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PREVENTING REPEAT AND NEAR REPEAT CRIME CONCENTRATIONS

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Abstract

Crime is highly concentrated: Most crime is a rehearsal for further crime against the same or similar targets, at the same or similar locations, and perhaps theft of the same type of products. The study of repeat victimization has evolved into that on crime hotspots and other forms of near repeat, and led to predictive policing. The F-B-I theory of crime concentration notes how some targets have characteristics that *Flag* them as attractive, offenders learn some targets or places are attractive which *Boosts* the chances of further crime, while the *Interaction* of potential offenders and suitable targets creates high crime locations. There is strong evidence that targeting crime concentrations with prevention resources can succeed but that it is not necessarily easy to implement appropriate tactics. Hence while there is great potential, much research remains to be undertaken in this rapidly evolving and important area.

Keywords: crime concentration; repeat victimization; near repeats; hot spots; hot products; FBI theory; crime concentration theory.

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Introduction

Burp! Crime repeats. This is one of the most important things about crime. Since the first cave dweller stole food – again! - from their neighbour, repeat victimisation has occurred. But why? And how does it inform crime prevention? What do we do to stop it? This chapter answers these questions.

Consider a burglary. The rear door of a household is forced open and cash, jewellery and portable electronics are stolen. Not only is that household now at greater risk of another burglary quite soon, but so too are its neighbours. That is because the burglars literally have inside information. They know how to get in and out. They know the layout. They know the low risk and high payback. Let's do it again! Or let's do a similar house nearby.

Consider an online scam. Sending out hundreds of phishing emails brings only a handful of replies. But it was cheap and easy to do. Some of the suckers sent money up front to pay for a bank transfer they will not receive, so I will target them with another scam – try to get their bank details and PIN. I know they are gullible and now know more of their details. And I will target other victims with similar profiles.

Consider terrorism: A military vehicle is blown up by an improvised explosive device near a military base. It is a frequently patrolled road, and IEDs are easy to build. The roads cannot be constantly watched so I will do the same thing again nearby as it is an efficient use of my limited staff and resources. It maximises terror, publicity and disruption, which is our aim.

These are hypothetical scenarios but they draw on research about why repeat and near repeat victimization occurs. They show how crimes that might appear random are related. Crime is never random and is always concentrated on certain places, people, or other targets however defined: In fact, it is highly concentrated in every dimension (more on this later). On the plus side, crime's repetitive nature provides a lot of information about where, when, and how it can be prevented.

In the United States, over three quarters of personal crimes were found to be repeats against persons who already experienced personal crime that year. Table 1 shows rape and sexual assault, assault, and theft (personal larceny). Four out of five rapes or sexual assaults (82.6%) are experienced by victims who experienced more than one of them that year. Assault is experienced by 8.5% of persons (left column of numbers) but there are 37 assaults per 100 people on average (middle column) – so they are far from evenly distributed. In fact most assaults (77.3% - right-hand column) are committed against persons already assaulted.

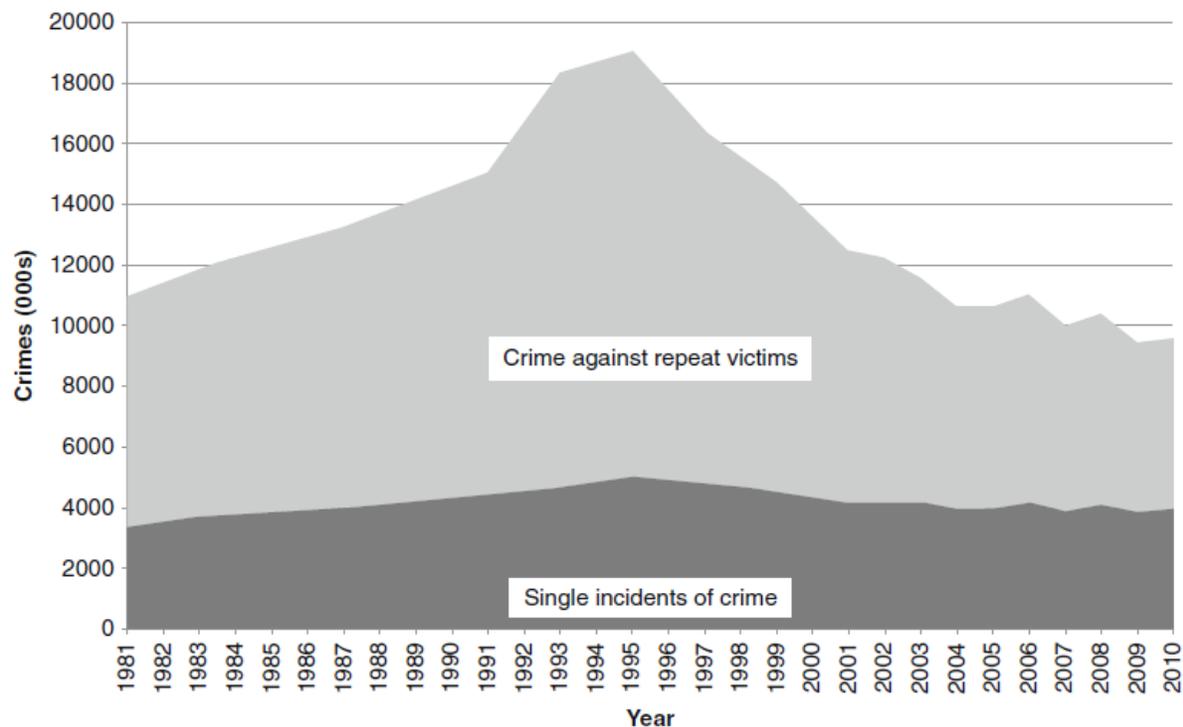
Table 1: Personal crimes in the United States

Crime type	Victims per 100 persons	Crimes per 100 persons	% Repeats
Rape/sex assault	0.4	2.3	82.6
Robbery	1.3	3.6	63.9
Assault	8.5	37.4	77.3
Personal larceny	0.5	1.2	58.3
<i>Total</i>	<i>10.6</i>	<i>44.6</i>	<i>76.2</i>

Source: Farrell and Pease (2014) based on Planty and Strom (2007)

Generally speaking, most crime, and most variation in crime, is due to repeat and near repeat victimisation. Figure 1 shows how, in England and Wales in recent years, crimes experienced by repeat victims make up most crime plus most of the large rise and fall in common crimes including violence, burglary, theft, vehicle crimes and vandalism (Britton et al 2012; Farrell and Pease 2014). But the real proportion of repeat victimisation is even more than shown in Table 1 and Figure 1 because the surveys count crimes each year whereas repeats occur over time (i.e. some in the year are linked to those before or after that year). This is one of the reasons that surveys under-estimate repeats (Farrell, Sousa and Weisel 2002). For Figure 1, the data are from the UK government's Home Office, and for some reason that institution only counts five crimes against a victim even if they experienced far more than that (see Farrell and Pease 2007). How unfair! It is ironic but sadly not unusual that the most chronically victimised members of society are ignored.¹

Figure 1: Repeat victimization in England and Wales



Source: Farrell and Pease (2014)

Another insightful indicator is the proportion of crime experienced by the most chronically victimised. One study found 16% of the population experienced property crime and 8% experienced personal crime, but among the most chronically victimised (Pease 1998):

- 2% of the population experience 44% of property crime
- 1% of the population experience 59% of personal crime

The picture is largely the same across high income countries and, to the extent we know from limited information, for middle and low income countries as well (see e.g. Sidebottom 2011 on repeat burglary in Malawi). The International Crime Victims Survey is the only methodologically standardised general victim survey (meaning that its findings can be usefully compared across countries – most crime data

cannot). It finds that rates of repeat victimization are remarkably similar in different countries (Farrell and Bouloukos 2001, Mawby 2001; van Dijk 2001).

New Technology Crimes

While many common crimes have been in long-term decline, some crime types have increased. Some seemingly 'new' crimes are variations on existing themes. Fraud and identity theft already existed but have surged because the internet provides new crime opportunities - easy access to potential victims. Fraudsters have always sought out existing victims who are potentially easy prey, and repeat fraud has always been highly prevalent (see Titus and Gover 2001). While aspects of online fraud and identity theft may have changed, the notion of targeting efforts to prevent repeats is likely to prove efficient.

Table 2: Computer system and internet-related repeats

With the widespread use of the Internet, e-commerce, business and other networks, the security of such networks is increasingly important. Yet attacks and incidents against networks are increasingly common. Potential crimes include fraud, theft (of funds, knowledge and information, or other), account break-ins, malicious damage to users, institutions or networks.

Over a quarter (27%) of the 6684 computer sites studied experienced at least 3 attacks and a mean of 12 attacks. The ten most victimized sites experienced an average of 369 attacks each! Repeat attacks were far more likely to occur soon after a prior attack, particularly in the first week. Some types of attack were likely to occur more quickly than others, and repeats were more likely to be the same type of incident (perhaps suggesting the same offenders). Some network domain types experienced more rapid repeats (those ending '.edu' were fastest and those ending '.com' were slowest).

Though prevention was not the primary focus of the research, the potential is evident. Focusing network security on sites already hacked could prevent a lot of hacking (and the displacement literature suggests that, for various reasons, much of it will not simply move to other networks). Security should be put in place quickly and certain types of domain such as educational institutions (.edu sites) should be particularly proactive in prevention. There could exist the potential to track and detect returning hackers who, in turn, may well be the most prolific and serious hackers.

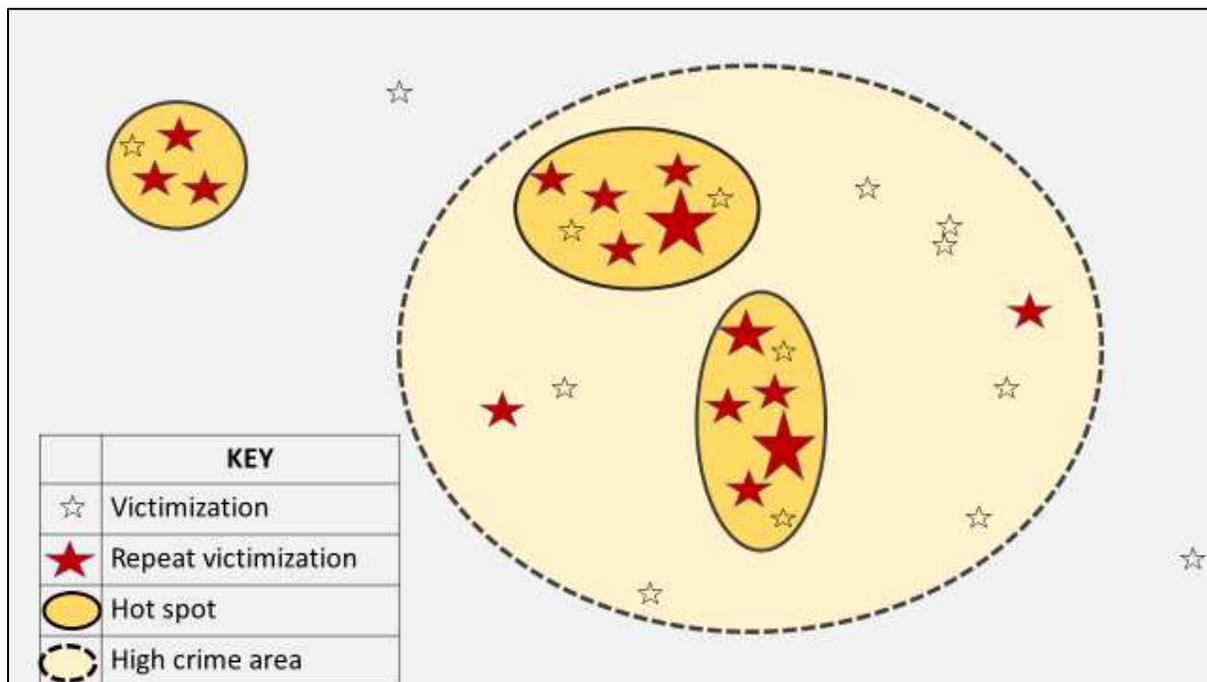
Source: Adapted from Moitra, S. D. and S.L. Konda. (2004)

Stemming crime opportunities provided by the internet is likely to be a mainstay of crime prevention efforts for years to come. A focus upon repeats will promote efficiency. New technology crimes are also highly concentrated: Network attacks, for instance, are highly concentrated upon particular domains and upon particular networks (see Sidebottom and Tilley, this volume). Depending on the type of preventive measure to be introduced there is likely to be efficiency in having a focus upon repeat domains and repeatedly targeted networks – the virtual equivalent of repeat victims and repeat places (See Table 2).

Near Repeats – Hotspots and Hot Products

One of the earliest studies of repeats led to the term ‘hotspots’. It examined repeat calls to the police (Sherman et al. 1989), finding that half of calls to police came from only 3 percent of households. This was repeat victimisation of the same persons or households which, on a map, appears as hotdots or hotspots. This led to a growing interest in how crime concentrates in the same places, sometimes termed ‘crime and place’ (Eck and Weisburd 1995; Curman et al. 2015; Andresen and Malleson 2011). Figure 2 shows a simplified version of the relationship between victimization, repeat victimization, hot spots and high crime areas.

Figure 2: Repeat and near repeats form hotspots and high crime areas



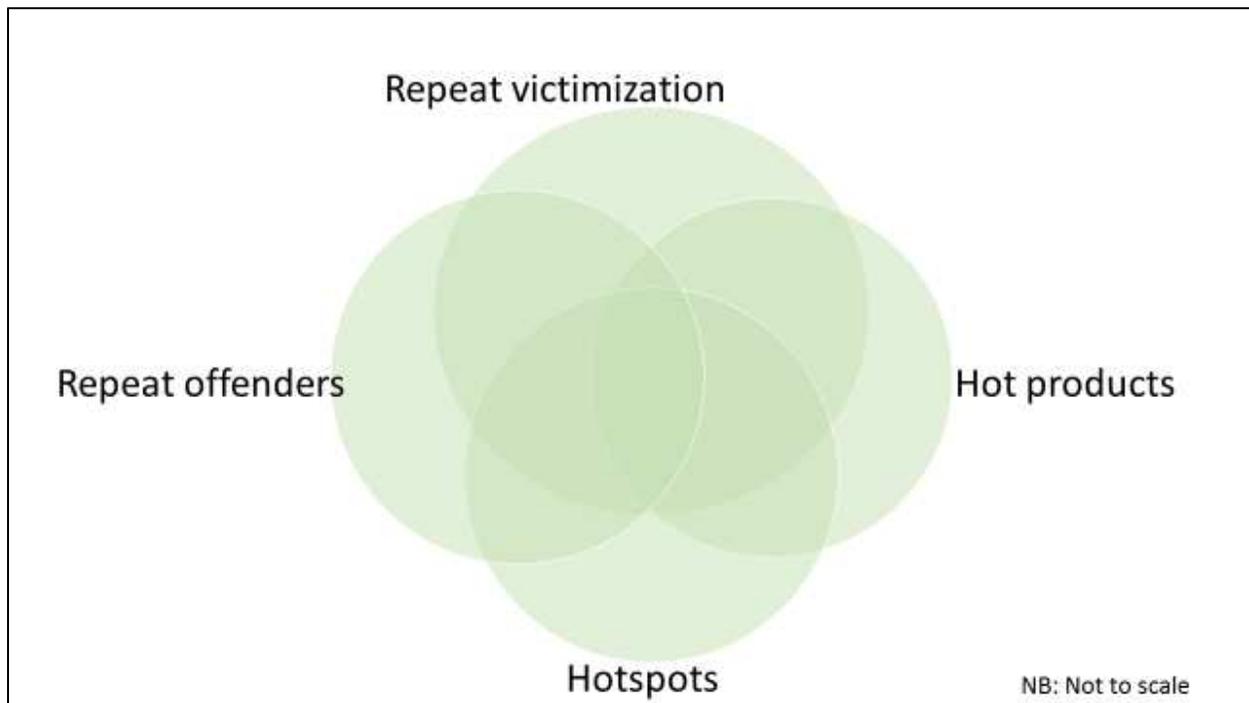
(Source: Adapted from Farrell and Sousa 2001)

In 1998, the term ‘virtual repeats’ was used to refer to crimes that are very similar (Pease 1998). The term that has become more widely used is ‘near repeats’ (Morgan 2001). It has been used to refer to how nearby neighbours are more likely to be burgled for a short period (Townsend et al. 2003; Bowers and Johnson 2004; Bernasco 2008), armed robberies and shootings recur soon nearby (Ratcliffe and Rengert 2008; Wells et al. 2008; Haberman and Ratcliffe 2012), and other types of crime (Youtsin et al. 2011) and terrorist activity repeat (Townsend et al. 2008), while repeat victimization locations are streets or other places where crimes cluster (Levy and Tartaro 2010). Since repeats and near repeats show where and when crimes occur, their predictive power has led to prospective hotspotting and predictive policing (Bowers and Johnson 2004; Bowers, Johnson, and Pease 2004; Short et al. 2009; Pease and Tseloni 2014). The spatial distribution of near repeats fall into what can be termed the victimology of place.

Just as some victims and places experience repeat crimes, some types of consumer goods are stolen much more than others. Particular makes and models of goods are targeted: some types of phones, some types of cars, some laptops and so on. Such 'hot products' are attractive to thieves (Clarke 1999).

Two thefts of the same type of product are near repeats by dint of the similarity of the product, just as two geographically similar crimes are near repeats because they are spatially close together. So the term 'near repeat' can be used to refer more broadly to different types of cluster or concentration of crime (Farrell 2015). Even a burglary on the same street a few days later is similar in more than just spatial and temporal terms – it is probably the same offender who got into and out of similar households by the same means and stole the same type of things (Everson and Pease 2001; Bernasco 2008). Repeat crimes of different types are linked by their *similarity*: they are *nearly* the same. In practice the ways in which crime concentrates usually overlap a lot: One victim had several phones stolen at different times from their coat when they were at work: probably the same offender who stole a hot product from a repeat victim at the same repeat place. Figure 3 shows a simplified version of the relationship between repeat offending, repeat victimization, hot spots and hot products. The relative sizes of the circles and their overlap are not to scale.

Figure 3: Overlapping repeat and near repeat phenomena



(Source: Adapted from Farrell and Sousa 2001)

In Figure 3, a crime at the centre is committed by a repeat offender stealing a hot product from a repeat victim at a hotspot. Other crimes do not have to involve each of the elements. The next section looks at why concentrations of crime occur.

Explaining Crime Concentrations: FBI Theory

How does crime get so concentrated? The repeat victimization literature identifies the 'flag and boost' explanations (Pease 1998) plus how repeats occur disproportionately in hot spots and high crime areas due to interaction effects when multiple suitable targets and potential offenders converge (Farrell 1993 and Farrell et al. 1996, 2005 offer models based on the ideas of Cohen and Felson 1979). The characteristics of some targets *flag* them as attractive to offenders. When some targets are victimized, offenders learn they are good targets which *boosts* their chances of further victimization. When suitable targets combine with potential offenders in locations that contain insufficient guardianship, the factors *interact* to produce disproportionate crime rates.

The hotspot literature identifies the 'generate and attract' explanations (see e.g. Kurland et al. 2014). Some places *generate* crime by the volume of interaction of potential targets and potential offenders. Some places *attract* offenders because they are known to be good places to commit crime.

The mechanisms by which both repeats and hotspots occur – their theories - have been compared and shown to be the same, suggesting a more general theory of crime concentration (Farrell 2015). The three overarching mechanisms are here identified as:

Flag – some targets flag themselves such that they attract offenders

Boost – the likelihood of further crime is boosted by experience with that target or place

Interaction – some targets or places experienced disproportionate crime because the interaction of multiple suitable targets and potential offenders generates a higher crime rate

The flag-boost-interaction or 'FBI' explanation offers a general set of mechanisms that explains why crime is always concentrated. A store may be repeatedly targeted because it provides visual cues – a flag - that it is attractive (for example it contains valuable goods). When the offender learns it is attractive this boosts the chances of their return, which is why risk increases with each further crime. The offender's peers may learn of the suitable target, and their interaction with potential targets nearby results in additional crime.

Where, When, How and Why to Prevent Repeats

We know from experience that appropriate prevention tactics need to be put in place to prevent repeat crimes (Grove et al. 2012). This means more than just telling victims they are now at greater risk – something concrete needs to be done. And that something needs to be properly implemented. So, if windows and doors on a house need to be made more secure to prevent another burglary, then somebody needs to make sure this gets done. As simple as it sounds, this is not always easy.

The first proper study of repeat victimization looked at hospital records (Johnson et al. 1973). It found the same individuals kept returning to the hospital again and again as victims of violence – though some stopped returning when they were killed! This was just the tip of the iceberg. In the 1970s the clustering of crime was not well recognised but, like much of what we now know, it was revealed by surveys that ask people about their experience as victims of crime. Two famous studies using victim surveys - one in the US and one in the UK - found remarkably similar patterns of extensive repeat victimization against a small proportion of the population (Hindelang et al. 1978; Sparks et al. 1977). They showed that repeats

did not occur just by random chance (i.e. were not by 'accident'), as many other studies have now also shown.

The catalyst for a great deal of research into crime concentration was the Kirkholt burglary prevention project (Forrester et al 1990, Pease 1991). Kirkholt is the name of an area of public housing near Manchester, England. Burgled households were found to be more likely to experience further burglary, so the project introduced measures to stop it. Two of the main things done were (1) improving security to stop burglars entering households by the same means (more secure windows and doors), and (2) encouraging nearby neighbours to watch out for burglars – a localised version of neighbourhood watch known as cocoon watch (neighbours forming a protective 'cocoon' for the victim). As a result, repeat burglaries were wiped out and the overall burglary rate fell dramatically. The project has become one of the world's better known crime prevention projects and inspired much further crime concentration research as well as developments in policy and practice. Follow-up research showed that repeat victimization is more likely to be sooner rather than later (Polvi et al. 1991; Farrell and Pease 1993) and that each further crime increases the risk of another. This implies that more resources should be allocated to more frequent victims as a form of 'graded' response. A project in Huddersfield (UK) developed this into the 'Olympic model' where first-time victims received a Bronze response, second time victims a Silver response, and more frequent victims a Gold response, with the amount of preventive resources increasing (Anderson et al. 1995).

The story of how early repeat victimization research and policy evolved is best told by Laycock (2001). In the 1990s, repeat victimization was introduced as a performance indicator for all UK police forces (Tilley 1995, Bridgeman and Hobbs 1997, Farrell et al. 2000). This means that police had to show what they were doing to prevent repeat crimes. Practical guides were developed by the US Department of Justice (Pease and Laycock 1996; Herman et al. 2002; Weisel 2005). In recent years, staffing and other changes in the civil service mean that preventing repeat crimes receives less attention than it used to, particularly in the UK, even though evidence suggests that crime is, proportionally, even more concentrated (Ignatans and Pease 2015; Hunter and Tseloni 2016). However, at the same time, renewed policy interest in repeats has emerged via studies of near repeats under the banner of predictive policing (Haberman and Ratcliffe 2012; Pease and Tseloni 2014).

Table 3: Top Ten Reasons to Prevent Repeats and Near Repeats

<ol style="list-style-type: none">1. It gets the grease to the squeak: it is an efficient means of allocating, in time and space, scarce resources to crime problems.2. It is a form of 'drip feeding' resources gradually and routinely as crimes occur.3. Since risk increases with each crime per target, resource allocation can be graded to risk.4. Repeats occur quickly so special resources can be rotated between high-risk targets.5. It avoids potentially divisive means of allocating resources such as to 'all elderly people'.6. It can enhance detection of repeat offenders who are more likely to commit repeats.7. Chances of displacement are low and chances of a diffusion of benefits are high.8. It can enhance detection of serious and prolific offenders.9. It can be used to develop agency and individual performance indicators.

10. It is relevant to all crime types including organized crime and terrorism, e-crime, violent and property crimes. Even murder can be the repeat of an attempt.

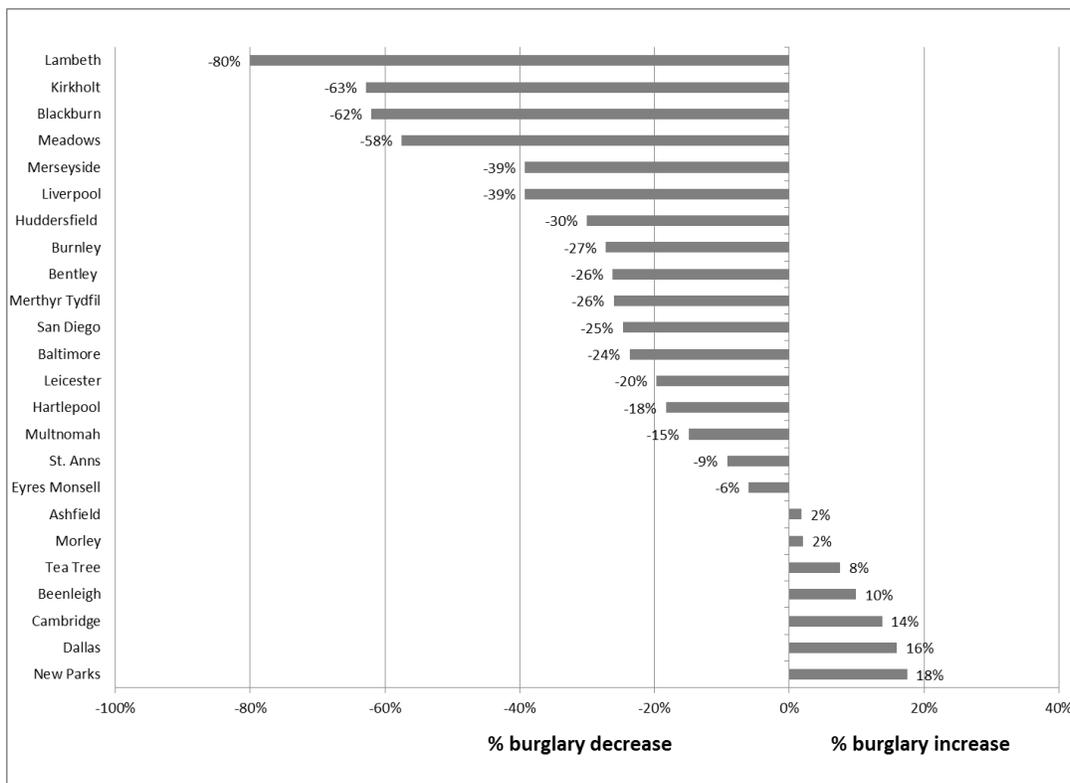
Source: The list has evolved and been adapted from Pease (1991), Laycock and Farrell (2003) and Grove and Farrell (2012).

Key advantages to preventing repeats and near repeats have been identified (Pease 1991; Laycock and Farrell 2003). A 'top ten' reasons for preventing repeats is shown as Table 3. At least one profit-making company, PredPol (Prepol.com), appears to have evolved from the approaches described herein.

Does it work?

Since the Kirkholt project described above, over 30 projects to prevent repeat victimization have been evaluated, mostly in Australia, the UK and the US. They have tended to focus on burglary so there is plenty of scope for developments relating to other types of crime, which is important because there is extensive evidence that all other types of crime recur. The evaluations show that crime can be reduced when repeats are stopped (Farrell and Pease 2006; Grove et al. 2012; Grove and Farrell 2012). Figure 4 shows the impact of those projects that have sought to prevent repeat burglaries. Burglary fell in 70% of projects (17 of 24 shown) although there is a lot of variation between projects. The most comprehensive review of prevention projects to date found that on average over 20% or one in five crimes was prevented (Grove et al. 2012).

Figure 4: Percent change in burglaries in different projects



(Source: Grove and Farrell 2012)

The reasons for the variation in success rates between projects are addressed in the next section. But a key theme is that it is not as simple as just copying prevention tactics that are used elsewhere. It was shown early on that replicating the impact of the Kirkholt project was not a straightforward case of just copying the tactics (Tilley 1993). In short, however, there is still a lot of work to be done to develop preventive measures to tackle frequently repeated violent crimes including sexual victimization, domestic violence and child abuse.

What Works? What doesn't?

Rather than list particular measures such as locks and bolts, 'what works' here focuses on the approach and processes. Tables 4 and 5 list what works and what doesn't respectively. These summaries draw mostly on the reviews of repeat victimisation but they likely apply generally to efforts to prevent all types of near repeats. There have also been efforts to stop crime at hotspots using police patrols by making them more focused on where and when crime is likely to recur (Braga et al. 2012).

Table 4: What Works?

What works is:

1. *A strong preventive mechanism.* Specific prevention tactics need to be tailored to the context and target because the nature of crime varies for the same type of crime.
2. *Multiple tactics.* Multiple tactics working together can produce an even stronger effect (due to synergy). Opportunity-blocking aimed at preventing repeat victimisation by the same *modus operandi* seems the most likely candidate for effectiveness.
3. *Strong implementation.* Some prevention efforts failed because the preventive tactic was not introduced. Hardly surprising!
4. *A focus on situations with high rates of repeats.* Those crimes, times and places where repeat rates are highest are clearly an appropriate focus for prevention efforts.

Table 5: What Doesn't Work?

What doesn't work, or causes effort to fail, is:

1. *Weak or inappropriate preventive tactics* fail to prevent crime. Note that the same prevention tactic does not necessarily work everywhere because the nature of the crime problem varies.
2. *Poor implementation* fails: In particular, education or advice for victims is well-meaning but does not necessarily mean that security or other measures are implemented. Victims may be unable or unwilling to spend money on crime prevention. Better sources of funding for security and other equipment, and better motivation and incentives for victims and place-managers (such as bar owners), are required.
3. *Replicating tactics without attention to context* does not necessarily work. The most transferable aspects tend to be methods or strategies. For example, security upgrades to prevent repeat burglary by the *modus operandi* of the prior burglary requires different tactics to be adopted depending on how they enter different houses.

4. Overall impact is less where repeat victimisation rates are low. Attempting to prevent repeats in circumstances where none is likely to be present cannot be said to fail *per se*, because it is a non-starter.

Tricky Issues

The series of projects to date that have been evaluated suggest some problems are thornier than others. The problems span the range from problem identification, the development of tactics, implementation, replication, and sustainability (Table 6).

The existence of tricky issues mean that preventing repeats is not simple. It requires careful data analysis, rigorous identification of prevention tactics, and overall good management practices with respect to the development and implementation of prevention. In particular, for some crimes it is not readily apparent what should be done to prevent their recurrence. For property crimes, additional security appears a viable option in many instances. However for violent crime this is a less well-proven tactic and there are relatively few clear options in the prevention repertoire. It is here that further research is urgently needed.

Table 6: Tricky issues in preventing repeats

Evaluated efforts to prevent repeats suggest that it is tricky to:

1. measure repeats – a problem specification issue
2. Tricky to know what to do to prevent repeats – an intervention issue
3. Tricky to get victims or place managers to adopt preventive measures – an implementation issue
4. Tricky to adopt the same measures elsewhere because crime varies from one place to the next – a replication problem
5. Tricky to maintain prevention if short-term project funding dries up – a sustainability problem.

Conclusion

Successful crime is usually a rehearsal for further crime. The further crime tends to involve the same or similar targets and places. The characteristics of some targets and places provide cues that *Flag* them to offenders as somehow better – easier or more rewarding. Offenders then learn which targets and places are worth choosing again - this *Boosts* their chance of further crime. At some places the *Interaction* of multiple potential targets and offenders makes for unusually high crime rate hotspots. This tripartite flag-boost-interaction theory seems to apply to all types of concentration of crime.

There is strong evidence that crime can be prevented when it is most concentrated. Information about where, when and how crime has occurred can be used to stop it recurring. But it is not always easy. There is an urgent need for further research to examine how many types of repeat crime can be prevented – personal crimes, e-crimes and other new technology crimes in particular, but also organised crime and terrorism since these also cluster in time and space against the same or similar targets.

Research and practice relating to repeats are evolving. The study of near repeats touches covers all forms of crime concentration such as hotspots and hot products. The development of models of predictive policing and predictive crime prevention have evolved from work on repeats and near repeats. However it is clear that there remains much to do and great potential to exploit so that society's level of crime can be reduced.

References

- Anderson, David, Sylvia Chenery, and Ken Pease. 1995. *Biting Back: Tackling Repeat Burglary and Car Crime*. Crime Detection and Prevention Series Paper 58. London: Police Research Group, UK Home Office.
- Andresen, M.A. and Malleson, N. (2011) Testing the stability of crime patterns: Implications for theory and practice. *Journal of Research in Crime and Delinquency*, 48(1): 58–82.
- Bernasco, W. (2008) Them Again?: Same-Offender Involvement in Repeat and Near Repeat Burglaries, *European Journal of Criminology*, 5 (4), 411–431.
- Bowers, Kate J., and Shane D. Johnson. 2004. "Who Commits Near Repeats? A Test of the Boost Explanation." *Western Criminology Review* 5:12–24.
- Bowers, K.J., Johnson, S.D., and Pease, K. (2004) Prospective Hot-spotting: The Future of Crime Mapping? *British Journal of Criminology*, 44, 641-658.
- Bridgeman, C. and Hobbs, L. (1997). *Preventing repeat victimisation: The police officers' guide*. London: Police Research Group
- Britton, A., Kershaw, C., Osborne, S. and Smith, K. (2012) 'Underlying Patterns within the England and Wales Crime Drop.' In J. van Dijk, A. Tseloni and G. Farrell (Eds.). *The International Crime Drop: New Directions in Research*. UK: Palgrave MacMillan, pp.159-181.
- Braga, Anthony A., Andrew V. Papachristos, and David M. Hureau. 2012. 'The Effects of Hot Spot Policing on Crime: An Updated Systematic Review and Meta-Analysis', *Justice Quarterly* 31(4):633–63.
- Clarke, Ronald V. 1999. "Hot Products: Understanding, Anticipating and Reducing Demand for Stolen Goods", *Police Research Series Paper 112*. Policing and Reducing Crime Unit. Research Development and Statistics Directorate, London: Home Office.
- Cohen, L. and Felson, M. (1979) Social change and crime rate trends: A routine activity approach, *American Sociological Review*, 44(4): 588–608.
- Curman, Andrea S.N., Martin A. Andresen and Paul J. Brantingham. 2015. 'Crime and place: A longitudinal examination of street segment patterns in Vancouver, B.C.' *Journal of Quantitative Criminology*, 31(1); 127-147.
- Eck, J. E. and Weisburd, D. (1995) (eds) *Crime and Place*. Monsey NY: Willow Tree Press.
- Everson, S. and Pease, K. (2001). Crime against the same person and place: Detection opportunity and offender targeting. In G. Farrell and K. Pease (eds) *Repeat victimization*, 199–220. Monsey, NY: Criminal Justice Press.
- Farrell, G. 1993. Repeat Criminal Victimization. PhD Thesis. University of Manchester.

Farrell, G. (2015) 'Crime concentration theory' *Crime Prevention and Community Safety: An International Journal*, 17(4); 233-248.

Farrell G., and A. C. Bouloukos. 2001. "A cross-national comparative analysis of rates of repeat victimization" *Crime Prevention Studies*, 12, 5-25.

Farrell, G. and Pease, K. (1993) *Once Bitten, Twice Bitten: Repeat Victimisation and its Implications for Crime Prevention*. Crime Prevention Unit Paper 46. London: Home Office.

Farrell, G. and K. Pease. 2006. 'Preventing Repeat Residential Burglary: A Review' in B. C. Welsh and D. P. Farrington (Eds.) *Preventing Crime: What Works for Children, Offenders, Victims, and Places* Dordrecht: Springer. (pp. 161-176).

Farrell, G. and K. Pease. 2007. 'The sting in the British Crime Survey tail: Multiple victimisations' in M. Maxfield and M. Hough (Eds.) *Surveying Crime in the 21st Century*, volume 22 of *Crime Prevention Studies*. Cullompton: Willan Publishing. pp.33-54.

Farrell, G. and K. Pease. 2014. 'Repeat victimization' in G. Bruinsma and D. Weisburd (Eds.) *Encyclopedia of Criminology and Criminal Justice*. New York: Springer-Verlag. (NB: full length and peer-reviewed)

Farrell, G., and W. Sousa. 2001. 'Repeat victimization and hot spots: the overlap and its implications for crime control and problem-oriented policing' *Crime Prevention Studies*, 12, 221-240.

Farrell, G., D. Ellingworth and K. Pease. 1996. "High crime rates, repeat victimization, and routine activities" in T. Bennett (Ed.) *Preventing Crime and Disorder*. Cambridge: Institute of Criminology, pp.276-296.

Farrell, Graham, Louise Hobbs, Alan Edmunds and Gloria Laycock. 2000. *RV Snapshot: UK Policing and Repeat Victimization*. Crime Reduction Research Series. Policing and Reducing Crime Unit Paper 5. London: Home Office.

Farrell, G., K. Clark, D. Ellingworth and K. Pease. 2005. 'Of targets and supertargets: A routine activity theory of high crime areas' *Internet Journal of Criminology*.

Farrell, G., W. H. Sousa and D. Lamm Weisel. 2002. 'The time-window effect in the measurement of repeat victimization: a methodology for its measurement and an empirical study' *Crime Prevention Studies*, 13, 15-27. (ISSN: 1065-7029).

Forrester, David, Samantha Frenz, Martin O'Connell and Ken Pease. 1990. *The Kirkholt "Burglary Prevention Project: Phase II"*. Crime Prevention Unit Paper 23. London: Her Majesty's Stationery Office.

Grove, L.E. and G. Farrell. 2012. 'Once bitten, twice shy? Repeat victimization and its prevention' in B. C. Welsh and D. P. Farrington (eds) *Oxford Handbook on Crime Prevention*. Sage publishers.

Grove, Louise E., Graham Farrell, David P. Farrington, and Shane Johnson. 2012. *Systematic Review of Preventing Repeat Victimization*. Stockholm: Swedish National Council for Crime Prevention.

Haberman, C. and J. H. Ratcliffe. 2012. The predictive policing challenges of near repeat armed street robberies, *Policing*, 6(2); 151-166.

Herman, S., D. R. Anderson, D. Johnson, K. Dempsey, D. Weisburd, R. Greenspan, G. Farrell, and J. Ready. 2002. *Bringing Victims into Community Policing*. Washington D.C.: Department of Justice, Office of Community Policing Oriented Policing Services.

- Hindelang, M., M.R. Gottfredson and J. Garofalo (1978). *Victims of Personal Crime: An Empirical Foundation for a Theory of Personal Victimization*. Cambridge, MA: Ballinger.
- Hunter, James and Andromachi Tseloni. 2016. 'Equity, justice and the crime drop: the case of burglary in England and Wales' *Crime Science*, 5(3); 1-13.
- Ignatans, Dainis and Pease, Ken (2015) *Distributive Justice and the Crime Drop*. In: *The Criminal Act: The Role and Influence of Routine Activity Theory*. Palgrave Macmillan, London, UK, pp. 77-87.
- Johnson, J.H., Kerper, H.B., Hayes, D.D. and Killenger, G.G. (1973). *The Recidivist Victim: A Descriptive Study*. Criminal Justice Monograph vol. IV, no. 1. Institute of Contemporary Corrections and the Behavioral Sciences, Sam Houston State University: Huntsville, Texas.
- Kurland, J., Johnson, S.D. and Tilley, N. (2014) Offences around stadiums: A natural experiment on crime attraction and generation, *Journal of Research in Crime and Delinquency*, 51(1): 5–28.
- Laycock, Gloria. 2001. 'Hypothesis-Based Research: The Repeat Victimization Story' *Criminal Justice* (London: Sage), 1, 1; 59-82.
- Laycock, Gloria and Graham Farrell. 2003. 'Repeat victimization: Lessons for implementing problem-oriented policing' in Johannes Knutsson (Ed.) *Problem-Oriented Policing: from Innovation to Mainstream*, vol. 15 of *Crime Prevention Studies*, pp. 150-175.
- Levy, M.P. and Tartaro, C. (2010) Repeat victimization: A study of auto theft in Atlantic city using the WALLS variables to measure environmental indicators, *Criminal Justice Policy Review*, 21(3): 296–318.
- Mawby, R.I. (2001). The impact of repeat victimization on burglary victims in East and West Europe. In Farrell, G. & Pease, K. (Eds.) *Repeat Victimization*. Monsey, NY: Criminal Justice Press. Pp .69-82.
- Moitra, S.D. and Konda, S.L. (2004) 'An empirical investigation of network attacks on computer systems', *Computers and Security*, 23: 43–51.
- Morgan, F. (2001) Repeat burglary in a Perth suburb: Indicator of short-term or long-term risk? In: G. Farrell and K. Pease (eds.) *Repeat Victimization*. Monsey, New York: Criminal Justice Press, pp. 83–118.
- Pease, Ken. 1991. "The Kirkholt Project: preventing burglary on a British public housing estate". *Security Journal*, 2(2): 73-77. 411-414.
- Pease, K. (1998) *Repeat Victimization: Taking Stock*. London: Police Research Group, Home Office.
- Pease, K. and Laycock, G. (1996) *Revictimization: Reducing the heat on hot victims*. Research in Action. Washington DC: National Institute of Justice.
- Pease, K. and Tseloni, A. (2014) *Using Modeling to Predict and Prevent Victimization*. New York: Springer.
- Planty, M. and Strom, K.J. 2007. Understanding the role of repeat victims in the production of annual US victimization rates, *Journal of Quantitative Criminology*, 23(3); 179-200.
- Polvi, Natalie, Terah Looman, Charlie Humphreys and Ken Pease. 1991. The time course of repeat burglary victimization, *British Journal of Criminology*, 31(4);
- Ratcliffe, J. H. and Rengert, G. F. (2008) Near repeat patterns in Philadelphia shootings. *Security Journal*, 21(1-2), 58–76.

- Sidebottom, A. 2011. 'Repeat burglary victimization in Malawi and the influence of housing type and area-level influence' *Security Journal*, 25(3) 265-281.
- Sidebottom, A. and Tilley, N. (2016). Designing systems against crime: introducing leaky systems. In N. Tilley and A. Sidebottom (eds), *Handbook of Crime Prevention and Community Safety* (2nd ed). Routledge.
- Sherman, L.W., Gartin, P.R. and Buerger, M.E. (1989) Hot spots of predatory crime: Routine activities and the criminology of place. *Criminology*, 27(1): 27–55.
- Short, M. B., M. R. D'Orsogna, P. J. Brantingham, and G. E. Tita. 2009. "Measuring and Modelling Repeat and Near Repeat Burglary Effects." *Journal of Quantitative Criminology*, 25:325–39.
- Sparks, R., Genn, H. and Dodd, D. (1977) *Surveying Victims*. Wiley: London.
- Tilley, Nick 1993. *After Kirkholt - Theory, Method and Results of Replication Evaluations*. Crime Prevention Unit Series Paper No. 47. London: Home Office Police Research Group.
- Tilley, N. (1995) *Thinking about Crime Prevention Performance Indicators*, Crime Prevention and Detection Series Paper 57, London: Home Office.
- Titus, R. M. and A. R. Gover. 2001. 'Personal fraud: The victims and the scams' *Crime Prevention Studies*, 12; 133-151.
- Townsley, Michael, Ross Homel and Janet Chaseling. 2003. Infectious repeats: A test of the near repeat hypothesis. *British Journal of Criminology*. 43, 615-633.
- Townsley, M., Johnson, S.D. and Ratcliffe, J.H. 2008. Space time dynamics of insurgent activity in Iraq, *Security Journal*, 21(3); 139-146.
- van Dijk, J.J.M. (2001). Attitudes of victims and repeat victims toward the police: Results of the International Crime Victims Survey. In Farrell, G. & Pease, K. (Eds.), *Repeat Victimization*. Monsey, NY: Criminal Justice Press. pp. 27-52.
- Weisel, D.L. (2005) *Analyzing Repeat Victimization*. POP Center Tool Guide Number 4, Center for Problem-Oriented Policing.
- Wells W, Wu L, Ye X (2008) Patterns of near-repeat gun assaults in Houston. *Journal of Research in Crime and Delinquency*, 49(2): 186–212.
- Youtsin TJ, Nobles MR, Ward JT, Cook CL. (2011) Assessing the generalizability of the near repeat phenomenon, *Criminal Justice and Behaviour*, 38(10): 1042–1063.

Note

¹ As this chapter goes to press, the Home Office is reviewing its counting procedures.