, and payment schemes were also part of the package of measures employed to reduce

vehicle crimes. Twenty-four months after the program began thefts of and from vehicles had been substantially reduced in the experimental compared with the control car parks. A 59% reduction in thefts of vehicles was observed in the experimental car parks compared with a 16% reduction in the control car parks. Tilley (1993, p. 9) concluded that, "The marked relative advantage of CCTV covered parks in relation to theft of cars clearly declines over time and there are signs that the underlying local trends [an increase in car thefts] begin to be resumed." The author suggested that the displacement of vehicle thefts from covered to non-covered car parks might have been partly responsible for this.

The systematic review by Welsh and Farrington (2009b) also found that CCTV is associated with a nonsignificant and rather small 7% reduction in crimes in city and town centers. This may raise particular interest among policymakers. This is because this is the most popular public setting for the implementation of CCTV systems in the U.S. and elsewhere (Savage, 2007). There was no clear indication about what may work best in this setting, but lessons can be drawn from the effectiveness of CCTV in car parks. For example, CCTV in city and town centers may be more effective if they are targeted on property crimes, targeted at specific places such as high-crime areas (as part of an effort to increase camera coverage), and combined with other surveillance measures. Regular crime analysis by the police, such as that used in CompStat, could be used to identify those places that are at greatest risk for property crimes, which, in turn, could be used to guide the implementation of video surveillance. The advent of mobile and redeployable CCTV cameras may make this a more feasible and perhaps less costly option (Waples and Gill, 2006). This more targeted approach could also go some way toward reducing the pervasiveness of the threat to the general public's privacy and other civil liberties (Hier, 2010).

Eight of the 44 studies in the systematic review conducted a cost-benefit analysis. In the Doncaster program, Skinns (1998) found that the criminal justice costs saved from fewer prosecutions and sentences (the benefits) were greater than the costs of running the CCTV program by more than 3 times, for a benefit-to-cost ratio of 3.5 to 1. The other 7 programs are part of the recent British national evaluation of CCTV conducted by Gill and Spriggs (2005). Cost-benefit analyses of these 7 programs found mixed results: 3 were worthwhile (the benefits from crimes prevented outweighed the costs of running the program), 3 were inefficient (the costs outweighed the benefits), and the multi-site Hawkeye scheme was worthwhile in the highest risk car parks, with a benefit-to-cost ratio of 1.3 to 1, but not in the car parks judged to be low or medium risk. Gill and Spriggs found the cost-benefit results to be "unsurprising," largely owing to the schemes having "little overall impact on the incidence of crime, but also because the systems' complexity made them expensive to set up and run" (2005, p. 114).

Unfortunately, these 7 cost-benefit analyses were only carried out on those schemes where crime was reduced, however marginally, in the experimental area relative to the control area. This is less than adequate. Desirable results should not be the basis for deciding whether to conduct a cost-benefit or any other economic analysis; such analyses should be planned prospectively, not retrospectively.

4. *Preventing Repeat Residential Burglary Victimization*

Situational measures figure prominently in efforts to prevent repeat victimization, which is generally defined as the "repeated criminal victimization of a person, household, business, other place or target however defined" (Farrell and Pease, 2006, p. 161). These are based on the voluminous body of literature that crime victims are at increased risk of further victimization

(Farrell, 1995). Following on the success of a number of comprehensive crime prevention programs, most notably the British Kirkholt Burglary Prevention Project (Pease, 1991), efforts to prevent repeat victimization have become an important component of crime prevention and policing policy, especially in the U.K.

A systematic review of the prevention of repeat residential burglary victimization, by Farrell and Pease (2006), found that the most effective schemes involve strong preventive mechanisms that are tailored to the local burglary problem in high burglary-rate areas, often combining multiple tactics usually including security upgrades. Furthermore, strong implementation is required, which is not easy to achieve, and reductions in repeat burglaries do not necessarily coincide with an overall reduction in burglary. In contrast, the authors found that the least effective schemes have weak preventive mechanisms (e.g., advice to victims that does not ensure that preventive measures are taken) and poor implementation (e.g., failing to contact victims, lack of security equipment).

5. *Neighborhood Watch*

This highly popular form of citizen surveillance has long been an important component of community crime prevention in the U.S., U.K., and some other Western countries. Used mostly to prevent crimes at private residences, it is also known as block watch, home watch, and community watch. Many neighborhood watch schemes are carried out in partnership with police, with the police providing advice on needed security measures in the home, marking property, and educating the public about home break-ins and their prevention. A number of mechanisms have been proposed for how neighborhood watch schemes can reduce crime, including residents watching out for suspicious activities and reporting these to the police,

reducing opportunities for crime by way of making the home looked lived-in when residents are away, and improving informal social control and community cohesion (Bennett et al., 2006).

A systematic review and meta-analysis of neighborhood watch, which included 18 high quality studies, found that it was associated with a 16% reduction in crime in communities where it was implemented compared to similar communities that did not receive it (Bennett et al., 2006). Further analyses showed that there was no difference in effectiveness between programs based on neighborhood watch alone and those that also included property marking and security surveys carried out by the police. Interestingly, no difference was found in the effectiveness of neighborhood watch programs over time; that is, the first generation of programs evaluated in the 1970s and 1980s were just as effective as their more modern counterparts that were evaluated in the 1990s.

One of the more effective neighborhood watch schemes was implemented in several British communities as part of Safer Cities Programme (Tilley and Webb, 1994). The manner in which neighborhood watch was implemented had some similarities and differences across sites. Target hardening was incorporated at each site in an effort to improve physical security of homes up to a minimum acceptable standard, and two of the sites also incorporated property marking. At each site a project worker was tasked with developing and implementing neighborhood watch schemes. Home watch coordinators were responsible for visiting new tenants and property marking at one site. A significant reduction in residential burglary rates was observed at all three sites compared to the control sites.

6. *Other Programs*

Among the programs that Eck (2006) found to be promising included the use of multiple clerks and store redesign at commercial stores; training for serving staff at bars and taverns; target hardening of public facilities; and street closures or barricades. The latter was recently the focus of a systematic review on the effects of defensible space – Oscar Newman's (1972) principle of changes to the built environment to maximize the natural surveillance of open spaces afforded by people going about their day-to-day activities – and was determined to be effective in reducing both property and violent crimes in inner-city neighborhoods (Welsh and Farrington, 2009*a*; see also Welsh et al., 2010a).

In an evaluation of a traffic barrier scheme in Los Angeles, Lasley (1998) found that violent crimes went down, but there was no change in property crimes. Known as Operation Cul de Sac (because the barriers changed thru-roads into cul-de-sacs), the Los Angeles Police Department installed traffic barriers in a 10-block area of inner-city neighborhoods that were experiencing heightened levels of gang-perpetrated violence, including drive-by shootings, homicides, and assaults. The remaining patrol division areas that surrounded the targeted site served as the control area. In the 2 years that the traffic barriers were in place, the experimental area, compared to the control area, experienced significant reductions in homicide and assault, but no changes were observed in property crimes (i.e., burglary, vehicles crimes, larceny, and bicycle theft). During this period of time, the author found no evidence of displacement of crimes to surrounding neighborhoods. The situation changed once the traffic barriers were removed. In the following year, homicides and assaults increased in the experimental area, and in the control area homicides increased and assaults remained constant. At least for homicides, this provided further support that the program had a desirable effect (Lasley, 1998, p. 3).

It may also be possible to add security guards to the list of promising situational crime prevention methods. A recent systematic review found that security guards are promising when implemented in car parks and targeted at vehicle crimes (Welsh and Farrington, 2009*a*; see also Welsh et al., 2010a). This conclusion is based on two evaluations, both of which produced sizable reductions in vehicle crimes in car parks, as well as the larger body of research on this topic. One potential drawback to this promising designation is that both of the effective programs used other (secondary) interventions: a media campaign in the study by Barclay et al. (1996) and fencing and defensible space measures in the study by Laycock and Austin (1992). Nevertheless, it seems to suggest security guards as a promising strategy, if only because we are not recommending wider use but instead calling for further experimentation.

III. WHAT DO WE NEED TO KNOW?

As the bodies of knowledge on developmental and situational crime prevention continue to grow, there is the need for further research and development on a wide range of critical issues that concern effectiveness. Some of these issues go back many years (e.g., crime displacement, protective factors against offending) with new insights and advancements reported from time to time. Others have emerged as researchers have sought to expand theoretical and conceptual parameters of ways to prevent crime (e.g., guardianship in the context of routine activity theory, behavioral parent training with older children). Still others have come about in what Ekblom (2008) calls the "arms race" between preventers and offenders.

Gaps in knowledge on effectiveness and related key topics and our need to know more about them is the subject of this section. Their coverage here is by no means exhaustive. Rather, we set out to identify and discuss some of the most important issues for further research.

A. Developmental Crime Prevention

Risk-focused prevention has been extremely successful in many ways. However, as mentioned, some of the risk factors that have been targeted may not be causes of offending. It would be more efficient to target causes rather than risk factors. It would also be highly desirable to determine what are the "active ingredients" of multiple-component programs, so that nonessential components might be considered for elimination. This might save money without reducing effectiveness. It would also be desirable to know what are the mechanisms that mediate between the intervention and the outcome. These are often unclear and not measured or assessed in the context of this research.

Another key issue is the need to match types of interventions to types of individuals. Information is needed about moderators of effects. For example, programs may be differentially effective with different sexes, ages, and races of children, and different program elements may be needed for the different categories. Ideally, programs should be preceded by an assessment phase that assesses both risks and needs. This could help in selecting individuals for interventions and in determining what types of interventions are useful or needed for each type of person.

Some public health interventions could be given to all children. However, it is probably more efficient to target the most "deserving" cases. It is unclear, however, whether it is best to target interventions as the "worst" cases or on the "next worst" cases. For example, because the most problematic 5% of children account for a disproportionate fraction of all social problems, including offending, it might seem most cost-effective to target them in interventions. However, the most problematic 5% of children are also likely to be the most resistant to change, because

they are affected by multiple social and family stressors. Therefore, it might be more cost-effective to target the "next worst" 10% of children, but little is known about this.

We have concentrated on evaluations that include a cost-benefit analysis in this paper, because such analyses are extremely important and influential with government policy-makers who are concerned to spend dollars most efficiently. However, relatively few evaluations have included a cost-benefit analysis, and most existing analyses do not include all possible costs and benefits. For example, the excellent cost-benefit analyses by Aos et al. (2004) include tangible benefits to crime victims but not intangible benefits such as a decrease in pain and suffering, which were assessed by Cohen and Piquero (2009).

Most existing evaluations measure a limited range of outcomes and do not include follow-up interviews with participants. Often, the most important follow-up assessments are based on criminal records, rather than on a wide range of indicators of life success such as in school, employment, relationships, substance use, etc. Even measures based on criminal records do not assess many criminal career features such as the frequency and seriousness of offending or the duration of criminal careers. Follow-up periods in evaluation studies are often rather short. It is desirable to investigate long-term outcomes, which might be different from short-term outcomes. For example, there may be immediate benefits of a program which soon disappear.

Little is known about external validity, or the extent to which programs work in different circumstances or contexts. More replications of evaluations are needed. In particular, many programs work well in a small-scale demonstration project but less well in large scale routine implementation. It is not clear why scaling-up causes an attenuation of program effects. For example, the treatment personnel and quality control may be much better in the small scale

demonstration project, or the program fidelity may be less and the population heterogeneity may be greater in the large scale implementation. Welsh et al. (2010b) have discussed these issues and have suggested how knowledge about this topic might be advanced.

Finally, it is usually true that little is known about how programs were implemented, and the extent to which different individuals received different elements of a multiple component package. It is vital to collect this information, in order to explain why programs worked with some individuals rather than with others.

B. Situational Crime Prevention

The first priority for situational prevention should be to learn more about those programs classified as promising. Whether one uses the rules set out in the University of Maryland report on what works (Sherman et al., 1997; see also Farrington et al., 2006) or some other methodological approach for assessing research evidence (e.g., systematic review, meta-analytic review), the reasoning is the same: At a minimum, without a measure of external validity, it is not feasible to claim that a program type or model is effective.

There are of course many more programs that are promising than effective. It is not enough to call for more research here. What is needed is a program of replication experiments to investigate if the results can be reproduced. In the case of security guards, for example, it would be beneficial to first know if they can be effective in reducing vehicle crimes in car parks. (In the previous section, we discussed research that shows that this approach is promising.) It would then be beneficial to investigate if the results are generalizable to different contexts (e.g., city or town centers, public transportation, commercial premises) and crime types. We return to this point in the next section.

Fairly or unfairly, situational crime prevention often raises concerns over the displacement of crime. This is the notion that offenders simply move around the corner or resort to different methods to commit crimes once a crime prevention project has been introduced.[3] Thirty years ago, Reppetto (1976) identified five different forms of displacement: temporal (change in time), tactical (change in method), target (change in victim), territorial (change in place), and functional (change in type of crime). Usually, displacement follows from target hardening (e.g., the installation of locks or physical barriers) and other measures that attempt to increase the perceived effort required to commit a crime.

What Clarke (2009) and many others (Gabor, 1990; Hesseling, 1994) have found and rightly note is that displacement is never 100%. Moreover, a growing body of research has shown that situational measures may instead result in a diffusion of crime prevention benefits or the "complete reverse" of displacement (Clarke and Weisburd, 1994; Guerette and Bowers, 2009). Similar results have been found for hot-spots policing interventions (Braga, 2006; Weisburd et al., 2006). Instead of a crime prevention project displacing crime, the project's prevention benefits are diffused to the surrounding area, for example. Clarke and Weisburd (1994) contend that this occurs in one of two ways: by affecting offenders' assessment of risk (deterrence) or by affecting offenders' assessment of effort and reward (discouragement).

In the most comprehensive review to date on displacement and diffusion effects of situational prevention programs, Guerette and Bowers (2009, p. 1357) found that the occurrence of displacement is more the "exception rather than the rule," and diffusion is somewhat more likely to take place than displacement (27% vs. 26%). Their systematic review included 102 evaluations (with more than 570 observations), covering a wide range of situational crime prevention techniques. Among a much smaller group of evaluations that allowed for more

[3] For a discussion of "benign" or desirable effects of displacement, see Barr and Pease (1990).

detailed analyses, the authors found that when displacement did occur, its effects were more often mitigated by the overall desirable treatment effect.

Smith et al. (2002) argue that researchers should also investigate the closely related phenomenon of "anticipatory benefits," whereby crime reduction occurs earlier than anticipated; that is, before implementation of an intervention. In their extensive review on the subject, Smith et al. found evidence of an anticipatory effect in approximately 40% of studies that were deemed capable of reporting on it (22 out of 52 studies). Many more studies provided insufficient details to allow for its investigation. The authors note that there are many possible reasons for why anticipatory benefits may occur, including publicity by the project organizers or media. Guerette (2009) draws attention to the important implications this issue holds for evaluations of situational prevention programs; namely, the need to use time-series data to detect any crime reduction that precedes implementation.

Another matter deserving of more attention concerns the public/private divide in situational prevention. More so than developmental prevention, situational prevention is used in private settings. Convenience stores, banks, and shopping malls are just a few of the private places or facilities where various situational measures are used and evaluations have been carried out. While programs in both public and private places present unique challenges, there is a paucity of evaluations of some forms of situational prevention in the private sector. One of the reasons for this is the private sector's resistance to independent evaluation of their practices and, equally important, making any evaluations (independent or otherwise) publicly available. There are some excellent evaluations of the application of situational measures in the private sector (for reviews, see Hunter and Jeffrey, 1997; Eck, 2006), but until such time that the private sector embraces evaluation research more fully it will be difficult to assess in any comprehensive way

the effectiveness of certain situational practices in preventing crime in private places. Another reason for the poor state of evaluation research in the private sector may stem from biases of criminologists about what is interesting and useful research, and because governments have not fully understood that assisting private security benefits the public sector as much as the private.

One other matter that we need to know more about concerns other potential benefits associated with situational crime prevention programs. Unlike developmental prevention, evaluations of situational programs are usually limited to the outcome measure of crime and sometimes fear of crime. While crime is by far the predominant focus of situational prevention, there are many other outcomes that can be measured and have direct bearing on effectiveness. In the case of street lighting, for example, it may provide benefits (during the nighttime hours) in the form of increased pedestrian and traffic safety and increased usage of public parks and other recreational areas. Los Angeles' Summer Night Lights program that operates in parks across the city is an example of this (Cathcart, 2009). It may also foster private enterprise. The increased pedestrian traffic that can flow from street lighting might also translate into increased patronage for businesses in the area.

There seem to be many more potential benefits associated with CCTV. For the police, the potential benefit of CCTV in reducing crime by deterring offenders from committing an illegal activity may be much lower on its list of priorities than the apprehension of suspects who were caught on camera committing a crime (see Norris and McCahill, 2006). The use of a camera image to aid in the identification and apprehension of a suspect, as well as to help secure a conviction in criminal court, is a common justification that is used by police and prosecutors alike in many U.S. cities that are currently experimenting with increased use of video surveillance in public places (Ballou, 2007; McCarthy, 2007).

Police officer safety is another potential benefit associated with CCTV. This has come about through the installation of CCTV cameras in patrol cars to record the events of roadside stops, for example. The use of CCTV in city and town centers and other public places may also potentially contribute to improved police officer safety. CCTV may also result in increased pedestrian and traffic safety. This could follow from the use of speed cameras and red light cameras (i.e., to record vehicles going through red lights at intersections), which are already used extensively in some cities in the U.S. and elsewhere.

IV. HOW CAN WE FIND OUT?

A. Directions for Research

In order to advance knowledge about the effectiveness of developmental prevention, a new generation of longitudinal-experimental studies is needed. Longitudinal and experimental methods can be combined by including intervention experiments in longitudinal studies (Farrington et al., 2010). While prospective longitudinal surveys are best for establishing risk and protective factors for offending, randomized experiments can help to establish which risk and protective factors have causal effects. The longitudinal-experimental design is economical, since it uses the same people to study risk factors and developmental pathways as well as the effects of interventions. The longitudinal data before the intervention helps to understand pre-existing trends and interactions between types of persons and types of interventions, while the longitudinal data after the intervention helps to establish its long-term impact. Sometimes, the effects of an intervention increase over time and only become fully apparent years later (e.g. Schweinhart et al., 1993; Tremblay et al., 1995). In a more complex design, multiple cohorts of individuals could be followed up; knowledge about risk and protective factors in older cohorts

could then inform later intervention experiments in younger cohorts, and the results of intervention experiments in older cohorts could inform the later measurement of risk and protective factors in younger cohorts.

In order to advance knowledge about causes, more evaluations could be designed to test hypotheses rather than to test a multiple-component intervention technology. In new experimental studies, multiple-component interventions should be designed to make it possible to evaluate the impact of each component, or should be followed by a program of single component interventions designed to disentangle which are the active ingredients. A new research agenda of randomized experiments should be developed, designed to advance knowledge about the causes of offending as well as test the effectiveness of intervention technologies in different neighborhoods and countries.

Efforts should also be made to investigate the mechanisms that mediate between the intervention and the outcome. This will require repeated interviews with participants. Research is also needed on moderators of program effects, and especially on whether programs are differentially effective with different sexes, ages, and races of children. Interventions should be preceded by an assessment phase, and later analyses should investigate what elements of the assessment predict the success of the intervention. Also, the extent to which program elements were implemented should be investigated. A particular effort should be made to determine whether it is better to target the "worst" cases or the "next worst" cases.

New evaluation studies should include long-term follow-ups and repeated interviews with participants, in order to discover long-term effects of the intervention. Also, new evaluation studies should measure a wide range of outcomes, including offending and criminal career features, and also measures of life success in school, employment, relationships, substance use,

etc. In addition, new evaluation studies should be designed to assess external validity as well as internal validity, by implementing a program initially on a small scale in one location and later on a larger scale in several other locations.

In our opinion, it would be highly desirable to mount new longitudinal-experimental studies that have at least three years of personal contacts with the subjects before and after an intervention, and that also have repeated, frequent data collection from a variety of sources. Large samples (e.g., 500 persons) would be needed to have sufficient statistical power to investigate risk and protective factors, criminal career features, and the effects of interventions on offending. These kinds of studies would not be cheap, although one way of minimizing the cost might be to add an experimental intervention to an existing longitudinal study. However, they could lead to significant advances in knowledge about the development, explanation, prevention, and treatment of offending and antisocial behavior.

Most evaluations of situational crime prevention programs are area-based. Advancing knowledge about the effectiveness of situational prevention should begin with attention to the methodological rigor of the evaluation designs. The best and most feasible design usually involves before and after measures of crime in experimental and comparable control conditions, together with statistical control of extraneous variables (Cook and Campbell, 1979; Shadish et al., 2002). It is desirable in future evaluations to compare several experimental areas with several comparable control areas. If the areas were relatively small, it might be possible to randomly allocate areas to experimental and control conditions or to have alternate periods with or without the intervention. In addition, future evaluations should include interviews with potential offenders and potential victims to find out what they know about the intervention and

their views on associated social costs, to test hypotheses about mediators between the intervention and crime, and to have measures of crime other than those from official sources.

It would also be desirable to have a long time series of crime rates in experimental and comparable control areas before and after the intervention to investigate the persistence of any effects on crime. This would also allow for the identification of anticipatory benefits. In the situational crime prevention literature, brief follow-up periods are the norm, but "it is now recognized that more information is needed about the longer-term effects of situational prevention" (Clarke, 2001, p. 29).

Future research should also investigate more fully the displacement of crime and diffusion of crime prevention benefits. This requires the use of both comparable adjacent and non-adjacent control areas. Wherever possible, Bowers and Johnson's (2003) weighted displacement quotient technique should be used to investigate any spatial displacement or diffusion effects. This technique requires the use of at least two comparison areas: one adjacent to the treatment area that serves as a buffer to determine displacement/diffusion effects, and one non-adjacent area that is immune from treatment contamination. It also requires calculations of measurements that can assess the size of displacement or diffusion in relation to any gains achieved in the treatment area.

Future research also needs to pay more attention to the implementation of crime prevention programs and its influence on program outcomes (Durlak and DuPre, 2008). Successful implementation calls for taking account of local context and conditions. For example, detailed observational and other information on the crime problem that is the focus of the attention, as well as the setting (e.g., urban density, unemployment rates), can be matched with the proven prevention program and modifications can then be made as needed.

Lastly, cost-benefit analyses should be carried out in all evaluations to assess the financial costs and benefits of all programs. These cost-benefit analyses need to be more wide-ranging than previous analyses, in including criminal justice and social costs as well as tangible and intangible victim costs. Also, long-term follow-ups are desirable to assess benefits and costs that may only become apparent years after the intervention. Ideally, the costs and benefits of developmental and situational crime prevention should be compared with those of police, courts, and prison.

The next section builds on this research agenda by exploring some policy implications for an integrated developmental/situational crime prevention strategy. It discusses Communities That Care (CTC) as a model for delivering this integrated approach at the local level, overviews key crime prevention developments in the U.K., and describes some benefits of establishing a national crime prevention agency.

B. Policy Implications

1. *Communities That Care*

In the interests of maximizing effectiveness, what is needed is a multiple-component community-based program including several of the successful interventions (both developmental and situational) listed above. Many of the programs reviewed in this paper are of this type. However, CTC has many attractions (Farrington, 1996). Perhaps more than any other program, it is evidence-based and systematic: the choice of interventions depends on empirical evidence about what are the important risk and protective factors in a particular community and on empirical evidence about "what works" (Sherman et al., 2006). CTC is supported at the local level across the U.S., at the last count in several hundred communities (Harachi et al., 2003). It has also

been implemented in over 20 sites in England, Scotland, and Wales, and in Australia, Canada, and the Netherlands (Flynn, 2008; France and Crow, 2001; Utting, 1999). While the effectiveness of its individual components is clear, there are promising signs – based on a large-scale randomized controlled trial in the U.S. – that the overall CTC strategy is also effective (Hawkins et al., 2008).

CTC was developed as a risk-focused prevention strategy by Hawkins and Catalano (1992), and it is a core component of OJJDP's Comprehensive Strategy for Serious, Violent, and Chronic Juvenile Offenders (Wilson and Howell, 1993). CTC is based on a theory (the social development model) that organizes risk and protective factors. The intervention techniques are tailored to the needs of each particular community. The "community" could be a city, a county, a small town, or even a neighborhood or a housing estate. This program aims to reduce delinquency, drug use, and crime by implementing particular prevention strategies that have demonstrated effectiveness in reducing risk factors or enhancing protective factors. It is modeled on large-scale community-wide public health programs designed to reduce illnesses such as coronary heart disease by tackling key risk factors (e.g., Farquhar, 1985; Perry et al., 1989). There is great emphasis in CTC on enhancing protective factors and building on strengths, partly because this is more attractive to communities than tackling risk factors. However, it is generally true that health promotion is more effective than disease prevention (Kaplan, 2000).

CTC programs begin with community mobilization. Key community leaders (e.g., elected representatives, education officials, police chiefs, business leaders) are brought together, with the aim of getting them to agree on the goals of the prevention program and to implement CTC. The key leaders then set up a Community Board that is accountable to them, consisting of neighborhood residents and representatives from various agencies (e.g., school, police, social services, probation,

health, parents, youth groups, business, church, and media). The Community Board takes charge of prevention on behalf of the community.

The Community Board then carries out a risk and protective factor assessment, identifying key risk factors in that particular community that need to be tackled, and key protective factors that need enhancing. This risk assessment might involve the use of police, school, social or census records or local neighborhood or school surveys. After identifying key risk and protective factors, the Community Board assesses existing resources and develops a plan of intervention strategies. With specialist technical assistance and guidance, they choose programs from a menu of strategies that have been shown to be effective in well-designed evaluation research.

The menu of strategies draws upon the most effective developmental and situational crime prevention modalities, as well as community-based and problem-oriented policing strategies. While the choice of prevention strategies is based on empirical evidence about effective methods of tackling crime risk factors, it also depends on what are identified as the most pressing problems in the community. This approach is not without its challenges and complexities (e.g., cost, implementation, establishing partnerships among diverse agencies), but there is wide agreement that an evidence-based approach that brings together the most effective prevention programs across multiple domains offers the greatest promise for reducing crime and building safer communities.

2. *Crime Prevention in the U.K.*

There have been many commendable U.K. crime prevention initiatives in recent years. Many of these have had a developmental focus. In September 2006, the U.K. government announced an action plan for "social exclusion," which is a general concept including antisocial behavior, teenage pregnancy, educational failure, and mental health problems (Cabinet Office,

2006). This action plan emphasized early intervention, better coordination of agencies, and evidence-based practice (systematically identifying what works and rating evaluations according to methodological quality; see Farrington, 2003). It proposed home visiting programs targeting at-risk children from birth to age 2, implemented by midwives and health visitors, inspired by the work of David Olds (Olds et al., 1998). It proposed that teenage pregnancy "hot spots" would be targeted with enhanced social and relationship education and better access to contraceptives. It proposed multi-agency and family-based approaches to tackle behavioral and mental health problems in childhood, including treatment foster care (Chamberlain and Reid, 1998) and MST (Henggeler et al., 1998). It also proposed interventions for adults with chaotic lives, mental health problems, and multiple needs, to try to get more of them into employment.

Since the mid-1990s, there has been increasing emphasis on early intervention and evidence-based practice in the UK (Sutton et al., 2004, 2006). In 1995, Child and Adolescent Mental Health (CAMHS) teams were established in every part of the country to provide support for children and young people who were experiencing a range of emotional and behavioral difficulties. The services fall within the remit of the Department of Health and practitioners typically employ a wide range of theoretical approaches.

The major government initiative for preschool children is called Sure Start (www.surestart.gov.uk). The first Sure Start centers were established in 1999 in disadvantaged areas, and there are now over 800 Sure Start programs in the U.K. These centers provide early education and parenting programs, integrated with extended childcare, health, and family support services. The services are supposed to be evidence-based. Widely used parenting programs include the Incredible Years (Webster-Stratton, 2000), Triple-P (Sanders et al., 2000), and Strengthening Families, Strengthening Communities (Steele et al., 1999). A National

Academy for Parenting Practitioners has been established.

Sure Start programs are currently being developed into Children's Centers, to cover every part of the UK. Typically, these will be service hubs for children under age 5, offering and coordinating information to support children and their parents. One of their implicit objectives is to reduce conduct disorder and aggressiveness among young children through the provision of parenting programs. The Centers also contribute to the strategic objectives of *Every Child Matters,* the major government policy document (Chief Secretary to the Treasury, 2003; www.everychildmatters.gov.uk). This applies to all children from birth to age 19 and aims to improve educational achievement and reduce the levels of ill health, teenage pregnancy, abuse and neglect, crime, and antisocial behavior.

For better or worse, CCTV has seemingly dominated U.K. policy on situational crime prevention in recent years. Over the past decade, CCTV accounted for more than three-quarters of total spending on crime prevention by the British Home Office (Koch, 1998; Reuters, 2007). But there have been other situational initiatives that have received government support and have been widely embraced by practitioners. Two of these initiatives include a focus on repeat victimization and residential burglary prevention schemes. At the center of much of the leading research on situational prevention in the U.K. is the Jill Dando Institute of Crime Science at University College London (for an overview, see Tilley and Laycock, 2007).

3. *The Need for a National Crime Prevention Agency*

Nationally and locally in the U.S. or U.K., there is no agency whose primary mandate is the prevention of crime. This national agency could provide technical assistance, skills, and knowledge to local agencies in implementing prevention programs, could provide funding for such programs,

and could ensure continuity, coordination, and monitoring of local programs. It could provide training in prevention science for people in local agencies, and could maintain high standards for evaluation research. It could also act as a center for the discussion of how policy initiatives of different government agencies influence crime and associated social problems. It could set a national and local agenda for research and practice in the prevention of crime, drug and alcohol abuse, mental health problems, and associated social problems. National crime prevention agencies that emphasize both developmental and situational crime prevention strategies have been established in other countries, such as Canada and Sweden.

The national agency could also maintain a computerized register of evaluation research and, like the National Institute of Clinical Excellence, advise the government about effective and cost-effective crime prevention programs. Medical advice in the U.K. is often based on systematic reviews of the effectiveness of health care interventions organized by the Cochrane Collaboration and funded by the U.K. National Health Service. Systematic reviews of the evaluation literature on the effectiveness of developmental and situational interventions should be commissioned and funded by government agencies. The U.S. National Institute of Justice has already funded a number of these reviews. In the U.K., the National Policing Improvement Agency, in partnership with the Campbell Collaboration's Crime and Justice Group and the Center for Evidence-Based Crime Policy at George Mason University, has also funded a number of systematic reviews, many with a specific focus on situational prevention and policing.

In the U.S. the Center for Problem-Oriented Policing plays a major role in furnishing the law enforcement community and crime prevention practitioners in general with information and guidance on developing and implementing effective situational crime prevention practices. Innovative policing strategies like problem-oriented policing often incorporate situational measures

(Braga, 2008). The Center is also instrumental in advocating for more rigorous evaluations of problem-oriented policing and situational prevention programs.

4. *Conclusions*

Crime prevention has entered a new, more robust phase of research activity and holds greater relevance to policy and practice today than ever before. It stands as an important component of an overall strategy to reduce crime. These achievements are not just the cumulative effect of years of a slow, sometimes less than steady progress of a social movement; other developments figure more prominently. Perhaps most important is the recent movement toward rational and evidence-based crime policy. This has brought greater attention to the need for higher quality program evaluations as well as the need for more rigorous, systematic methods to synthesize the research evidence and examine policy implications. Related to this development is the growing evidence base of scientific knowledge on the effectiveness of a wide range of developmental and situational crime prevention modalities. Also of importance to crime prevention's standing is the widely held view of the need to strike a greater balance between prevention and punishment. This has become more urgent in recent years as many states across the country are faced with budget crises, compounded by years of punitive crime policies. Developmental and situational crime prevention seem well poised to help change this state of affairs and make a major contribution to crime reduction in this country.

References

Abbott, R. D., J. O'Donnell, J. David Hawkins, Karl G. Hill, Rick Kosterman, and Richard F. Catalano. 1998. Changing teaching practices to promote achievement and bonding to school. *American Journal of Orthopsychiatry* 68: 542-552.

Aos, Steve, Polly Phipps, Robert Barnoski, and Roxanne Lieb. 1999. *The Comparative Costs and Benefits of Programs to Reduce Crime* (version 3.0). Olympia: Washington State Institute for Public Policy.

Aos, Steve, Polly Phipps, Robert Barnoski, and Roxanne Lieb. 2001. *The Comparative Costs and Benefits of Programs to Reduce Crime* (version 4.0). Olympia: Washington State Institute for Public Policy.

Aos, Steve, Roxanne Lieb, J. Mayfield, M. Miller and Anee Pennucci. 2004. *Benefits and Costs of Prevention and Early Intervention Programs for Youth.* Olympia: Washington State Institute for Public Policy.

Ballou, Brian R. 2007. "Police to Widen Use of Cameras: Cite Aid Provided in 2 Homicide Cases." *Boston Globe*, September 23, 2007. Available at: www.boston.com.

Barclay, Paul, Jennifer Buckley, Paul J. Brantingham, Patricia L. Brantingham, and Terry Whinn-Yates. 1996. "Preventing Auto Theft in Suburban Vancouver Commuter Lots: Effects of a Bike Patrol." In *Preventing Mass Transit Crime. Crime Prevention Studies*, vol. 6, edited by Ronald V. Clarke. Monsey, NY: Criminal Justice Press.

Baron, R. M. and D. A. Kenny. 1986. "The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations." *Journal of Personality and Social Psychology* 51: 1173-1182.

Barr, Robert, and Ken Pease. 1990. "Crime Placement, Displacement, and Deflection." In *Crime and Justice: A Review of Research*, vol. 12, edited by Michael Tonry and Norval Morris. Chicago: University of Chicago Press.

Bennett, Trevor H. 1998. "Crime Prevention." In *The Handbook of Crime and Punishment*, edited by Michael Tonry. New York: Oxford University Press.

Bennett, Trevor H., Katy Holloway, and David P. Farrington. 2006. "Does Neighborhood Watch Reduce Crime? A Systematic Review and Meta-Analysis." *Journal of Experimental Criminology* 2: 437-458.

Berrueta-Clement, J. R., L. J. Schweinhart, W. S. Barnett, A. S. Epstein, and D. P. Weikart. 1984. *Changed Lives: The Effects of the Perry Preschool Program on Youths Through Age 19*. Ypsilanti, Michigan: High/Scope Press.

Blumstein, Alfred, Jacqueline Cohen, and Daniel S. Nagin, eds. 1978. *Deterrence and Incapacitation*. Washington, DC: National Academy Press.

Boisjoli, R., F. Vitaro, E. Lacourse, E. D. Barker, and R. E. Tremblay. 2007. Impact and clinical significance of a preventive intervention for disruptive boys. *British Journal of Psychiatry*, 191, 415-419.

Borduin, C. M., B. J. Mann, L. T. Cone, S. W. Henggeler, B. R. Fucci, D. M. Blaske, and R. A. Williams. 1995. Multisystemic treatment of serious juvenile offenders: Long-term prevention of criminality and violence. *Journal of Consulting and Clinical Psychology* 63: 569-587.

Bowers, Kate J., and Shane D. Johnson. 2003. "Measuring the Geographical Displacement and Diffusion of Benefit Effects of Crime Prevention Activity." *Journal of Quantitative Criminology* 19: 275-301.

Braga, Anthony A. 2006. "Policing Crime Hot Spots." In *Preventing Crime: What Works for Children, Offenders, Victims, and Places*, edited by Brandon C. Welsh and David P. Farrington. New York: Springer.

Braga, Anthony A. 2008. *Problem-Oriented Policing and Crime Prevention*, 2nd edition. Monsey, NY: Criminal Justice Press.

Braga, Anthony A., and David Weisburd. 2010. *Policing Problem Places: Crime Hot Spots and Effective Prevention*. New York: Oxford University Press.

Brantingham, Paul J., and Frederick L. Faust. 1976. "A Conceptual Model of Crime Prevention." *Crime and Delinquency* 22: 284-296.

Cabinet Office (2006). *Reaching Out: An Action Plan for Social Exclusion.* London, England: Cabinet Office.

Campbell, F. A., Ramey, C. T., Pungello, E., Sparling, J. and Miller-Johnson, S. 2002. Early childhood education: Young adult outcomes from the Abercedarian project. *Applied Developmental Science* 6: 42-57.

Cathcart, Rebecca. 2009. "Lighting Up Tough Parks' Darkness." *New York Times*, July 11. Available at: www.nytimes.com.

Chamberlain, P. and J. B. Reid. 1998. Comparison of two community alternatives to incarceration for chronic juvenile offenders. *Journal of Consulting and Clinical Psychology* 66: 624-633.

Chief Secretary to the Treasury. 2003. *Every Child Matters.* London, England: The Stationery Office.

Clarke, Ronald V. 1992. "Introduction." In *Situational Crime Prevention: Successful Case Studies*, edited by Ronald V. Clarke. Albany, NY: Harrow and Heston.

Clarke, Ronald V. 1995a. “Opportunity-Reducing Crime Prevention Strategies and the Role of Motivation.” In *Integrating Crime Prevention Strategies: Propensity and Opportunity*, edited by Per-Olof H. Wikström, Ronald V. Clarke, and Joan McCord. Stockholm, Sweden: National Council for Crime Prevention.

Clarke, Ronald V. 1995b. “Situational Crime Prevention.” In *Building a Safer Society: Strategic Approaches to Crime Prevention*, edited by Michael Tonry and David P. Farrington. Vol. 19 of *Crime and Justice: A Review of Research*. Chicago: University of Chicago Press.

Clarke, Ronald V., ed. 1997. *Situational Crime Prevention: Successful Case Studies*, 2nd ed. Guilderland, NY: Harrow and Heston.

Clarke, Ronald V. 2001. “Effective Crime Prevention: Keeping Pace with New Developments.” *Forum on Crime and Society* 1(1): 17-33.

Clarke, Ronald V. 2008. *Improving Street Lighting to Reduce Crime in Residential Areas.* Problem-Oriented Guides for Police Response Guides Series, no. 8. Washington, DC: Office of Community Oriented Policing Services, U.S. Department of Justice.

Clarke, Ronald V. 2009. “Situational Crime Prevention: Theoretical Background and Current Practice.” In *Handbook on Crime and Deviance*, edited by Marvin D. Krohn, Alan J. Lizotte, and Gina Penly Hall. New York: Springer.

Clarke, Ronald V., and David Weisburd. 1994. “Diffusion of Crime Control Benefits: Observations on the Reverse of Displacement.” In *Crime Prevention Studies*, vol. 2, edited by Ronald V. Clarke. Monsey, NY: Criminal Justice Press.

Cohen, Lawrence E., and Marcus Felson. 1979. “Social Change and Crime Rate Trends: A Routine Activity Approach.” *American Sociological Review* 44: 588-608.

Cohen, M. A. and A. R. Piquero. 2009. New evidence on the monetary value of saving a high risk youth. *Journal of Quantitative Criminology* 25: 25-49.

Cook, Thomas D., and Donald T. Campbell. 1979. *Quasi-Experimentation: Design and Analysis Issues for Field Settings*. Chicago: Rand McNally.

Cornish, Derek B., and Ronald V. Clarke. 2003. “Opportunities, Precipitators and Criminal Decisions: A Reply to Wortley’s Critique of Situational Crime Prevention.” In *Theory for Practice in Situational Crime Prevention*, edited by Martha J. Smith and Derek B. Cornish. Vol. 16 of *Crime Prevention Studies*. Monsey, NY: Criminal Justice Press.

Curtis, N. M., Ronan, K. R., and Borduin, C. M. 2004. Multisystemic Treatment: A meta-analysis of outcome studies. *Journal of Family Psychology*, 18, 411-419.

Dodge, K. A., Dishion, T. J. and Lansford, J. E. eds. 2006. *Deviant Peer Influences in Progams for Youth: Problems and Solutions.* New York: Guilford.

Drake, Elizabeth K., Steve Aos, and Marna G. Miller. 2009. "Evidence-Based Public Policy Options to Reduce Crime and Criminal Justice Costs: Implications in Washington State." *Victims and Offenders* 4: 170-196.

Durlak, Joseph A., and Emily P. DuPre. 2008. "Implementation Matters: A Review of Research on the Influence of Implementation on Program Outcomes and the Factors Affecting Implementation." *American Journal of Community Psychology* 41: 327-350.

Eck, John E. 2006. "Preventing Crime at Places." In *Evidence-Based Crime Prevention*, rev. ed., edited by Lawrence W. Sherman, David P. Farrington, Brandon C. Welsh, and Doris L. MacKenzie. New York: Routledge.

Ekblom, Paul. 1994. "Proximal Circumstances: A Mechanism-Based Classification of Crime Prevention." In *Crime Prevention Studies*, vol. 2, edited by Ronald V. Clarke. Monsey, NY: Criminal Justice Press.

Ekblom, Paul. 2008. "Designing Products against Crime." In *Environmental Criminology and Crime Analysis*, edited by Richard Wortley and Lorraine Mazerolle. Cullompton, Devon, UK: Willan.

Farquhar, J. W., Fortmann, S. P., MacCoby, N., Haskell, W. L., Williams, P. T., Flora, J. A., Taylor, C. B., Brown, B. W., Solomon, D. S. and Hulley, S. B. (1985) The Stanford five-city project: Design and methods. *American Journal of Epidemiology*, 122, 323-334.

Farrell, Graham. 1995. "Preventing Repeat Victimization." In *Building a Safer Society: Strategic Approaches to Crime Prevention*, edited by Michael Tonry and David P. Farrington. Vol. 19 of *Crime and Justice: A Review of Research*. Chicago: University of Chicago Press.

Farrell, Graham, and Ken Pease. 2006. "Preventing Repeat Residential Burglary Victimization." In *Preventing Crime: What Works for Children, Offenders, Victims, and Places*, edited by Brandon C. Welsh and David P. Farrington. New York: Springer.

Farrington, D. P. (1988) Studying changes within individuals: The causes of offending. In M. Rutter (Ed.) S*tudies of Psychosocial Risk: The Power of Longitudinal Data* (pp. 158-183). Cambridge: Cambridge University Press.

Farrington, D. P. (1993) Understanding and preventing bullying. In M. Tonry and N. Morris (Eds.) *Crime and Justice*, vol. 17 (pp. 381-458). Chicago: University of Chicago Press.

Farrington, D. P. (1996) *Understanding and Preventing Youth Crime*. York: Joseph Rowntree Foundation.

Farrington, D. P. (2000) Explaining and preventing crime: The globalization of knowledge. *Criminology,* 38, 1-24.

Farrington, D. P. (2003). Methodological quality standards for evaluation research. *Annals of the American Academy of Political and Social Science*, 587, 49-68.

Farrington, D. P., Gallagher, B., Morley, L., St. Ledger, R. J. & West, D. J. (1986) Unemployment, school leaving, and crime. *British Journal of Criminology,* 26, 335-356.

Farrington, David P., Martin Gill, Sam J. Waples, and Javier Argomaniz. 2007. "The Effects of Closed-Circuit Television on Crime: Meta-Analysis of an English National Quasi-Experimental Multi-Site Evaluation." *Journal of Experimental Criminology* 3: 21-38.

Farrington, David P., Denise C. Gottfredson, Lawrence W. Sherman, and Brandon C. Welsh. 2006. "The Maryland Scientific Methods Scale." In *Evidence-Based Crime Prevention*, rev. ed., edited by Lawrence W. Sherman, David P. Farrington, Brandon C. Welsh, and Doris L. MacKenzie. New York: Routledge.

Farrington, D. P. & Loeber, R. (1999) Transatlantic replicability of risk factors in the development of delinquency. In P.Cohen, C. Slomkowski & L. N. Robins (Eds.*) Historical and Geographical Influences on Psychopathology* (pp. 299-329). Mahwah, N.J.: Lawrence Erlbaum.

Farrington, D. P., Loeber, R. and Welsh, B. C. (2010) Longitudinal-experimental studies. In Piquero, A. R. and Weisburd, D. (Eds.) *Handbook of Quantitative Criminology* (pp. 503-518). New York: Springer.

Farrington, D. P., Loeber, R., Yin, Y. & Anderson, S. (2002) Are within-individual causes of delinquency the same as between-individual causes? *Criminal Behavior and Mental Health,* 12, 53-68.

Farrington, David P., and Brandon C. Welsh. 2006. "A Half-Century of Randomized Experiments on Crime and Justice." In *Crime and Justice: A Review of Research*, vol. 34, edited by Michael Tonry. Chicago: University of Chicago Press.

Farrington, David P., and Brandon C. Welsh. 2007a. *Improved Street Lighting and Crime Prevention: A Systematic Review.* Stockholm, Sweden: National Council for Crime Prevention.

Farrington, David P., and Brandon C. Welsh. 2007b. *Saving Children from a Life of Crime: Early Risk Factors and Effective Interventions*. New York: Oxford University Press.

Flynn, R. J. (2008) Communities That Care: A comprehensive system for youth prevention and promotion, and Canadian applications to date. In R. Hastings and M. Bania (Eds.), *Towards More Comprehensive Approaches to Prevention and Safety. IPC Review*, vol. 2 (pp. 83-107). Ottawa, Canada: Institute for the Prevention of Crime, University of Ottawa.

France, A. and Crow, I. (2001) *CTC - The Story So Far.* York: Joseph Rowntree Foundation.

Gabor, Thomas. 1990. "Crime Displacement and Situational Prevention." *Canadian Journal of Criminology* 32: 41-74.

Gardner, F., Burton, J., and Klimes, I. (2006). Randomized controlled trial of a parenting intervention in the voluntary sector for reducing child conduct problems: Outcomes and mechanisms of change. *Journal of Child Psychology and Psychiatry*, 47, 1123-1132.

Garland, David. 2000. "Ideas, Institutions and Situational Crime Prevention." In *Ethical and Social Perspectives on Situational Crime Prevention*, edited by Andrew von Hirsch, David Garland, and Alison Wakefield. Oxford, UK: Hart.

Gill, Martin, and Angela Spriggs. 2005. *Assessing the Impact of CCTV*. Home Office Research Study, No. 292. London: Home Office.

Gottfredson, D. C., Wilson, D. B., & Najaka, S. S. (2006). School-based crime prevention. In L., W. Sherman, D. P. Farrington, B. C. Welsh, & D. L. MacKenzie (Eds.), *Evidence-based crime prevention*, rev. ed. (pp. 56-164). New York: Routledge.

Greenwood, P. W., Karoly, L. A., Everingham, S. S., Houbé, J., Kilburn, M. R., Rydell, C. P., Sanders, M. and Chiesa, J. (2001) Estimating the costs and benefits of early childhood interventions: Nurse home visits and the Perry Preschool. In B. C. Welsh, D. P. Farrington, and L. W. Sherman (Eds.), *Costs and Benefits of Preventing Crime* (pp. 123-148). Boulder, Colorado: Westview Press.

Grossman, J. B. and Tierney, J. P. (1998). Does mentoring work? An impact study of the Big Brothers Big Sisters program. *Evaluation Review*, 22, 403-426.

Guerette, Rob. G. 2009. "The Pull, Push and Expansion of Situational Crime Prevention Evaluation: An Appraisal of Thirty-Seven Years of Research." In *Evaluating Crime Reduction. Crime Prevention Studies*, vol. 24, edited by Johannes Knutsson and Nick Tilley. Monsey, NY: Criminal Justice Press.

Guerette, Rob G., and Kate J. Bowers. 2009. "Assessing the Extent of Crime Displacement and Diffusion of Benefits: A Review of Situational Crime Prevention Evaluations." *Criminology* 47: 1331-1368.

Harachi, T. W., Hawkins, J. D., Catalano, R. F., Lafazia, A. M., Smith, B. H. and Arthur, M. W. (2003) Evidence-based community decision making for prevention: Two case studies of Communities That Care. *Japanese Journal of Sociological Criminology*, 28, 26-37.

Harrell, A. V., Cavanagh, S. E., Harmon, M. A., Koper, C. S. and Sridharan, S. (1997) *Impact of the Children At Risk Program: Comprehensive Final Report, Vol. 2.* Washington, D.C.: The Urban Institute.

Harrell, A. V., Cavanagh, S. E. and Sridharan, S. (1999) *Evaluation of the Children at Risk Program: Results 1 Year after the End of the Program*. Washington, D.C.: National Institute of Justice.

Hawkins, J. D. and Catalano, R. F. (1992) *Communities that Care*. San Francisco: Jossey-Bass.

Hawkins, J. D., Catalano, R. F., Kosterman, R., Abbott, R. and Hill, K. G. (1999) Preventing adolescent health risk behaviors by strengthening protection during childhood. *Archives of Pediatrics and Adolescent Medicine*, 153, 226-234.

Hawkins, J. D., von Cleve, E. and Catalano, R. F. (1991) Reducing early childhood aggression: Results of a primary prevention program. *Journal of the American Academy of Child and Adolescent Psychiatry*, 30, 208-217.

Hawkins, J. D., Brown, E. C., Oesterle, S., Arthur, M. W., Abbott, R. D. and Catalano, R. F. (2008) Early effects of Communities That Care on targeted risks and initiation of delinquent behavior and substance abuse. *Journal of Adolescent Health*, 43, 15-22.

Henggeler, S. W., Schoenwald, S. K., Borduin, C. M., Rowland, M. D. and Cunningham, P. B. (1998) *Multisystemic Treatment of Antisocial Behavior in Children and Adolescents*. New York: Guilford.

Hier, Sean P. 2010. *Panoptic Dreams: Streetscape Video Surveillance in Canada*. Vancouver, Canada: University of British Columbia Press.

Hesseling, René. 1995. "Theft from Cars: Reduced or Displaced?" *European Journal on Criminal Policy and Research* 3(3): 79-92.

Hope, Tim. 1995. "Community Crime Prevention." In *Building a Safer Society: Strategic Approaches to Crime Prevention*, edited by Michael Tonry and David P. Farrington. Vol. 19 of *Crime and Justice: A Review of Research*. Chicago: University of Chicago Press.

Hunter, Ronald D., and C. Ray Jeffrey. 1997. "Preventing Convenience Store Robbery through Environmental Design." In *Situational Crime Prevention: Successful Case Studies*, 2nd ed., edited by Ronald V. Clarke. Guilderland, NY: Harrow and Heston.

Jacobs, Jane. 1961. *The Death and Life of Great American Cities*. New York: Random House.

Jeffrey, C. Ray. 1977. *Crime Prevention Through Environmental Design*, 2nd ed. Beverly Hills, Calif.: Sage.

Jolliffe, D. and Farrington, D. P. (2008) *The Influence of Mentoring on Reoffending*. Stockholm, Sweden: National Council for Crime Prevention.

Kaplan, R. M. (2000) Two pathways to prevention. *American Psychologist*, 55, 382-396.

Karoly, L. A., Greenwood, P. W., Everingham, S. S., Hoube, J., Kilburn, M. R., Rydell, C. P., Sanders, M. and Chiesa, J. (1998) *Investing in Our Children: What We Know and Don't Know about the Costs and Benefits of Early Childhood Interventions*. Santa Monica, California: Rand Corporation.

Kazdin, A. E., Kraemer, H. C., Kessler, R. C., Kupfer, D. J. & Offord, D. R. (1997) Contributions of risk-factor research to developmental psychopathology. *Clinical Psychology Review*, 17, 375-406.

Koch, Brigitte C. M. 1998. *The Politics of Crime Prevention*. Aldershot, UK: Ashgate.

Kraemer, H. C., Kazdin, A. E., Offord, D. R., Kessler, R. C., Jensen P. S. & Kupfer, D. J. (1997) Coming to terms with the terms of risk. *Archives of General Psychiatry*, 54, 337-343.

Lally, J. R., Mangione, P. L. and Honig, A. S. (1988) The Syracuse University Family Development Research Program: Long-range impact of an early intervention with low-income children and their families. In D. R. Powell (Ed.) *Parent Education as Early Childhood Intervention: Emerging Directions in Theory, Research and Practice* (pp. 79-104). Norwood, N.J.: Ablex.

Landenberger, N. A., & Lipsey, M. W. (2005). The positive effects of cognitive-behavioral programs for offenders: A meta-analysis of factors associated with effective treatment. *Journal of Experimental Criminology*, 1, 451-476.

Lasley, James. 1998. *"Designing Out" Gang Homicides and Street Assaults.* Research in Brief, November. Washington, DC: National Institute of Justice, U.S. Department of Justice.

Laycock, Gloria, and Claire Austin. 1992. "Crime Prevention in Parking Facilities." *Security Journal* 3(3): 154-160.

Littell, J. H. (2005). Lessons from a systematic review of effects of Multisystemic Therapy. *Children and Youth Services Review*, 27, 445-463.

Loeber, R. & Farrington, D. P. (1998) (Eds.) *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions.* Thousand Oaks, CA: Sage.

Lösel, F. and Beelmann, A. (2006) Child social skills training. In B. C. Welsh and D. P. Farrington (Eds.), *Preventing Crime: What Works for Children, Offenders, Victims, and Places* (pp. 33-54). New York: Springer.

MacKenzie, Doris L. 2006. *What Works in Corrections: Reducing the Criminal Activities of Offenders and Delinquents*. New York: Cambridge University Press.

Mazerolle, Lorraine G., Jan Roehl, and Colleen Kadleck. 1998. "Controlling Social Disorder Using Civil Remedies: Results from a Randomized Field Experiment in Oakland, California." In

Civil Remedies and Crime Prevention, edited by Lorraine G. Mazerolle and Jan Roehl. Vol. 9 of *Crime Prevention Studies*. Monsey, NY: Criminal Justice Press.

McCarthy, Brendan. 2007. "Crime-Fighting Cameras are the Wrong Focus, Some Say." *Times-Picayune*, March 26, 2007. Available at www.nola.com.

McCord, J., Tremblay, R. E., Vitaro, F. and Desmarais-Gervais, L. (1994) Boys' disruptive behavior, school adjustment, and delinquency: The Montreal Prevention Experiment. *International Journal of Behavioral Development*, 17, 739-752.

Moore, Mark H. 1995. "Public Health and Criminal Justice Approaches to Prevention." In *Building a Safer Society: Strategies Approaches to Crime Prevention*, edited by Michael Tonry and David P. Farrington. Vol. 19 of *Crime and Justice: A Review of Research*. Chicago: University of Chicago Press.

Najaka, S. S., Gottfredson, D. C. & Wilson, D. B. (2001) A meta-analytic inquiry into the relationship between selected risk factors and problem behavior. *Prevention Science*, 2, 257-271.

Newman, Oscar. 1972. *Defensible Space: Crime Prevention Through Urban Design*. New York: Macmillan.

Newman, Graeme, Ronald V. Clarke, and Shlomo Giora Shoham, eds. 1997. *Rational Choice and Situational Crime Prevention: Theoretical Foundations*. Aldershot, UK: Ashgate/Dartmouth.

O'Donnell, J., Hawkins, J. D., Catalano, R. F., Abbott, R. D. and Day, L. E. (1995) Preventing school failure, drug use, and delinquency among low-income children: Long-term intervention in elementary schools. *American Journal of Orthopsychiatry*, 65, 87-100.

Olds, D. L., Henderson, C. R., Chamberlin, R. and Tatelbaum, R. (1986) Preventing child abuse and neglect: A randomized trial of nurse home visitation. *Pediatrics*, 78, 65-78.

Olds, D. L., Henderson, C. R., Phelps, C., Kitzman, H. and Hanks, C. (1993) Effects of prenatal and infancy nurse home visitation on government spending. *Medical Care*, 31, 155-174.

Olds, David L., John Eckenrode, Charles R. Henderson, Harriet Kitzman, Jane Powers, Robert Cole, Kimberly Sidora, Pamela Morris, Lisa M. Pettitt, and Dennis W. Luckey. 1997. "Long-Term Effects of Home Visitation on Maternal Life Course and Child Abuse and Neglect: Fifteen-Year Follow-Up of a Randomized Trial." *Journal of the American Medical Association* 278: 637-643.

Olds, David L., Charles R. Henderson, Robert Cole, John Eckenrode, Harriet Kitzman, Dennis W. Luckey, Lisa M. Pettitt, Kimberly Sidora, Pamela Morris, and Jane Powers. 1998. "Long-Term Effects of Nurse Home Visitation on Children's Criminal and Antisocial Behavior: 15-Year Follow-Up of a Randomized Controlled Trial." *Journal of the American Medical Association* 280: 1238-1244.

Olds, D. L., Kitzman, H., Cole, R., Robinson, J., Sidora, K., Luckey, D. W., Henderson, C. R., Hanks, C., Bondy, J. and Holmberg, J. (2004a) Effects of nurse home-visiting on maternal life course and child development: Age 6 follow-up results of a randomized trial. *Pediatrics*, 114, 1550-1559.

Olds, D. L., Robinson, J., Pettitt, L. M., Luckey, D. W., Holmberg, J., Ng, R. K., Isacks, K., Sheff, K. L. and Henderson, C. R. (2004b) Effects of home visits by paraprofessionals and by nurses: Age 4 follow-up results of a randomized trial. *Pediatrics*, 114, 1560-1568.

Olweus, D. (1994) Bullying at school: Basic facts and effects of a school based intervention programme. *Journal of Child Psychology and Psychiatry*, 35, 1171-1190.

Painter, Kate A., and David P. Farrington. 1999. "Street Lighting and Crime: Diffusion of Benefits in the Stoke-on-Trent Project." In *Surveillance of Public Space: CCTV, Street Lighting and Crime Prevention. Crime Prevention Studies*, vol. 10, edited by Kate Painter and Nick Tilley. Monsey, NY: Criminal Justice Press.

Painter, Kate A., and David P. Farrington. 2001. "The Financial Benefits of Improved Street Lighting, Based on Crime Reduction." *Lighting Research and Technology* 33: 3-12.

Patterson, Gerald. 1982. *Coercive Family Process*. Eugene, Ore.: Castalia.

Patterson, Gerald, Patricia Chamberlain, and John B. Reid. 1982. "A Comparative Evaluation of a Parent Training Program." *Behavior Therapy* 13: 638-650.

Patterson, Gerald, John B. Reid, and Thomas J. Dishion. 1992. *Antisocial Boys*. Eugene, Ore.: Castalia.

Pawson, Ray, and Nick Tilley. 1994. "What Works in Evaluation Research." *British Journal of Criminology* 34: 291-306.

Pawson, Ray, and Nick Tilley. 1997. *Realistic Evaluation*. Thousand Oaks, Calif.: Sage.

Pease, Ken. 1991. "The Kirkholt Project: Preventing Burglary on a British Public Housing Estate." *Security Journal* 2: 73-77.

Perry, C. L., Klepp, K-I. and Sillers, C. (1989) Community-wide strategies for cardiovascular health: The Minnesota Heart Health Program youth program. *Health Education and Research*, 4, 87-101.

Piquero, Alex R., David P. Farrington, Brandon C. Welsh, Richard E. Tremblay, and Wesley G. Jennings. 2009. "Effects of Early/Family Parent Training Programs on Antisocial Behavior and Delinquency." *Journal of Experimental Criminology* 5: 83-120.

Ratcliffe, Jerry H. 2006. *Video Surveillance of Public Places*. Problem-Oriented Guides for Police Response Guides Series, no. 4. Washington, DC: Office of Community Oriented Policing Services, U.S. Department of Justice.

Reppetto, Thomas A. 1976. "Crime Prevention and the Displacement Phenomenon." *Crime and Delinquency* 22: 166-177.

Reuters. 2007. "British Miscreants Caught on Camera Face Loudspeaker Lectures." *New York Times*, April 5, 2007. Available at www.nytimes.com.

Reynolds, A. J., Temple, J. A., Robertson, D. L. and Mann, E. A. (2001) Long-term effects of an early childhood intervention on educational achievement and juvenile arrest: A 15-year follow-up of low-income children in public schools. *Journal of the American Medical Association*, 285, 2339-2346.

Robins, L. N. (1992) The role of prevention experiments in discovering causes of children's antisocial behavior. In J. McCord and R. E. Tremblay (Eds.) *Preventing Antisocial Behavior: Interventions from Birth through Adolescence* (pp. 3-18). New York: Guilford.

Sanders, M. R., Markie-Dadds, C., Tully, L. A. and Bor, W. (2000). The Triple P-Positive Parenting Program: A comparison of enhanced, standard and self-directed behavioral family intervention for parents of children with early onset conduct problems. *Journal of Consulting and Clinical Psychology*, 68, 624-640.

Savage, Charlie. 2007. "US Doles Out Millions for Street Cameras: Local Efforts Raise Privacy Concerns." *Boston Globe*, August 12, 2007. Available at: www.boston.com.

Schweinhart, L. J., Barnes, H. V. and Weikart, D. P. (1993) *Significant Benefits: The High/Scope Perry Preschool Study Through Age 27.* Ypsilanti, Michigan: High/Scope Press.

Schweinhart, L. J. and Weikart, D. P. (1980) *Young Children Grow Up: The Effects of the Perry Preschool Program on Youths Through Age 15*. Ypsilanti, Michigan: High/Scope Press.

Schweinhart, L. J., Montie, J., Zongping, X., Barnett, W. S., Belfield, C. R. and Nores, M. (2005) *Lifetime Effects: The High/Scope Perry Preschool Study Through Age 40.* Ypsilanti, Michigan: High/Scope Press.

Scott, S., Spender, Q., Doolan, M., Jacobs, B. and Aspland, H. (2001) Multicentre controlled trial of parenting groups for child antisocial behaviour in clinical practice. *British Medical Journal*, 323, 194-196.

Shadish, William R., Thomas D. Cook, and Donald T. Campbell. 2002. *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston: Houghton Mifflin.

Sherman, Lawrence W. 1995. "Hot Spots of Crime and Criminal Careers of Places." In *Crime and Place*, edited by John E. Eck and David Weisburd. Vol. 4 of *Crime Prevention Studies*. Monsey, NY: Criminal Justice Press.

Sherman, Lawrence W. 1997. "Communities and Crime Prevention." In *Preventing Crime: What Works, What Doesn't, What's Promising*, Lawrence W. Sherman, Denise C. Gottfredson, Doris L. MacKenzie, John E. Eck, Peter Reuter, and Shawn D. Bushway. Washington, DC: National Institute of Justice, U.S. Department of Justice.

Sherman, Lawrence W., David P. Farrington, Brandon C. Welsh, and Doris L. MacKenzie, eds. 2006. *Evidence-Based Crime Prevention*, rev. ed. New York: Routledge.

Sherman, Lawrence W., Patrick R. Gartin, and Michael E. Buerger. 1989. "Hot Spots of Predatory Crime: Routine Activities and the Criminology of Place." *Criminology* 27: 27-55.

Sherman, Lawrence W., Denise C. Gottfredson, Doris L. MacKenzie, John E. Eck, Peter Reuter, and Shawn D. Bushway. 1997. *Preventing Crime: What Works, What Doesn't, What's Promising*. Washington, DC: National Institute of Justice, U.S. Department of Justice.

Skinns, David. 1998. *Doncaster CCTV Surveillance System: Second Annual Report of the Independent Evaluation*. Doncaster, UK: Faculty of Business and Professional Studies, Doncaster College.

Smith, Martha J., Ronald V. Clarke, and Ken Pease. 2002. "Anticipatory Benefits in Crime Prevention." In *Analysis for Crime Prevention*, edited by Nick Tilley. Vol. 13 of *Crime Prevention Studies*. Monsey, NY: Criminal Justice Press.

Steele, M., Marigna, M. K., Tello, J., and Johnson, R. (1999). *Strengthening Multi-Ethnic Families and Communities: A Violence Prevention Parent Training Program.* Los Angeles, California: Consulting and Clinical Services.

Sutton, C., Utting, D., and Farrington, D. P. (2004, Eds.). *Support From the Start: Working with Young Children and Their Families to Reduce the Risks of Crime and Antisocial Behaviour.* London: Department for Education and Skills (Research Report 524).

Sutton, C., Utting, D., and Farrington, D. P. (2006). Nipping criminality in the bud. *The Psychologist*, 19, 470-475.

Tilley, Nick. 1993. *Understanding Car Parks, Crime and CCTV: Evaluation Lessons from Safer Cities*. Crime Prevention Unit Series Paper, No. 42. London: Home Office.

Tilley, Nick, and Gloria Laycock. 2007. "From Crime Prevention to Crime Science." In *Imagination for Crime Prevention: Essays in Honour of Ken Pease. Crime Prevention Studies*, vol. 21, Graham Farrell, Kate J. Bowers, Shane D. Johnson, and Michael Townsley, eds. Monsey, NY: Criminal Justice Press.

Tilley, Nick, and Barry Webb. 1994. *Burglary Reduction: Findings from Safer Cities Scheme*. Crime Prevention Unit Series Paper, No. 51. London: Home Office.

Tobler, N. S., Lessard, T., Marshall, D., Ochshorn, P. and Roona, M. (1999) Effectiveness of school-based drug prevention programs for marijuana use. *School Psychology International*, 20, 105-137.

Tonry, Michael, and David P. Farrington, eds. 1995a. *Building a Safer Society: Strategic Approaches to Crime Prevention.* Vol. 19 of *Crime and Justice: A Review of Research*. Chicago: University of Chicago Press.

Tonry, Michael, and David P. Farrington. 1995b. "Strategic Approaches to Crime Prevention." In *Building a Safer Society: Strategic Approaches to Crime Prevention*, edited by Michael Tonry and David P. Farrington. Vol. 19 of *Crime and Justice: A Review of Research*. Chicago: University of Chicago Press.

Tremblay, Richard E., and Wendy M. 1995. "Developmental Crime Prevention." In *Building a Safer Society: Strategic Approaches to Crime Prevention*, edited by Michael Tonry and David P. Farrington. Vol. 19 of *Crime and Justice: A Review of Research*. Chicago: University of Chicago Press.

Tremblay, R. E., Vitaro, F., Bertrand, L., LeBlanc, M., Beauchesne, H., Boileau, H. and David, L. (1992) Parent and child training to prevent early onset of delinquency: The Montréal Longitudinal-Experimental study. In J. McCord and R. E. Tremblay (Eds.), *Preventing Antisocial Behavior: Interventions from Birth Through Adolescence* (pp. 117-138). New York: Guilford.

Tremblay, R. E., Pagani-Kurtz, L., Masse, L. C., Vitaro, F. and Pihl, R. O. (1995) A bimodal preventive intervention for disruptive kindergarten boys: Its impact through mid-adolescence. *Journal of Consulting and Clinical Psychology*, 63, 560-568.

Tremblay, R. E., Mâsse, L. C., Pagani, L. and Vitaro, F. (1996) From childhood physical aggression to adolescent maladjustment: The Montreal Prevention Experiment. In R. D. Peters and R. J. McMahon (Eds.), *Preventing Childhood Disorders, Substance Use, and Delinquency*. Thousand Oaks, CA: Sage.

Ttofi, M. M. and Farrington, D. P. (2010) Effectiveness of school-based programs to reduce bullying: A systematic and meta-analytic review. *Journal of Experimental Criminology*, in press.

Utting, D. (1999, Ed.) *A Guide to Promising Approaches*. London: Communities that Care.

van Dijk, Jan J. M., and Jaap de Waard. 1991. "A Two-Dimensional Typology of Crime Prevention Projects; with a Bibliography." *Criminal Justice Abstracts* 23: 483-503.

Waller, Irvin. 2006. *Less Law, More Order: The Truth about Reducing Crime*. Westport, Conn.: Praeger.

Waples, Sam, and Martin Gill. 2006. "The Effectiveness of Redeployable CCTV." *Crime Prevention and Community Safety* 8(1): 1-16.

Wasserman, G. A. & Miller, L. S. (1998) The prevention of serious and violent juvenile offending. In R. Loeber & D. P. Farrington (Eds.) *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions* (pp. 197-247). Thousand Oaks, California: Sage.

Webster-Stratton, C. (2000). *The Incredible Years Training Series.* Washington, D.C.: Office of Juvenile Justice and Delinquency Prevention.

Webster-Stratton, C. and Hammond, M. (1997) Treating children with early-onset conduct problems: A comparison of child and parent training interventions. *Journal of Consulting and Clinical Psychology*, 65, 93-109.

Weisburd, David, Laura A. Wyckoff, Justin Ready, John E. Eck, Joshua C. Hinkle, and Frank Gajewski. 2006. "Does Crime Just Move Around the Corner? A Controlled Study of Spatial Displacement and Diffusion of Crime Control Benefits." *Criminology* 44: 549-592.

Weisburd, David, Cody W. Telep, Joshua C. Hinkle, and John E. Eck. 2010. "Is Problem-Oriented Policing Effective in Reducing Crime and Disorder? Findings from a Campbell Systematic Review." *Criminology and Public Policy* 9: 139-172.

Welsh, Brandon C., and David P. Farrington. 2011. "Evidence-Based Crime Policy." In *The Oxford Handbook on Crime and Criminal Justice*, edited by Michael Tonry. New York: Oxford University Press, in press.

Welsh, Brandon C., and David P. Farrington, eds. 2006. *Preventing Crime: What Works for Children, Offenders, Victims, and Places*. New York: Springer.

Welsh, Brandon C., and David P. Farrington. 2009a. *Making Public Places Safer: Surveillance and Crime Prevention*. New York: Oxford University Press.

Welsh, Brandon C., and David P. Farrington. 2009b. "Public Area CCTV and Crime Prevention: An Updated Systematic Review and Meta-Analysis." *Justice Quarterly* 26: 716-745.

Welsh, Brandon C., and Akemi Hoshi. 2006. "Communities and Crime Prevention." In *Evidence-Based Crime Prevention*, rev. ed., edited by Lawrence W. Sherman, David P. Farrington, Brandon C. Welsh, and Doris L. MacKenzie. New York: Routledge.

Welsh, Brandon C., Mark E. Mudge, and David P. Farrington. 2010a. "Reconceptualizing Public Area Surveillance and Crime Prevention: Security Guards, Place Managers, and Defensible Space." *Security Journal* 23, in press.

Welsh, Brandon C., Christopher J. Sullivan, and David L. Olds. 2010b. When early crime prevention goes to scale: A new look at the evidence. *Prevention Science*, 11, 115-125.

Welsh, B. C., Farrington, D. P. & Sherman, L. W. (2001) (Eds.) *Costs and Benefits of Preventing Crime*. Boulder, CO: Westview Press.

West, D. J. & Farrington, D. P. (1977) *The Delinquent Way of Life*. London: Heinemann.

Widom, C. S. (1989) The cycle of violence. *Science*, 244, 160-166.

Wilson, D. B., Gottfredson, D. C., & Najaka, S. S. (2001). School-based prevention of problem behaviors: A meta-analysis. *Journal of Quantitative Criminology*, 17, 247-272.

Wilson, Dean, and Adam Sutton. 2003. *Open-Street CCTV in Australia*. Trends and Issues in Crime and Criminal Justice, no. 271. Canberra: Australian Institute of Criminology.

Wilson, J. J. and Howell, J. C. (1993) *A Comprehensive Strategy for Serious, Violent, and Chronic Juvenile Offenders*. Washington, D.C.: Office of Juvenile Justice and Delinquency Prevention.