96-IJ-CX-0046

193807

Hot Dots in Hot Spots: Examining Repeat Victimization

EXECUTIVE SUMMARY

Numerous research studies have shown that crime clusters in geographic areas known as hot spots and on specific places and persons within those clusters. These "hot dots" within the hot spots reflect the accumulation of multiple crimes on the same people and places -- recognition that some people and places account for a disproportionate amount of crime (Sherman, 1995, 1989; Sherman, Gartin and Buerger, 1989; Goldstein, 1990; Spelman and Eck, 1989; Farrell and Pease, 1993; Eck 1997). Indeed, the presence of hot dots may in fact *make* hot spots hot. Known as repeat victimization, the "hot dot" phenomenon is an important and pervasive criminological phenomenon which presumably can be targeted to reduce aggregate crime.

Repeat victimization has been studied extensively in Great Britain, beginning in the 1980s, and across a range of crime types. By the mid-1990s, the concept of repeat victimization was so well-established that British police forces were held accountable for repeat victimization as a measure of police performance. The British studies have shown that being victimized is a good -- if not the best -- single predictor of being victimized again and that subsequent victimization tends to occur very quickly.

Awareness of repeat victimization in the United States is not well-established. Indeed, very little is known about the incidence, concentration and variations of repeat victimization and its relationship to crime hot spots. With funding from the National Institute of Reseach, the Police Executive Research Forum conducted a study to document the incidence, concentration and time course of repeat victimization in three cities — Baltimore, Dallas, and San Diego —

FINAL REPORT

Approved By: _____

Date: 2/11/02

within a single offense type, residential burglary.[1] The research project was developed to shed light on three major elements of the repeat victimization phenomenon — the incidence of repeat victimization both city-wide and in high crime areas, the time course for repeat victimization, and the relative impact of a police-focused problem-solving treatment on the incidence of repeat victimization and its contribution to aggregate offenses in an experimental area. A primary objective of the study was to develop a practical method of measuring repeat victimization using police offense data -- a method which could be easily carried out by police practitioners across the nation. Although only about one-half of all burglary offenses are reported to the police in the United States, the large volume of burglaries in many jurisdictions provides a substantial basis for analysis. Given the inherent potential for reducing crime by targeting repeat victimization, the study included a treatment component, in which local police engaged in problem-solving strategies to address their residential burglary problems.

Analytical Procedures

Identifying repeat victimization is a deceptively complex task of matching offense addresses. Of course, the limitations of many police offense databases can complicate the task enormously. In this study, the specific address of the burglary offense was used as the unit of analysis, such that the dwelling was defined as the victim rather than the actual persons occupying that address. While person-victims do indeed relocate over time, there is great stability to residential occupancy, particularly over the short term.

[1] Residential burglary was selected for examination for a variety of reasons. Burglaries are extremely numerous and are of deep concern to the public. Burglaries feature extremely low clearance rates and, while burglaries feature elements of both places and persons, relatively good information on address is available. There is also a large body of information of repeat victimization from Great Britain focusing on residential burglary, providing a context for the findings of this study.

An important data limitation constrained the examination of repeat victimization for residential burglary. Police records in the three cities did not consistently provide unique address information at the apartment unit-level or the apartment building-level, seriously complicating the analysis for offenses occurring at multi-family addresses. Thus, the identified incidence of repeat victimization for multi-family dwellings represents events known as "near repeats," in which subsequent burglaries are recorded at the same street address. Quite often, but certainly not always, these near-repeat offenses represent different residences at the same street address but there is no way to accurately and reliably determine actual repeat offenses for multi-family units. Given the weakness of the multi-family offense data, two data sets were created in this study to document the extent of repeat victimization by premise type. The incidence of repeat victimization in single-family dwellings is computed using only single-family dwellings; the incidence of repeat victimization in multi-family is computed using the street address as the unit of analysis, and this address may contain as few as two residences (a duplex) to numerous residents (an apartment building). Although this method of examining and documenting repeat victimization was not ideal, it provides a standardized baseline for comparing differences in repeat victimization within and between cities.

An important issue in the study was the specification of a time frame for analysis. The key element in defining repeat victimization is specifying the time period in which a repeat or second offense is counted. This study used a conservative definition — a repeat offense was considered the same crime which occurred twice or more *within* a single calendar year. This conservative definition minimized or undercounted actual repeat victimization by missing the serial events which preceded offenses in the early part of the baseline year, and subsequent offenses which occurred in the latter part of the baseline year. For example, an offense may have

occurred at an address on January 1 of the baseline year, and may have been preceded by a burglary on December 31 of the preceding year. Using the within-year definition, these offenses would not be counted as repeat offenses.

Despite the undercounting associated with the within-year approach, this is a practical method for computing repeat victimization by police and others, facilitating comparison between and within cities, and monitoring changes over multi-year periods. The method can be used to establish repeat victimization when only a single year of data is available, thus reducing the data cleaning and management tasks that may be associated with identifying repeat victimization.

Incidence of Repeat Victimization

An examination of police offense records in Baltimore, Dallas and San Diego revealed that repeat victimization is substantial. Using the conservative within-year definition, repeat offenses citywide accounted for 11.6% of reported residential burglaries in single-family dwellings in Baltimore; while repeats were 10.4% in Dallas and 3.8% in San Diego. (See Table I.)

Earlier studies have shown that the incidence of repeat victimization is higher in high-crime areas. In this study, repeat burglaries accounted for 15% of reported residential burglaries in single-family dwellings in the highest crime areas of Baltimore; while repeats were 11% in the highest crime areas of Dallas and 6% in the highest crime areas of San Diego. (Areas designated as "high crime areas" are an aggregation of the 10 census tracts in each city with the most burglaries. While census tracts are not necessarily boundaries to high crime areas, these areas provided a standardized basis of comparison to citywide data.) So the incidence of repeat

victimization in each city is higher in the high crime areas but not substantially higher for single-family dwellings.

Table I
Burglaries in Single-Family Dwellings
Proportion of Repeats

	Baltimore most burgled areas	Baltimore citywide burglaries	Dallas most burgled areas	Dallas citywide burglaries	San Diego most burgled areas	San Diego citywide burglaries
Number of burglaries	1008	8231	1329	9243	250	1646
Number of addresses burgled	859	7278	1182	8279	236	1583
Repeat burglaries as proportion of all burglaries	14.8%	11.6%	11.1%	10.4%	5.6%	3.8%

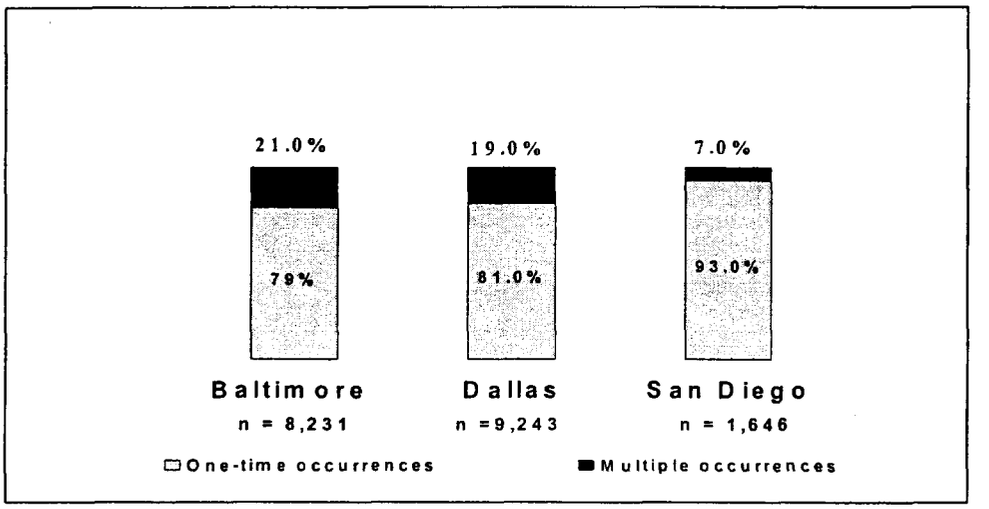
Consistent with the definitional limitations of this study related to offense data in each city, repeat victimization in multi-family dwellings in all three cities was substantially higher than in single-family dwellings. The proportion of burglary offenses related to repeat victimization was 27.9 percent, 54.1 percent and 11 percent, respectively, in Baltimore, Dallas and San Diego. (See Table II.) Already high, these numbers increased considerably in the high-crime areas of Baltimore and Dallas, climbing to 35.7 percent and 68.8 percent respectively, while staying steady in San Diego at 11 percent.

Table II
Burglaries in Multi-Family Dwellings
Proportion of Repeats

	Baltimore most burgled areas	Baltimore Citywide burglaries	Dallas most burgled areas	Dallas citywide burglaries	San Diego most burgled areas	San Diego citywide burglaries
Number of burglaries	529	1915	1536	6191	499	3339
Number of addresses burgled	340	1381	483	2843	444	2972
Repeat burglaries as proportion of all burglaries	35.7%	27.9%	68.6%	54.1%	11.0%	11.0%

Even with the limitations of the multi-family data, the incidence of multi-family repeat victimization indicates that a large number of offenses are occurring at the multi-family addresses. Since the denominator at those addresses -- ie, the actual number of apartments -- is unknown, the offense rates may not be proportionally higher but the volume of offenses is nonetheless high. Indeed, the higher repeat victimization proportion in Dallas reflects the presence of many large multi-family apartment buildings in the relatively homogeneous high-crime census tracts.

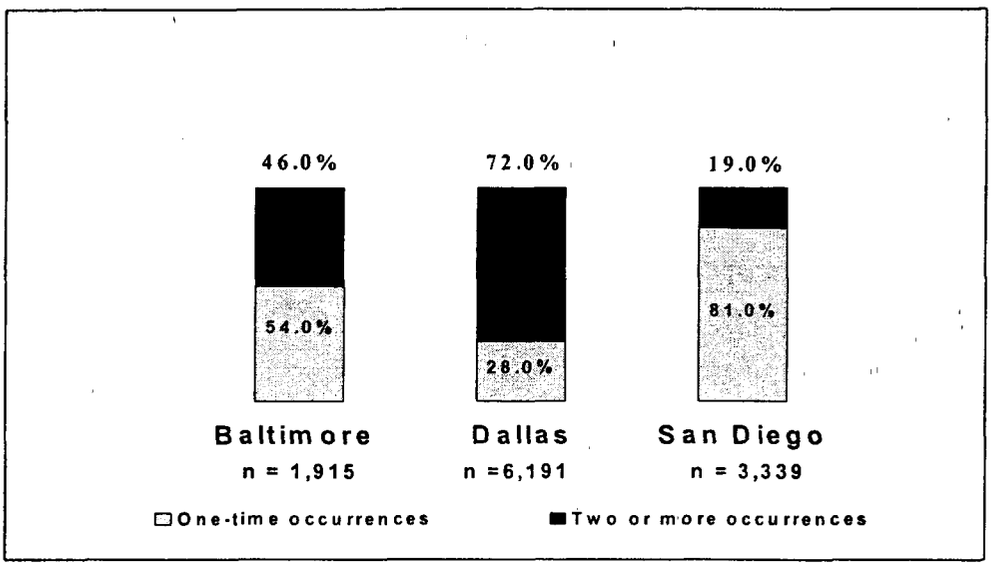
Figure I
Burglaries
Single-Family Premises



The proportion of all burglary offenses related to repeat victimization at the citywide level is arrayed more visually in the bar charts of figures I and II. These charts reflect the citywide offenses which were one-time occurrences compared to those offenses related to repeat victimization for single-family dwellings. Again, San Diego features the largest proportion of one-time only offenses, while Baltimore and Dallas feature fewer one-time occurrences. And

the proportion of repeat victimization compared to one-time offenses increases dramatically for the multi-family dwellings, as shown in Figure II.

Figure II
Burglaries
Multi-Family Premises



The findings about repeat victimization reveal that the incidence or rate of repeat victimization varies between cities. Why were these differences found?

Some of these variations likely reflect differences in crime rates and crime trends. San Diego, for example, has the lowest burglary rate of all three cities and burglaries have declined steadily there in recent years. Some differences may also be related to differences in housing stock in each city. Baltimore has the largest proportion of single-family residents (65 percent) while many areas of Dallas feature large apartment complexes which police describe as a virtual smorgasbord for burglars.

Victimization

The incidence of repeat victimization is quite high and is most evident when examining the increased risk associated with being victimized once. For example, in San Diego, once burglarized, a single-family household is about four times more likely to be burglarized again. In Baltimore and Dallas, a single-family household is almost three times as likely to be burgled a subsequent time. (See Table III.) In multi-family dwellings, the increased risk is nearly six-fold for San Diego. In Baltimore, once burgled, a multi-family residence is 19 times as likely to be burglarized again and in Dallas, the burglarized household become 28 times as likely to be burglarized again. (See Table IV.) The heightened risk in Dallas is once again associated with the large apartment complexes there. While the data limitation for multi-family dwelling doesn't insure that a first-time victimization of an apartment unit will be followed by a subsequent victimization, a single offense in an apartment building appears to increase the risk for all others who live in the apartment building.

The heightened risk factor is exacerbated in high-crime areas in Baltimore: single-family dwellings in the high crime areas are twice as likely to be burglarized once; multi-family risk declines in the high crime areas. In Dallas, risk of a second single-family offense is the same in the high crime areas as citywide. In San Diego, risk declines from citywide to high crime areas for single-family dwellings (from 1:26 to 1:18) while the risk stays the same for multi-family dwellings (1:11). (See tables V and VI.). Most residences of course, are never burgled; once burgled, however, the increased risk of a second burglary rises dramatically.

Table III
Citywide Single Family Dwelling Victimization Risk

	Risk of being burglarized at least once[2]	If burglarized once, risk of being burglarized again[3]
Baltimore	1:27	1:10
Dallas	1:33	1:11
San Diego	1:156	1:26

Table IV
Citywide Multi-Family Dwelling Victimization Risk

	Risk of being burglarized at least once	If burglarized once, risk of being burglarized again
Baltimore	1:77	1:4
Dallas	1:83	1:3
San Diego	1:60	1:11

Table V
High Crime Census Tracts: Single-Family Dwelling Victimization Risk

	Risk of being burglarized at least once[4]	If burglarized once, risk of being burglarized again
Baltimore	1:15	1:8
Dallas	1:17	1:11
San Diego	1:80	1:18

[2] Victimization risk is based upon the number of housing units by premise type in each city, divided by the number of addresses burgled. Victimization risks as offense rates are typically computed by population, however, the unit of analysis for this study consists of the housing unit rather than individuals or households.

[3] Risk of subsequent victimization is based upon the number of addresses burgled divided by the number of repeat addresses -- those addresses which were subsequently victimized at least once more within the calendar year.

[4] Victimization risk is based upon the number of housing units in each city, divided by the number of addresses burgled. Victimization risks as offense rates are typically computed by population, however, the unit of analysis for this study consists of the housing unit rather than individuals or households.

Table VI
High Crime Census Tracts: Multi-Family Dwelling Victimization Risk

	Risk of being burglarized at least once	If burglarized once, risk of being Burglarized again[5]
Baltimore	1:53	1:3
Dallas	1:70	1:2
San Diego	1:52	1:11

Concentration of Repeat Victimization

The incidence of repeat victimization varied within cities as there was some tendency to cluster or concentrate in high crime areas or hot spots. This finding is consistent with the literature on hot spots and repeat victimization

Figure III
Repeat Burglaries in experimental area of Baltimore

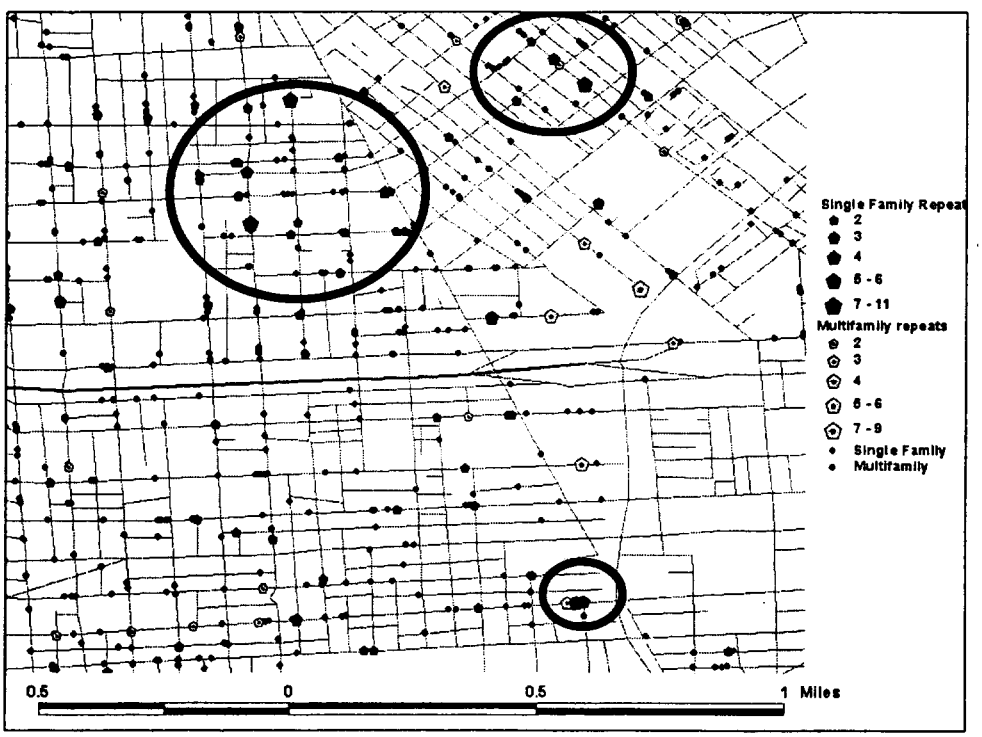


Figure IV
Repeat burglaries in experimental area of Dallas

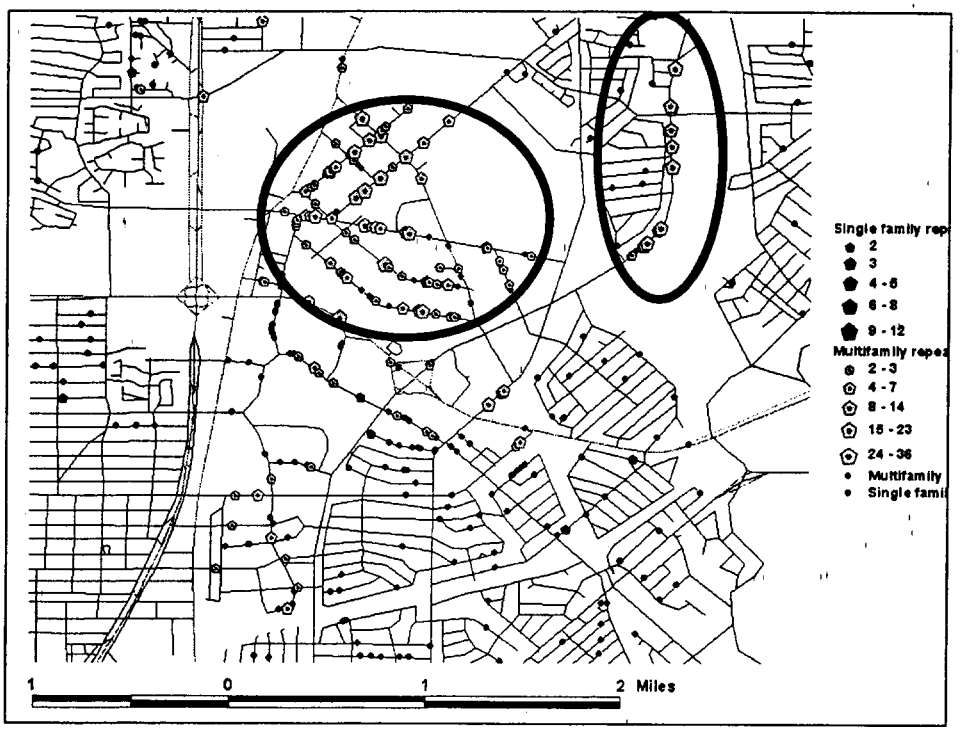
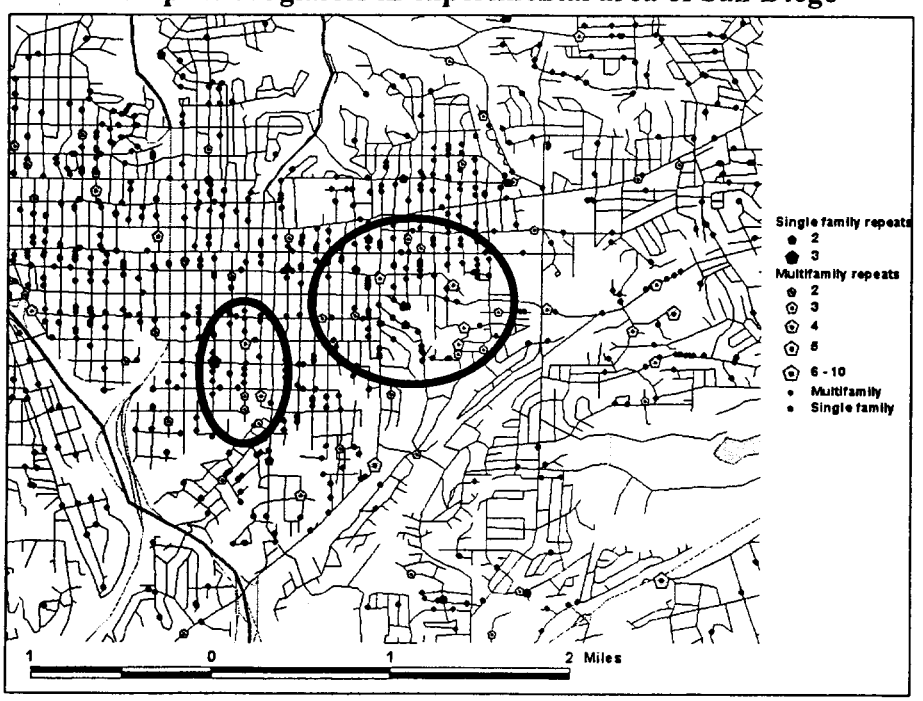


Figure V
Repeat burglaries in experimental area of San Diego



This clustering phenomenon of repeat victimization is most compelling when presented visually as mapping reveals the proximity between clusters of crime and the incidence of repeats. Figures III - V use scaled icons to exhibit the accumulation or concentration of crime at specific addresses. In this way, the figures show the distribution of residential burglaries in each city, and the distribution of repeat burglaries across high burglary areas for single- and multi-family premises.

Time Course

Once burglarized, how quickly do subsequent offenses occur? The strength of using police offense data to understand repeat victimization is that it provides insight into the time course during which subsequent victimization occurs. Numerous studies show that the occurrence of repeat victimization is rapid for all crime types. In other words, once victimized, subsequent victimization tends to occur within a short period of time. Figure VI shows the time course for most of the burglaries in this study. While the time course varied slightly between housing types and between cities, most of the repeat burglaries occurred fairly quickly.

The shortest time course between the initial offense and subsequent offense was identified in San Diego; 75 percent of repeat offenses for single-family dwellings occurred within two days of the first reported burglary and 97 percent of repeat offenses occurred within two weeks of the first offense. The findings for multi-family dwellings in San Diego were very similar. In contrast, the time course in Baltimore and San Diego was longer: about one-quarter of all repeat offenses occurred within a week and about three-quarters of all offenses occurred within three months. (See Figure VII.) These findings were consistent across premise types.

Figure VI
12-Month Time Course between Burglaries

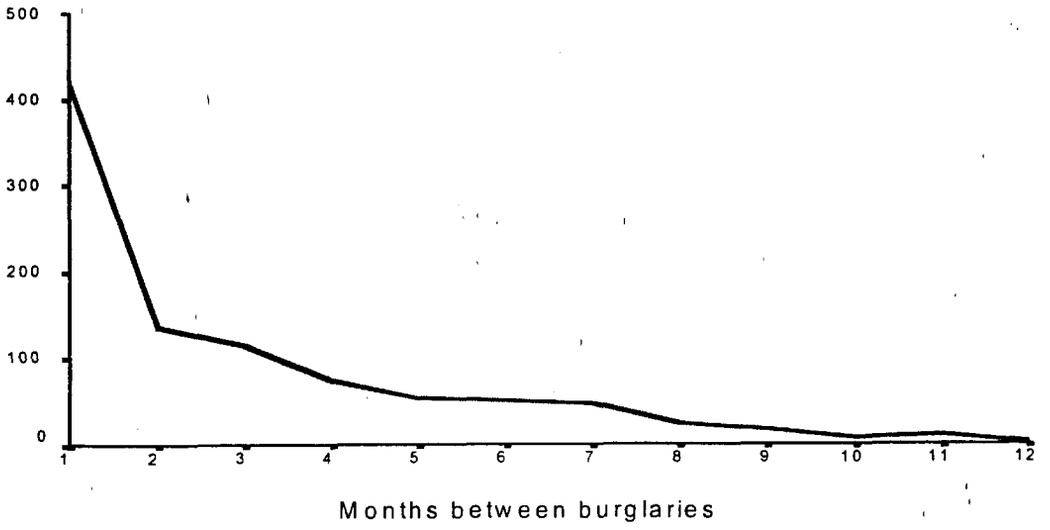
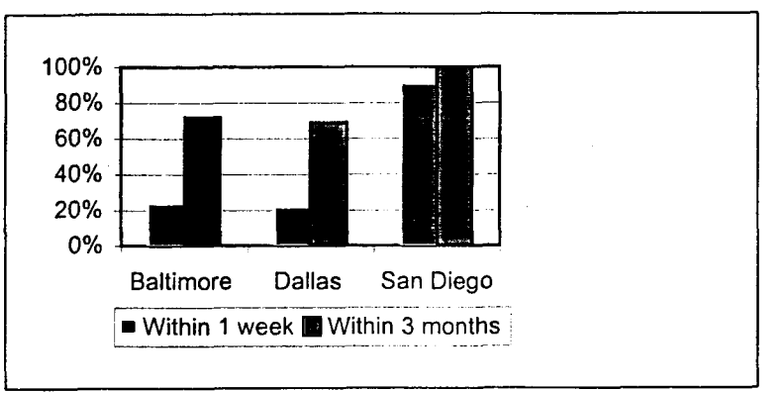


Figure VII
Three City Comparison: Time Course between Repeat Burglaries
Single-Family Premises



Impact of the problem-solving initiative

The research study included an experimental treatment designed to reduce burglaries in an experimental area of each city by focusing on repeat victimization. The treatment packages for this study were developed by local police involved in responding to and investigating

residential burglaries. Although there were differences in the treatment in each city, generally the burglary response consisted of advising victims about the likelihood of being victimized again within a short period of time, providing information about preventing a recurrence including offering a security tips and a security assessment, informing immediate neighbors of the occurrence and likelihood of recurrence to increase informal surveillance. Police also made some efforts to improve the initial burglary investigation. In contrast to burglary initiatives focused on repeat victimization in Great Britain (Chenery, Holt and Pease,1997; Forrester et al, 1990) the treatments developed in Baltimore, Dallas and San Diego were quite modest[6] and the results associated with these initiatives were mixed.

Reported residential burglaries declined in the experimental areas relative to the comparison areas in Baltimore and San Diego, while offenses increased in Dallas. In Baltimore, burglaries during the year-long period of the study declined 5.2 percent in the experimental period (from 692 to 658), compared to a 24.7 percent increase in the comparison area (from 620 to 773). In Dallas, burglaries during the study increased 9 percent in the experimental area (from 447 to 489), compared to a 5.6 percent decline (from 654 to 617) in the comparison area. In San Diego, the number of burglaries during the study declined 30 percent in the experimental area (from 1011 to 707), compared with a 18 percent decline in the comparison area (from 993 to 814). More sophisticated interrupted time series models for each city failed to detect any statistically significant impact associated with the treatments.

The treatments were delivered to rather large geographic areas -- areas in which burglary offenses were often dissimilar. Indeed, the areas included quite dissimilar housing stock and

[6] No monetary resources were provided to the cities for the treatment although technical assistance and information about strategies used elsewhere were provided to police groups.

income groups, suggesting that the areas may have been too heterogenous for a general and ubiquitous treatment to be effective. While Great Britain police deliver a standardized, graded burglary response to all victims to prevent subsequent victimization, Sherman (1992) and Goldstein (1990) suggest that specific responses to homogeneous offenses may be more effective in reducing offenses. Indeed, further examination of conditions underlying differing burglaries in this study might have contributed to the development of different, more specific and more effective responses.

Implications and Directions for Future Research

The great promise of research on repeat victimization is that it can help focus scarce resources on the people and places which account for a disproportionate amount of crime. The incidence of repeat victimization is currently being used as a measure of police performance in the United Kingdom, although the standards for this measure are not well established. Indeed, research suggests that repeat victimization varies substantially by crime type, by area, between and within cities and in other ways. Additional research is needed to flesh out the distinctions of repeat victimization, and to overcome the limitations of police offense data.

Other elements of research on repeat victimization also have substantial implications for focusing resources. Although the time course for repeat victimization varies between places and between crime types, documenting the nature of the time course may inform the delivery of police services. For example, findings about the abbreviated time course in San Diego -- 98 percent of subsequent victimization occurs within a week -- suggests that police responses must be delivered very quickly in order to have any deterrent impact.

The time course of repeat victimization is also important for the use of mapping in crime data. For the most part, maps with a short time frame -- a week or a month -- would omit much of the incidence of repeat victimization. In contrast, maps which feature three months or so of data will capture most of the incidence of repeat victimization for residential burglary.

More research is needed on repeat victimization including research of other crime types and clarification of the premise distinction between multi-family and single-family dwellings which troubled this study. In terms of a standardized method for identifying repeat victimization, police and others should make every effort to use a full year of data, and scan backwards for a full 12-month period in order to identify any related victimization.

Information about repeat victimization can be used to inform problem-solving efforts of police and others. But identification of repeat victimization is not a substitute for problem-solving and should be used to illuminate the analytical processes of problem-solving. Since repeat victimization points to the hot dots within hot spots which underlie the crime problems in many jurisdiction, the promise of addressing repeat victimization is its promise to "turn down the heat" on hot spots. By reducing the concentration of crime on a few persons and places, police may be able to substantially reduce crime.

REFERENCES

Chenery, S., J. Holt, and K. Pease (1997). *Biting Back II: reducing repeat victimisation in Huddersfield*. Police Research Group. Crime Detection and Prevention Paper 82. London: Home Office.

Eck, J.E. (1997). "Preventing Crime at Places," in L. Sherman, D. Gottfredson, D. MacKenzie, J. Eck, P. Reuter and S. Bushway, *Preventing Crime: What Works, What Doesn't and What's Promising*, A Report to the U.S.Congress, Washington, D.C.: U.S. Department of Justice.

Farrell, G. and K. Pease (1993). "Once Bitten, Twice Bitten: Repeat Victimization and its Implications for Crime Prevention," Home Office Police Research Group, Crime Prevention Unit, Paper 46, London: Home Office.

Forrester, D., S. Frenz, M. O'Connell, and K. Pease. 1990. *The Kirkholt Burglary Prevention Project: Phase II*. Crime Prevention Unit Paper 23. London: Home Office.

Goldstein, H. (1990). *Problem-Oriented Policing*, New York: McGraw Hill.

Sherman, L. W.(1989). "Repeat Calls for Service: Policing the 'Hot Spots,'" In Dennis Jay Kenney, Ed., *Police and Policing: Contemporary Issues*. New York: Praeger.

Sherman, L. W. (1995). "Hot Spots of Crime and Criminal Careers of Places." In J. Eck and D. Weisburd, Eds., *Crime and Place*. Crime Prevention Studies, Volume 4. Monsey, NY: Criminal Justice Press.

Sherman, L.W. (1992). "Attacking Crime: Police and Crime Control," in M. Tonry and N. Morris, Eds., *Modern Policing*, Chicago: University of Chicago Press.

Sherman, L.W., P.R. Gartin and M.E. Buerger (1989). "Hot Spots of Predatory Crime: Routine Activities and the Criminology of Place," *Criminology* 27: 27-55.

Spelman, W. and J.E. Eck (1989). "Sitting Ducks, Ravenous Wolves and Helping Hands: New Approaches to Urban Policing," *Public Affairs Comment*, 35: 1-9.