GANG HOT SPOTS POLICING IN CHICAGO: AN EVALUATION OF THE DEPLOYMENT OPERATIONS CENTER PROCESS

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Executive Summary

From 2000 to 2007, Chicago experienced a significant decline in violent crime (murder, criminal sexual assault, robbery, and aggravated assault/battery), particularly gun-related public violence. In public discourse, this decline was attributed to the Chicago Police Department (CPD) and, in particular, to a process spearheaded by the Deployment Operations Center (DOC). The primary mission of the DOC was to analyze crime and intelligence data, identifying areas of the city believed to have a high probability for violent crime (i.e., violent crime "hot spots"). Areas identified by DOC analysts, termed Level II deployment areas, were used to guide deployment decisions for specialized units, whose responsibility was to enter designated hot spots and suppress gang, drug, and gun crime.

The primary purpose of this study, funded by the National Institute of Justice, was to evaluate whether the aforementioned crime reductions could be attributed to the DOC process. To accomplish this, researchers used both qualitative and quantitative research methods, collecting data on various elements of the DOC logic model - analysis of crime and intelligence data, identification of hot spots, communication of designated hot spots to CPD personnel, redeployment of officers to hot spots, and engagement in suppression activities. CPD administrators believed that, through this process, gang, drug, and gun-related crime would be reduced.

Chicago's DOC Process

Under Superintendent Philip Cline, CPD's violent crime reduction strategy was geographically-based and crime-specific. The strategy was geographically-based; areas were identified based on the likelihood of pending violence, and resources were allocated to those areas. The DOC process was also crime-specific; target areas were identified based on data and

intelligence specifically pertaining to gang activity, gun crime, and drug activity. Thus, the approach was not only about targeting high-crime areas, but also suppressing core causes of crime, as defined by high-ranking CPD administrators.

Method

The research design included both qualitative and quantitative components. Using qualitative methods, we examined how the DOC process was understood and implemented by CPD personnel. Using quantitative methods, we examined whether the DOC process contributed to violent crime reduction in Chicago and, if so which types of violent crime were most impacted. Our analyses also took into consideration other factors that may have been responsible for violent crime reductions in Chicago.

The qualitative component was composed of meeting observations, field observations ("ride-alongs"), and field interviews. Observations of CPD internal meetings were conducted to better understand how Level II deployment areas were selected, how these deployment areas were communicated to various CPD units, what activities command staff reported engaging in within the Level II deployment areas, and how CPD's DOC process fit into the larger framework of the Department's accountability processes. Field observations - ride-alongs with officers working in the Level II deployment areas - were conducted to document the types of activities implemented in targeted areas. Finally, semi-structured interviews of patrol officers, officers assigned to specialized units, and command staff were conducted to obtain various perspectives about the DOC process and to investigate how the strategy was integrated and understood by various units within the department.

For the quantitative component, analyses were conducted to assess the impact of the DOC process on various violent crime indicators: homicides, gang-related homicides, gun-

related homicides, drive-by-shootings, aggravated battery with a gun in outside locations, and violent crimes in outdoor locations. The police beat was the unit of analysis. Police beats were selected as an appropriate unit of analysis for two primary reasons: (1) beats represent the smallest police administrative units in Chicago and are the primary unit for patrol assignments and (2) a wide range of data are available at this unit of analysis that are considered relatively accurate and reliable.

For each analysis, the primary independent variable was a measure of DOC coverage: the extent to which, over time and space, a Level II deployment area was subsumed within beat boundaries. Three different DOC coverage measures were examined: (1) Any DOC, which measured whether any part of a police beat was ever identified as part of a Level II deployment area, (2) DOC Level, which represented the number of days a police beat was in the Level II deployment area and, on these days, the percentage of the beat's geographic area that overlapped with a Level II deployment area, and (3) DOC Intensity, an ordinal variable, calculated based on DOC Level.

Five types of police activity (arrests, field contact cards, traffic stops, gun recoveries, drug recoveries) were examined to assess treatment integrity - the extent to which police activity increased following selection of an area as a hot spot. Additional variables were also examined, to control for differences in the structure and socio-demographic characteristics of Chicago's police beats, and to account for alternative explanations. In particular, the analyses considered changes in Chicago public housing locations, and two contemporaneous violence reduction projects (Project Safe Neighborhood, and Chicago Ceasefire).

Findings

Overall, qualitative data indicated that CPD was successful in implementing the DOC process as designed. Based on interviews with CPD administrators and observations of meetings, researchers identified six main steps in the DOC logic model that were successfully implemented: (1) communication of a Department-wide mandate to focus on gang, drug, and gun-related crime, (2) analysis of intelligence and crime data, (3) identification of hot spots, (4) communication of hot spot locations to CPD personnel, (5) redeployment of officers to hot spots, and (6) engagement in suppression activities.

However, despite considerable evidence that the DOC process was implemented as designed, quantitative analyses demonstrated that the DOC process was not associated with violent crime reductions. Contrary to expectations, although there were significant declines in violent crime across police beats, the declines were not significantly related to DOC coverage.

The data pointed to several plausible explanations as to why the DOC process was not associated with significant reductions in violent crime. First, frequent movement of Level II deployment areas may have undermined successful implementation. Analysis of changes in the location of the Level II deployment areas revealed that areas of Chicago with higher crime rates had relatively high rates of variation in the locations of the Level II deployment areas. This frequent movement may have inhibited CPD's ability to produce long-term, tangible violent crime reductions. Because Level II deployment areas were selected weekly, officers deployed to the areas had only a short time to implement suppression activities before moving to the next location. Offender populations were likely aware when police crackdowns had subsided.

Second, the findings suggest that crime was more easily suppressed in smaller deployment areas. Larger deployment areas may have resulted in less targeting of resources than

originally anticipated, resulting in diffuse implementation of suppression activities. While research has indicated that hot spots policing can be effective, Level II deployment areas were considerably larger than the typical hot spot, as defined in criminological literature (see Braga & Weisburd, 2010).

Third, the manner in which DOC analysts identified the Level II deployment areas provides another explanation for the results. When identifying locations, DOC analysts primarily used field intelligence and personal expertise, supplemented by violent crime data. Their goal was to predict where violent gang conflict would occur, based on knowledge of particular individuals and incident. Perhaps errors were made in applying person or event-based information to geographic space. Essentially, DOC analysts used a small sample to make inferences about larger geographic areas.

Fourth, the egalitarian nature of the DOC process may have undermined effectiveness. Administratively, CPD separates Chicago into six policing areas – five areas composed of multiple police districts (numerically labeled one to five) and the central business district (labeled CCG, or the Central Control Group). Each police area was required to have a Level II deployment area. As a result, areas of the city with low crime rates and low numbers of gangs and gang related offenses were assigned Level II deployment areas that really may not have warranted them. This citywide approach may have both diluted the resources available for other "true hot spots" and artificially inflated the gang problems in low crime areas (because of the need to generate numbers for accountability purposes), taking attention away from other issues with which lower crime districts struggle.

Fifth, perhaps CPD administrators did not accurately assess the violence problem in Chicago; the DOC process may have been predicated on weak connections or even faulty

assumptions about the nature of the violence problem. The DOC process was grounded in a basic causal relationship: gangs and guns and their association with the drug trade overwhelming contribute to violent crime in Chicago. Accordingly, the logic model suggested that putting intensive police resources into areas with a preponderance of these factors and aggressively targeting these phenomena would curb violence. This breakdown likely was too simplistic and lacked both a nuanced understanding of the violence problem and the type of problem solving necessary to address it. The relationship between gangs, guns, drugs, and violent crime in one community may look very different than that in another and thus the approaches in dealing with these problems should look different. In other words, targeted patrols may need elements of neighborhood or locale-specific problem solving to achieve significant crime reductions. The "one size fits all" suppression model has its limitations in a large city with hundreds of distinctive neighborhoods.

Sixth, perhaps the benefits of police suppression were offset by violence stemming from disruption of illegal drug markets. As noted above, the Chicago model was grounded in the premise that eliminating drug markets and drug dealers will undermine street gang organizations and thereby reduce the number of homicides and acts of public violence. However, some research suggests that disrupting drug markets may have the opposite effect on homicides by destabilizing a fragile social order. Drug enforcement efforts can destabilize drug markets by removing dealers and thereby contribute to violence as gangs and drug dealers fight to regain control of particular space.

Seventh, accountability mechanisms associated with the DOC process may have sent the wrong message to commanding officers and patrolmen. The focus on holding officers accountable through increased scrutiny of unit activities may have sent the wrong message to

commanding officers and patrol officers. Evaluating success based on the number of arrests made, for instance, may result in officers seeking "easy" targets versus focusing on those individuals engaged in the most serious and violent behaviors. Results indicated that the DOC process did lead to increased police activity in Level II deployment areas. The increase in activity was likely due to greater accountability. However, greater accountability, if not coupled with a clear and in-depth understanding of the crime problem, may lead to disjointed implementation. Activities may occur, but these activities may not have any impact on the actual violence problem because they are not part of a coherent violence prevention plan.

Finally, prior research has examined the impact of hot spots policing on crime, but has given little attention to how this approach is received by the communities being served. As an additional component, this report also includes results from a web-based community survey, in which respondents were asked about their perceptions of suppression-oriented policing. Results suggested that suppression-oriented policing (as implemented in Chicago) has the support of middle class residents, but is not as popular as traditional patrols or community-oriented interactions with the public. We know much less about the opinions of lower income and minority residents who live in high-crime communities, except through the vantage point of police officers who work in these areas. Some officers reported that residents' distrust and lack of cooperation in these neighborhoods is caused, in part, by aggressive special units that had visited their police beats in recent weeks. In any event, prior research provides strong support for the argument that aggressive crackdowns must be balanced with a respect for procedural justice during encounters, serious problem solving by the police community engagement activities, and the building of working partnerships with other agencies and organizations.

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Introduction

In 2003, Chicago led other large cities, such as New York and Los Angeles, in murders. The 2003 Chicago murder rate was 20.7 murders per 100,000 persons, nearly three times higher than New York and fifty percent higher than Los Angeles (7.5 murders per 100,000 persons and 13.9 murders per 100,000 persons, respectively).[1] In 2003, nearly half of the murders in Chicago were classified by homicide detectives as involving gang conflicts or altercations over narcotics or control of narcotic markets (45.4%) and 80.7% involved guns. Additionally, gang intelligence indicated there was a large gang presence in the city. It was estimated that there were 68 active street gangs with over 500 factions and an estimated 68,000 gang members. Chicago Police Department (CPD) administrators believed that many of these gang members were involved in a range of criminal activities, such as narcotics, murder, and extortion.

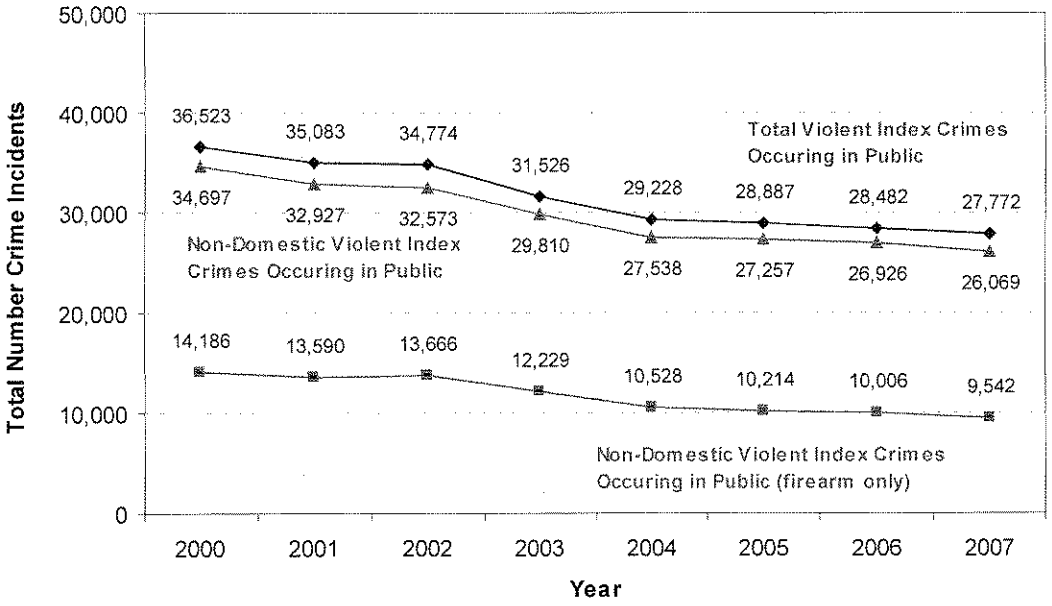
Because much of the crime in Chicago was believed to stem from gangs, drugs, and guns, Superintendent Philip Cline's administration (July 2003 – November 2007) implemented a wide range of strategies that focused on these types of crimes, a core component of which was the creation of the Deployment Operations Center (DOC). The primary mission of the DOC was to analyze crime and intelligence data to identify areas of the city believed to have a high probability for violent crime. Areas identified by DOC analysts were then used to guide deployment decisions for specialized units, whose responsibility was to enter these hot spots and suppress gang, drug, and gun crimes. In essence, the Chicago Police Department embarked on a citywide hot spots policing initiative, supplemented by other strategies.

Following implementation of the DOC process, Chicago experienced a dramatic decrease in crime. Crime trends from 2000 to 2007 indicate that Chicago experienced a notable decline in violent crime (murder, criminal sexual assault, robbery, and aggravated assault/battery),

[1] Rates based on 2000 census data.

particularly gun-related public violence, following the implementation period. Figure 1 shows trends for three violent crime indicators, each representing crimes that might reasonably have been addressed through the DOC process. All three indicators decreased from 2000 to 2007. However, decreases were most pronounced from 2002 to 2004, the time period during which the DOC process was initially implemented. For example, violent crimes occurring in public decreased by 4.7% from 2000 to 2002, then decreased by 15.9% from 2002 to 2004. Then, following the decreases from 2002 to 2004, violent crime levels remained lower than pre-2002 levels. This overall pattern suggests that the DOC process may have contributed to violent crime reductions.

Figure 1. Violent Crime Trends, 2000 – 2007.



Violent crime decreases, particularly gun-related public violence, were largely attributed in the media and by public officials to the DOC process. In fact, during Superintendent Cline's tenure, approximately 33 national and international police agencies came to Chicago to learn

more about the DOC process. However, attributions of violent crime reduction to the DOC process have largely been based on simple trend analysis. The purpose of this study was to examine, based on more rigorous analysis, whether the aforementioned crime reductions can be attributed to the DOC process. To accomplish this task, qualitative and quantitative data were collected. The data made it possible to document the overall design of the DOC process, examine whether the process was implemented as designed, and determine whether the DOC process contributed to crime reductions after controlling for other factors.

Literature Review

In this section, we review relevant criminological literature. The review focuses on two topical areas: (1) hot spots policing, and (2) police interventions that target gangs. Both topical areas have direct relevance for the research. Under Superintendent Philip Cline, CPD's violent crime reduction strategy was geographically-based; areas were identified based on the likelihood of pending violence, and resources were allocated to those areas. This geographic focus parallels hot spots policing (e.g., see Braga & Weisburd, 2010). Hot spots policing strategies, although implemented differently across settings, focus on the identification of high-crime geographic locations, and subsequent police targeting of those locations.

The DOC process was also crime-specific. Target areas were identified based on data and intelligence pertaining to gang activity, gun crime, and drug activity. Thus, conceptually, the approach was not only about targeting high-crime areas, but also suppressing core causes of crime, as defined by high-ranking CPD administrators. Moreover, gang activity was characterized as a trigger; a factor that was commonly linked with gun crime and drug activity. Because of the primacy placed on gang activity, we review the gang literature, placing emphasis on police strategies for addressing gang violence.

Hot Spots Policing

The evolution of hot spots policing can be attributed largely to a small group of criminologists. For over fifteen years, Anthony Braga and David Weisburd have been developing the conceptual underpinnings of hot-spots policing. Their most recent published thoughts appear in *Policing Problem Places: Crime Hot Spots and Effective Prevention* (Braga & Weisburd, 2010). Through careful articulation backed by research evidence, Braga and Weisburd (2010) argue for the relevance and expanded use of hot spots strategies. By their account, hot spots policing: (1) is supported by criminological theory, (2) has been tested empirically, often in

studies that adopted a randomized design, and results have consistently been positive, (3) is amenable to nuanced, problem-oriented approaches, and (4) reflects well with current technological trends.

First, hot spots policing has strong theoretical underpinnings. Hot spots policing emerged from a body of research indicating that crime is not spread evenly throughout geographic space but, rather, concentrated in specific areas (Sherman, Gartin, & Buerger, 1989). For instance, it is commonly known amongst police personnel, and supported in the literature, that certain neighborhood facilities such as bars and clubs, public transportation hubs, and large thoroughfares have high propensities for crime occurrences. Scholars have offered several theoretical frameworks that explain the clustering of criminal events, including rational choice theory, routine activities theory, and environmental criminology. Rational choice theory posits that individuals weigh the costs and benefits when deciding to commit crime, and this decision making process entails both the decision to commit the crime and the decision as to how that crime will be committed (Cornish and Clarke, 1986). Like rational choice theory, routine activities theory argues that crime is a function of three elements that converge: a motivated offender, a suitable target, and the presence, or lack thereof, of a capable guardian (Cohen and Felson, 1979). Much like rational choice theory, routine activities theory entails a decision making process by individuals: a motivated offender during his or her routine activity decides to commit a crime after coming across a suitable target *and* assessing the risk in committing that crime at that specific place and time (i.e., is someone watching and willing to intervene?). These two theories suggest that police agencies should focus on increasing the perceived costs associated with committing a crime (e.g., arrest) through various policing strategies, such as enhanced patrolling that would increase guardianship. Environmental criminology further supplements rational choice and routine activities theories by incorporating an analysis of both

space and time. According to these theories, the features of the environment create spaces in which criminal opportunities are deemed more viable by offenders. Unlike rational choice and routine activities theories that generally focus on the individual as the unit of analysis, environmental criminologists explore how the physical features of an area increase the propensity of crime and how these features can be modified to decrease crime occurrences (e.g., increased lighting in alleys; modifications to architectural aspects of the urban landscape, increased electronic surveillance). Police agencies thus have the opportunity to decrease crime by focusing on the physical environment. These three theories combined make up the basis for situational crime prevention, and they suggest that police agencies have the opportunity to prevent crime not only by increasing patrols and other traditional policing strategies or focusing on specific offenses and offenders within specific areas, but also by focusing on the neighborhood features that increase the risk for crime occurrences.

Second, hot spots policing is backed by research evidence. Experimental and quasi-experimental research examining the effects of hot spots policing has shown that crime and disorder is reduced in treatment hot spot locations (see Braga, 2001, 2005; National Research Council, 2004; Sherman, 1997; Weisburd & Eck, 2004 for reviews of this research). Braga (2001), for instance, in a systematic review of hot spots policing studies found that seven of the nine evaluations reported significant crime and disorder reductions. In a follow-up meta-analysis, Braga (2005) found that, in studies that adopted a randomized design, there was a significant treatment effect on citizen calls for service. Several studies examining hot spots policing have also found little evidence of crime displacement to surrounding locations (Sherman & Rogan, 1995; Weisburd & Green, 1995; Braga et al., 1999, Braga and Bond, 2008), although the ability to accurately and definitively make such claims is problematic given the complex nature of

displacement analyses (Braga and Bond, 2008; Weisburd & Green, 1995; Barnes, 1995).[2] Finally, some researchers have found a diffusion of benefits to nearby surrounding areas (Sherman & Rogan, 1995; Weisburd & Green, 1995).

Third, hot spots policing interventions are amenable to nuanced problem-oriented strategies. The hot spots policing approach in its most general application can be a simple repackaging of traditional policing strategies—the hot spots policing model does not necessarily require police agencies to modify current policing activities (e.g., preventive patrol, traffic stops, effecting arrests, etc; Braga and Weisburd, 2006). However, hot spots policing can also entail more nuanced approaches, including problem-solving techniques that may increase guardianship through concentrated, preventive patrols, but also problem solving techniques aimed at the physical features of a hot spot that increase crime risk (Rosenbaum, 2006). What makes the hot spots policing approach different from traditional policing is that it involves the identification of specific geographic locations, typically characterized by high concentrations of crime and/or high risk for criminal behavior, where policing activities are targeted. The traditional model of policing is characterized as patrolling, rapid response to calls, general investigations of crime, and crime prevention and arresting strategies *applied generally across offenses and communities* (emphasis added; Weisburd and Eck, 2004). Hot spots policing therefore is best characterized as being geo-specific, although applications of the hot spots policing approach may involve more than just picking a site and adding extra patrols. It can also involve implementing problem-oriented policing in targeted areas to reduce criminal opportunities (Sherman et al., 1989; Braga et al., 1999; Hope, 1994; Criminal Justice Commission, 1998; Braga and Bond, 2008).

[2] Moreover, past studies have narrowly defined displacement by focusing on displacement in geographical terms; that is, most studies focus on whether crime displaced to areas immediately surrounding the targeted hot spot. Displacement, however, may also reflect changes in criminal behavior across, time, place, offense, and offender, all of which are difficult to measure and analyze.

Fourth, hot spots policing accords well with technological trends. The emergence of hot spots policing is largely due to the improvement in technologies that allow agencies to gather, map, analyze, and disseminate vast amounts of crime data. The impact of technology on police operations has been so substantial that one scholar has described it as the emerging "information technology era" of policing (Rosenbaum, 2007). Policing today has experienced a massive influx of technologies aimed at assisting police agencies in preventing and investigating crime. These technological advancements have shaped many of the latest policing strategies that move beyond traditional policing, including hot spots policing. Hot spots policing requires analysis of massive amounts of detailed crime data in an efficient, yet practical, manner. Without the aid of technology to store, analyze and map data, the identification of bona fide hot spots versus temporary crime patterns is time and staff intensive and has the danger of looking similar to more reactive, haphazard policing strategies. Moreover, police administrators must be able to not only use the most up-to-date information when deciding which locations are hot spots for crime activity, but also be able to map and remap this information rapidly and continuously. Thus, technology plays a critical role in how hot spots policing is practiced.

More generally, technology has become a key component in many of the efforts to revolutionize police activities. The development of large information systems, such as the National Incident-Based Reporting System (NIBRS) maintained by the Federal Bureau of Investigations and the Chicago Police Department's CLEAR (Citizen Law Enforcement Analysis and Reporting) system, have been instrumental in warehousing large quantities of crime data that make crime analysis quicker, more efficient, and more informative. In addition, the availability of affordable crime mapping technologies has facilitated the use of geographically-based crime analysis by many police departments. In 2003, 69% of police agencies serving communities with

one million or more residents reporting using crime mapping software and 56% reported using computers to identify hot spots (Bureau of Justice Statistics, 2006).

Thus, as Braga & Weisburd (2010) suggest, there are reasons to support hot spots policing. Despite this, there remain numerous unanswered questions. Most fundamentally, the existing literature on the effectiveness of hot spots policing has examined a scattering of disparate policing strategies applied to various types of hot spots for varying time periods. Little is known about the long-term impact of hot spots policing or what mechanisms produce the crime reduction benefits reported (Braga, 2007). Moreover, there is lack of clarity in the hot spots literature regarding what type of policing suppression activity—aggressive patrols, targeted arrests, drug-market crackdowns, problem-solving policing—is most effective at reducing drug and gun-related gang crime and the length of time suppression activities must be engaged in to result in long-term crime reductions.

One quasi-experimental study examining police strategies in areas with a large amount of gang violence found that target areas in which police spent a considerable portion of their time engaged in aggressive curfew and truancy enforcement experienced significantly greater crime reductions than control locations. On the other hand, areas in which police spent a large portion of their time engaged in saturation patrol did not experience significantly greater reductions than control locations (Fritsch, Caeti, and Taylor, 1999). Existing evidence also suggests that hot spots policing may be most effective when practiced in conjunction with tailored problem-solving strategies (National Research Council, 2004), and a more recent study conducted by Braga and Bond (2008) provides some support for the importance of situational-specific crime control strategies in achieving crime prevention benefits. Using a randomized controlled trial that required police officials in treatment areas to implement problem-solving strategies, Braga and Bond (2008) found that situational strategies (e.g., improving lighting, cleaning and securing

vacant lots, etc.) were associated with decreases in total calls for service. No other activity—rate of misdemeanor arrests or social services—were associated with significant changes in calls for service. These findings combined suggest that effective hot spots policing may entail not just being geo-focused, but supplementing that with elements of geo-specific problem solving. In his critique of hot spots policing in practice, Rosenbaum (2006) notes that too often, police departments are satisfied to send more officers to hot spots without a clear plan for that they should do when they arrive, other than traditional crackdowns. Also, he observes that frequently this approach will result in the concentration of police resources in low income minority communities, but researchers have failed to look beyond crime rates to examine the impact of this style of policing on local residents.

Responses to Gang Violence

Hot spots policing has not been explicitly applied to gangs and gang-related violence. Research has examined the impact of hot spots policing on crime and disorder generally (Sherman, Gartin, & Buerger, 1989; Sherman & Weisburd, 1995), drug market crackdowns (Hope, 1994; Weisburd & Green, 1995), violent crime (Braga et al., 1999), and gun-related crime (Sherman & Rogan, 1995). And although CPD has attributed the majority of drug and gun-related crime to Chicago's gangs, some researchers have questioned whether drug-related crime in other cities is strongly associated with gangs (Howell & Gleason, 2001). Thus, it is unclear whether gang suppression activities implemented in targeted hot spots could actually result in gang crime reductions in Chicago despite findings in other cities that hot spot policing resulted in reductions in police service calls concerning drug markets (Hope, 1994; Weisburd & Green, 1995) and gun-related crime (Sherman & Rogan, 1995).

Despite lack of explicit linkage between hot spots policing and gang-related violence, there does exist a large body of general research on urban gangs, including extensive

consideration of programs and strategies designed to address gang crime (see Miller, Maxson, & Klein, 2001). Nonetheless, knowledge regarding effective strategies remains limited (Reed & Decker, 2002; Decker, 2003). The Spergel Model, sponsored by the Office of Juvenile Justice and Delinquency Prevention and named after Irving Spergel from the University of Chicago, is perhaps the most commonly cited gang violence reduction model (for a detailed overview, see Maxson & Klein, 2006). Yet, the Spergel Model is not a precise prescription. Instead, it is a broad inter-agency approach that combines prevention, intervention, and suppression strategies.

Spergel (2007) describes the police role in the Little Village Gang Project - the seminal project that guided development of the Spergel Model. Two police officers were assigned to the project. The officers, while assigned to a traditional, suppression-focused gang unit, were freed from these traditional responsibilities and, as a result, communicated more freely with gang members. This enabled them to establish relationships and contacts that aided not only the project, but also facilitated police intelligence and knowledge gathering.

More commonly, the police address gang crime through targeted suppression. Police agencies have developed a variety of gang and gun crime suppression initiatives that range from targeting gang members for arrest and prosecution and focusing on gang- and gun-related crime through aggressive patrols to erecting traffic barriers to reduce crime opportunities (Howell, 2000). On the whole, these strategies have not been subject to rigorous evaluation (although, see Decker, 2003, an edited volume of research on gang policing approaches). Because of this limitation in the research literature, it is not yet clear what types of activities are successful in reducing gang crime. Although some encouraging findings have been reported (e.g., Fritsch et al., 1999), the general conclusion is that police suppression activities alone do not yield lasting crime reduction benefits.

The success of suppression-based approaches is predicated partly on the efficacy of deterrence - the notion that a visible police presence will impact offender decision-making processes, leading them refrain from criminal activity. Advocates of the "pulling levers" approach support a deterrence-based approach for targeting gang members, albeit one that eschews strict suppression. In a typical pulling levers program, gang members are delivered a strong, tailored anti-crime message. If the message is ignored, the police follow up with swift, certain consequences.

Quasi-experimental research conducted in Boston, the initial testing ground for the "pulling levers" approach, indicated that the program was successful in reducing gang homicide (Braga, Kennedy, Waring, & Piehl, 2001). Following these positive results, the federally-funded, multi-city SACSI (Strategic Approach to Community Safety Initiative) program adopted pulling levers logic. Research showed that, on the whole, violent crime was reduced at SACSI sites (see Chermak & McGarrell, 2004; Roehl et al., 2005; Rosenbaum & Roehl, in press). The pulling levers approach was also incorporated into Project Safe Neighborhoods (PSN), a federal initiative that was adopted in more than 90 jurisdictions. Recent evaluations of PSN indicate that PSN cities with high-levels of PSN intervention experienced significant declines in violent crime as compared to non-PSN cities (McGarrell, 2008).

Evaluations of the Boston program, as well as sentence enhancement aspects of PSN (a la Richmond Virginia's Project Exile), have also contributed to our understanding of effective gun policy (see Wellford, 2005). Evidence suggests that deterrence-based demand-side policies to reduce gun violence, such as vigorous enforcement of gun carrying laws in targeted areas, are more effective than supply-side policies, such as shutting down illegal gun pipelines (Ludwig, 2005). However, research on supply-side policies is scarce, precluding definitive conclusions (Braga & Pierce, 2005; Wellford, 2005).

Project Safe Neighborhoods was operating in Chicago at the same time the DOC process was being implemented. Papachristos, Meares, & Fagan (2007) evaluated Chicago's PSN program, finding that program areas experienced a decline in homicide rates, and this decline was more pronounced than in comparison areas. In addition, Papachristos et al. (2007) examined the relative effectiveness of different program components. Results indicated that offender forum meetings were the most effective component. These meetings were developed based on ideas originating in the pulling levers approach. The meetings were attended by offenders with a history of gun violence and gang membership, and stressed the consequences of future gun offending.

Conclusion

Overall, the literature reviewed in this section does not suggest a clear hypothesis as to whether the DOC process contributed violent crime reductions in Chicago. The evidence is mixed. On one hand, hot spots policing is a promising, potentially effective policing strategy. Research suggests that police agencies can and do have opportunities to reduce violence crime if their activities are specifically targeted. Moreover, there is some, albeit limited, data that suggest police agencies can effectively reduce gang crime through targeted enforcement (Fritsch et al., 1999). However, despite this evidence, scholars generally conclude that suppression alone does not yield lasting reductions in gang violence. Consistent with this, prominent strategies for addressing gang crime, such as the Spergel Model, support holistic approaches that incorporate prevention, intervention, and suppression strategies. In Chicago, once target areas were identified, police relied predominantly on suppression-based strategies in those locations; the DOC process was not holistic.

The Deployment Operations Center (DOC)

As noted, the DOC process was a central component of the CPD violence reduction strategy from 2003 to 2007. Created in 2003 as a central administrative unit, the DOC's mission was to compile intelligence data and analyze crime, identifying areas of the city believed to have a high probability for violent crime.[3] Once identified, these areas received additional department resources (e.g., police officers assigned to specialized units), assigned to suppress crime. CPD administrators believed that these additional resources would provide a visible and concentrated police presence that aggressively pursued individuals engaged in gang and drug activities.

This new strategy represented a movement away from more traditional policing strategies, such as random patrol. Commenting on the strategy, Superintendent Philip Cline noted, the "biggest change [was] the move away from random patrol. Random patrol equals random results."[4] The strategy also sent a message to members of the command staff that scarce resources were no longer "owned" by each of Chicago's twenty-five police districts, but would be used to respond to existing and emergent violent crime problems throughout the city. The DOC's responsibility was to recommend areas where these scarce resources would have the greatest impact for reducing gang, drug, and gun-related violence.

To carry out its mission, the DOC employed analysts, who used data and intelligence to identify, on a weekly basis, geographic hot spots. The hot spots were referred to as Level II deployment areas. When examining data and intelligence, DOC analysts sought patterns and details that suggested the possibility of pending violence: gang conflicts over control of narcotic markets, potential gang retaliations, rifts between gang members.

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[3] For a complete review of the initiatives implemented during the Superintendent Cline Administration, see Rosenbaum and Stephens (2005).
[4] Personal interview, Superintendent Philip Cline.

Administratively, CPD separates Chicago into six policing areas – five areas composed of multiple police districts (numerically labeled one to five) and the central business district (labeled CCG, or the Central Control Group). Every week, each police area had a designated Level II deployment area.

After the Level II deployment areas were identified, analysts met with the DOC Commander to discuss their selection rationale. These meetings were called DOC roundtables. Once the locations of Level II deployment areas were finalized, DOC packets were created. The DOC packets provided detailed information about the potential for violent conflict in selected hot spots, as well as information on specific gang members who were criminally active in those areas. The DOC packets were provided to district personnel during weekly DOC meetings and were made available to officers working in the Level II deployment areas. The DOC meeting, which was held weekly at headquarters and attended by area and district command staff, had two purposes. First, the meeting focused on discussing the murders and shootings that occurred during the preceding week in the Level II deployment areas and descriptions of the enforcement and investigatory activities that were used to address those violent incidents. Second, the meeting consisted of a presentation that communicated the ongoing gang conflicts and persons of interest and the rationale and geographic boundaries of the following week's Level II deployment areas.

Following the DOC meeting and release of the DOC packet, it was expected that select groups of officers would be deployed to the newly identified Level II deployment areas. There were two primary units that were specifically deployed to the Level II deployment areas: the newly created Targeted Response Unit (TRU) and the existing Special Operations Section (SOS). The mission of TRU was to saturate Level II deployment areas in an effort to address the crime issues by employing a zero tolerance policy as it pertains to dealing with visible gang, gun, and drug activities. To accomplish this mission, TRU officers engaged in a variety of

suppression activities, including pedestrian and traffic stops and aggressive street patrols and arrests. SOS consisted of officers who were deployed to the Level II deployment areas for various reasons, including specialized missions, such as conducting search warrants. The SOS was considered an elite unit with considerable freedom to suppress violence in whatever ways it considered appropriate.

Although TRU and SOS deployments were the units most directly linked to the DOC process,[5] there were other units that also engaged in activities inside the Level II deployment areas. These units were not as tightly tied to the DOC process.[6] However, these units are worth mentioning because the deployment of these units often coincided with Level II deployment areas or these units engaged in a significant amount of activity within the deployment areas. Other units included the area saturation teams, district gang teams, district tactical teams, and district beat officers. Area saturation teams consisted of officers detailed from districts that were used to saturate areas of concern. In general, their mission was to patrol these areas, arresting persons engaged in illegal drug activity or other crimes. District gang teams worked with the Area Detective Division, assisting in follow-up investigations of murders and aggravated batteries, and conducting missions and other suppression activities designed to address gang-related issues. District tactical teams provided district commanders with additional personnel to deal with specific crime and disorder issues within the districts. To accomplish this task, tactical teams engaged in preventive patrols, making street contacts with criminal suspects, gang members, drug law violators, and curfew violators. Finally, district beat officers also worked in Level II deployment areas. Although these officers spent a large portion of their time responding

[5] SOS also conducted missions outside Level II deployment areas. However, as a roving, citywide unit, specifically tasked with quelling violence, SOS was more closely tied to the DOC process than various other CPD units that were, at times, deployed to Level II deployment areas.

to calls for service, beat officers were also encouraged to engage in other preventive patrolling activities.

In whole, it was this strategy - the compiling of intelligence data, analysis of crime, identification of hot spots, communication of these hot spots and rationale for them to CPD personnel, redeployment of officers to hot spots, and the engagement in suppression activities - that CPD administrators believed would inhibit gang, drug, and gun-related crime in Chicago's neighborhoods. This strategy is the focus of this evaluation.

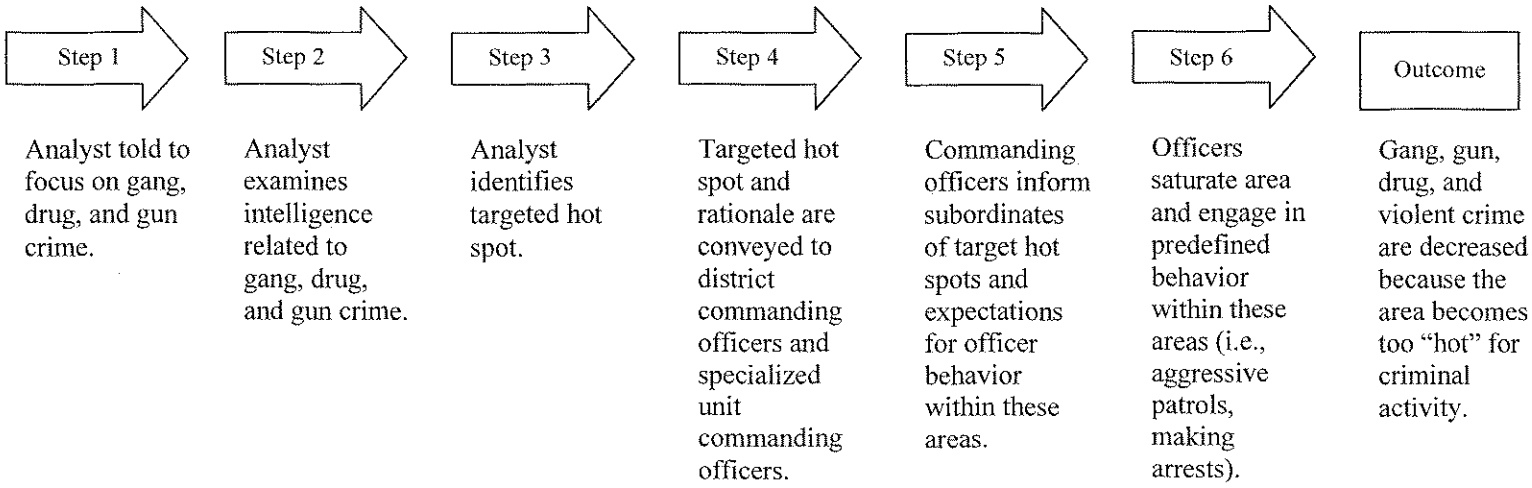
[6] There were other deployment areas identified by CPD - Level I deployment areas. These areas were not identified by DOC analysts. Instead, they were identified by district staff. In this report, we limit our analysis to Level II deployment areas.

Evaluation Approach

The evaluation approach used for this study follows the "theory of change" model advocated by American and British researchers (Pawson, 2003; Weiss, 1995) According to this approach, programs are essentially theory in practice, and the goal of evaluation research is to test whether the theory, as implemented, worked. To accomplish this task, one must not only examine the program outcomes, but understand the basic elements of the program and how these elements are related to expected outcomes. In essence, it entails the development of a change model by which the program was intended to operate and then examining each element of that change model. The strength of the "theory of change" model is that it can help elucidate not only how the program was actually implemented, but can assist in providing a better understanding as to why the program was successful.

The "theory of change" model for Chicago's DOC process is presented in Figure 2. This model was created based on interviews with CPD personnel and other CPD documentation describing the DOC process. Each step of the DOC process and the program outcome were examined using qualitative and quantitative methods. It was felt that the model provided a clear outline by which the data could be analyzed and presented, and thus reflects how the findings presented below were structured.

Figure 2. "Theory of Change" Model For the DOC Process.



The research design included both qualitative and quantitative components. Using qualitative methods, we examined how the DOC process was understood and implemented by CPD personnel. Using quantitative methods, we examined whether the DOC process contributed to violent crime reduction in Chicago and, if so which types of violent crime were most impacted. Our analyses also took into consideration other factors that may have been responsible for violent crime reductions in Chicago. Each method is described in greater detail below.

Qualitative Method

Three qualitative methods were used: meeting observations, field observations (ride-alongs), and field interviews. All three data collection approaches were designed to facilitate an inductive process. Data collection took place over a 14 month period from September 2006 to November 2007. Three researchers collected most of the qualitative data. Field researchers met biweekly to reflect on their findings and discuss areas that needed additional exploration.

Meeting observations. Researchers observed various meetings related to the identification of Level II deployment areas, and communication of these locations to various CPD units. These included observations of (1) meetings devoted to determining the geography and focus of Level II deployment areas (DOC roundtables), (2) meetings where Level II deployment areas were announced, and enforcement activities in previous areas were reviewed (DOC meetings), and, (3) meetings where targeted activities were reviewed in conjunction with other outcomes, as part of a larger accountability meeting.

DOC roundtables were held to vet analysts' decisions. Researchers observed the roundtables in order to understand how data and intelligence was used to make decisions about the deployment areas. Researchers paid particular attention to the types of data used to justify deployment recommendations, as well as communication strategies that were used to understand,

negotiate, and explain recommendations. In addition to observing DOC roundtable meetings, researchers met with several DOC analysts, who were asked to describe their selection process. Researchers noted the types of technology and databases mentioned, the people DOC analysts talked with when making decisions (e.g., gang officers), and additional steps that analysts took to identify weekly deployment areas (e.g., driving around an area). During both the DOC roundtable meetings and individual meetings with DOC analysts, researchers wrote short notes, followed by detailed notes shortly afterwards.

Researchers also observed weekly DOC meetings held at CPD headquarters. When attending these meetings, researchers paid particular attention to the police activities that were highlighted, the outcomes that were focused on, and the ways in which success was gauged. Although strategies were not formally suggested in the DOC meetings (i.e., central command staff did not dictate the strategies that should be implemented), researchers were able to identify activities the central command staff supported. Researchers also collected DOC packets at each meeting they observed. These packets contained maps of Level II deployment areas, and information about gang activity in the selected area

Although researchers had permission to attend DOC meetings, few notes were taken during the meetings. The information shared at DOC meetings was considered highly sensitive, and researchers were often scrutinized and questioned by various meeting "gatekeepers" when observed taking detailed notes. Thus, researchers found that it was better to compile their impressions and notes shortly afterwards.

The final type of meeting observed during the course of the evaluation was "Violence Initiative Strategy Evaluation" (VISE) meetings. These were in-depth accountability meetings facilitated by the Bureau of Crime Strategy and Accountability. Each meeting focused on a

single police area, with focal areas identified on a rotating basis. Each police area was the focus of one to three VISE meetings per year. Areas with fewer violent incidents were the focus of fewer meetings. These meetings covered more than just discussions of the Level II deployment areas and enforcement activities occurring in those areas, but researchers felt it was important to attend them to understand how Chicago's DOC strategy fit into the larger framework of the department's accountability processes and how the DOC process and the focus on gangs, drugs, and guns was communicated and discussed by central command. VISE meetings more closely resembled Compstat meetings, although both DOC meetings and VISE meetings included accountability mechanisms.

Nonetheless, although researchers focused peripherally on accountability mechanisms embedded within VISE meetings, they were primarily interested in examining connections between VISE meetings and the DOC process. The meeting observation protocols focused on collecting information about how meeting participants discussed the DOC process, the Level II deployment areas, and the suppression strategies used in the deployment areas. The protocols directed researchers to pay particular attention to the data used to identify the Level II deployment areas, strategies emphasized as effective, and reflective discussion about successes or areas in need of improvement.

Field observations. In addition to meeting observations, researchers also participated in ride-alongs with various patrol units. At the beginning of the project, researchers provided central administrators in the Bureau of Patrol with lists of preferred units, times, and dates. The administrators scheduled ride-alongs on a monthly basis. Memoranda were faxed to applicable command staff, informing them of the scheduled ride-alongs. Despite the memoranda, there were some scheduling problems, stemming primarily from poor inter-district communication. For

example, there were instances when a researcher called ahead of time to confirm a scheduled ride-along with the 2nd watch commander, but when they arrived at the station at the scheduled time, the 3rd watch commander had no information or knowledge of that communication and would not be prepared for the researcher. There were also instances in which Bureau of Patrol administrators were unaware of staffing situations that impeded willingness to permit a ride-along. Because of these issues, researchers remained flexible about start and end times, and made sure to contact effected CPD units 12 to 24 hours in advance, to confirm scheduling. The Bureau of Patrol administrators did not allow researchers to conduct ride-alongs on Saturday nights, and limited the number of Friday night ride-alongs. They determined that, because of the amount of criminal activity that occurs during these times, ride-alongs would interfere with police work.

Field observations were conducted to understand the types of activities occurring in the Level II deployment areas. Although researchers informally kept track of the types of activities that officers engaged in, the purpose was not to count specific instances of certain activities. Rather, the ride-alongs were used as an opportunity for researchers to see how enforcement activities were implemented in the Level II deployment areas. In many cases, researchers conducted an interview during the ride-along, relying on the same protocol used for formal interviews (described below). Even in high-crime districts, officers had down time, during which researchers could ask questions about the officers' work and their perceptions of the DOC process.

At the beginning of the ride-along, researchers explained the purpose of the research, describing what the field observation would entail (e.g., asking questions, observing, and taking notes), and asking officers to sign a consent form. Researchers took field notes during the ride-

along, which they transcribed shortly afterwards, and supplemented with personal observations and reflections.

Ride-alongs were conducted with four types of officers: (1) specialized team police officers, (2) gang officers, (3) tactical officers, and (4) patrol officers. One researcher was assigned to each ride-along. Due to safety concerns, researchers wore a bullet proof vest. In some cases, district staff required researchers to sign a waiver regarding liability of participating in the ride-alongs. Researchers usually rode with two officers, but in some cases researchers were placed in cars with one officer (usually a supervisor) or three officers. The ride-alongs lasted from 2 hours to a full 8 hour shift, with an average ride-along lasting about 4 hours. Often, an arrest that required the officers to go back to the station and complete paperwork would result in the ride-along ending, although in some cases researchers stayed to watch the processing and ask the remainder of the interview questions.

Interviews. Researchers also conducted semi-structured interviews with the following types of officers: (1) DOC analysts involved in selecting and identifying the Level II deployment areas; (2) command officers overseeing the identification of the Level II deployment areas and resource allocation; (3) command staff overseeing officers assigned to the Special Operations Section (SOS) or Targeted Response Unit (TRU); and (4) beat officers working in districts where Level II deployment areas were located. Collectively, interviews with these various types of officers made it possible to obtain multiple perspectives on the DOC process.

For interviews not occurring during ride-alongs, researchers used the CPD telephone directory to contact potential interviewees, starting with the commanding officers within the study district, and subsequently employed a snowball sampling technique to get the names of additional officers to interview. Once contacted, researchers explained the purpose of the study

and offered to fax or email the Superintendent's letter of support confirming department approval of research activities. No one declined to be interviewed, but there were a few cases where researchers attempted to contact an officer on numerous occasions with no response (N=3). All officers who agreed to participate in interviews were provided information about the research project and were asked to review and sign informed consent forms. Interview participants were typically questioned by two researchers, with one researcher primarily asking the questions while the other researcher took notes. The exception was when the interview occurred during a ride-along, in which case only one researcher was present. Interviews lasted anywhere from 45 minutes to 2 hours, with an average of approximately 1 hour per interview. Interview notes were transcribed by the primary note taker within 48 hours of the interview, then given to the lead interviewer for review.

The interview protocols were flexible enough to allow researchers leeway in their questions and observations over the course of a ride-along, interview, or meeting observation. Interviews that occurred during ride-alongs were particularly flexible, as interviews were routinely interrupted while officers performed job duties. Also, the interview protocols allowed researchers to probe deeper into topics that participants appeared to be more knowledgeable. The interview protocol contained core questions that were asked of most participants and specific questions for certain interviewees (i.e. command staff questions for participants in supervisory roles).

Sample. Field work was concentrated in three police districts. Because the field work provided an opportunity to see suppression activities "in action", districts were selected based on crime rates. Yet, an attempt was made to identify districts that served heterogenous neighborhoods. Thus, when identifying target districts for field research, several factors were

considered: district crime rates, geographic size, number and concentration of previous Level II deployment areas, and racial/ethnic composition of the district population. Additionally, researchers' prior relationships with district command personnel were also considered; researchers felt these relationships would help with access issues that may occur during the field work. The first target district: (1) is geographically large, (2) racially heterogeneous, (3) has a moderate crime rate, and (4) is located in southwest Chicago. The second target district: (1) is geographically small, (2) densely populated, (3) has a predominately Black population, (4) has a high crime rate, and (5) is located west of downtown Chicago. The third target district: (1) medium sized, (2) has a predominately Hispanic population, (3) has a moderate to high crime rate, and (4) is located in northwest Chicago.

Several veteran police officers were asked their opinions about the districts selected, relative to the goals of the project. The officers agreed that the selected districts would provide researchers with a diverse and adequate representation of the various types of police districts implementing suppression strategies stemming from the DOC process.

In total, researchers conducted 55 ride-alongs with approximately 130 officers, interviewed 80 CPD personnel, and observed 35 meetings. See Table 1 for the details by study district.

Table 1

Number of Observations and Interviews

	Centralized Units	District A	District B	District C	Total
Interviews Only	14	3	4	4	25
Interviews / Ride-alongs Combined	7	13	17	18	55
Meetings	30	1	2	2	35

Research participants were not formally asked to disclose their demographic background. Nonetheless, field researchers informally documented participant race/ethnicity and gender. This information was used to consider the representativeness of research participants, relative to the larger composition of the department. Overall, it appeared that white and male participants were slightly overrepresented in the sample of people interviewed and observed during ride-alongs (Table 2).

Additionally, during interviews and ride-alongs, research participants were asked to describe their policing career and, in particular, number of years on the job. Over time, CPD had changed its organizational strategy. For example, in the 1990's, community policing was the predominant strategy. It was possible that less experienced CPD officers, who had not been exposed to older strategies, would have different perceptions of the DOC process than veteran officers.

Police experience varied widely across research participants. Research participants included new officers with less than a year on the job, relatively new officers with two to three years on the job, mature officers with at least 10 years on the job, and older officers with 20 plus years experience with the department.

Table 2

Racial/Ethnic Composition of Research Participants Compared to Department Officers Overall

Race/Ethnicity	Research Participants (%)	Department-wide (%)*
Black	20-25	26
Hispanic	10-15	18
White	65-70	54
Male	85-90	76

* Data source: Chicago Police Department's 2007 Annual Report: A Year in Review

Note: The Department-wide racial/ethnicity percentages do not add up to 100%, as 3% of sworn CPD staff identified as either Native American or Other.

Quantitative Methods

As noted, the purpose of the quantitative component of the project was to assess the impact of the DOC process on violent crime trends in Chicago.

Research design and data. CPD is the second largest local police agency in the country, with approximately 13,616 sworn officers and an annual operating budget of over 1.2 billion dollars. CPD serves more than 2.7 million residents in an area covering about 231 square miles. In 2007, CPD handled 5.1 million calls to 911 and made over 220,000 arrests. For administrative purposes, the department is organized geographically into beats, districts, and areas. The smallest administrative unit is the beat. There are 281 beats in Chicago. Beats are organized into 25 larger units called districts. Each district consists of 9 to 15 beats, and is led by a district commander. The districts are further organized into larger units called areas. There are five areas and the Central Control Group (CCG), which is composed of the downtown districts.

The police beat is the unit of analysis for the quantitative analyses ($N = 281$). In Chicago, beats generally correspond with residents' perception of a neighborhood, and are bounded by

highways, major intersections, and parks. Police beats were selected as an appropriate unit of analysis for two primary reasons: (1) beats represent the smallest police administrative units in Chicago and are the primary unit for patrol assignments and (2) a wide range of data are available at this unit of analysis that are considered relatively accurate and reliable. Beats tend to vary in size, number of calls for service, and crime rates. The typical beat is about .82 square miles, but beats ranges in size from .09 square miles in the central business district to 10.2 square miles for the beat covering Chicago's O'Hare International Airport.

Violence measures. The analyses assessed the impact of the DOC process on various violent crime indicators: homicides, gang-related homicides, gun-related homicides, drive-by-shootings, aggravated battery with a gun in outside locations, and violent index crimes in outdoor locations. The measures were calculated as rates per 10,000 beat residents.[7] To account for non-linearity and improve model fit, the violence measures were logged (Singer & Willet, 2003).

Table 3

Descriptive Statistics for Violence Measures (July 2003 – June 2006)

	M	SD	Min	Max
Homicide (logged)	.86	.76	0	3.38
Gang-related homicide (logged)	.42	.58	0	2.74
Gun-related homicide (logged)	.71	.73	0	3.25
Drive-by-shootings (logged)	.71	.73	0	3.11
Aggravated battery with gun outside location (logged)	1.53	1.05	0	4.25
Violence index outside location (logged)	3.57	3.48	0	10.26

[7] Beat population estimates were provided by Dr. Wesley Skogan, Northwestern University. The estimates were based on Chicago block group population projections made by Claritas, Inc. The block group projections were aggregated to the police beat level for 2000 and 2006. Beat population estimates for 2001 to 2005 were based on linear interpolations between 2000 and 2006. Population estimates for years after 2006 were based on the yearly population change rates between 2000 and 2006.

DOC coverage. For each analysis, the primary independent variable was a measure of DOC coverage: the extent to which, over time and space, a Level II deployment area was subsumed within beat boundaries. Three different DOC coverage measures were examined. The first measure (Any DOC) was a simple dichotomous measure that indicated whether any part of the beat was identified as part of a Level II deployment area.

The next two coverage measures took into consideration not only whether a beat overlapped with a Level II deployment area, but also the magnitude of overlap in time and space. The second measure, DOC Level, was created by taking the number of days that a beat overlapped with a Level II deployment area per month and multiplying it by the average monthly percentage of the beat area that overlapped with a Level II deployment area.[8] DOC Level was logged to reduce skewness and improve model fit.

For the third measure, DOC Intensity, all log values greater than zero were broken into three equal groups. This allowed for an ordinal variable that represented four levels of Level II deployment area intensity: none, low, moderate and high.

[8] The percentage of the beat area that overlapped with a Level II deployment area was calculated using ArcView GIS 9.2. Because there is some error associated with this process, percentage overlaps of less than .05% were coded as 0.

Table 4

Descriptive Statistics for DOC Coverage Measures (1st Year - YR 0304)

Measure	Description	*M*	*SD*
Any DOC	Dichotomous variable indicating whether any part of the beat was in a Level II deployment area. Coded 0 for no and 1 for yes.	.57	.50
DOC Intensity	Ordinal measure that was designed to capture the intensity of the Level II deployment area. It was calculated by multiplying the number of days the beat was included in a Level II deployment area by the percentage of the beat in the Level II deployment area and then dividing the logged scores greater than 0 into three equal groups. Coded 0 for none, 1 for low, 2 for moderate and 3 for high.	1.14	1.17
DOC Level	Ratio level measure that was calculated by multiplying the number of days the beat was included in a Level II deployment area with the percentage of the beat in the Level II deployment area. Logged to reduce skewness.	3.31	3.42
Days in DOC	The actual number of days a beat was in a Level II deployment area.	46.35	62.76
Percent in DOC	The actual percentage of the beat that was in a Level II deployment area.	9.11	12.83

Police activity measures. Police activity was examined to assess treatment integrity - the extent to which activity increased following selection of an area as a hot spot. Six measures of policing activity were examined: the number of arrests, contact cards, traffic stops, gun recoveries, narcotics recoveries, and an overall index of these five activities. Because the DOC process involved the deployment of special units, activity measures were further broken down by unit - for example, arrests by patrol vs. arrests by a special unit (e.g., TRU or SOS).

Control variables. Although not the central focus of the evaluation, the analyses also included several control variables. Census block group boundaries were matched to Chicago police beat boundaries. Then, 2000 Census data was used to create beat estimates for 14 socio-

demographic factors. The factors were identified based on their associations with criminological theories of social disorganization (see Bursik & Grasmick, 1993; Sampson, Raudenbush, & Earls, 1997) and gentrification (see Zielenbach, 2000).

Principal components factor analysis with varimax rotation was conducted on the 14 Census measures. Three factors emerged, together accounting for 82% of the variance. Factor loadings were included in the analyses. The first factor, which we call disadvantage, had an eigenvalue of 6.22, and included the percentage of residents who lived in poverty (.954), received public assistance (.891), lived in female headed households (.876), were unemployed (.871), were high school graduates (-.697), the percentage of vacant housing (.665), the percentage of owner-occupied housing (-.633), and the median real value of owner-occupied housing (-.546). The second factor, labeled immigration, had an eigenvalue of 2.97 and included the percentage of resident who were linguistically isolated (.936), the percentage of Hispanic residents (.909), the percentage of foreign born residents (.851), and the percentage high school graduates (-.586). The third factor, labeled stability, had an eigenvalue of 2.25, and included the percent of residents in the same household for the past five years (-.880), the percent of owner-occupied houses (-.708), the population density (population divided by spatial area in square miles) (.661) and the real median value of owner occupied housing (.632). In addition to the factor loadings, an additional socio-demographic variable - the percent of residents who were Black - was also included in the analyses.

Consistent with prior research (see Dean et al., 2008; Rosenfeld, Fornango, & Rengifo, 2007), we found significant spatial autocorrelation effects for violence measures. This suggested a non-random distribution of violence in Chicago. To control for spatial autocorrelation, we created spatial lag variables using the 10 nearest neighbors defined by beat centroids (Anselin,

2002). These variables were also included in our analyses. Finally, for each analysis, we included prior violence rates, to control for the possibility of mean reversion (see Harcourt & Ludwig, 2006).

Table 5

Descriptive Statistics for Control Variables

	M	SD	Min	Max
Black	48.19	40.44	.12	99.43
Disadvantage	0.00	1.00	-2.19	2.91
Immigration	0.00	1.00	-1.79	3.32
Stability	0.00	1.00	-2.13	2.65
Spatial lagged homicide (logged)	.95	.50	0.00	1.95
Spatial lagged gang-related homicide (logged)	.48	.32	0.00	1.35
Spatial lagged gun-related homicides (logged)	.80	.47	0.00	1.78
Spatial lagged drive-by-shootings (logged)	.75	.48	0.00	1.83
Spatial lagged aggravated batteries (logged)	1.72	.86	0.00	3.07

Alternative explanations. During the study period, two additional violence reduction projects in Chicago received considerable publicity: Project Safe Neighborhoods (PSN) Chicago and Ceasefire Chicago. To account for effects attributable to PSN and Ceasefire, dichotomous variables were created, indicating whether the program operated in the beat (0 for no, 1 for yes). PSN operated in 19 percent of Chicago's police beats, Ceasefire in 12 percent.

A variable was also created for public housing. In 1999, the Chicago Housing Authority (CHA) initiated a long-term plan to demolish many of their high-rise public housing buildings and relocate residents. Some of these high-rise developments had developed reputations as hotbeds for gang crime. To control for the possible influence of public housing relocation, each of Chicago's public housing projects were geocoded and matched to their respective beat.

Typically, a public housing project would be located within a single beat, although a few covered larger areas (i.e., the Robert Taylor Home spanned across five beats and Cabrini-Green across three). Senior citizen public housing projects were excluded. A dichotomous variable was created with 0 indicating no public housing and 1 indicating current public housing or a beat with a recently demolished public housing project (5% of the beats were coded as 1).

Statistical analysis of change. Chicago violent crime trends from 2000 to 2007 showed that greatest decreases occurred between 2002 and 2004. Thus, we focused our attention on the first year of DOC process implementation (July 2003-June 2004). One year pre-DOC (July 2002-June 2003) and one year post-DOC (July 2003-June 2004) crime rates were calculated and compared using t-tests, ANOVA and least squares regression. Although the limitations of change score analyses have been discussed (see Allison, 1990), this strategy allows for a straight forward evaluation of programs with a quasi-experimental design where the groups are not equivalent in terms of pre-test scores (for examples see Raphael & Ludwig, 2003; Ludwig, 2005).

Growth curve models were also used to investigate changes in violence. The growth curve approach hypothesizes that, for each beat, violence is a specified function of time called the growth trajectory, plus error. The trajectory is specified as a linear function of time containing two parameters – an intercept and slope – that determine the starting point and the shape of the growth curve over time. Level 1 estimates were calculated using the following formula:

$$\text{Violence}_{ti} = \beta_{0i} + \beta_{1i}\text{Time}_{ti} + \beta_{2i}\text{DOC Level}_{ti} + e_{ti}$$

where Violence_{ti} is the logged violence crime rates at the time t for beat i, β_{0i} is the logged violence crime rate in the YR 03-04 for beat i, β_{1i} is the linear trend in violence over time, β_{2i} is

the average effect for the mean-centered time varying variable DOC Level measure for beat *i*, and e_{1i} is the level 1 error term.

The level 2 model was estimated using the following formulas:

$$\beta_{0i} = \gamma_{00} + \gamma_{01} W_i + u_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11} W_i + u_{1i}$$

$$\beta_{2i} = \gamma_{20}$$

where γ_{00} represents the average violence rates in YR 0304 across beats, γ_{01} is the effect of a beat level time stable covariate W_i (i.e., % Black, Disadvantage, Project Safe Neighborhoods, etc), and u_{0i} is the error or random effect for beat *i*. In line two γ_{10} represents the average linear trend across beats, γ_{11} is the effect of the time stable covariate Wi on the linear trend in violence, and u_{1i} is the error or random effect for the linear trend. In line three, γ_{20} is the estimate for the within-beat average effect of DOC Level across all the beats.

All of the growth curve models were estimated using HLM 6.08 (Raudenbush, Bryk & Congdon, 2004). The model assumptions – functional form, normality, and homoscedasticity – were checked using the procedures and criteria outlined by Singer and Willett (2003). Any model that appeared to violate the assumptions of the HLM growth curve technique were re-specified and re-estimated.

Findings

In this section, we report results for both evaluation components - qualitative and quantitative. Findings are structured according to Figure 2 – the "theory of change" model for the DOC process.

Step 1: Focus on Gang, Drug, and Gun Crime

Step 1 of the change model reflects the communication of CPD's focus on gang, drug, and gun crime to those charged with analyzing data, making deployment recommendations, and carrying out suppression activities. Analysis of multiple data sources indicated that this message was communicated throughout CPD. First, we examined newspaper reports. Because they are geared toward informing the public, newspaper reports were an avenue through which officers received messages that CPD's focus was on gangs, drugs, and guns.

In an analysis of newspaper reports from July 2003 to November 2007, researchers found 79 unique news articles that specifically discussed CPD's focus on gangs, drugs, and guns or CPD's new deployment strategies involving targeted enforcement and patrol.[9] Most of these articles were published during the first two years of Superintendent Cline's administration (2003 and 2004). Of the 79 articles, 21 (26.6%) were published during the last half of 2003 and 24 (30.4%) were published during 2004.[10]

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[9] The search was conducted using a Lexis Nexis database. The following search terms were entered: Cline and Chicago and drugs or guns or gangs. A total of 1,781 publications were retrieved using these search terms. Researchers then examined the titles of each of the publications and narrowed the search to 160 publications that appeared to be specifically related to gangs, guns, drugs and Superintendent Cline's administrative focus. These 160 publications were further narrowed down following a full review of the articles, eliminating those that did not pertain to CPD strategies, were determined to be duplicates (i.e., some articles contained significant portions of other articles), or were the same articles published in different venues.

[10] The number of articles that discussed the CPD strategy dissipated over time. We located 16 articles published in 2005, 11 in 2006, and 7 in 2007. This was due to a shift in the news from CPD's success at reducing crime to the various scandals involving its police offices. By 2006, a large number of the newspaper articles were devoted to discussing problematic officers, including stories that focused on SOS officers accused of corruption, making false arrests, and committing robberies and home invasions.

In addition, during Superintendent Cline's tenure, various crime summits were held to facilitate communication about the topics of gangs, drugs, and guns. Beginning in 2003, CPD hosted annual Gang Crime Summits that brought together gang experts from within CPD and other agencies to share gang-related information and knowledge. The goal of the Gang Crime Summits was to "promote creative thinking, share information, and develop new strategies to achieve the Department's goal of continued violence reduction" (Chicago Police Department, n.d., p. 24). To further facilitate information sharing, major themes discussed during the gang summits were published and made available through an employee web page.

In 2006, CPD held a Murder Summit, attended by high-level commanding officers (e.g., Deputy Chiefs, District Commanders). Participants discussed CPD violence reduction strategies in an effort to identify ways CPD could improve current violence reduction initiatives. Again, the summit resulted in a publication that was made available through an employee web page.

Finally, in 2007, Chicago hosted a Narcotics Trafficking Summit, which brought together individuals from international, national, and local law enforcement agencies. Participants discussed investigative techniques, and developed inter-agency partnerships. Again, the major themes of the summit were published and made available through an employee web page.

The most compelling evidence that the CPD strategy was clearly articulated to officers came from interview data. During interviews with DOC analysts, it was clear they were informed of the CPD focus on gangs, drugs, and guns. It was also clear that this focus drove analysts' decision making. Similarly, interviews with CPD command staff and police officers indicated that this message was conveyed to persons throughout the organizational hierarchy. All interview participants were aware of the CPD strategy, and of the organizational focus on gangs, drugs, and guns.

Finally, accountability meetings reinforced the CPD mission. The Bureau of Crime Strategy and Accountability (BCSA), created during Superintendent Cline's administration, was directed to evaluate whether "the cops are on the dots," (e.g., whether resources were being optimally utilized to address problems occurring in the deployment areas) and whether police responses were sufficient and appropriate for specific problems. During these meetings, gang, drug, and gun issues were frequently discussed. Performance was monitored and assessed during meetings held at either local police offices or CPD headquarters. Thus, accountability meetings were another avenue through which CPD administrators conveyed the CPD strategy, and the organizational mission of combating gang, drug, and gun crime.

Step 2: DOC Analysis of Data and Intelligence

In Step 2 of the change model, DOC analysts review intelligence and crime data on a weekly basis. Throughout the evaluation period, two DOC analysts were assigned to review data for each of the five police areas and the CCG. These analysts were responsible for recommending the geographic boundaries of DOC hot spots. To this end, analysts used a variety of information sources. However, emphasis was placed on street level intelligence.

The background and experience of DOC analysts evolved over time. Initially, analysts tended to be field officers with computer skills. These officers understood, and could utilize, CPD data systems. As the DOC process became more established, DOC command staff began selecting analysts with more extensive gang and tactical experience. Essentially, command staff felt that they needed experienced street officers that were "content experts" on the various gangs in Chicago.

There were no formal guidelines regarding analysis of data and intelligence. Most analysts relied on their past experiences, their coworkers' past experiences, formal data systems,

and current intelligence obtained from field officers with their "ears to the ground." Analysts also consulted with detectives investigating violent crimes to determine motives and identify possible retaliations. In addition, most DOC analysts considered the geography and proximity of gang territory and the history of gang conflict when establishing the recommended locations of the Level II deployment areas. It should be noted that although gang territory was examined, it was commonly understood that gangs bordering each other geographically did not necessarily constitute a problem (e.g., potential conflict) because, as one DOC analyst pointed out, there were locations where different gangs operated in close proximity to each other peaceably because they each had their "narcotics niche" and informal codes about how to maintain order in the drug market place. High profile events would also direct the deployment recommendation for the week (e.g., Puerto Rican Day Parade or the anniversary of high ranking gang member's death).

Data and intelligence about individuals of interest to CPD were also examined by DOC analysts. This included people recently released from the Illinois Department of Corrections (IDOC), high ranking gang members, siblings of gang members, and relatives of murder or aggravated batteries offenders or victims. DOC analysts monitored IDOC and other federal facility releases and tracked the movement of high profile gang members either informally, when the analysts did not have formal recourse to track them, or formally via probation or parole officers. As the DOC process evolved, analysts began to regularly include a "persons of interest" section in the DOC packets. Typically these persons were gang members or associates deemed pivotal to an ongoing conflict.

Analysts largely characterized their deployment recommendations as "predictive" in that their role was to identify "... the area where there might be a high probability of crime" and

places that were about to "blow up." There was variation amongst analysts in how they weighed the importance of different types of data and intelligence. To varying degrees, analysts relied on personal expertise, information about past crimes, other field officers experiences and understandings, and institutional knowledge of how gangs typically operate. Analysts examined past violent crime in the area by querying official crime statistics and talking to investigating detectives. Analysts also put a lot of credence in informal intelligence surrounding gang conflicts or "beefs." They also vetted information by talking to various sources. However, they often relied on officers with whom they had a prior work relationship. Less frequently, analysts relied on "cold calls" to district and area contacts (e.g., an area gang lieutenant or district tactical lieutenant).

Although the DOC analysts perceived their role as assisting in the prevention of crime, DOC analysts may not have been working with the most current information - some of their deployment recommendations could have been outdated. Field researchers consistently heard from officers that there were bottlenecks in the data transfer process. Electronic databases were often weeks behind due to late data entry, a problem that appeared to occur more frequently in high crime districts. This lack of access to immediate and accurate information limited analysts' abilities to effectively recommend deployment areas.

Related to data quality issues, some officers were hesitant to share pertinent information with DOC analysts. Several reasons were offered for this resistance. The prevailing issue was accountability. Because the DOC was associated with an accountability process, officers were reluctant to share information because they thought it would later be used to evaluate them. Even though the formal accountability process was executed by a different bureau, the weekly DOC meetings included accountability mechanisms, potentially leading to this confusion.

Step 3: DOC Analysts Identify Target Hot Spots

Step 3 is the identification of target hot spots - Level II deployment areas. As noted above, the identification of Level II deployment areas was based on examination of various types of data, but was largely influenced by analysts' considerations of gang intelligence and prior violent crime incidents. Just as there were no formal guidelines regarding analysis of data and intelligence, there were also no formal size limits for Level II deployment areas. The boundaries of Level II deployment areas were identified based on gang conflicts; the areas that analysts believed encompassed the current or impending conflict. Analysts took feasibility into account, considering whether an area could reasonably be saturated given the nature of the conflict and the geographic landscape. Also field researchers observed that analysts sometimes took political considerations into account, either expanding or moving a weekly deployment area based on an expressed wish from local stakeholders. These situations were far from the norm, but were observed several times over the course of the field work.

During ride-alongs, most officers stated that DOC analysts were generally effective at identifying areas at greatest risk for violence and gang conflict. The perception that the DOC analysis had picked the "right spots" held across field officers from various units. Moreover, the officers interviewed felt that the DOC analysts had gotten better over the time at identifying areas prone to violence and gang conflict, and were doing so reliably across the city. This likely reflects the conscious effort by the DOC Commander to recruit DOC analysts with a solid track record of street-level gang and narcotic market experience over those with computer knowledge.

On the other hand, field officers also reported that, on occasion, the conflicts identified by the DOC were already well known, and the DOC was essentially "confirming what they already knew." Some field officers and district commanders also reported that gang violence was

so pervasive in their districts that the Level II deployment areas could be arbitrarily placed anywhere and be consider the "right spot." A noted concern with the identification of the Level II deployment area was that the information used may have been predicated on faulty assumptions. At its heart, CPD's deployment model was based on the idea that gangs and guns and their association with the drug trade overwhelming contributed to violent crime in Chicago. This assumption, however, may have been too simplistic as it lacked both the understanding and the level of problem solving necessary to really identify the problems underlying crime across vastly different neighborhoods. Although there is no doubt that gangs, guns, and drugs are a violent mix, this connection in any one district may have needed to be dissected and understood with a more nuanced lens. The relationship between gangs, guns, drugs, and violent crime in one community may look very different than that in another.

Every week, a Level II deployment area was located in each police area. Because violent crime is not equally distributed across police areas, locations with relatively crime rates and relatively low numbers of gangs and gang-related offenses were designated as Level II deployment areas. Additionally, police personnel were expected to execute intensive and targeted strategies in these areas. This hot spots democratization may have diluted resources available for other "true hot spots," artificially inflated concerns over gang problems in certain areas, and drew attention away from other crime issues.

Locations – Level II Deployment Areas. CPD staff provided the research team with GIS data that showed the locations of Level II deployment areas. This data provided supplementary insights on selection tendencies. The GIS data included Level II deployment areas selected from July 2003 to May 2007. The data included 197 selection periods – or weeks in which the

Chicago Police Department held DOC meetings to announce Level II deployment areas for the following week.

On average, Level II deployment areas encompassed 1.39 square miles. Selected areas ranged from 0.06 square miles to 4.08 square miles. To put this size in perspective, the average Chicago police beat encompasses 0.82 square miles. Therefore, Level II deployment areas were, on average, approximately 0.60 square miles larger than police beats. Moreover, Chicago's three largest police beats are located in areas with geographic objects that necessitated expanded beat boundaries (e.g., Chicago's O'Hare International Airport, Lake Calumet on Chicago's south side). If these three beats are excluded, then the average beat size is reduced to 0.74 square miles. Size varied by police area (see Table 6). Deployment areas in Area 1 tended to be the largest, while those in the Central Control Group were notably smaller.

Table 6

Average Level II Deployment Area Size by Police Area, July 2003 through May 2007

	Area 1	Area 2	Area 3	Area 4	Area 5	Central Control Group
Mean	1.73	1.48	.93	1.57	1.19	.37
Standard Deviation	.77	.74	.50	.64	.47	.14
Minimum	.49	.30	.13	.13	.25	.04
Maximum	4.08	3.79	1.82	3.24	2.29	.55

We also examined the locations of Level II deployment areas. Because a primary purpose of the DOC meetings was to announce new Level II deployment areas, time between meetings had implications for how long an area remained targeted. As previously mentioned, DOC meetings were typically held weekly. There were, however, instances when meetings did not

take place precisely on a weekly basis. Table 7 shows, for each of the 197 DOC meetings, the number of days until the next meeting. In general, variability in days between DOC meetings could be traced to mundane, practical reasons necessitating changes in meeting dates. For example, in some cases the DOC meeting fell on a holiday, necessitating a rescheduling of the meeting. Or, in two instances, the recurring day of the DOC selection meeting changed (for most of the study period, the meetings were held on Fridays). As a result of these changes, some Level II deployment areas remained in effect for periods longer or shorter than seven days.

Table 7

Number of Days Between Selections (N=197)

# of Days	Frequency	Percent
5	2	1.0
6	5	2.5
7	175	88.8
8	7	3.6
10	2	1.0
11	1	0.5
14	5	2.5

Because Level II deployment areas were identified on (approximately) a weekly basis, DOC analysts could use prior locations as a reference for selecting future locations. There were instances when the same location was targeted for multiple weeks, sequentially (two or more weeks in a row) or non-sequentially (the location was targeted more than once, with one or more weeks intervening between selection of that location). Across the 197 DOC meetings, there were 438 unique Level II deployment areas. In some instances, there were only minor geographic differences between two different locations. These overlapping, yet slightly different, locations

were considered unique. Of the 438 unique deployment areas, 206 (47.0%) were selected more than once (Table 8). One (in Area 3) was selected 66 times between June 2003 and May 2007.

Table 8

Number of Times Unique Level II Deployment Areas Were Selected (N=438)

# of Times Selected	# of Deployment Areas	Percent
1	232	53.0%
2	114	26.0%
3	39	8.9%
4	19	4.3%
5	8	1.8%
6	7	1.6%
7	7	1.6%
8	2	0.5%
9	2	0.5%
10	2	0.5%
11	1	0.4%
13	1	0.2%
14	1	0.2%
20	1	0.2%
28	1	0.2%
66	1	0.2%

Location selection strategies varied by police area. Fewer unique deployment areas were selected in Area 5 and, especially, Area 3 (Table 9). Table 9 excludes the Central Control Group. Level II deployment areas in the Central Control Group focused on only two locations, both surrounding public housing complexes. While exact locations changed slightly over time, Level II deployment areas in the Central Control Group always encompassed these two general locations.

Table 9

Number of Unique Level II Deployment Areas

Police Area	# of Unique Deployment Areas	Percent of Police Area Covered July 03 – May 07
1	121	54.9%
2	103	50.6%
3	23	24.4%
4	115	70.4%
5	76	23.0%
All Areas	438	42.3%

We also examined temporal sequences, enabling us to consider the extent to which Level II deployment areas remained in the same location for multiple weeks. Each two week sequence (week X and week X+1) was classified into one of the following categories: (1) exactly the same, (2) considerable geographic overlap (i.e., a minimal shift from week X to week X + 1, or slight expansion of the week X location), (3) some geographic overlap (a more pronounced shift from week X to week X + 1, with some remaining overlap), (4) no geographic overlap, but the two hot-spots are geographically adjacent, and (5) no geographic overlap and no adjacency.

Table 10 summarizes these categories by police area. Across all five police areas, deployment areas remained exactly the same 48.5% of the time. In other instances, there was considerable (12.2%) or some overlap (4.4%). Overall, more often than not, Level II deployment areas did not move considerably from one week to the next. Week to week movement also varied by police area; in Area 3, deployment areas often stayed in exactly the same location (84.1% of the time), whereas in Area 2, it was not uncommon for the Level II deployment area to move to a non-overlapping, non-adjacent location (41.5% of the time).

Table 10

Weekly Changes in Level II Deployment Areas by Police Area

Geographic Change From Previous Week	Police Area					
	1	2	3	4	5	Total
Exactly the Same	51 (26.6%)	84 (43.1%)	164 (84.1%)	64 (33.5%)	105 (54.7%)	468 (48.5%)
Considerable Overlap	36 (18.8%)	22 (11.3%)	8 (4.1%)	33 (17.3%)	19 (9.9%)	118 (12.2%)
Some Overlap	11 (5.7%)	6 (3.1%)	2 (1.0%)	14 (7.3%)	9 (4.7%)	42 (4.4%)
No Overlap – Adjacent	21 (10.9%)	2 (1.0%)	3 (1.5%)	18 (9.4%)	6 (3.1%)	50 (5.2%)
No Overlap – Not Adjacent	73 (38.0%)	81 (41.5%)	18 (9.2%)	62 (32.5%)	53 (27.6%)	287 (29.7%)
Total	192	195	195	191	192	965

Note: For several reasons, police area totals do not equal 197 (the total number of Level II deployment areas selected during the time period examined). Most fundamentally, there is no data for the first meeting, as there is no previous week to compare it to. Second, there was a week in which a new deployment area was not selected for every police area. Third, there were several instances when the data indicated multiple deployment areas during the same period. For simplicity, these weeks were excluded from the totals in the table.

We examined, for instances when Level II deployment areas remained in same location (exactly the same location, considerable overlap, or some overlap), how long the areas remained in those locations. Specifically, we calculated temporal sequences; strings of weeks where the deployment area remained in the same location. A new temporal sequence began if, compared to the previous week, there was no geographic overlap (with or without adjacency). Using this analysis it was noted that as the length of a temporal sequence increased, a police area had fewer total sequences. Larger temporal sequences and fewer total sequences indicated that deployment areas remained in the same approximate location for longer time periods. Sequence data is

summarized in Table 11. The table shows that, relative to other police areas, Level II deployment areas in Area 1 were moved frequently, while Level II deployment areas in Area 3 were moved less frequently.

Table 11

Length of Temporal Sequences by Police Area

Sequence Length	Police Area				
	1	2	3	4	5
1	40	31	1	40	11
2	27	24	7	13	19
3	16	16	1	11	13
4	9	5	5	3	5
5	1	2	1	4	2
6	1	4	1	1	2
7	0	1	0	3	1
8	0	1	1	1	1
9	0	0	0	1	1
10	0	0	1	0	0
11	0	0	1	0	0
12	0	0	0	1	1
19	0	0	0	0	1
23	0	0	1	0	0
26	0	0	1	0	0
69	0	0	1	0	0
Total	94	84	22	78	57

As a final step in our supplementary analysis of GIS data, we used spatial statistics to identify general geographic areas in Chicago that, from July 2003 to May 2007, were targeted most frequently. This was done using a two-step strategy. First, the centroid of every unique Level II deployment area was identified.[11] Second, the centroids were used in spatial analyses to

[11] Centroids were identified using the GeoDa spatial software program.

identify clusters. Conceptually, the clusters represent areas where Level II deployment areas were commonly located.

Two techniques were used to identify centroid clusters: Nearest Neighbor Hierarchical Clustering and Spatial and Temporal Analysis of Crime (STAC).[12] These two techniques are both designed to identify point clusters, yet rely on different statistical approaches and, hence, different statistical algorithms. Examining both techniques enabled us to consider the generalizability of results.

The Nearest Neighbor Hierarchical Clustering technique identifies groups of points based on proximity.[13] The user defines the threshold distance for grouping points together, and the minimum number of points to be included in each cluster.[14] In STAC, geographic space is converted to a grid structure. A circle is placed over every node in the grid.[15] The STAC algorithm counts the number of points in each circle, and circles with the greatest number of points are arranged into "hot spots" (Block, 1994).

The map in Figure 3 shows Chicago, with ellipses representing clusters identified through Nearest Neighbor and STAC analysis. The analyses identified two small clusters in the Central Control Group, corresponding to the two aforementioned areas surrounding public housing complexes. These clusters were small, and could not be adequately presented on a map scaled to show the entire city of Chicago. Thus, they are omitted from map displayed in Figure 3.

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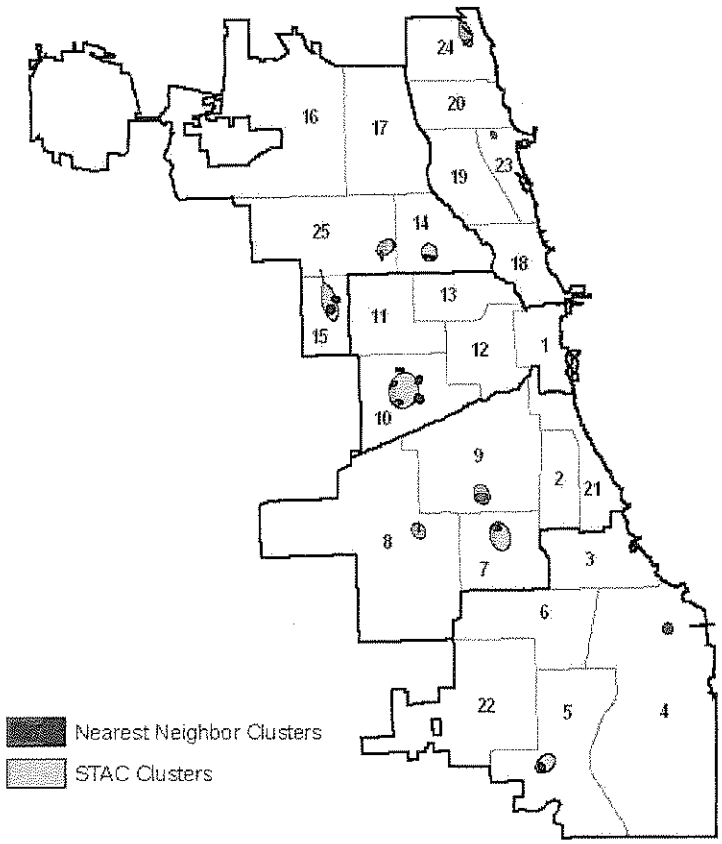
[12] Spatial analyses were conducted using CrimeStat III, an NIJ funded spatial software program.
[13] Points are clustered into n first order clusters. The first-order clusters are then grouped into n second order clusters, and so on, until every point converges into a single cluster.
[14] We used random nearest neighbor distance with a one-tailed probability of $p \leq .50$, and a minimum of ten points per cluster. These are the default options in CrimeStat III.
[15] The user selects a search radius and, hence, the size of the circle. We used the default 0.5 mile search radius for the analysis.

With the exclusion of these clusters, the Nearest Neighbor analysis yielded 21 clusters. STAC yielded 11 clusters. The map shows a great deal of overlap between clusters identified through nearest neighbor analysis and clusters identified through STAC.

The map, which includes police district boundaries (grey outline, with district numbers labeled) and police area boundaries (solid black outlines), indicates that each police area includes at least one cluster. This stands to reason, given the area-focused selection process.

Figure 3

Common Target Locations in Chicago



The map presents all clusters as if they reflect an equivalent number of points (centroids). This was not the case. There was variability in the number of points incorporated into each cluster. For both the Nearest Neighbor and STAC techniques, the greatest numbers of points were incorporated into the clusters in District 24 and District 10, respectively. District 24 is located in Area 3. Prior analyses (see above) already indicated that Area 3 Level II deployment areas did not move considerably over time. In fact, Area 3 deployment areas remained in District 24 for most of the time period examined. This may be because Area 3 is composed largely of low-crime, middle class, white neighborhoods. The clusters in District 24 may be perceived by CPD officials as the "worst part" of a "good area."

Thus, overall, analysis of GIS data on locations of Level II deployment areas suggest that the size of the deployment areas were quite large (something also noted in interviews and observations) and there was considerable overlap in these areas week to week. Moreover, size and movement tendencies varied by police area. In police areas with generally low violent crime rates (Area 3 and Central Control Group), Level II deployment areas were smaller and were moved less frequently.

For a small number of selection weeks (identified randomly), we repeated the Nearest Neighbor and STAC analyses. But, instead of using centroids, we used violent crime data. This enabled us to compare Level II deployment areas to "hot spots" that might be suggested from a purely statistical data analysis. Results revealed that, for the most part, Level II deployment areas did not overlap with "hot spots" suggested by statistical analysis of violent crime data. This result is consistent with qualitative data. DOC analysts reported that they relied heavily on intelligence, as opposed to past violent crime trends.

Steps 4 & 5: Target Hot Spot Communicated to Districts and Specialized Units

In Step 4 and Step 5 of the "theory of change" model, the locations of Level II deployment areas are communicated throughout CPD. This communication process was seen as a key element of the DOC process. Former Superintendent Cline stressed the importance of "getting everybody inside [the department] to talk to each other" as a central operating concept. The locations of Level II deployment areas were communicated to officers through various outlets, including weekly DOC meetings, DOC packets, and streaming videos (short videos shown to CPD officers at the beginning of a work day).

As noted, DOC meeting were held at headquarters and attended by area and district command staff. At DOC meetings, participants reviewed violent incidents that occurred in Level II deployment areas selected at the previous meeting, and summarized police activities targeted towards addressing violence in those areas. The meeting also included a presentation describing the rationale for newly selected areas, including gang conflicts and violence-prone gang members. Structurally and symbolically, DOC meetings highlighted to command staff that they would be held accountable for addressing the violence in their areas. Command staff were frequently called upon to elucidate their strategies for addressing violence in areas under their command. Also, the meetings provided an opportunity for command staff to share violence prevention strategies and "what works."

DOC packets were also used to communicate the locations of Level II deployment areas. These packets identified the locations, and summarized pertinent intelligence. DOC packets were distributed at the weekly DOC meeting, and made available for download on an employee webpage. Additionally, in some districts, command staff used streaming video of the DOC meeting, to inform their officers of the pertinent intelligence and geographic boundaries of their

weekly Level II deployment areas as a supplement to the DOC packets. Thus, the DOC packets were a tool by which a large number of officers could be quickly informed of the Level II deployment areas, gang conflicts, narcotic markets, and persons of interest.

The DOC meetings and DOC packets are tangential indicators of successful communication. Central administrators consciously employed new methods and mediums to push timely information and "actionable intelligence" out to field officers. Administrators were continuously searching for more ways to provide officers with information that could be easily accessed through their in-car Portable Data Terminal (PDT) and employee website. For example, former Superintendent Cline stressed the utility of visual information (e.g, mug shots, pictures of vehicles driven by offenders), and sought new mechanisms for disseminating digital photographs to CPD officers.

Information sharing also increased collaboration and communication. Before the DOC was created, police units and bureaus "did not have a good pipeline [of information]." Under the DOC process, units and officers were encouraged to share information about their district and even rewarded when information was shared.[16] During interviews and ride-alongs, many officers commented on information-sharing aspects of the DOC process. These research participants liked receiving detailed information, rather than just being told where to patrol. They also believed that the information was helpful. Administrative support for information-sharing brought positive results, independent from its effects on crime.

Step 6: Saturate Target Area and Engage in Department Sanctioned Activities

In Step 6, specialized units are deployed to Level II deployment areas for suppression purposes. The Targeted Response Unit (TRU) was a centralized unit, conceived as a highly

[16] At the beginning of every weekly DOC meeting, awards are handed out to officers who used and/or shared information in a way that led to preventing or solving a crime.

mobile en masse police unit that could be easily moved across the city and deployed to areas experiencing, or predicted to experience, violence. TRU companies totaled approximately 180 officers.[17] TRU officers were deployed weekly to Level II deployment areas. TRU officers were characterized by one commanding officer as "young aggressive officers eager to get heads." And indeed, ride-alongs and interviews with TRU officers indicated that they were younger and keen to "see action in the field." These officers characterized their unit's purpose as engaging in highly visible, proactive patrol.

Proactive patrol was a concept consistently raised in reference to researcher questions about how they would define CPD's suppression activities. The amalgam definition of proactive patrol from several officers interviewed included a strong police presence by actively engaging citizens via street stops, aggressively enforcing ordinances and state statutes, ordering groups of loiterers to disperse, and engaging in traffic stops. In practice, none of these activities were appreciably different from what police officers were doing prior to the DOC process. However, the number of officers engaged in these activities, and the geographic focus, made the strategies appear new.

Special Operations Section (SOS) officers were also deployed to Level II deployment areas for the purposes of gang suppression. SOS existed before the DOC process. However, they soon became an integral part of the proactive and aggressive enforcement efforts in Level II deployment areas, and were often used to execute outstanding arrest warrants. SOS officers were characterized as "highly trained officers [that] know how to get the big arrests [those involving substantial drugs, gangs, guns]."

Overall, enforcement activities in Level II deployment areas can be grouped into four primary categories: aggressive order maintenance, strategic traffic enforcement, increased citizen

[17] Over the course of the research the number of TRU companies increased from two to three companies.

contact, and warrant missions.[18] The first strategy - aggressive order maintenance - entailed sending officers into Level II deployment areas to aggressively enforce order maintenance violations, sit at drug dealing locations with police cars and flashing lights, and "clamp down" on all drug and gang activity in the area. One tool available to officers engaging in order maintenance enforcement was gang loitering dispersals. By city ordinance, officers can ask citizens to disperse from an area for several hours. According to Chicago Municipal Code of Conduct 8-4-015, officers can ask individuals to disperse if the circumstances "would warrant a reasonable person to believe that the purpose or effect of that behavior is to enable a criminal street gang to establish control over identifiable areas, to intimidate others from entering those areas, or to conceal illegal activities." Under this ordinance, officers have the legal authority to tell persons to disperse from areas that have been identified as a gang or drug hot spot. The purpose of ordinance is to remove individuals from an area, if they are believed to be representing gangs or drug dealers. CPD officers and central administrators note that, by removing individuals from street corners their potential to become crime victims is reduced. It was also perceived as a way to address community concerns about groups of gang members "hanging out" in an area, thus facilitating positive police-community relationships.

Officers also used strategic traffic enforcement in Level II deployment areas. With this strategy, officers stopped vehicles for traffic law violations, hoping that the stop would result in a drug or gun recovery. Various units conducted seatbelt safety missions, whereby officers set up seatbelt check points. One set of officers stopped drivers at the check point, nominally checking for seatbelt compliance. At the same time, another set of officers were waiting before the check

[18] Admittedly these strategies were not the only policing activities occurring in the Level II deployment areas. Other units, such as those that engage in undercover surveillance operations and district personnel, also engaged in activities in these areas. However, because the focus of this report was on the DOC process, these four categories of activities were deemed most integral to that process and the units being redeployed.

point to pursue individuals who tried to evade the check point. These missions were seen as a way to be active, and to create a mechanism by which offenders could be detected.

Third, officers assigned to specialized units were encouraged to make proactive street contacts in Level II deployment areas. This activity was considered a way to show police presence and to make contact with persons engaged in suspicious activities in high crime neighborhoods. Officers touring a neighborhood would periodically stop suspicious persons and document this contact on a field contact card. Information on contact cards included the citizen's name, nickname(s), and gang affiliation, and vehicle information.

Finally, increased focus on, and arrest of, particular groups of people, especially those considered persons of interest to CPD, was another strategy used by officers deployed to Level II deployment areas. This often entailed warrant missions in which groups of officers (typically SOS officers) would execute search warrants on individuals of interest.[19]

Overall, based on qualitative data, it appeared that, in general, Level II deployment areas did receive additional department resources and that officers assigned to specialized units were clear about department expectations regarding activity in targeted areas. However, field observations, also indicated that it was arduous for officers to aggressively police the entire Level II deployment area over the course of a single work shift. Some officers assigned to specialized units would identify specific problem locations within the Level II deployment area, and focus predominantly on that location. As previously noted, CPD's Level II deployment areas were relatively large, perhaps resulting in diffuse implementation even when the area was saturated with officers. Field researchers observed that individual cars covered a lot of ground before seeing fellow officers working in the same deployment area. Researchers also observed

[19] Warrant missions eventually became a central element in allegations of officer corruption within the Special Operations Section.

implementation spilling over into spaces around the Level II deployment areas. During some ride-alongs, officers seemed to indiscriminately move between the Level II deployment area and surrounding locations. At times, officers moved outside the Level II deployment area in response to a radio dispatch. In other instances, officers wanted to check on a perceived problem location that fell outside the Level II deployment area.

The DOC process also appeared to influence the behavior of officers who were not explicitly assigned to the Level II deployment area. Although researchers noted the lack of enthusiasm for the DOC process from many district and area field officers, we did observe that the DOC process guided contact and arrest activities of district-level staff - beat officers and tactical officers. District officers appeared to pay special attention to Level II deployment areas.

Some district officers expressed concern about using specialized units for suppression activities, as opposed to officers who were more familiar with the community. During interviews, mid-level area and district command staff uniformly stated that specialized units helped quell gang violence and conflict. However, there were complaints that the outside help strained community-police relationships. Officers assigned to specialized units "do not know the good kids from the bad kids" and, as a result, district personnel were left "to clean up the mess."

Police Activity in Level II Deployment Areas. In addition to qualitative data, we also conducted quantitative analyses of police records, to determine whether the DOC process contributed to enhanced police activity. In Chicago as a whole, arrests increased following implementation of the DOC process (Table 12). Consistent with the DOC mission, the increase in arrests was driven primarily by increases in drug arrests and warrant arrests. Further, there was a substantial jump in the number of arrests by district tactical teams and the SOS unit. The data suggests that some arrests may have shifted from patrol to specialized units.

Table 12

A Summary of Yearly Arrest and Activity Rates

	Pre Level II Deployment			Post Level II Deployment		
	YR 00-01	YR 01-02	YR 02-03	YR 03-04	YR 04-05	YR 05-06
All arrests	8251.55	8180.02	8026.35	8427.56	8460.18	8045.52
Violent index arrests	343.98	343.01	337.52	332.73	334.46	327.25
Weapon arrests	175.25	182.00	167.07	169.14	162.30	145.48
Warrant arrests		533.60	817.12	931.29	953.93	864.63
Narcotics arrest	2002.79	1944.20	1801.21	2013.04	2073.26	1963.17
Property arrests	1366.10	1196.22	1036.04	966.94	890.79	814.98
Disorderly conduct arrests	907.56	615.84	673.19	663.30	667.97	684.64
Arrests by unit						
Patrol	3873.11	3685.11	3439.31	3380.63	3206.82	3007.30
District gang teams	828.11	891.23	980.16	935.02	1006.58	899.25
District tactical teams	1443.20	1540.82	1684.98	1879.59	1977.74	1917.02
Area saturation teams	7.98	7.52	10.25	26.10	52.06	94.08
SOS	219.52	191.81	206.13	273.91	233.41	191.31
TRU				137.43	228.58	254.83
Contact cards						
Gang contact cards				1381.52	2845.39	4964.65
Non-gang contact cards				5042.12	6513.51	9010.36
Gun recoveries				367.44	367.79	453.91
Narcotic recoveries				3741.34	3848.83	3742.21
Dispersals					227.26	1887.17
Traffic stops				4564.16	7852.63	7269.68

Table 13 shows beat-level relationships between "DOC Level" (one of our three DOC coverage measures - the number of days that a beat overlapped with a Level II deployment area per month and multiplied by the average monthly percentage of the beat area that overlapped with a Level II deployment area) and various police activity measures. In general, the findings show strong relationships between levels of police activity and DOC Level. The results are consistent with CPD's philosophy of deploying specialized units and targeting gangs, guns, and drugs. For example, there were strong correlations between DOC Level and arrests made by district gang teams, area saturation teams, SOS, and TRU. Further, weapon and narcotics arrests had strong and consistent relationships with DOC Level, while there were no associations for property arrests. The results also show weak relationships between DOC Level and traffic stops, except for the TRU unit. This result is consistent with qualitative findings; TRU officers used proactive traffic enforcement to suppress violence.

Table 13

Correlations Between DOC Coverage and Police Activity

	YR 03-04	YR 04-05	YR 05-06
All arrests	.11	.15*	.14*
Violent index arrests	.31***	.19**	.11
Weapon arrests	.47***	.53***	.34***
Warrant arrests	.12*	.19**	.15*
Narcotics arrest	.41***	.50***	.43***
Property arrests	-.07	-.08	-.07
Disorderly conduct arrests	-.01	.06	.13*
Arrests by unit			
Patrol	.02	.01	.02
District gang teams	.52***	.52***	.45***
District tactical teams	.17**	.19**	.15*
Area saturation teams	.44***	.44***	.45***
SOS	.46***	.46***	.42***
TRU	.50***	.51***	.49***
Contact cards			
Gang contact cards	.50***	.61***	.48***
Non-gang contact cards	.18**	.09	-.05
Gun recoveries	.47***	.37***	.25***
Narcotic recoveries	.44***	.51***	.44***
Dispersals		.37***	.23***
Traffic stops	-.02	-.08	-.08
Traffic stops by TRU unit	.43***	.49***	.48***

*p<.05. **p<.01. ***p<.001.

Accountability processes likely contributed to increased activity in Level II deployment areas. To facilitate the accountability process, CPD administrators had several databases developed to document unit activities. These databases documented contacts, arrests, warrants served, and missions conducted. Although the documentation of officer and unit activities

improved accountability, it was also a distraction, shifting focus to aggregate numbers over causal links between activities and outcomes.

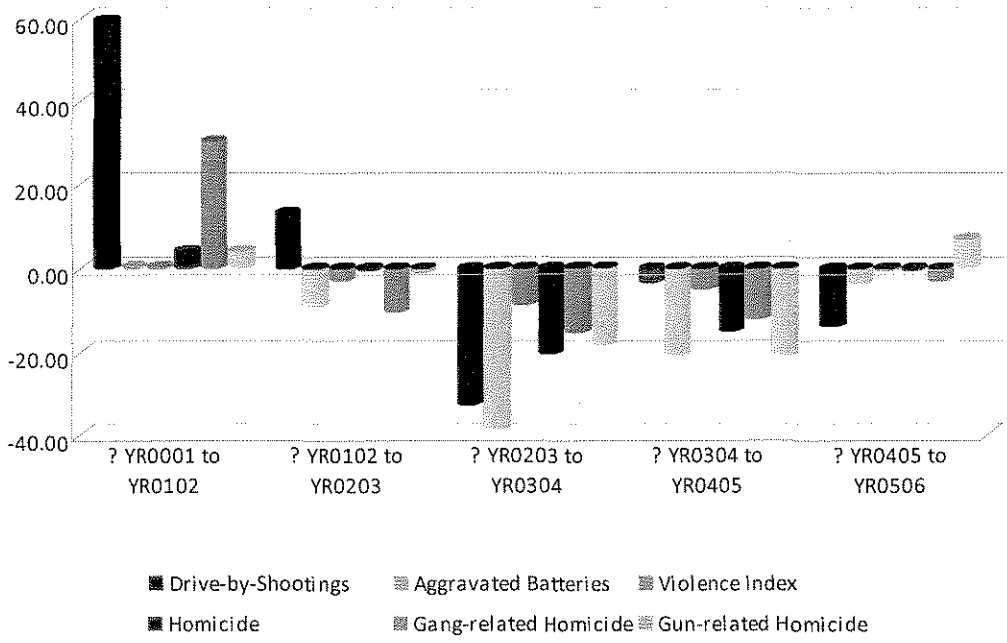
Outcome: Crime Reduction in Level II Deployment Areas

Ultimately, the primary goal of CPD's DOC process was to suppress gang, drug, and gun-related crime in Chicago's neighborhoods. As described, there was a significant decrease in violent crime, particularly non-domestic violent crimes involving guns, in Chicago between 2000 and 2007. Figure 4 shows the percentage changes in violent crime across the study period.[20] The figure shows that, in the first year after the DOC process was initiated (i.e., Δ YR 0203 to YR 0304), there was a large decrease in violent crime. Aggravated batteries committed with guns in outside locations decreased by 39%, and drive-by-shootings decreased by 33%. There was also a considerable drop in the homicide rate (21%); with a 19% decline in gun-related homicides and a 15% decline in gang-related homicides. The timing of these trends suggests that the DOC process may have been a contributing factor.

[20] Because the DOC process began in July 2003, crime rates were recalculated to cover the period July-to-June.

Figure 4

Annual Percent Changes in Violent Crime Rates



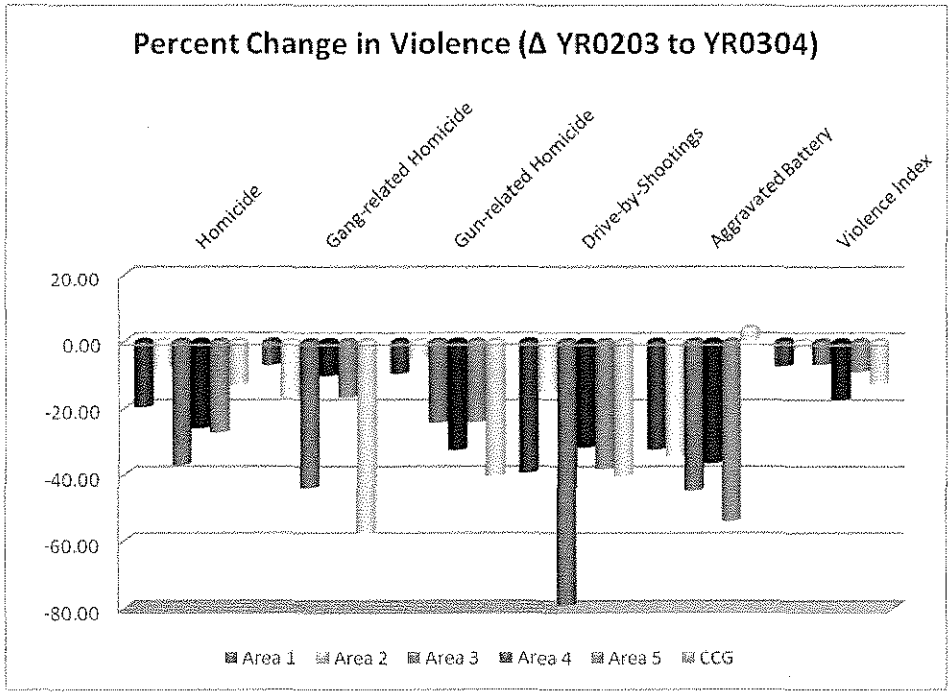
Trends also suggest that the impact of the DOC process decreased over time. The percentage decrease in aggravated batteries during the second year of the program (i.e., Δ YR 0304 to YR 0405) was 21%, and in the third year (i.e., Δ YR 0405 to YR 0506) was only 3%, compared to 39% for the first year. Percentage decreases in homicide were 15% and 1% in years two and three, respectively. By the third year of program there were relatively small changes in violence. In fact, in the third year there was no change in overall violent crime, and an increase in gun-related homicides. Drive-by shootings were the notable exception; drive-by-shootings declined by 4% in the second year and 14% in the third year.

To better understand violent crime decreases, percent changes were calculated for each police area (Figure 5). As discussed earlier, for political and administrative reasons, Level II

deployment areas were selected for each of the five police areas and the CCG. The size of the Level II deployment areas and their 'uniqueness' varied greatly by area; Level II deployment areas were larger in areas 1, 2, and 4 and were more likely to moved around week to week. In contrast, the Level II deployment areas were smaller in areas 3 and 5 and the CCG. They were also much less likely to be moved around from week to week.

Figure 5

Percent change in violence (Δ YR 0203 to YR 0304)



No clear trends emerged when looking at the data by police areas. Area 3 had the largest decline in homicides (-37%), while the CCG had the largest decline in gang- and gun-related homicides (-57% and -41%, respectively). Area 5 had the largest decline in aggravated batteries (-54%) and Area 4 had the largest decline in violent crime (-17.6%). In general, Area 2 had the smallest changes in violence with single digit changes for homicide (-8%), gun-related homicide

(-5%) and violent crime (-3%). There was actually an increase in aggravated batteries in the Central Control Group (+4%). It is important to note that the crime rates in Area 3 and 5 and the Central Control Group are generally lower than the rates in other Areas, so small changes in the number of crimes translates into large percent changes overall.

In summary, several conclusions can be drawn. First, descriptive data are consistent with the proposition that the DOC process contributed to violent crime reduction. The dramatic decline in violence coincides with the implementation of the Level II deployment strategy. Second, the largest decline in violence appears to have occurred between July 2002 and June 2004. After the summer of 2004 violence in Chicago appears to have stabilized. Finally, the effect of the DOC process may differ by police area, in part because of differing strategies for the DOC identification and implementation process, and in part, because of variability in pre-implementation crime levels.

Year 1 – Results. Analyses were conducted to assess the impact of the DOC process on violent crime in the first year of the program. Changes scores were created for each of the violence measures. Because violent crime decreases were predominantly confined to the first year of DOC implementation, analysis focused on this time period. The reference period was one year prior to implementation of the DOC strategy (July 2002 – June 2003) and one year after (July 2003 – June 2004). Change scores were calculated by taking, for each violence measure, the logged rate for the year July 2003-June 2004 and subtracting it from the logged rate for July 2002-June 2003. Negative values for change scores indicate decreases in violence, while positive values indicate increases (see Table 14 for descriptive statistics).

Table 14

Descriptive Statistics for Change Scores (N = 281)

Violence Measures	Mean	Standard Deviation	Min	Max
Δ logged homicide rate	-.16	.75	-3.02	1.97
Δ logged gang-related homicides rate	-.06	.67	-1.87	2.74
Δ logged gun-related homicides rate	-.12	.77	-3.02	2.74
Δ logged drive-by-shootings rate	-.24	.74	-2.79	2.53
Δ logged aggravated battery rate	-.37	.57	-2.29	2.53
Δ logged violence index rate	-.09	.22	-1.04	.50

Using two of our DOC coverage measures ("Any DOC" and "DOC Intensity"), Table 15 compares beats based on the extent to which Level II deployment areas were subsumed within beat boundaries. The findings show that, even in police beats that never included a Level II deployment area, there were violent crime reductions in the first year of DOC implementation. For example, based the mean difference in homicides in beats with no DOC activity in the first year of the program was $M_{diff} = -.11$ and the mean difference for violent crime was $M_{diff} = -.07$. The findings do, however, suggest that the DOC process may have had an impact on changes in aggravated batteries committed with guns in outside locations. The mean difference in aggravated batteries for beats with DOC activity was $M_{diff} = -.45$ compared to $M_{diff} = -.26$ for beats without DOC activity ($t(279) = 2.70$; $p = .007$).

Table 15

Average Change Scores For Two DOC Coverage Measures

	Homicide	Gang-related Homicide	Gun-related Homicide	Drive-by-Shooting	Aggravated Battery	Violence Index
Measure 1						
None	-.11	-.07	-.07	-.17	-.26	-.07
Any DOC	-.20	-.06	-.15	-.29	-.45	-.10
	$t = .96$	$t = -.19$	$t = .96$	$t = 1.43$	$t = 2.70$**	$t = 1.03$
Measure 2						
Doc Intensity						
None	-.11	-.07	-.07	-.17	-.26	-.07
Low	-.24	-.05	-.13	-.22	-.41	-.07
Moderate	-.14	.03	-.07	-.19	-.40	-.09
High	-.22	-.15	-.27	-.47	-.53	-.16
	$F = .49$	$F = .63$	$F = .90$	$F = 2.23$	$F = 3.04$*	$F = 2.00$

*p<.05. **p<.01. ***p<.001.

We also examined bivariate correlations between our third DOC coverage measure ("DOC Level"), and change scores. Similar to the results shown in Table 15, most of the correlations were non-significant (homicide $r = -.03$, $p > .05$; gang-related homicide $r = .01$, $p > 05$; gun-related homicide $r = -.06$, $p > .05$; drive-by-shootings $r = -.10$, $p > .05$; and violence index $r = -.10$, $p > .05$). Only the change in aggravated battery was significantly related to DOC coverage ($r = -.15$, $p < .05$).

To control for other possible explanations for the sharp drop in violent crime, least squares regression was used to evaluate relationships between DOC coverage and violent crime levels, controlling for structural and socio-demographic characteristics and other alternative explanations.

Table 16 presents a summary of results. Beta coefficients are presented with standard errors in parentheses. None of the DOC measures were significantly related to decreases in

violence. Overall, the models did not explain much of the variation in change scores (R^2 values range between .02 and .07).

Table 16

Least Squares Regression Estimates for the Effect of DOC Coverage on Violence

	Homicide	Gang-related Homicide	Gun-related Homicide	Drive-by-Shooting	Aggravated Battery	Violence Index
Measure 1						
Any DOC	.03 (.12)	.08 (.11)	.03 (.12)	.02 (.12)	-.06 (.09)	-.02 (.04)
Measure 2						
Doc Intensity						
Low (vs. none)	-.04 (.14)	.08 (.13)	.03 (.15)	.04 (.14)	-.05 (.11)	.01 (.04)
Moderate (vs. none)	.11 (.15)	.14 (.13)	.11 (.15)	.10 (.14)	-.02 (.11)	-.02 (.04)
High (vs. none)	.05 (.15)	-.02 (.14)	-.06 (.16)	-.15 (.15)	-.15 (.12)	-.07 (.05)
Measure 3						
DOC level (logged)	.02 (.02)	.01 (.02)	.01 (.02)	-.01 (.02)	-.01 (.01)	-.01 (.01)

Note: All models include Black, disadvantage, immigration, stability, Ceasefire and PSN.

Analyses involving the "DOC Intensity" measure may have provided the strongest test, given possible non-linearity of the "DOC Level" distribution. DOC Intensity was included in the analyses as a dummy measure, with "none" (no Level II deployment areas) as the omitted reference group. None of the DOC Intensity coefficients (low, moderate, high) were statistically different from the omitted reference group. Analyses were also conducted with the "low" DOC Intensity category as the omitted reference group. Again, none of the DOC Intensity coefficients (none, moderate or high) were statistically significant. The DOC Intensity measure was also recoded into a dichotomous variable where only the highest intensity beats (the "high" category)

were compared to the rest of the beats ("none", "low" and "moderate"). Again, none of the estimates were statistically significant.

Consistent with prior research (see Papachristos et al., 2007), PSN was significantly related to a decrease in homicides. The estimated effect for PSN with the Any DOC measure was PSN β = -.33, SE = .13, t = -2.59, p = .010, with the DOC Intensity measure was PSN β = -.34, SE = .13, t = -2.65, p = .009, and with the DOC Level measure was PSN β = -.34, SE = .13, t = -2.68, p = .008. PSN was only related to declines in homicide. The estimated effects for PSN were not significant for any of the other violence measures.

Least squares regression models were re-run with interactions to test for different effects of the DOC process by police area. A dichotomous variable was created, which we label Area, and was coded 0 for police areas 3, 5 and the CCG and coded 1 for police areas 1, 2, and 4. We hypothesized that the DOC process might be more effective in higher crime neighborhoods because targeted deployments would provide clear direction to officers, and because these neighborhoods had the greatest potential for crime reductions.

Results are presented in Table 17. The interaction estimates were significant for aggravated batteries and drive-by-shootings. Using the regression model estimates, we calculated the mean difference for each of the groups. For police areas 1, 2, and 4 the estimated logged mean difference for non-DOC beats was -.28 compared to -.11 for DOC beats. In police areas 3, 5, and the CCG the difference was .10 compared to -.34 for DOC beats. For drive by shootings the estimated difference for non-DOC beats in areas 1, 2, and 4 was -.49 compared to -.20 for DOC beats. In areas 3, 5 and the CCG the estimated difference was -.01 for non-DOC beats compared to -.44 for DOC-beats. These findings suggest that, contrary to expectation, the DOC had a greater effect in lower crime police areas.

Table 17

Least Squares Regression Estimate for the Effect of DOC Coverage on Violence, with Police Area Effects

	Homicide	Gang-related Homicide	Gun-related Homicide	Drive-by-Shooting	Aggravated Battery	Violence Index
Measure 1						
Any DOC	.05 (.17)	.02 (.15)	.04 (.18)	-.44 (.17)**	-.44 (.12)**	-.05 (.05)
Area	.06 (.17)	.02 (.15)	.09 (.17)	-.48 (.16)**	-.38 (.12)**	-.01 (.05)
Any DOC * Area	-.03 (.20)	.09 (.18)	-.01 (.20)	.73 (.19)***	.61 (.14)***	.04 (.06)
Measure 2						
Doc Intensity						
Low (vs. none)	-.14 (.25)	.08 (.23)	.04 (.26)	-.49 (.24)*	-.54 (.18)**	.04 (.07)
Moderate (vs. none)	.05 (.26)	-.12 (.24)	-.10 (.27)	-.54 (.25)*	-.63 (.18)**	-.11 (.08)
High (vs. none)	.18 (.22)	.02 (.20)	.08 (.22)	-.41 (.21)[a]	-.31 (.16)*	-.09 (.06)
Area	.07 (.17)	-.01 (.15)	.07 (.17)	-.51 (.16)**	-.39 (.12)**	-.02 (.05)
Low (vs. none)*Area	.11 (.29)	.01 (.26)	-.03 (.30)	.81 (.28)**	.73 (.21)**	-.04 (.09)
Moderate (vs. none)*Area	.07 (.29)	.33 (.26)	.25 (.30)	.94 (.28)**	.89 (.21)***	.12 (.09)
High (vs. none)*Area	-.19 (.26)	-.07 (.23)	-.22 (.27)	.43 (.25)[a]	.29 (.19)	.02 (.08)
Measure 3						
DOC level (logged)	.02 (.02)	.01 (.02)	.01 (.03)	-.06 (.02)*	-.04 (.02)**	-.01 (.01)
Area	.08 (.16)	.02 (.15)	.08 (.17)	-.41 (.16)*	-.30 (.12)*	-.02 (.05)
DOC level (logged)* Area	-.01 (.03)	.01 (.03)	.02 (.03)	.09 (.03)**	.07 (.02)**	.01 (.01)

Note: All models include Black, disadvantage, immigration, stability, Ceasefire and PSN.
a. p<.10. *p<.05. **p<.01. ***p<.001.

Due to potential bias associated with change score analyses, the above models for aggravated batteries and drive-by-shootings were retested using repeated measures ANOVA with Time (YR 0203 vs. YR 0304), Any DOC (none vs. Any DOC), and Area (areas 3 and 5 and the CCG vs. areas 1, 2, and 4) as the factors. The structural and socio-demographic census measures and measures for CeaseFire and PSN were included as covariates. The findings were consistent with the change score regression results presented above. The analyses revealed an effect for the Time × Any DOC × Area interaction, $F(1, 271) = 18.13$, $p < .001$ on aggravated batteries as well as on drive-by-shootings $F(1, 271) = 14.58$, $p < .001$. Figures 6 and 7 present the logged means for the repeated measures analyses.

Figure 6

Logged Means for Aggravated Batteries and Drive-by Shootings, Areas 3, 5, and CCG

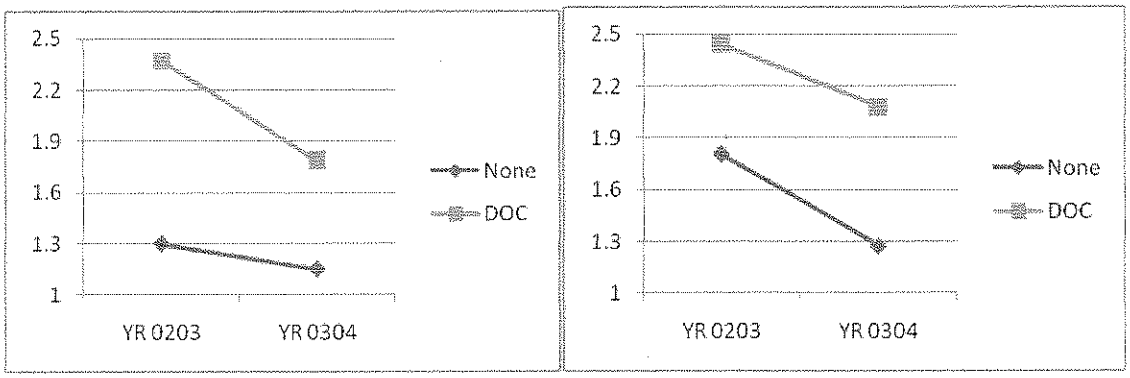
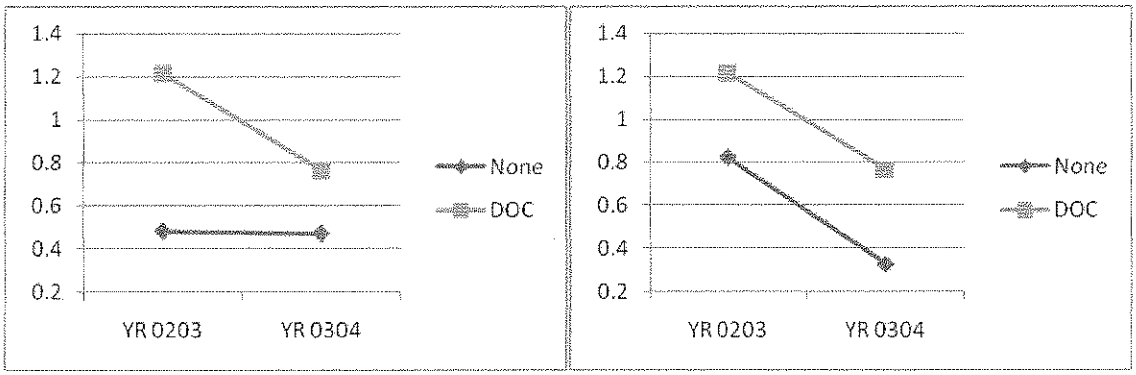


Figure 7

Logged Means for Aggravated Batteries and Drive-by Shootings, Areas 1, 2, and 4



Growth Curves. The final phase of the outcome evaluation involved using growth curves to assess the impact of the DOC process from its inception in July 2003 until June 2006. Yearly logged violence rates were calculated and then evaluated in terms of yearly logged changes in the DOC Level at the beat level. The results are presented in Table 18. Similar to other analyses, the estimate for DOC Level was not statistically significant for most of violence measures. The notable exception was aggravated batteries. The results suggest that, over three years of implementation, DOC Level was positively related to aggravated batteries. In other words, the Level II deployment areas were associated with more aggravated batteries. A similar finding was noted for PSN, which substantially expanded its operations in 2005-2006.

The initial growth curve models included controls for spatial autocorrelation, high crime public housing tracts, and the number of permits for housing demolition. None of the estimates for the impact of DOC Level reached conventional levels of statistical significance. After looking at the level 1 and level 2 residual files it was determined that the models with the extra control variables did not meet the basic assumptions of the analysis framework, and thus, they

were removed. Further, changes in the violence index measure were so small that the growth model could not be estimated.

A final growth curve was estimated which included an interaction effect estimated between DOC Level and Area. Again, Area was coded 0 for areas 3, 5 and the CCG and 1 for areas 1, 2, and 4. The estimate for the interaction effect was not statistically significant (*Est.* = -.007, *SE* = .023, t = -.034, p = .754) suggesting that the effect of the DOC was not different between the two groups.

Table 18

Hierarchical Linear Model Results for Aggravated Battery and Homicide Growth Curve Models

	Aggravated Batteries Rates Logged		Homicide Rates Logged	
	Est.	SE	Est.	SE
DOC Level	.020*	.010	.010	.010
Trend	-.139***	.020	-.054*	.022
Ceasefire	-.021	.043	.058	.063
Project Safe Neighborhoods (PSN)	.134**	.043	.040	.054
Black	.004***	.001	.004***	.001
Disadvantage	.009	.038	.087	.048
Ethnicity	.084**	.026	.039	.029
Stability	-.020	.019	-.033	.019
Mean aggravated battery rate logged	-.227***	.028		
Mean homicide rate logged			-.461***	.034
Intercept	1.634***	.012	.902***	.015
Ceasefire	.006	.029	-.019	.040
Project Safe Neighborhoods (PSN)	.043	.028	-.015	.038
Black	.002*	.001	.001	.001
Disadvantage	.023	.026	-.014	.027
Ethnicity	.034	.019	.017	.019
Stability	-.002	.014	-.003	.014
Mean aggravated battery rate logged	.903***	.019		
Mean homicide rate logged			.880***	.027
	Variance		Variance	
Intercept	.018***		.015*	
Level 1 error	.158		.215	
Level 1 $N = 843$				
Level 2 $N = 281$				

*p<.05. **p<.01. ***p<.001.

Table 19

Hierarchical Linear Model Results for Gang and Gun-Related Homicides and Drive-by Shootings

	Gang-related Homicide Rates Logged		Gun-related Homicide Rate Logged		Drive by Shootings Rate Logged	
	Est.	SE	Est.	SE	Est.	SE
DOC Level	.009	.010	.014	.010	.013	.013
Trend	-.049*	.019	-.045*	.021	-.047*	.019
Ceasefire	.101	.056	.084	.061	.025	.066
Project Safe Neighborhoods (PSN)	.001	.051	.030	.053	.042*	.059
Black	.001	.001	.004**	.001	.002	.001
Disadvantage	.056	.039	.088*	.044	.080	.037
Ethnicity	.034	.026	.028	.028	.037	.027
Stability and density	-.027	.016	-.033	.019	-.030	.019
Mean gang homicide rate logged	-.449***	.037				
Mean gun homicide rate logged			-.464***	.035		
Mean drive by shootings rate logged					-.385***	.033
Intercept	.461***	.014	.742***	.015	.722***	.016
Ceasefire	-.063	.034	.004	.037	.011	.045
Project Safe Neighborhoods (PSN)	.008	.034	-.002	.038	.110*	.047
Black	.001	.001	.001	.001	-.001	.001
Disadvantage	.030	.023	.035	.028	.046	.035
Ethnicity	-.005	.016	-.018	.020	.024	.022
Stability	-.013	.011	-.019	.014	-.015	.015
Mean gang homicide rate logged	.848***	.026				
Mean gun homicide rate logged			.848***	.027		
Mean drive by shootings rate logged					.868***	.022
	Variance		Variance		Variance	
Intercept	.017**		.015*		.003	
Level 1 error	.171		.216		.231	
Level 1 $N = 843$						
Level 2 $N = 281$						

*p<.05. **p<.01. ***p<.001.

Community Perceptions of the CPD Violence Reduction Approach

As a supplementary effort, data was collected on citizen perceptions of CPD activities, with an emphasis on activities associated with the DOC process. An internet survey was made available to Chicago citizens. The survey asked citizens their perceptions of visible police activities, including suppression-oriented tactics. The survey was intended to indirectly assess the ancillary costs of police suppression. In using suppressions tactics, police officers may act out their formal authority with greater latitude. This expansion opens the police up to accusations of unfairness, especially if it is acted out primarily in low-income and minority communities (Rosenbaum, 2006; Stewart, 1998). In the aggregate, such perceptions of unfairness can decrease the legitimacy of the police and hinder police-community relations. As a result, an over-emphasis on suppression may undermine a community's ability or willingness to co-produce crime reduction with the police (Sampson, 2002) or directly intervene when deviant behavior is observed (Silver & Miller, 2004). We wanted to know, based on citizen input, whether the DOC process might have resulted in these undesired consequences.

Survey Method

Participants were recruited through webpage advertisement and email list solicitation. An invitation to participate and a graphic link to the survey were posted on the University of Illinois at Chicago and Chicago Police Department websites from April 16, 2007 through August 31, 2007. In addition, a mass email was sent to residents who had signed up to receive Chicago Police Department email updates. The mass email introduced the survey, and provided a direct link to the survey webpage. Finally, 25 of Chicago's largest community-based organizations engaged in a variety of efforts to encourage their clientele to complete the survey, including posting the survey on their website, posting flyers in their buildings, and sending a mass email to

persons on their distribution lists. Collectively through these strategies, a total of 1,334 surveys were completed.

Survey Items. The survey was presented to potential participants as an opportunity to provide feedback to the Chicago Police Department on their performance. The survey included approximately thirty questions, many of which included multiple scale items. In addition to asking about the Chicago Police Department, a number of questions asked citizens to evaluate their neighborhood and to provide their demographic background. The survey took approximately twenty minutes to complete.

For this report, we focus heavily on one question in particular. Survey respondents were provided a list of eighteen police activities. The list was populated with activities that Chicago Police Department officers routinely engaged in during the evaluation period, including a variety of suppression-oriented activities associated with the DOC process. Respondents were asked to rate each activity as a strategy for addressing crime in their neighborhood (1 = strongly oppose, 2 = oppose, 3 = neutral, 4 = favor, 5 = strongly favor). Table 20 shows the list of activities, and average response for the entire survey sample.

When developing the items, we included activities that captured qualitatively distinct types of policing. Principal components factor analysis with varimax rotation was used to examine whether the eighteen items could be reduced to a smaller set of core policing types. Results indicated that survey respondents distinguished between different police typologies. The analysis yielded four components with eigenvalues greater than one. The four components captured: (1) suppression-oriented activities, (2) community policing (i.e., police-community interaction), (3) traditional or "standard" policing (including routine preventive patrol), and (4)

policing against drug activity, with emphasis on undercover surveillance. The four components explained 63.4% of the variance in responses to the items.

These four components were used as an organizational device. Instead of describing results for individual survey items, scales composed of the items that loaded strongly in each of the four components were developed. In Table 20, the eighteen items are organized by their placement within the four components.

Table 20

Survey Items on Perceptions of Police Activities

Item	*M*	*SD*
Suppression		
Making traffic stops	4.44	0.84
Stopping cars on a particular street to check for use of seatbelts	3.78	1.37
Searching and frisking someone	3.86	1.17
Telling groups of youth to stop hanging out and "move along"	4.37	0.96
Arresting people	4.23	0.90
Saturating your neighborhood w/ a large number of officers for a limited time	3.78	1.26
Searching cars	3.86	1.17
Gathering information from people they stop and question but don't arrest	3.90	1.17
Standard Policing		
Driving through neighborhood streets on patrol	4.77	0.53
Patrolling alleys, checking garages or backs of buildings	4.76	0.51
Investigating crimes to identify the offender	4.79	0.49
Community Policing		
Chatting with community residents	4.70	0.56
Engaging in foot, bike, or segway patrol	4.69	0.67
Attending community meetings	4.58	0.77
Drugs and Surveillance		
Sitting in police cars with flashing lights on or near a drug dealing location	4.03	1.17
Creating and using specially trained units that focus only on gang, gun, drug crime	4.40	0.97
Conducting undercover surveillance of suspected drug markets	4.63	0.73
Using the visible blue-light cameras to monitor crime	3.44	1.51

Note. Respondents were asked "Which of the following police activities would you favor to address crime in your neighborhood?" (1 = strongly oppose, 2 = oppose, 3 = neutral, 4 = favor, 5 = strongly favor). N = 1,334; statistics based on valid responses only.

In the table, higher averages indicate more favorable perceptions of the activity. On average, respondents favored each of the eighteen activities. However, respondents were least supportive of suppression-oriented activities. The average rating for the suppression scale was 4.02 (SD = 0.82). The average ratings for the standard policing scale (M = 4.77, SD = 0.40), community policing scale (M = 4.66, SD = 0.55), and drug/surveillance scale (M = 4.12, SD = 0.83) were somewhat higher.

Respondent Demographics. Table 21 shows suppression scale ratings by respondent demographics. A considerable majority of respondents were White, earned a moderate to high income, and resided in a police district with a low to moderate violent crime rate. Despite this imbalance in the sample, we did receive survey responses from small samples of minority citizens, lower income citizens, and citizens who reside in high crime neighborhoods. While the sample imbalance inhibits definitive conclusions, these small sub-group samples allow for demographic comparison. Overall, results do not show a descriptive pattern based on respondent demographics. We also examined ratings for the other three police activity scales (standard policing, community policing, drug/surveillance) by respondent demographics, and found similar results (not shown). Based on descriptive statistics, scale scores did not appear to be related to the demographic categories in Table 21.

Table 21

Perceptions of Suppression Activity by Respondent Demographics

Demographic Category	*M*	*SD*
Race/Ethnicity		
White (n = 763)	4.02	0.82
Black (n = 161)	3.93	0.79
Hispanic (n = 123)	4.11	0.77
Other (n = 63)	3.96	0.96
Gender		
Male (n = 593)	4.08	0.86
Female (n = 594)	3.98	0.77
Income		
Less Than $9,999 (n = 18)	3.78	0.89
$10,000 - $19,999 (n = 33)	3.36	1.07
$20,000 - $29,999 (n = 33)	3.83	0.92
$30,000 - $39,999 (n = 79)	4.03	0.83
$40,000 - $59,999 (n = 199)	3.96	0.80
$60,000 - $79,999 (n = 214)	4.00	0.85
$80,000 - $99,999 (n = 181)	4.16	0.73
≥ $100,000 (n = 357)	4.07	0.80
Violent Index Crime Rate per 100,000 persons in Respondent District, Jan – Aug 2007		
156-358 violent index crime rate (n = 435)	3.99	0.80
359-776 violent index crime rate (n = 540)	4.04	0.84
777-1,586 violent index crime rate (n = 73)	4.08	0.76
1,587-2,342 violent index crime rate (n = 78)	4.02	0.82

Multivariate Analyses

Ordinary least squares (OLS) regression analyses were used to examine factors that predict favorable perceptions of suppression-oriented policing, standard policing, and community policing. We opted not to examine the drug/surveillance scale because logical connections between scale items were less intuitive than the other three scales. The regression analyses were limited to respondent-level variables. Because of the uneven sample distribution, we opted not to conduct multi-level analyses that examine the impact of neighborhood-level variables.

The analyses included twelve independent variables. These variables are listed in Table 22, and described in more detail below. The independent variables included a combination of demographic and perceptual variables, all taken from survey items. For the perceptual variables, respondents were asked to rate their neighborhood and to rate the Chicago Police Department.

Recall that, on average, distributions for survey items on perceptions of police activities were skewed towards the positive end of the rating scale (this was shown in Table 20 above). As a result, our suppression-oriented policing, standard policing, and community policing scales were also skewed. For this reason, it was not possible to use raw scale scores as dependent variables. Thus, we used respondent-level factor loadings from the principal components analysis described above. Factor loadings are standardized, thus normalizing the distribution for our dependent variables. Our dependent variables, then, were factor loadings for suppression-oriented policing, standard policing, and community policing.

We conducted three OLS regression analyses – one for each dependent variable. For each analysis, the twelve independent variables were entered into the models simultaneously. Prior to conducting the analyses, we examined the data for violations of multiple regression assumptions,

including normality, multicollinearity, linearity, and homoscedasticity. With one exception, regression assumptions were met. Specifically, we found a minor problem with the assumption of multivariate normality. Across all models, residuals analysis revealed five multivariate outliers. These outliers were removed from all analyses.

While not directly an assumption of multiple regression, we did have a notable amount of missing data across the eleven independent variables. After applying case-wise deletion, our final analysis sample was reduced to 1,038 surveys. This reduction was primarily a byproduct of missing data on respondent race and income. We opted to keep these variables in the analyses, on the grounds that, regardless of their inclusion or exclusion, results were exploratory. And, race and income were primary variables of interest.

Table 22

Descriptive Statistics for Independent Variables (N=1,038)

Variable	*M*	*SD*	*Min*	*Max*
Institutional Legitimacy	2.56	0.84	1	4
Neighborhood Self-Regulation	2.82	0.88	1	4
Community Policing Participant	0.39	0.49	0	1
See Suppression Policing	2.27	0.96	1	5
See Standard Policing	3.88	1.26	1	5
Neighborhood Disorder	1.68	0.48	1	3
Crime Victim	0.50	0.50	0	1
African-American	0.17	0.37	0	1
Hispanic	0.12	0.33	0	1
Income	3.35	1.44	1	5
Female	0.50	0.50	0	1
Age	42.65	12.40	18	85

Independent Variables. The twelve independent variables were as follows: *Institutional Legitimacy* was measured using a four item scale (α = .85; 1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree). The items were: "I have confidence the Chicago Police Department can do its job well," "I trust the leaders of the Chicago Police Department to make decisions that are good for everyone in the city," "People's basic rights are well protected by the Chicago Police Department," and "Chicago police officers are held

accountable and disciplined when they do something wrong." This scale was adapted from Tyler (2005) and Sunshine and Tyler (2003).

Neighborhood Self-Regulation was measured using a three item scale adapted from a broader informal social control scale (Sampson et al., 1997). Respondents were asked how likely it is that residents in their neighborhood would intervene if: "Children were spray-painting graffiti on a local building," "Children were skipping school and hanging out on a street corner," or "A fight broke out in front of your house and someone was being beaten" ($\alpha = .85$; 1 = very unlikely, 2 = unlikely, 3 = likely, 4 = very likely).

Respondents were asked to report the number of community policing meetings they had attended in the last six months. Their response was dichotomized in the variable *Community Policing Participant* (0 = no, 1 = yes).

Police visibility was measured as the frequency with which respondents reported seeing the suppression-oriented policing activities and standard policing activities captured in our dependent variables (1 = never, 2 = less than monthly, 3 = monthly, 4 = weekly, 5 = daily). *See Suppression-Oriented Policing* ($\alpha = .90$) was measured separately from *See Standard Policing. See Standard Policing* was limited to one item measuring a visible aspect of standard policing ("Driving through neighborhood streets on patrol").

Neighborhood Disorder was measured using a fourteen-item scale ($\alpha = .90$; 1 = no problem, 2 = some problem, 3 = big problem). Respondents were asked the extent to which fourteen types of physical and social disorder (e.g., graffiti, abandoned houses, vacant lots filled with trash, public drinking, people hanging out on corners, drug dealing) is a problem in their neighborhood.

Crime Victim was a dichotomous variable indicating whether the respondent had been a victim of violent or property crime in the last year (0 = no, 1 = yes).

Respondent *Race/Ethnicity* was measured using two dummy coded variables, *African-American* (0=No, 1=Yes) and *Hispanic* (0=No, 1=Yes), with White being the omitted reference category. *Income* was measured as a five-category ordinal scale (0 = household income of $39,999 or less, 1 = $40,000 - $59,999, 2 = $60,000 - $79,999, 3 = $80,000 - $99,999, 4 = $100,000 or more). *Sex* was dummy coded for females (0 = no, 1 = yes). *Age* was included in the multivariate models as a continuous variable measured in years.

Results

Table 23 shows results for the three OLS regression analyses. The independent variables explained a considerably greater percentage of variance in support for suppression-oriented policing (R^2 = .21) than support for police-community interaction or standard policing (R^2 = .03 and R^2 = .05, respectively). As a result, the suppression-oriented policing model yielded a greater number of significant effects.

Table 23

OLS Regression Results: Comparing Support for Three Types of Policing (N=1,038)

Variable	Suppression		Community		Standard	
	b	*β*	*b*	*β*	*b*	*β*
African-American	-.11	-.04	.05	.02	-.14	-.05
Hispanic	.05	.02	.04	.01	-.05	-.02
Female	-.18**	-.09	.26***	.13	-.16**	-.08
Income	.06**	.09	.01	.02	.08**	.11
Age	.00	.05	.00	.01	-.01*	-.08
Crime Victim	.12*	.05	.04	.02	-.05	-.02
Neighborhood Disorder	.43***	.21	.10	.05	.25**	.12
See Standard Policing	-.16***	-.20	.05	.06	-.02	-.02
See Suppression Policing	.09**	.08	-.06	-.06	-.01	-.01
Neighborhood Self-Regulation	.04	.04	.03	.03	.01	.01
Community Policing Participant	.22***	.11	.13*	.06	.05	.03
Institutional Legitimacy	.42***	.35	.05	.06	.10*	.09

* p < .05. ** p < .01. *** p < .001.

Perceptual (i.e., non-demographic) variables yielded the strongest effects in the suppression-oriented policing model. In fact, every perceptual variable was statistically significant, with the exception of perceived neighborhood self-regulation. Among the perceptual variables, the strongest effects were for perceptions of neighborhood disorder, perceptions of police institutional legitimacy, and reported visibility of standard policing. Respondents who reported more disorder problems in their neighborhood were stronger supporters of suppression-oriented policing ($\beta = 0.21$, $p < .001$). Respondents with favorable perceptions of police

legitimacy were stronger supporters of suppression-oriented policing ($\beta = 0.35, p < .001$). There was an inverse relationship between standard policing visibility and perceptions of suppression-oriented policing: as reported visibility decreased, perceptions of suppression-oriented policing were more favorable ($\beta = -0.20, p < .001$).

Overall, perceptual variables were weaker predictors in the standard policing model and community policing model. In some instances, there were counter-intuitive results. For example, community policing participation was a stronger predictor of support for suppression-oriented policing than support for community policing itself. This may be due to the fact that persons who attend CAPS (community policing meetings) tend to communicate their desire for police enforcement activity more so than community engagement or "co-production" of safety (Rosenbaum et al., 2007; Skogan & Harnett, 1997). Standard policing visibility was a stronger predictor of support for suppression-oriented policing than support for standard policing itself.

In addition, there were three significant demographic effects in the suppression-oriented policing model: gender, income, and crime victimization. Male respondents, higher income respondents, and prior crime victims were more supportive of suppression-oriented policing. Despite these significant effects, demographic variables tended to be weaker predictors than perceptual variables.

There were some similarities and some differences in demographic effects across the three models. Perhaps most notably, race and ethnicity were not significant predictors in any of the three models. Income was a significant predictor in two of the three models (income was not significant in the community policing model). Gender was significant in all three models, but the direction of the effect differed across models: male respondents were more supportive of

suppression-oriented policing and standard policing, whereas female respondents were more supportive of community policing.

Conclusion

The community survey provided insights into public sentiment towards suppression-oriented police activities. Some noteworthy findings from the community survey included the following:

- On average, survey respondents favored suppression-oriented policing. The average rating for an eight-item suppression-oriented policing scale was 4.02 (SD = 0.82), the equivalent of "favor" on a five-point scale anchored on the positive end by "strongly favor."
- Relative to suppression-oriented policing, survey respondents were more supportive of standard policing and community policing. The average ratings for the standard policing scale (M = 4.77, SD = 0.40) and community policing scale (M = 4.66, SD = 0.55) indicated stronger support.
- Scores on the suppression-oriented policing scale did not differ considerably by respondent demographics (race/ethnicity, gender, age, income, violent index crime rate in the respondent's residential district).
- OLS regression results indicated that the strongest predictors of support for suppression-oriented policing were: (1) perceptions of neighborhood disorder (more reported disorder = greater support for suppression-oriented policing), (2) perceptions of police institutional legitimacy (greater perceived police legitimacy = greater support for suppression-oriented policing), and (3) reported visibility of standard policing (less

perceived visibility of police engaging in standard policing = greater support for suppression-oriented policing).

Discussion

The purpose of this study was twofold. Using qualitative methods, we examined how CPD staff understood the DOC process and, related to this, whether the DOC process was implemented as planned. Using quantitative methods, we examined whether the DOC process contributed to violent crime reductions in Chicago, with an emphasis on explaining crime drops that occurred from 2002 to 2004.

Overall, qualitative results indicate that the DOC process was successfully implemented. Central administrators effectively communicated the CPD mission to officers. Document review (media accounts, department publications, crime summit reports) and interviews with police personnel clearly indicate that the CPD mission was understood. The findings also indicate that the DOC process was nuanced, involving more than simply analyzing crime trends and patterns. Rather, DOC analysts attempted to predict where violence may occur DOC analysts used various information sources to identify Level II deployment areas, placing emphasis on intelligence. An analysis comparing the locations of the Level II deployment areas to hot spots identified based solely on crime data, further supported the finding that DOC analysts did not simply rely on crime data to identify target areas. Results also showed that Level II deployment areas were clearly communicated throughout CPD. Once Level II deployment areas were communicated, additional resources were successfully deployed to Level II deployment areas. Finally, once deployed, officers engaged in a variety of suppression-based tactics. As a result, arrests in Level II deployment areas increased, particularly for specialized units.

However, despite successful implementation, the DOC process was not associated with violent crime reduction. A variety of quantitative analyses were conducted, examining police beats in Chicago. The analyses took into consideration three different measures of DOC

coverage within the beat, and six different violent crime outcome measures. Results uniformly revealed that the DOC process was not a significant contributor to violent crime reductions from 2002 to 2004.

There are several plausible explanations for our results. First, frequent movement of Level II deployment areas may have undermined successful implementation. In police areas with higher crime rates (i.e., police areas 1, 2, and 4), Level II deployment areas tended to be shifted weekly – there was often no geographic overlap in area boundaries from one week to the next. When there was overlap, it tended to last only two or three weeks. In contrast, Level II deployment areas in lower crime police areas tended to remain stable. Perhaps tellingly, to the extent that we did find crime reduction effects, they occurred in lower crime police areas (see Figure 17). Perhaps consistency in the locations of Level II deployment areas resulted in more tangible crime reductions. Some qualitative observations were consistent with this possibility. During ride-alongs, officers engaged in proactive disruption of persons who were congegrating on the street. After a second or third pass, streets were cleared. To maintain effectiveness, this type of police activity may require continued monitoring over the course of several weeks.

Second, the findings suggest that crime was more easily suppressed in smaller deployment areas. In qualitative observations, we noted that officers had difficultly showing presence in larger deployment areas. During ride-alongs, officers often worked within smaller regions of the overall Level II deployment areas, and considerable time often elapsed before other officers were observed working in the same area. Thus, larger deployment areas may have resulted in less targeting of resources than originally anticipated, resulting in diffuse implementation of suppression activities. Moreover, Level II deployment areas were generally larger than "hot spots" examined in the policing literature, where effectiveness has been

demonstrated (see Braga, 2003). Thus, hot spot size may be another reason why the DOC process did not yield violent crime reduction benefits.

Third, the manner in Level II deployment areas were selected provides another plausible explanation for our results. DOC analysts primarily used field intelligence and personal expertise to identify locations for Level II deployment areas. Often, this information applied to particular persons or incidents. Perhaps unintentional errors were made when applying person or event-based information to geographic space. Errors can occur when extrapolating research findings based on small sample sizes. Likewise, the DOC process was driven by a focus on particular incidents and individuals. Thus, the DOC process essentially attempted to take a small sample of particular incidents and use that to predict violent crime in a much larger area.

Fourth, the egalitarian nature of the DOC process may have undermined effectiveness. All police areas were required to have a Level II deployment area. As a result, Level II deployment areas were placed in locales with relatively low violent crime rates and gang activity. Police personnel, however, were still expected to execute intensive and targeted strategies in these areas. This democratization of deployment areas may have both diluted the resources available for other "true hot spots" and artificially inflated the gang problems in low crime areas, taking attention away from other issues with which lower crime districts struggle. Admittedly, at DOC meetings, command staff assigned to lower crime areas were not held to the exact same suppression activity standards. Nonetheless, all CPD areas and districts were responsible for employing suppression activities regardless of the exact intensity of their gang problems.

Fifth, perhaps CPD administrators did not accurately assess the perceived violent crime problem; the DOC process may have been predicated on weak connections or even faulty

assumptions. At its heart, the DOC process was based on the idea that gangs and guns and their association with the drug trade overwhelming contributed to violent crime in Chicago. By putting intensive police resources into areas with a preponderance of these factors and aggressively targeting these phenomena, violence could be curbed. This breakdown may have been too simplistic, and lacked both the understanding and the level of problem solving necessary to identify the underlying problems and adequately address them. Although there is no doubt that gangs, guns, and drugs are a violent mix, their relationship in any one district may need to be dissected and understood with a more nuanced lens. The relationship between gangs, guns, drugs, and violent crime in one community may look very different than that in another. Thus, approaches should differ by community. Targeted patrols may need elements of neighborhood or locale-specific problem solving to achieve significant crime reductions. The ultimate value of a police strategy should be determined less by whether the agency is able to "put the cops on the dots" (although that is laudable by itself), but rather by what officers once they arrive on the scene (Rosenbaum, 2006). Consistent with this, problem solving activities within specific targeted locations have been shown to result in crime reductions (see Braga & Bond, 2008), whereas aggressive enforcement and crackdowns have been shown to have short-term effects at best (Sherman, 1990).

Sixth, perhaps the benefits of police suppression were offset by violence stemming from disruption of illicit drug markets. The DOC process was grounded in the premise that eliminating drug markets and drug dealers would undermine street gang organizations, thereby leading to violence reductions. However, some research suggests that disrupting drug markets may have the opposite effect on homicides by destabilizing a fragile social order. For example, analysis of 414 homicides in New York by Goldstein and colleagues (1990) found that roughly three-quarters

(74%) of the drug-related homicides involved systemic violence from the drug marketplace. A closer look at the systemic drug-related homicides in New York city showed a variety of causes, but the largest problem by far were territorial disputes between rival dealers, accounting for 44% of the crack homicides. Hence the instability of the drug distribution system can play a major role in homicide. The emergence of new dealers and consolidation efforts by existing drug organizations, when all parties are armed, can provide a recipe for violence.

Seventh, accountability mechanisms associated with the DOC process may have sent the wrong message to commanding officers and patrolmen. Evaluating a unit's success based on the number of arrests made, for instance, may result in officers seeking "easy" targets versus focusing on those individuals engaged in the most serious and violent behaviors. Such arresting behaviors are not likely to result in long-term crime reductions, particularly if these actions are perceived by community members as harassment, if they merely result in short-term incapacitation, or if the arrests are not plausibly linked to the crime problem. The DOC process did lead to increased activity in Level II deployment areas. Accountability mechanisms likely contributed to these increases. However, greater accountability, if not coupled with a clear and in-depth understanding of the crime problem, may lead to disjointed implementation. Activity may occur, but not have any impact on the actual crime problem. The administrative focus on the "number of missions completed" and "number of arrests made" was likely predicated partly on ease of measurement. Not every relevant activity is easy to track and measure. Nonetheless, police agencies must be vigilant, to ensure that focus remains on the overall goal, and not simply on counting activity.

Aside from the DOC process, our analyses took into consideration other programmatic explanations for violent crime reduction in Chicago. In independent evaluations, Chicago

CeaseFire and Project Safe Neighborhood have both been found to be effective (Skogan et al., 2008; Papachristos et al., 2007; Meares & Papachristos, 2009). Our analyses yielded some positive effects for PSN, but not for CeaseFire. However, our results are less authoritative than the independent evaluations, which included more comprehensive analysis of these programs.

Multiple other social explanations for the violent crime drop in Chicago are plausible, but went untested in our analysis, including the local economy, which was functioning reasonably well until approximately 2006. As another explanation, Skogan (2006) gives considerable credit to increased community engagement and community policing (CAPS) for the long-term decline in Chicago's crime rate over the past decade.

As a final note, police scholars have commented on community impacts associated with hot spots policing (Rosenbaum, 2006; Weisburd & Braga, 2006). Impacts on police-community interactions and perceptions of police legitimacy are important factors to consider. Results from our web-based community survey indicated that suppression-oriented policing had the support of Chicago residents, but remained slightly less popular than traditional patrol or community policing. However, our sample was limited - we learned less about the perceptions of citizens who reside in high-crime, minority communities. Nonetheless, some patrol officers who we spoke to expressed concerns about having to restore public trust immediately after special units had visited their beats. In Chicago, the record also indicates that the SOS unit - a primary weapon in the hot spots policing strategy - was disbanded in 2007 after complaints of abuse and corruption. The history of special SWAT-type units in the United States indicates, unambiguously, that the survival and success of these teams requires excellent supervision and exceptional officers who can balance aggressive enforcement with respect for procedural justice.

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