Candidate Number – POL 1338

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Testing PCSO Cocooning of Near Repeat Burglary Locations

Submitted in part fulfilment of the requirements for the Master's Degree in Applied

Criminology and Police Management

November 2014

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Acknowledgement

Abstract

Preventing crime and disorder is the primary mission of policing, yet the modern police service still invests too greatly in responding to the symptom and not developing evidence based practice to address the cause. Victims of dwelling burglary – normally those offences where an intruder 'breaks' into a home or dwelling to steal whilst the occupant is away or asleep– suffer long lasting feelings of fear, shock and insecurity. In the worst cases victims develop posttraumatic stress disorders and wider psychological symptoms. Such effects permeate well beyond the immediate victim and family and can raise the fear of crime across wider society. For many years, reducing the incidents of burglary dwelling has been a key priority for police forces and, in relation to this study, Thames Valley.

Whilst previous studies have shown an increased risk of victimisation the nearer a premises is to a recently burgled house, such an evaluation has not previously been considered across the entire Thames Valley Police area. To consider whether this theory is applicable and can be replicated across the Thames Valley, twelve months worth (July 2012 to July 2013) of recorded dwelling burglary offences (n= 6,239) were descriptively analysed to consider whether there was an observed increase in risk the closer the premises was to previously burgled dwelling. The study found a statistically significant relationship between an increased risk of victimisation the nearer the premises is to a recently burgled dwelling both in time and space. For example, dwellings within 100 metres of recently burgled premises were at a greater

risk of victimisation by a factor of 2.68 (or 268%) within the first 7 days after the trigger offence.

In order to address the increase in observed risk and to test the effectiveness of crime prevention tactics, a year long burglary dwelling crime prevention initiative - Operation Reacher – was implemented in three of the largest police areas in Thames Valley; Reading, Oxford and Milton Keynes. The operation required Police and Community Support Officers (PCSOs) to 'super-cocoon' or attend at least 26 houses (to the side, in front and to the rear), up to 400 metres from of a trigger dwelling burglary offence and within 48 hours of the crime being reported. Unlike previous studies, Operation Reacher required that PCSOs only visit the address once (to minimise the cost) resulting in only a proportion of householders being present depending on the time and day of the intervention. If home, the householder was informed of the recent nearby dwelling burglary offence (warn) and provided with crime prevention advice and information on local police actions to prevent further criminality and bring the offender to justice (inform). In the absence of an occupant, a card was left alerting to household to the recent offence along with simple advice.

Between July 2013 and July 2014, 33,120 houses were visited by PCSOs across the three Operation Reacher police areas (Reading n=10,183; Oxford n=6,686 and Milton Keynes n=16,251). Using a near repeat software tool, the frequency of dwelling burglary offences were analysed across time (0 to 7 days, 8 to 14 days, 15 to 21 days, 22 to 28 days and beyond 28 days) and space (1 to 100 metres, 101 to 200 metres, 201 to 300 metres, 301 to 400 metres and beyond 400 metres). A level 2 Maryland

Scale evaluation compared the previous years frequency of offences (control period July 2012 to July 2013) against the results obtained during the intervention year (treatment period July 2013 to July 2014). The descriptive evaluation supported the assertion of an increased risk the closer the premises was to the trigger offence in time and space and, that within a small number of statistically significant parameters, a relationship could be observed between the super cocooning intervention and a reduction in observed offence frequency – an overall statistically significant reduction of 141 dwelling burglary offences.

Finally, in order to consider the cost effectiveness of super cocooning as a burglary dwelling reduction tactic an evaluation was conducted on the hours spent committed to the task by PCSOs and compared to the cost of burglary dwelling attendance to the police and the financial and social impact on wider society. The findings showed super cocooning to be an effective, efficient and economical tactic in reducing dwelling burglary victimisation in two of the three Operation Reacher areas (Milton Keynes police area failed to show a cost benefit), with an overall cost to benefit ratio across the three areas of 1:2.53. The study found that on average, for every £1 invested in super cocooning by the police area, Thames Valley Police saved £2.53.

Introduction

This study is a Level-2 evaluation (Sherman et al 1998) of Operation Reacher, a burglary prevention initiative conducted across three Thames Valley Police (TVP) areas - Reading, Oxford and Milton-Keynes – between July 2013 and July 2014.

The study tests the effectiveness of super-cocooning – a tactic whereby PCSOs visit a number of houses near to a recently burgled premises to inform the household of a recent dwelling-burglary offence and to provide crime prevention advice. It considers whether there is an increased risk of dwelling-burglary victimisation across Thames Valley, the nearer you live to a recently burgled house (question 1). The study then includes descriptive analysis of burglary data for the 12-months prior to and 12-months during the operation to consider whether super-cocooning has any effect on crime levels in Reading, Oxford and Milton-Keynes (Question 2). Finally, the study considers the cost effectiveness of the tactic against the overarching economic and social costs of crime to the victim, police and wider society (question 3).

Importance of research topic

Whilst burglary is categorised as a property or acquisitive crime, its pervasive influence on the victim and their family extends well beyond the loss of physical possessions. According to Victim Support (2014), the feelings of insecurity caused by

the presence of a stranger in your home can lead to victims blaming themselves and their loved ones for leaving windows open and doors unlocked. Furthermore, the psychological effect on children can cause reoccurring nightmares and in adults, result in debilitating mental illnesses similar to post-traumatic stress disorder (Granton 2013). Elderly or vulnerable victims often feel less safe in their own home yet are reluctant to leave, becoming house bound in some cases and grow untrusting of strangers (Roberts 2013).

The 2014 Crime Survey of England and Wales (CSEW, formerly known as the British Crime Survey) reported that, at its peak in 1993, 1,754,000 dwelling-burglaries took place. In its most recent survey (year-ending December 2013), the survey reported an all time low of 610,000 dwelling-burglaries across England and Wales, a reduction of approximately 65%.

Recorded dwelling-burglary offences - those reported to the police – across the 44 forces in England and Wales (including the British Transport Police) have shown a similar pattern with 437,583 offences in 2002/03 compared to 217,486 year ending December 2013, a fall of 50% (the comparison years for CSEW and recorded police crime are different due to changes in police recording practices and the introduction of greater information technology in the early 21st century).

Whilst recorded levels of burglary have fallen significantly nationally and by 27% across the TVP area in the past two years, the number of offences remains high (with around 8 crimes per thousand population in TVP). Across TVP's three counties

(Berkshire, Buckinghamshire and Oxfordshire) a total of 7,066 dwelling-burglary offences were recorded year ending March 2013 (TVP 2013)

Although reducing burglary offences and bringing offenders to justice remains a key priority for police forces and their PCC's Crime Plans, (TVP Delivery Plan 2013, PCC Police & Crime Plan 2013) it is essential, in face of reduced budgets and resources, that police services employ the most effective and fiscally efficient tactic. In order to meet the demand of Central Government grant funding reductions, TVP was required to identify 12% or £56.3m of savings over the four-year period 2011-2015 (HMIC 2013). Crime reduction initiatives therefore need to demonstrate an evidence-base for their effectiveness in order to represent good value. The research in this thesis attempts to contribute to this emerging evidence-base.

Overview of this thesis

The following chapters will discuss the relevant literature relating to the 12 month operation including criminological theories on situational crime prevention, evidence-based policing and near-repeat analysis, research into hotspot policing and the cost of crime. They will go onto to detail the specific research questions, discuss the burglary reduction strategy evaluated in this thesis, the methodology used to select the police areas involved in the operation and that used for the design of the evaluation. The results chapter then presents the studies findings in answering each of the research questions, develop a discussion on the results, including a cost-benefit analysis and finally, present a conclusion.

Literature Review

Introduction

As this study will be testing the effectiveness of an intervention aimed at reducing near-repeat burglary-dwelling victimisation, this literature review will first consider the relevant theories that support environmental criminology and in particular situational crime prevention. The review will consider how Cohen & Felson's (1979) 'Routine Activity' theory, Clarke's (1980) theories on situational crime prevention and Wilson & Kelling's (1982) 'Broken Window' theory describe the relevance and impact of interventions on the victim, the offender and the location. Whilst many other theories focus on the development, motivations and social environments of offenders, this policing operation and study focuses on the effect that PCSOs have on the victim and environment with a view to changing behaviours and target hardening through crime prevention advice.

In assessing the evidence base for 'super-cocooning' the literature review will then consider the relevant research that describes the benefits and relevance of evidence-based policing (Sherman 2013a), plus the identification of risk associated with repeat and near-repeat burglary victimisation carried out by Johnson & Bowers (2004), Bowers & Johnson (2005) and Johnson, Summers & Pease (2009). The review will also consider how these theories can be operationalized and discuss experiments by Fielding & Jones (2011) in Greater Manchester, Murray (2013) in West Midlands and Rowley (2013) in Leeds.

In order to consider the effect of targeted interventions and the intended and potentially unintended consequences of hotspot policing initiatives, seminal studies by Braga (2001), Braga et al (2012) and Weisburd et al (2006) will be considered to assess the effect of police time in crime hotspots, crime displacement and diffusion benefits.

The final two sections of the literature review will discuss the financial pressures on policing and the relevance of evidence-based practice in developing efficient, effective and economical organisations. It will conclude by considering non-criminological research that considers human behaviours and heuristics in the application of evidence-based practice.

Criminological Theory

In order to design policing, crime prevention and community safety harm reduction initiatives, it is essential to develop a greater understanding of the component parts necessary to support a criminal act. Moreover, unless a broad understanding of the composite aspects of criminality are developed by policy makers and law enforcement leaders, experiments in support of evidence-based practice will be unable to identify and measure the specific effect or outcome of an intervention.

This thesis focuses on those theories applicable to environmental criminology. While there would be a clear benefit in addressing the choice of would be offenders in deciding to commit crimes, such as Stafford and Warr's (1993) Reconceptualization of General and Specific Deterrence and Cornish and Clarke's

(1986) Theory of Crime as a Rational Choice, these theories will not be covered here, as the intervention evaluated in this thesis (Operation Reacher) was designed as a situational crime reduction initiative. The initiative's scope was not to consider the wider opportunities of deterring criminality further down the offender's criminal history. As in Clarke's (1980) work on Situational Crime Prevention and Cohen and Felson's (1979) Routine Activity Theory, the presence of a motivated offender will be taken as granted.

Cohen and Felson's (1979) Routine Activity Theory, like Clarke's (1980) Situational Crime Prevention, does not attempt to explain the offenders motivations – only that they are present and that their motivation is enhanced by the availability and abundance of an attractive target and an absence of a capable guardian. Cohen & Felson developed their theory through the observation of crime trends and criminal behaviours in post Second World War America. Cohen and Felson (1979) argued that it was a change in society's living standards, availability of consumer goods, employment and lifestyle choices that presented attractive crime opportunities for 'motivated offenders' in particular how the post war economical boom in the 1950's and 1960's encouraged the adoption of new, cheaper and in many cases, smaller consumer goods. Cohen and Felson (1979) saw how these new technologies and the appetite for ever better products, driven by consumerism, presented would-be offenders with an abundance of choice and opportunities (PBS 2014).

At the same time, the working gender demographic changed considerably after the Second World War, during which many women in America (and across the world)

demonstrated how they, in support of the 'war effort', could successfully and effectively undertake many roles previously restricted to men. According to Toossi's (2002) research into the United States labour force, the percentage distribution of males versus females in the working population as a whole in 1950 was 70% men compared to 30% women. This grew sharply over the next 50 years, whereby in 2000, the active workforce distribution by gender had grown to 53% male, 47% female – an increase in the female distribution of 257% (Toossi 2002). This resulted in fewer women being at home, reducing the presence of capable guardianship plus a greater abundance of attractive targets through more empty houses.

The post Second World War era of modernisation brought with it greater consumer power, the wider availability of credit and overall feeling of financial stability and security (Ryan et al 2011). Many families undertook leisure and vacation activities that would see them spending more time away from the house (Myers 2011). The development of cheaper, quicker and more readily available domestic goods allowed household chores to be undertaken in a fraction of the time previously experienced (PBS 2014), freeing up time and supporting even more leisure time away from the home, decreasing the presence of capable guardians and increasing the availability of attractive targets - unoccupied houses with plentiful consumer goods.

In assessing the effect of a capable guardian on preventing crime, Cohen and Felson (1979) argued that the absence of homeowners, neighbours and other visible signs of authority presented a significantly more attractive and less risky environment in

which motivated offenders could freely commit crime without the deterrent effect of being caught.

Moreover, the move to vehicle patrols and response policing practices (Sherman 2013a) that developed in post Second World War America, saw the demise of 'beat' officers. By the end of the 1940s, horseback patrol had been replaced entirely by police officers in vehicles. This, coupled with a change in social structures and the emergence of new crime markets, - including drugs and organised crime - (NYSP 2014) saw the widespread adoption of reactive response policing methodology (Sherman 2013a).

In considering how to reduce the effects of routine activity on criminal acts, Cohen and Felson asserted that removing the availability of a target (through physical crime prevention measures) and the presence of a capable guardian would have an immediate effect on crime.

Similarly, and by focusing on the immediacy of tackling criminal acts, Clarke's (1980) theory of Situational Crime Prevention asserts that changing the environment of a potential target, victim or suitably motivated offender will have a more immediate effect on reducing criminality at a given time and location. Like Cohen and Felson, Clarke does not consider the motivational, life course developmental, behavioural or psychological traits of an offender, only that they are present and sufficiently motivated to commit and offence. Clarke's theory focuses on rendering the choice of committing a criminal act more challenging and less rewarding. Situational Crime

Prevention theory affords significant weight to the physical impact of environmental barriers in making the criminal act more difficult and challenging to undertake through target hardening. Moreover, Clarke aligns this with risk of being caught - and ultimately less rewarding - and the deterrent effect caused through the presence of a capable guardian such as patrolling police officer, intrusive neighbour or other visible sign of authority. Routine Activities Theory and Situational Crime Prevention have been tested extensively and received considerable empirical support (Felson 1995, Felson 2001, Feslon 2002, Forde & Kennedy 1999).

In considering the pervasive nature in which criminality seems to grow in certain neighbourhoods and not others, Wilson and Kelling's (1982) Broken Windows theory considers the spiralling effect that unaddressed criminality has on a community. In common with both Cohen & Felson's Routine Activity Theory (1979) and Clarke's (1980) theory of Situational Crime Prevention, Wilson and Kelling do not consider the sociological, educational or economical drivers of crime, but assert that crime will occur if previous misdemeanours remain unchecked and unprosecuted – wherever or whenever and by who. Using a house with a broken window as a metaphor, Wilson and Kelling argue that unattended or unaddressed criminality or signs of criminality leads to further offending. A house with a broken window looks uncared for and unattended and, according to Wilson & Kelling, will attract further incidents of damage followed by another and another until eventually, the entire house has fallen into complete disrepair. Only be repairing the first broken window quickly and restoring the aesthetics of the house – from disrepair and uncaring to repair and cared for – can the potential for future damage (and criminality) be

tackled. The theory suggests that offending and criminality requires swift visible intervention and actions to maintain, and in some cases return to, order. Visible signs of criminality, such as graffiti, burnt out cars, prostitution, unaddressed public disorder and violent crime, publically taking of drugs, also require swift intervention and resolutions to prevent further escalation and feeling of acceptability.

In addressing the acts of criminality, Wilson and Kelling also argue that it is the police who have the greatest influence in tackling (at first) low levels of offending and crime, as opposed to any capable guardian or resemblance of visible authority as argued by Cohen & Felson (1979) and Clarke (1980). Wilson & Kelling's approach differs further by the need for police to intervene. Unlike Routine Activity and Situational Crime Prevention which seek to prevent crime from occurring in the first place, Wilson and Kelling argue that by tackling those that commit offences, robustly and swiftly and by removing the visible representation of crime, communities can be repaired, regardless of the sociological and economical characteristics of the environment. Moreover, Wilson and Kelling discuss the value of community policing in developing relationships with would be victims and offenders and invest time in tackling lower-level offending and long-term anti-social aspects of crime and disorder. In accordance with Sherman's (2013a) labelling of the 'three R's' approach to late twentieth century policing, Wilson and Kelling also signpost the reactive nature of policing as undermining their effectiveness in tackling the causes of crime. Furthermore, Wilson and Kelling even go onto say that police officers should be encouraged to travel to and from stations and incidents on public transport, and whilst doing so, enforce offences that otherwise wouldn't attract police attention

(such as smoking and drinking alcohol on trains and buses or disorderly behaviour).
Broken Windows Theory has been widely applied to operational policing practices
including Neighbourhood Policing principles across the Western World. Further
empirical support is provided within Bratton and Knobler's (1998) work on tackling
crime in New York's subway system and wider city.

All three environmental crime theories – Routine Activity, Situational Crime
Prevention and Broken Windows – require the three component parts; victim,
offender and location. All of the theories take a similar approach to the
characteristics of the offender. Whilst other criminological theories consider
sociological, developmental and psychological characteristics and motivations of an
offender, the three environmental theories discussed treat the presence of the
offender as either a 'given' or a problem to be treated robustly or deterred from
offending in the first place.

Both Clarke's (1980) theory on Situational Crime Prevention and Cohen and Felson's
(1979) Routine Activity theory have been criticised (Bottom 2012) for failing to
address the behavioural effects of the offenders, in particular why most people at a
given location presented with an opportunity to commit crime don't, yet a small
minority do. Furthermore it is argued that by failing to address the underlying cause
of the offender's pre-disposition to commit crime, offences are simply displaced with
initiatives and energy targeted at the symptom and not the cause. Criminologists
assert that the utopian future offered by designing out crime through situational and
environmental elements alone will have little long-term effect on reducing

criminality. Murray (2011) stated *"a true criminology of space has to place criminogenic situations in a broad socio-spatial and cultural context"*. In essence, Murray (2011) argues, like Bottom (2012), that by simply accepting the presence of an offender as a given and an immediate problem to be tackled, environmental criminological theories will have little long term effect and simply deal with the symptom and not the cause. Bottoms (2012) theory on Socio-Spatial Criminology, pulls together theories focusing on Social or Collective Efficacy (Sampson et al. 1997), criminal event theories such as Rationale Choice (Cornish & Clarke 1986) and Routine Activity Theory (Cohen & Felson 1979) as well as 'Culture, Semiotics and Signal Crimes' (Bottom 2012) including Broken Windows (Wilson & Kelling 1982) and Signal Crimes (Innes 2004). This study however focuses on the effect of situational crime theories and the application to burglary-dwelling prevention tactics such as super-cocooning.

Evidence-based Policing and Near-repeat Analysis

The ability to predict crimes and identify potential targets is an attractive proposition for law enforcement agencies the world over. Not only does it reduce the harm caused to victims, it also represents an efficient and effective model for policing. By targeting (Sherman 2013a) crime prevention initiatives, police officers and recognisable capable guardians towards identified risk areas and crime hot-spots, law enforcement agencies can break away from the typically twentieth century model of policing; random patrol, rapid response, and reactive investigations (Sherman 2013a).

To develop the evidence base for crime prevention initiatives and activities, Sherman, Gottfredson, MacKenzie, Rueter and Bushway's (1998) article for the National Institute of Justice considered the scientific evidence base for up to five hundred initiatives. This seminal journal article, mandated by the U.S. Department of Justice, articulates the need for evidence-based evaluation of initiatives and forms the basis for the methodology used for the Operation Reacher quasi-experiment.

In his 2013 article for Crime and Justice in America, 'The Rise of Evidence-Based Policing: Targeting, Testing and Tracking', Sherman (2013a) describes the widespread adoption of random patrol, rapid response and reactive investigations – or "three R's" - that promulgated across police agencies around the world in the latter half of the twentieth centaury. The "three R's" policing style saw police agencies responding to crimes and calls for assistance in a purely reactive manner. Most policing organisations labelled their core policing functions 'response' creating a mind-set of reactive functionality and methodology. Police officers, much like other 'blue light' services (such as the fire service and ambulance service) awaited notification of an incident prior to despatch. The time taken to respond to calls for service saw the advent of attendance targets, with police officers being measured on the length of time taken to arrive at the scene from the point of first contact.

Sherman (2013a) argues that evidence-based analytical approaches to policing and crime prevention results in a more effective and efficient model of law enforcement. By 'targeting' the most problematic offenders and crime hotspots, building an evidence base of what works and what doesn't work through the 'testing' of existing

or new practices or ideas and analytically 'tracking' the effect and outcomes of police activity and interventions (inputs) through performance monitoring and scientific evaluation, law enforcement and community safety agencies are able to move ahead of the offender and be proactive in their prevention initiatives.

There exists a significant body of research into the development of predictive policing and the risks associated with repeat victimisation and near-repeat victimisation.   This literature review – and wider thesis – focuses on the risks associated with living near to a previously burgled house and the likelihood of victimisation in distance and time from the trigger event. It concentrates on the research supporting 'super-cocooning' and not the wider predictability of burglary hotspots.

Johnson & Bowers (2004) developed an analytical approach to identifying or predicating potential future burglary risks and victimisation using principles developed to map the spread of diseases and the communicability of infections to cluster. Johnson & Bowers (2004) asserted that burglary offenders developed specific topographic awareness, in particular the risks and rewards of committing crimes in a given area. Their work saw that offenders were more likely to return to an area previously subjected to a burglary than others randomly selected and that the risk could be mapped spatially (distance from the victim's trigger property) and temporally (period in days after the trigger burglary). By tracking the data from 1692 burglaries over a 12-month period (April 1999 to April 2000) in Merseyside, Johnson

& Bowers (2004) identified an enhanced risk of victimisation within a distance of 400m and two months of the trigger offence.

In developing this theory further, Bowers & Johnson (2005) showed a substantially increased risk of burglary to those houses on the same side of the street and nearer to the target address, especially within one week of the offence taking place. They also noticed a difference in clustering and frequency of offending depending on the social demographics of the area. They saw that repeat victimisation at the same address (potentially down to less effective security investment) in more deprived areas, yet greater temporal and spatial clustering of burglary victims in wealthier areas.

In their 2009 article, Johnson, Summers and Pease (2009) examined the theory of an offender as a forager. Foraging animals return to the same rich and ripe areas for gathering food (greatest reward) whilst seeking to exert the least amount of energy and therefore maximising the highest calorific return. Johnson, et al (2009) argue that burglary offenders exhibit similar traits and seek to maximise their reward for the minimum amount of effort which in turn reduces the risk. Johnson, Summers and Pease (2009) assert that once an offender, even after only one burglary, grows familiar with their surroundings and the risks, they are more likely to return, therefore increasing the risk of near-repeat victimisation. Johnson, Summers & Pease (2009) label these offenders as efficient or 'optimal' foragers. The study supported the findings of earlier research and analysis into the risk of repeat victimisation or near-repeat victimisation by analysing 12-months (2005) crime and

arrest records for theft from motor vehicles and burglary-dwellings across Bournemouth. The research concluded that in the case of burglary offences, repeat victimisation was almost certainly the result of the same offender. Those offences that took place within 100m and 14 days of the trigger event where 'massively' more likely to involve the same offenders than those over 100m. Theft from motor vehicle analysis concluded similar trends, albeit offences beyond 100m were also likely to involve the same group of offenders.

In order to test and operationalize the theories of Johnson, Summer & Pease (2009), Fielding & Jones (2011) undertook a year-long study into the effects of targeting police and partnership resources into identified crime hotspots. Using the principles identified by Johnson & Bowers (2004), Bowers & Johnson (2005) and Johnson, Summers & Pease (2009), Fielding and Jones's 'Disrupting the optimal Forager' operation had two main themes; target resources into the intersections of 400m radius burglary hotspots and, more relevantly to this thesis, visit houses adjacent to, to the rear of and in front of the burgled address. Labelled as 'Super-cocooning' the principle objective of the task was to warn nearby homeowners of a recent burglary (and in doing so raise their awareness), provide simple crime prevention advice, seek any information or intelligence on recent suspicious activity (to support the current or future investigations and operations) and to provide information on the activities of the police in combatting crime. The exact number of houses visited varied depending on the area's topography, but as a rule, twenty to thirty houses were subject to 'super-cocooning' visits. The operation ran for the calendar year 2010 to 2011 across the Trafford Basic Command Unit, during which the police recorded 902

burglaries compared to 1229 the year before; a reduction of 26.6%, whilst burglary across the wider police force (GMP) fell by 9.8%. Although the Trafford operation was able to show a reduction in burglary offences and victimisation far in excess of the wider police force, the experiment was unable to identify which strand – hotspot patrol targeting, 'super-cocooning' or both - was responsible for the reduction

To build on Fielding & Jones (2011) study, Murray (2013) and Rowley (2013) undertook studies to assess 'super-cocooning' interventions in Birmingham (West Midlands Police) and Leeds (West Yorkshire Police) respectively. In Birmingham the 'hotspot' locations attracted crime reduction interventions only, with victims and near victims receiving door alarms and crime reduction advice. In Leeds, the 'Super-Cocooning' tactic was supported by police and PCSO patrols. In Birmingham there were no statistically significant reductions in crime, whilst in Leeds, the experiment showed a statistically significant reduction effect size of up to 7% on reported burglary offences over a 7 day period. In Leeds, Rowley (2013) also showed that there was a 30.3% reduction in offences for the 40 houses surrounding the trigger burglary beyond 60 days.   It may be deduced that the success in reducing crime in Leeds was as a result of uniformed police patrol that was absent in the Birmingham experiment.   It is possible that the Birmingham experiment will have a longer-term effect on crime reduction and household behaviours. The effect of police officer or capable guardian presence in Leeds is likely to have a more immediate effect on situational crime prevention, but which passes soon after the resource has left the area. The provision of crime reduction advice and target hardening equipment (such

as door alarms) in Birmingham may have a longer-term effect, which may be observed in a further longitudinal study.

Research into Hotspot Policing

Whilst this study focuses on the effects of super-cocooning, the uniformed presence of PCSOs in burglary-dwelling locations will inevitably see officers patrolling within crime hotspot locations. Operation Reacher also originally included a targeted hotspot patrol initiative, which is not considered further in this study. It is necessary however to consider the research into hotspot policing and the implications of PCSO patrol in dwelling-burglary hotspots.

In considering the displacement, diffusion, control benefits and effect of hotspot policing interventions, Braga (2001) undertook a systematic review of nine hotspot policing experiments and a further review in 2012 (Braga et al) into twenty five tests or experiments across nineteen studies. Braga et al (2012) found a small but significant overall effect in reducing crime in treatment areas when compared to control areas. In considering crime displacement, Braga et al (2012) found no significant effect on levels of crime in the surrounding beats near to the treatment area. Moreover, a slight but noticeable reduction in crime was also experienced in many of the adjoining areas, and is likely to be attributed to the diffusion of prevention activity and police visibility emanating from treatment beats. Braga et al (2012) did however conclude that greater effect sizes and ultimately reductions in crime and victimisation were evident in those areas that employed problem orientated or problem solving principles. Those areas that relied purely on police

presence as a visible sign of guardianship and deterrent experienced the smaller effect outcomes. Braga et al (2012) also conclude that 'hotspot' policing tactics had no negative impact on the fear of crime, police legitimacy or public confidence.

Similarly, Weisburd et al's (2006) study into the displacement and diffusion effects in two neighbourhoods in tackling drug offences and prostitution found that hotspot interventions had a positive effect on crime and that there was no evidence of displacement to surrounding beats. Moreover (and in accordance with Braga et al 2012), Weisburd et al found there to be a diffusion benefit in crime prevention activity, again emanating from the treatment groups.

In assessing the effect of situational crime prevention activities and interventions, Clarke (1997) conducted a review of 23 case studies. Clarke argues that much of the focus of criminologists and law enforcement agencies in tackling crime is targeted towards the offender. Clarke (1997) asserts that greater prevention outcomes can be achieved – in some cases by as much as 50% - by focusing on the benefits of targeting hardening and capable guardianship.

The cost of Crime and Policing

This thesis, as well as considering the effect of reducing victimisation through 'super-cocooning', examines the economical argument for the tactics adoption. Since 2010 and the current Governments first Competitive Spending Review, the 43 police forces across England and Wales were challenged to find 20% cost savings – a total of £2.5 billion (HMIC 2014). It is imperative therefore that, in order to implement

only those strategies that are effective, economical and efficient, police tactics are not purely judged by their crime and harm prevention benefits, but also whether they represent good value for money.

The Home Office (2005) research study into the 'Economic and Social Costs of Crime' found that, on average, the cost to the police of attending and dealing with each burglary in a dwelling to be £576. Moreover, the overall cost to the Criminal Justice System stood at £1,137. The emotional, property and opportunity cost to each victim was estimated to be £ 2,131, with a total cost to society of each burglary-dwelling event, considering all factors, to be £ 3,268. The Home Office (2011) further revised their calculations in 2010/11, and reported that the overall unit cost for each burglary to be £ 3,925.

Police delivery plans across England and Wales describe the challenge of policing against a back drop of reduced central government funding whilst overall police numbers fail to keep up with population growth. In their 2014 Delivery Plan, TVP (TVP 2014) assert *'we are looking at ways to create capacity by reducing demand through emphasis on crime prevention, the use of technology and self service'.*

Given the cost of each individual burglary, it can be deduced that prevention is criminologically, sociologically and financially more economical than reacting and responding (Sherman 2013a) to crimes already committed. Sherman (2013a) describes an opportunity for police and law enforcement agencies to target interventions at the most affected high risk areas (for example, through 'super

cocooning') or targeting police interventions towards those that cause the most crimes or 'power few' (Sherman 2013b); to test the effectiveness of outcomes and effect in assessing what works and doesn't work; to track the performance of the intuitive or intervention both in terms of crime outcomes and fiscal efficiency (Sherman 2013a). The 'triple T' (Sherman 2013a) approach is fully congruent with the aspirations of police forces across England and Wales in preventing crime, managing risk and developing an efficient, economical, effective and evidence-based organisation and work force.

Other relevant works

Non criminological works and publications are also relevant in understanding the psychological and sociological behaviours of would be offenders, wider society and law enforcement agencies in responding and adapting to crime prevention theories and evidence-based policing practice.

Gladwell's (2000) book, The Tipping Point, considers how widespread popularity of trends or activities can be influenced by three rules; the law of the few, the stickiness factor and the power of context. In his book, Gladwell (2000), describes behaviours that support situational crime prevention, in particular, Wilson & Kelling's (1982) theory on broken windows. Crime in 1980's New York, America, saw 2,000 murders and 600,000 serious felonies a year (Gladwell 2000). The New York subway system was considered a typical environment where misdemeanours were unchallenged and visible signs of criminality were rife. In his autobiography, William Bratton (Bratton & Knobler 1998) - later head of the New York Transit Police and 38th

and 42nd Commissioner of the New York Police Department - described entering the subway system "*was like going into the transit version of Dante's Inferno*" (Bratton & Kbobler 1998). George Kelling (co-creator of the Wilson & Kelling (1982) Broken Window's Theory) was employed as a consultant by the subway authority and in turn urged the transport company to operationalise and implement his broken windows theory. Through David Gunn (subway director) and William Bratton (head of Transit Police), Wilson & Kelling's (1982) theories were introduced, with misdemeanours, low level ticket avoidance and disorderly conduct being visibly and robustly tackled. This six-year programme changed the environment or 'context' and ultimately supported the significant reduction in both low-level and serious offending. Gladwell (2000) summarises that *'Broken Windows and the Power of Context are one of the same. They are both based on the premise that an epidemic can be reversed, can be tipped by tinkering with the smallest details of the immediate environment '* (Gladwell 2000)

Summary

This literature review has shown that in order to implement evidence-based practice that is effective, efficient and economical, it is necessary to consider overarching criminology theories that inform operational tactics. Furthermore, it has shown, through studies into repeat victimisation, that there is an enhanced risk to houses near to recently burgled premises, and that those houses in themselves represent an opportunity to target crime prevention interventions. The literature review has shown how such practice, if evidence-based and implemented effectively, can

support police agencies in achieving their value for money objectives and finally, discussed the relevance of non-criminological works in supporting the implementation of evidence-based practice.

Method

This chapter will first describe the burglary reduction operation that will be evaluated in this study, then it will detail the exact research questions followed by an explanation on how police areas were selected, the timescales for the operation, the effect on the rest of the force and finally a description of super-cocooning activity.

Original Design of the Burglary Reduction Initiative 'Operation Reacher'

Operation Reacher (named after author Lee Child's fictitious police character Jack Reacher) was designed to have two strands; firstly a hotspot policing initiative and secondly a super-cocooning element both building on the work of Johnson & Bowers (2004), Bowers & Johnson (2005) and Johnson, Summers and Pease (2009). Furthermore, the operationalization of these theories by Fielding & Jones (2011), Murray (2013) and Rowley (2013) formed much of the basis for the design of the two strands.

The original operation was piloted in Windsor and Maidenhead Police Area from the 10th October to the 31st December 2012, providing the opportunity to test the design principles in an environment that suffered a moderate number of burglary-dwelling offences per day (n=1.67, taking a mean average of the period 01/04/2012 to 21/09/2012). Being a geographically large area and hosting two large towns (the Royal Town of Windsor and the historic market town of Maidenhead), the operation focused its activity on Maidenhead only which, at the time, recorded less than one burglary-dwelling offence per day (n=0.82).

The operation objectives sought to reduce reported levels of burglary-dwelling offences in identified risk areas and the wider police area; encourage early identification of burglary-dwelling crime series; be an efficient and effective means of deploying both local police area patrol and neighbourhood officers and wider force assets, including roads policing, dog units and firearms officers in to burglary hotspot areas; encourage wider partnership support in the deployment of capable guardians into hotspot areas; raise the awareness of recent crime activity amongst residents, provide crime prevention advice and inform households of police activity to combat offending.

At its conclusion, the pilot operation underwent critical analysis, which informed the future operations in Reading, Oxford and Milton-Keynes. Whilst the two main aspects of the operation (targeted hotspot policing and super-cocooning) continued into the larger three police area operation (Reading, Oxford & Milton-Keynes), only the super-cocooning aspects of the operation are considered further within this evaluation.

Research Design

Research Questions

In order to test the effectiveness of super-cocooning by Police Community Support Officers (PCSOs) in near miss burglary locations, this evaluation study was designed to answer the flowing three questions.

1. Is there any enhanced risk of near-repeat victimisation over time and distance following a reported burglary within the Thames Valley?

2. Does super-cocooning and PCSO led leaflet drops have any effect on near-repeat victimisation?

3. Is super-cocooning and leaflet dropping a cost effective use of PCSO time?

Design

In order to consider and address these three questions in turn, the following design criteria's were applied.

Question 1 Design - Is there any enhanced risk of near-repeat victimisation over time and distance following a reported burglary within the Thames Valley?

This study makes extensive use of the Temple University, Jerry Ratcliffe Near-repeat Calculator (NRC) (Ratcliffe 2009) in assessing the risk of near-repeat victimisation when compared to another dwelling-burglary offence over space (spatial) and time (temporal). The calculator measures the spatial and temporal clustering relationship of crime and is based on the work of George Knox (1964) who developed a statistical test to evaluate whether events (in Knox's case infectious diseases) clustered in time, space (distance) or both, when compared to random distribution. Like Knox's test, the NRC considers whether any clustering relationship exists between a series of events (or crimes) within a prescribed area and measures each incident against every other in terms of distance and time. In assessing the data, the NRC compares every event with every other event and provides an assessment of the mean expected frequencies (assuming the events or crimes were temporally or spatially

randomly selected or distributed) against the observed level of activity (or crimes). The difference between the two values (mean level of expected offences against the observed) provides a multiplication factor of the risk. For example an output of 1.89 would indicate an increase in risk or likelihood of clustering within that given parameter (or spatial and temporal band) – for example 0 to 7 days and up to 100 metres – of 189%. An output of 1.00 or 100% would indicate no change in the risk and that the number of observed events or crimes is congruent with random distribution with no identified clustering. A value less than 1.00 (or 100%) would indicate a reduction in risk or likelihood of clustering when compared to the expected mean.

In order to consider the statistical significance of the results, the NRC, like Knox's calculation, considers the observed distribution against a randomly assigned distribution. The p value is calculated for each distance and time band or interval using the formulae p= 1 - ne / (ns + 1), where ne represents the NRC ratio and ns the number of iterations of random assignment calculations. Depending on the statistical significance value required (in this study case p=0.5), the NRC randomly distributes the same number of burglaries within the area of observation (in the case of question 1), 6,239 burglary-dwelling offences across the three counties of Thames Valley) and compares that result with the actual observed reported burglary-dwelling locations. In achieving a statistical significance value of p=0.5, the NRC tool completes this operation of randomly assigning the same number of offences 20 times (the ns value in the formulae). To achieve a higher statistical significance test (p=0.001) the NRC would have to perform this calculation 1000 times. Whilst

representing a more robust measure of statistical significance, the resulting data and computing power would be considerable. A recognised value of p=0.5 and twenty iterations of the tests per area is therefore used in this study. Where p>= 0.5, the observed cluster, although seemingly representing an increase or decrease in risk, is not considered sufficiently statistically significant to suggest a spatial or temporal relationship in event or crime clustering. Using the previously discussed observed risk factor of 1.89 and a p value of 0.05 (resulting in 20 iterations of the calculation), the level of statistical significance or p value can be calculated as $p = 1 - 1.89 / (20+1)$. The p value is therefore assessed to be 0.042 and therefore statistically significant ($p < 0.05$).

In translating the resultant data into actual offences, a calculation is made of the actual number of offences compared to the expected number in each cluster to support an assessment of actual increases or decreases. This information is useful, as in some cases, the risk may have increased, but the actual observed level of offences (when compared to a backdrop of widespread reductions) may have reduced.

This question was analysed and descriptively evaluated by first obtaining data from all of the recorded dwelling burglaries across the TVP area (Buckinghamshire, Berkshire and Oxfordshire) during the 12 month period 01/07/2012 to 01/07/2013 (n=6239). Secondly, the burglary information was tagged with 'geo-synced' information to ascertain the time and exact location of the offence within Thames Valley's three counties. Finally, the data from all 6,239 dwelling-burglary offences

reported in the 12 month period across the TVP area were inputted into the Temple University, Jerry Ratcliffe Near-repeat Calculator (Ratcliffe 2009) to ascertain whether there was any enhanced risk or likelihood of a further burglary occurring over time (0 to 7 days, 8 to 14 days, 15 to 21 days, 22 to 28 days and more than 28 days) or space (1 to 100m, 101 to 200m, 201 to 300m, 301 to 400m and more than 400m) after the trigger offence.

This information was evaluated to see whether the risk of becoming a victim within the pre-determined research spatial and temporal parameters differed from randomly distributed offence locations. The statistical significance of the results was also considered to ascertain whether any change in risk could have occurred through chance or data error.

Question 2 Design - Does super-cocooning and PCSO led leaflet drops have any effect on near-repeat victimisation?

The effect of PCSO super-cocooning was considered in three Local Police Areas (LPAs) across TVP; Reading, Oxford and Milton-Keynes. In each of the three LPAs, the super-cocooning treatment period (12-months from 01/07/13 to 01/07/14) was compared to the previous non-treatment period (12-months 01/07/12 to 01/07/13) resulting in a Level-2 Maryland Scale (Sherman et al 1998), evaluation on the change in risk before and after the intervention (super-cocooning). Whilst the dwelling-burglary data for the other ten police areas across Thames Valley has been captured and evaluated using the same time periods and methodology, the comparison between the two is not sufficiently robust to be considered a Level-3 Maryland Scale

(Sherman et al 1998) evaluation. Whilst the other ten police areas were not part of the super-cocooning operation, the commanders would in any case of implemented local strategies to combat dwelling-burglary. Whilst comparison between the ten other police areas (or rest of force) and the three Operation Reacher areas would be interesting, they cannot be considered control areas and therefore unable to support a higher Maryland Scale scientific evaluation. Chapter 5 of this thesis does consider further development of this study, including consideration of applying a Maryland Scale Level-5 Randomly Controlled Trial (RCT) to the application of face-to-face super-cocooning versus a leaflet 'drop'. This is however, beyond the scope of this study.

The reported dwelling-burglary geo-synced crime data was inputted into the Temple University, Jerry Ratcliffe Near-repeat Calculator (Ratcliffe 2009) using the same spatial and temporal parameters or bands as in question 1. Then differences in before and after rates of near-repeats were calculated for the different distances around the trigger properties and different time delays since the trigger offence.

Question 3 Design - Is super-cocooning and leaflet dropping a cost effective use of PCSO time?

This question was descriptively analysed using both qualitative and quantitative methodology. In order to maintain the cost effectiveness of the intervention, PCSOs were tasked with visiting approximately 26 houses surrounding a burglary victim's home (ten either side, six houses opposite and ten to the rear) within 48 hours of the trigger offence. However, unlike previous studies into the effectiveness of

super-cocooning (Rowley 2013), the PCSOs were tasked with visiting the address only once. If the occupant was present, the PCSO was asked to provide 'face to face' information (script at appendix 'B') on the recent criminality in the area (warn) and provide crime prevention advice and reassurance on how local policing teams were tackling the issue (inform). If however the occupant was not at home, the PCSO was tasked with leaving a post card, containing basic 'warn and inform' information (leaflet at appendix 'C').

The location of all premises receiving super-cocooning visits over the 12 month period in each of three LPAs was recorded allowing for analysis into the average number of houses visited following a burglary on each LPA (which varied significantly across the three areas), and an assessment of the potential cost per visit.

As a further source of date, a sample of PCSOs (n=30) were asked to take part in a survey to better understand the qualitative and quantitative aspects of super-cocooning and to inform the cost effective analysis of the tactic or intervention. Of the 30 PCSOs, 25 returned the surveys (survey questions at appendix 'D'), representing a response rate of 83%.

Both the tracked data gathered throughout the 12 month intervention period and the qualitative and quantitative information obtained through the small survey were used to a develop a cost per unit of super-cocooning (namely completing a full round of visits to all houses following a trigger offence) plus an assessment of time and cost of visiting each individual house. The costs identified in question 3) per unit were

then considered against the number of houses visited on each of the three police areas. This supported the assessment of a total cost for the year-long operation on each of the three police areas. This cost was then considered against the findings of question 2) (the effectiveness of the tactic to support reductions in near-repeat victimisation) which allowed for a calculation of the overall cost benefit of the operation.

Finally, the cost benefit of the operation was considered against the 2005 Home Office research study into the 'Economic and Social Costs of Crime' (Home Office 2005) and the later revisions in 2011 (Home Office 2011) supporting a comparison of the cost benefit of the operation against the assessed financial impact on the victim, police, the criminal justice system and wider civil society.

Selection of Police Areas to Include in Operation Reacher

TVP covers the counties of Berkshire, Buckinghamshire and Oxfordshire, has a population of 2.3 million people and attracts a further 6 million visitors each year. The police area is divided into 13 Local Police Areas (LPAs), which range from large rural communities (such as Hungerford in West Berkshire and Witney in West Oxfordshire) to large urban boroughs (such as Oxford City in Oxfordshire and Reading in the west of Berkshire).

The following map depicts the TVP area with the 13 Local Police Areas being identified by a number within a bold border.
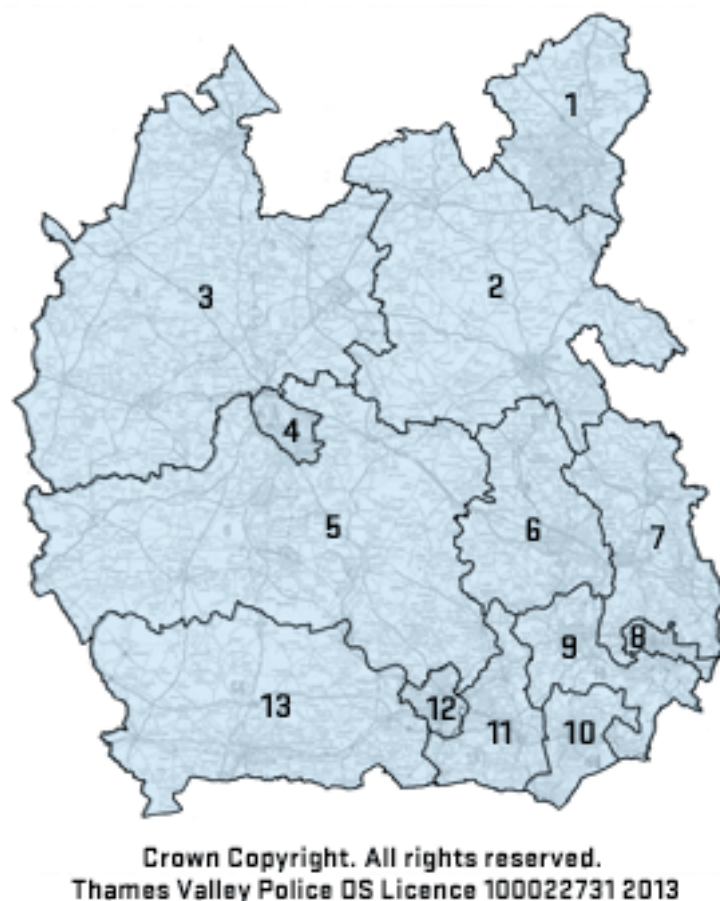
The table 1 details the relevant map reference in the first column, the name of the geographical area in the second, the resident population (according to the 2011 Census) in the third and the number of households in the fourth.

Map Reference	Geography	Resident Population	Households
1 to 13 inc.	Thames Valley	2,269,900	898,700
8, 9, 10, 11, 12, 13	Berkshire Hub	861,900	340,534
1, 2, 6 and 7	Buckinghamshire Hub	754,100	299,311
3, 4 and 5	Oxfordshire Hub	653,900	258,855
2	Aylesbury Vale	174,100	69,406
10	Bracknell Forest	113,200	45,878
3	Cherwell and West Oxfordshire	246,700	99,969
7	Chiltern and South Bucks	159,500	63,460
1	Milton Keynes	248,800	98,584
4	Oxford	151,900	55,375
12	Reading	155,700	62,869
8	Slough	140,200	50,766
5	South and Vale	255,300	103,511
13	West Berkshire	153,800	62,340
9	Windsor And Maidenhead	144,600	58,349
11	Wokingham	154,400	60,332
6	Wycombe	171,700	67,861

Table 1. Numerical map reference, name of geographical area, resident population and number of households in Thames Valley Police Area.

Table 2 details the police areas clustered into their county grouping along with three years of crime information. Columns 3 to 5 show the numerical number of burglary-dwelling offences recorded by TVP in the years 2011/2012, 2012/2013 and 2013/2014. The final three columns indicate the number of crimes per 1000 households during the same period. It is important to note that dwelling burglaries, unlike other crimes, are considered in proportion to the number of households and not population. The overall number of burglary-dwelling crimes for the year is divided by the number of households and multiplied by a 1000 to achieve the crimes per thousand household figure.

County Hub	Local Police Area (LPA)	Recorded Burglary Offences			Crimes per 1000 Households		
		2011/12	2012/13	2013/13	2011/12	2012/13	2013/14
Berkshire	Bracknell	195	208	156	4.25	4.53	3.4
Berkshire	**Reading**	**1284**	**854**	**587**	**20.42**	**13.58**	**9.34**
Berkshire	Slough	1322	1023	876	26.04	20.15	17.26
Berkshire	West Berkshire	561	402	271	9	6.45	4.35
Berkshire	Windsor & Maidenhead	801	641	428	13.73	10.99	7.34
Berkshire	Wokingham	474	378	331	7.86	6.27	5.49
Buckinghamshire	Aylesbury	437	358	321	6.3	5.16	4.62
Buckinghamshire	Chilton & South Bucks	713	629	581	11.24	9.91	9.16
Buckinghamshire	**Milton Keynes**	**786**	**750**	**685**	**7.97**	**7.61**	**6.95**
Buckinghamshire	Wycombe	700	508	272	10.32	7.49	4.01
Oxfordshire	Cherwell & West Oxfordshire	337	315	316	3.37	3.15	3.16
Oxfordshire	**Oxford**	**846**	**643**	**504**	**15.28**	**11.61**	**9.1**
Oxfordshire	South & Vale	361	360	340	3.49	3.48	3.28
Force		8817	7069	5668	9.81	7.87	6.31

Table 2. Local Police Areas clustered into County Hubs with three years of recorded dwelling burglary offences and crimes per household covering the same period.

Note: the three rows in grey (Reading, Milton-Keynes and Oxford) represent the areas chosen for Operation Reacher.

Whilst the operation commenced on the 1st July 2013, much of the design and preparatory work, especially in police area selection, was undertaken during the preceding six months. Therefore, the crime figures used to select the police areas for inclusion were based on 2011/2012 crimes per thousand households, even though at the commencement of the operation the 2012/2013 crime figures were available.

The selection criteria for inclusion into Operation Reacher was based upon three principles; one police area in each of the three TVP counties (Berkshire, Buckinghamshire and Oxfordshire); geographically compact including a large urban

environment to achieve a density of victimisation; a sufficiently high dwelling-burglary rate.

Table 3 represents a summary of the selection criteria, clusters the police areas into their county hubs, and, in column three, describes the area's density of population. The final column ranks the LPA in order of their burglary-dwelling crimes per thousand households within their county cluster with 1st being the worst.

County Hub	Local Police Area (LPA)	Geographically Compact	Order of Crime Density in Cluster
Berkshire	Bracknell	No	6th
Berkshire	Reading	Yes - very	2nd
Berkshire	Slough	Yes	1st
Berkshire	West Berkshire	No - mainly rural	4th
Berkshire	Windsor & Maidenhead	No - urban and rural	3rd
Berkshire	Wokingham	No - urban and rural	5th
Buckinghamshire	Aylesbury	No - urban and rural	4th
Buckinghamshire	Chilton & South Bucks	No - urban and rural	1st
Buckinghamshire	Milton Keynes	Yes - in town & rural north	3rd
Buckinghamshire	Wycombe	No - urban and rural	2nd
Oxfordshire	Cherwell & West Oxfordshire	No - urban and rural	3rd
Oxfordshire	Oxford	Yes - very	1st
Oxfordshire	South & Vale	No - mainly rural	2nd

Table 3. Showing a summary of police area selection criteria including county cluster, geographical compactness and crimes per thousand population in rank order.

Selection for the Oxfordshire LPA was fairly straight forward. Oxford LPA, which covers only the City, is both geographically compact and has the highest number of burglary-dwelling offences per thousand households (n=9.1). The other two LPAs in Oxfordshire, whilst hosting large market towns, are largely rural and cover large geographic areas.

The Buckinghamshire LPA data showed that Milton-Keynes, despite having a rural area to the north of the police area, contained most of its population within the large urban centre. However, Milton-Keynes, in comparison to two of the other three LPAs in Buckinghamshire, enjoyed a smaller burglary-dwelling count per thousand households. In selecting which police area to include, the overall crime level (Milton-Keynes suffered 786 dwelling burglaries in 2011/12, the largest in Buckinghamshire) and the density of the population around the urban centre of the police area were seen as a significant factor compared to just crime per thousand households.

Similarly in Berkshire, whilst Slough LPA scored higher in the crimes per thousand household criteria (n=26.04, and the highest in the entire force area), the density and 23% larger household size of Reading (62,869 households compared to Slough's 50,766), and a similar crimes per thousand household score (n=20.42), resulted in Reading LPA's selection.

Therefore, Reading LPA (in Berkshire), Milton-Keynes LPA (in Buckinghamshire) and Oxford LPA (in Oxfordshire) were chosen for inclusion within Operation Reacher.

Timescales for Operation

Whilst crime-recording periods usually follow the fiscal calendar, Operation Reacher was not ready for an April 2013 launch. As crime-recording systems support analysis for any given period, it was decided to run the operation from the 1st July 2013 for a 12-month period. In order to test data collection reliability, the operation ran as a

pilot in Milton-Keynes from the 1st June 2013. The operation therefore ran in Milton-Keynes for thirteen months with Junes' results being removed from the research evaluation.

Control Areas - Non Targeted Operation Reacher Police Areas

As previously discussed, the TVP Area is divided into thirteen Local Police Areas, whose borders are co-terminus with District and Borough Councils across the three counties. Three police areas (Reading, Milton-Keynes and Oxford) were selected for inclusion within the 12-month operation, with each receiving tracked super-cocooning interventions.

The results for the 12-month period before the operation were considered against the 12-month intervention period; congruent with a Level-2 before and after study on the Maryland Scale (Sherman et al 1997). Additionally, 24-months worth of burglary-dwelling data (12-month before and 12-month during the operation period) was also collected from the other ten police areas across TVP. Whilst in some circumstances these could be considered 'control areas', these are not comparable to the chosen Operation Reacher sites. In addition, the areas did not receive "no treatment" with regards to dwelling-burglary. Each of the thirteen LPAs in TVP are led by a Command Team whose primary focus is in preventing crime and keeping their communities safe. Even though the ten areas were not involved in the Operation Reacher initiative, they would still have developed their own tactics to combat dwelling burglaries. Tackling burglary-dwellings has been a priority for TVP and the Police and Crime Commissioner for a number of years, and therefore it is

unsafe to consider the Reacher LPAs as having received a treatment and the other ten none. Whilst comparison against a "business as usual" model in the other ten police areas could be considered a suitable comparison, the tactic deployed in each police command differs. Whilst the other ten may not have benefited from tracked super-cocooning interventions, it is likely that some form of crime prevention activity would have occurred, albeit not detailed in support of this study and therefore not measurable. The non-Reacher LPAs do however provide a useful comparison to identify trends in dwelling-burglary criminality across the wider police area population.

The Standard Approach versus 'Super-cocooning'

House to house enquiries during attendance at a reported crime forms a staple tactic of police investigations. In the standard approach, the tactic's overriding intention seeks to identify witnesses to the offence and to develop community led intelligence. In the case of burglary-dwelling offences police officers, following attendance to the victims address, would self-select one or two houses near to the trigger address in order to develop witness information and intelligence. Due to the responsive and reactive approach to traditional policing (Sherman 2013a), police offices attending dwelling-burglary crime scenes would often find themselves in an area late at night, in the early hours or during business hours. These three time periods do not support the wider practice of knocking on nearby houses for fear of waking the occupants or finding them out of their house. In most cases, only a small time period, between 5pm and 9pm weekdays and 9am to 9pm during the weekends represented a suitable time to undertake such enquires. Furthermore,

and as a direct result of response policing, police officers simply did not have the time to return to a victim's address or street regardless of their policing and investigation best intentions. This often resulted in neighbours or households near to the known burglary-dwelling offence locations either being unaware of the crime and more relevantly, ignorant to the modus operandi of the offender and not having the opportunity to make informed decisions about mitigating their own risk. Moreover, even if the neighbours heard about the offence through rumour, they were often unaware of police actions in tackling the offending and left feeling vulnerable and ill informed. Even more significantly, nearby residents almost never received updates on arrest and prosecution outcomes.

The introduction of Police Community Support Officers (PCSOs) into the police resource landscape from 2005 onwards presented an opportunity to task non-response assets into neighbourhood and community policing initiatives. Whilst not seeking to replace the fast time witness and intelligence development opportunities presented during initial burglary-dwelling crime attendance, PCSOs afforded an opportunity for neighbourhood and community focused policing teams to re-attend crime victims and the surrounding area to provide victim care support, reassurance and crime prevention information.

In order to test the effectiveness of super-cocooning, and to build upon the 'Optimal Forager' theories of Johnson, Summer & Pease (2009), Fielding and Jones (2011) tested the effectiveness of the tactic in support of their wider predicative crime operation. In their study, Fielding and Jones (2011) set an expectation that twenty

to thirty houses should be visited, including premises either side, to the front and rear of the victim's address.

Building on this work, Rowley's (2013) study set an expectation that forty houses or any premises within a 400m radius, should be visited near to the victim's trigger address and, if the house was found empty, the occupiers should be re-visited with a view to receiving face to face contact with the PCSOs. The visit was also targeted to take place within 24 hours of the trigger offence.

The super-cocooning tactic and design within the Operation Reacher project, whilst using the principles developed by Johnson, Summer & Pease (2009), Fielding and Jones (2011) and Rowley (2013), involved the tasking of PCSOs into three of the forces largest police areas. As such, and in an attempt to manage the scale and demand of attendance, the Op Reacher super-cocooning design required that PCSOs attend (preferably) 26 houses near to the trigger address and in every case their immediate neighbours within 48 hours of the report. All PCSOs across the three police areas (Reading, Oxford and Milton-Keynes) received a briefing on the operations expectations, a suggested script (appendix 'B') and clear guidance on the operations objectives; to raise awareness to neighbours of a burglary-dwelling offence in their area (and in doing so 'warn' them), provide reassurance on police activity to combat recent offending ('inform'), seek any intelligence or information in support of the burglary-dwelling investigation and provide appropriate and proportionate crime prevention and security information.

Unlike Rowley (2013), Operation Reacher required that each of the 26 (or so) premises targeted for super-cocooning be visited only once in order to minimise the cost of the operation and therefore negate repeated trips.   Whilst this tactic inevitably reduced the overall cost, it did have an effect on the number of households in at the time of the visit.   Whilst the operations preferred intervention required face-to-face contact, the officers were advised to leave a specifically designed post card (appendix 'C'). The A5 post card warns of a recent dwelling-burglary, lists basic crime prevention and security advice and provides contact details for TVP, including telephone, email and social media.

The number of houses visited through Operation Reacher super-cocooning was largely left to the PCSO attending. Fielding and Jones (2011) intended for up to 30 houses to be targeted for super-cocooning visits – or in any case every house within a 400m radius. However, Fielding & Jones' findings identified that during the super-cocooning treatment year, 16,428 houses received a visit (4,940 or 37% attracting face-to-face contact) as a result of 804 dwelling-burglary offences. This resulted in an average number of 20.43 houses super-cocooned per trigger offence. Seeking to replicate this outcome, Operation Reacher set the requirement at 26 houses to be targeted for super-cocooning after each trigger offence within 48 hours. Whilst the preferred number (n=26) was included within the operation briefing packs, the actual selection was left to the attending officer and based on the environmental topography and geography surrounding the victim's address. This requirement was left intentionally open to afford local officers the opportunity to visit more than 26 houses should the environment allow, but also to prevent unnecessary visits to

households who would clearly by unaffected by the trigger offence (such as in rural locations or small cul-de-sacs where houses may be limited in number or far apart).

As part of the operational briefing, PCSOs were provided with a 'script' to cover the essential points when undertaking face-to-face visits (see appendix 'B'). PCSOs were asked to provided information on the recent trigger offence (whilst not disclosing confidential or personal information), manage the households fear of crime, provide crime prevention advice and to seek community intelligence. PCSOs were also encouraged to seek household membership of 'TV Alerts', an online, electronic information system that provides email, web based or SMS text message updates on criminality in the household's neighbourhood. Membership allows for crime intelligence and occurrence information ('warn') to be sent directly to households and in doing so, provided an opportunity to remind the household of relevant and specific crime prevention advice ('inform') based on the observed modus operandi, whilst seeking to reassure the recipient on police activity to combat offending. Whilst the A5 post card provided details of the TV Alerts web site, it would not allow for sign up 'there and then'. PCSOs on experiencing face-to-face contacts were able to use their Blackberry smart phones or the householders own Internet service to seek membership at the time of the visit. Increasing membership of TV Alerts is a priority for TVP and, despite not mandating face-to-face contact, was considered a key outcome of personal contact and encouraged accordingly.

Study Findings

Q1. Is there any enhanced risk of near-repeat victimisation over time and distance following a reported burglary within the Thames Valley?

Dwelling-burglary data (n=6239) for all recorded crimes during the 12-month period April 2012 to April 2013 were applied to the Temple University, Jerry Ratcliffe calculator (NRC) (Ratcliffe 2009). The software was set to consider the risk of near-repeat victimisation at temporal intervals of 0 to 7 days, 8 to 14 days, 15 to 21 days, 22 to 28 days and beyond 28 days and spatial intervals of 1 to 100 metres, 101 to 200 metres, 201 to 300 metres, 301 to 400 metres and more than 400 metres from the original burglary-dwelling trigger offence.

Table 4 details the results of the calculation where a result of 1.00 indicates no change in the risk and that the offence location, based upon the results of the NRC tool (as described in Chapter 3, Methods), is no more likely to be selected than any other random offence location (the risk is 1:1) and that there is no observed increase in spatial or temporal clustering.   A figure greater than 1.00 indicates an enhanced risk as a multiplier. For example, a figure of 2.50 indicates a two and a half times increase in offences in that location when compared to random distribution. A figure less than 1.00 indicates an observed reduction in offences within the temporal and spatial parameter against the trigger offence location, again by a multiplication factor (for example a figure of 0.50 would indicate a 50% reduction in risk or offences at that given temporal and spatial parameter).

Table 7 represents the statistical significance of each of the observed results across the selected temporal and spatial parameters, considering anything with a p value greater than or equal to 0.05 to not be statistically significant whilst p values of less than 0.05 are considered statistically significant. Statistically significant observations are un-shaded in Table 4 whilst those deemed not to be statistically significant are shaded in grey.

Thames Valley Police Area 2012/13 recorded burglary dwelling records n=6239

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	2.68	1.36	0.98	1.16	0.91
101 to 200m	1.80	1.34	1.26	1.06	0.94
201 to 300m	1.56	1.22	1.20	1.12	0.95
301 to 400m	1.47	1.16	1.16	1.09	0.96
More than 400m	1.00	1.00	1.00	1.00	1.00

Table 4 The risk of near repeat victimisation in time (columns) and space (rows)

In Thames Valley Police total force area 2012/13

n = 1.00 no change in risk; n> 1.00 = increase in risk; n < 1.00 = decrease in risk

shaded field denotes not statistically significant where p > 0.05

A number > 1.00 denotes an observed increased risk of a burglary close to a previously burgled property when compared to those assessed as randomly selected

Table 5 depicts the actual number of offences across the 12-month period (April 2012 to March 2013) for the entire TVP area against the temporal and spatial parameters previously detailed. In each of the temporal and spatial parameters the expected number of offences (Exp) if randomly distributed, the actual observed number of offences (Obs) and the difference between the two (Dif) are shown. The mean expected (Exp) value is base upon the random distribution of all 6,239 burglaries recorded between March 2012 to March 2013. This distribution is

conducted 20 times by the NRC with the mean number of all distribution computations taken as the baseline figure. It can be seen, for example, that the number of offences expected (Exp) in 0 to 7 days and between 101 to 200 metres was calculated to total 157. The actual number of observed (Obs) offences resulted in 283 burglary-dwelling offences, an increase in 126 victim locations. This represents an increased factor of 1.8 times when comparing expected to observed values and is identical to the enhanced risk detailed in Table 4 or 1.80. Table 5 depicts reductions in actual offences in red.

	0 to 7 days			8 to 14 days			15 to 21 days			22 to 28 days			> 28 days		
	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif
1 to 100m	68	181	**113**	72	98	**26**	71	70	**1**	70	82	**12**	1593	1443	**150**
101 to 200m	157	283	**126**	168	225	**57**	165	209	**44**	164	173	**9**	3713	3475	**238**
201 to 300m	219	340	**121**	234	285	**51**	229	275	**46**	228	254	**26**	5161	4918	**243**
301 to 400m	270	396	**126**	289	336	**47**	284	329	**45**	280	305	**25**	6362	6120	**242**
> 400m	700942	700241	**701**	748243	748243	**0**	736537	736537	**0**	727583	727583	**0**	16526759	16526759	**0**

Table 5 The numerical difference between expected (based on random selection) and observed
dwelling burglary offences in Thames Valley Police 2012/13 where black numbers denote increase
and red numbers denote reduction in actual offences across time and space
shaded field denotes not statistically significant where $p > 0.05$

Table 6 demonstrates the change in risk graphically, whereby each coloured line relates to a distance parameter (dark blue for example represents the distance up to 100 metres from the trigger offence location), the y-axis depicts the risk (1.00 being no change in risk, greater than 1.00 a higher risk and less than 1.00 a reduced risk) and the x-axis time in days.

Table 6 supports the assertion that there is an increase in risk the closer you are to the trigger offence in space and time. The change in risk becomes almost negligible beyond 15 days after the trigger offence across all distances.
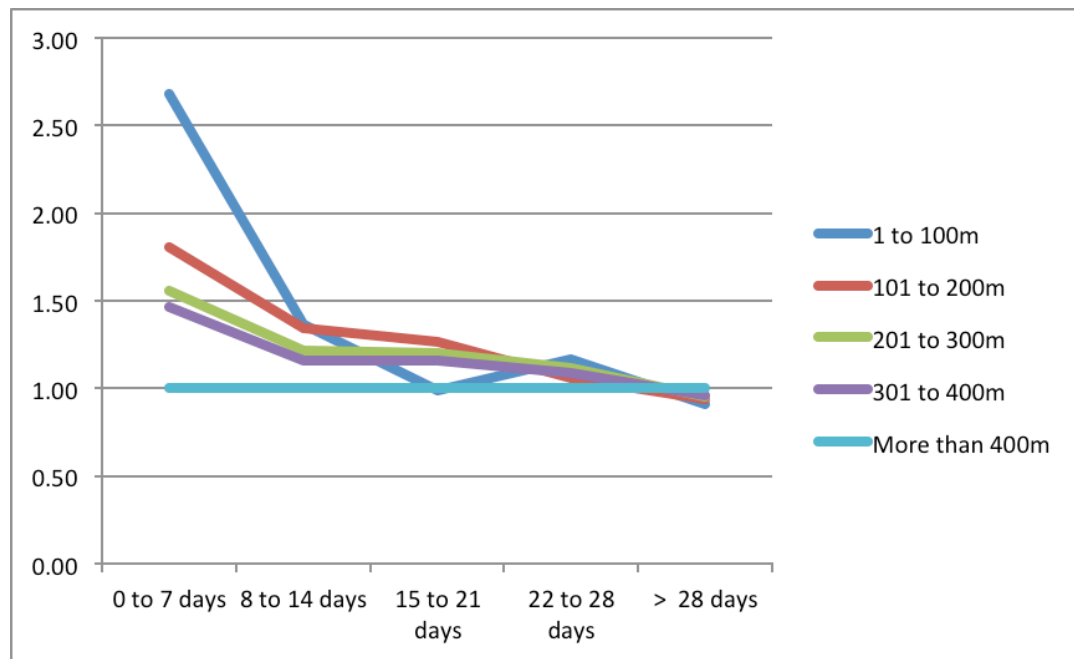
Table 6 Line chart depicting risk of near repeat victimisation in Thames Valley Force area 2012/13
X axis = time in days; lines = distance (depending on colour); Y axis = change in risk
where 1.00 = no change; above 1.00 = increase risk; below 1.00 = decrease in risk

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	0.001	0.004	0.565	0.097	1.000
101 to 200m	0.001	0.001	0.001	0.243	1.000
201 to 300m	0.001	0.001	0.001	0.038	1.000
301 to 400m	0.001	0.008	0.007	0.065	1.000
More than 400m	1.000	1.000	1.000	0.997	0.001

Table 7 Statistical significance test where $p < 0.05$
shaded field denotes not statistically significant where $p > 0.05$

Thus, there appears to be an increased risk of burglaries near a previously burgled property. This risk is the highest (2.68 times higher) the closer a property is to a previously burgled premises and for a period of up to one week.

It can be seen from table 4 that there is a statistically significant increase in risk of near-repeat victimisation the closer in time and space the observed offence location is to the trigger offence when compared to a randomly distributed mean average. This supports a positive assertion that, in answer to question 1), there is an enhanced risk of near-repeat victimisation over time and distance following a reported burglary within the Thames Valley.

Q2. Does super-cocooning and PCSO led leaflet drops have any effect on near-repeat victimisation?

In the following section, this question will be answered by providing the following information for each of the three Operation Reacher areas and the ten non-Reacher others (described later as the 'rest of force'); table indicating the output of assessed risk for the 12 month period as provided by the Near-repeat Calculator (NCR); table indicating the actual expected (Exp) dwelling-burglary offences based on random distribution (across 20 cycles or iterations), observed (Obs) number of actual offences in the temporal and spatial parameters and the difference (Dif) between the two; a line graph showing the change in risk (y-axis) over time (temporal, x-axis) and distance (spatial, lines); finally, a table detailing the statistical significance of the results in each of the spatial / temporal parameters. This information will be presented for the 12-month period before the operation followed by the same analysis for the 12-month period during the operation. Finally for each of the three Operation Reacher areas and the rest of force, a comparison is provided between the two 12-month data collection and test periods on each area supporting a Level-2 comparison.

The section will then undertake a Level-2 evaluation of the assessed changes in risk before and during the operation across the three Operation Reacher areas and the rest of the force and then, based on the calculated changes in statistically significant offences before and during the operation, arrive at an assessed change in actual offences as a result of the operation.

Reading Local Police Area

Period Before Operation Reacher – July 2012 to July 2013

Table 8 details the observed changes in risk (based on spatial and temporal clustering) for the 686 reported burglary-dwelling offences across Reading during the pre-Operation Reacher period, July 2012 to 2013, as provided by the Near-repeat Calculator (NRC). The NRC compares the observed level of offences within a defined parameter or band when compared against the expected mean average should the offences be randomly distributed. This fields shaded grey are not considered statistically significant (p>0.5) as detailed in table 11. The table supports the assertion that there is a statistically significant increase in risk by a factor of 1.86 (or 186%) at a distance up to 100 meters and 7 days. The table also details other statistically significant increases in risk, albeit at a lower factor (1.32 to 1.25). The changes in risk greater than 28 days and beyond 400 metres, whilst on occasions are considered statistical significant, are not factored into the overall calculations as they will included changes in risk and offence levels temporally and spatially well beyond the focus of this operation.

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	1.86	1.16	1.40	1.36	0.92
101 to 200m	1.27	1.32	1.32	0.81	0.97
201 to 300m	1.13	1.08	1.30	1.06	0.98
301 to 400m	1.25	1.11	1.12	1.17	0.97
More than 400m	0.99	1.00	1.00	1.00	1.00

Table 8 The risk of near repeat victimisation in time (columns) and space (rows)

In Reading local police area 2012/13

n = 1.00 no change in risk; n> 1.00 = increase in risk; n < 1.00 = decrease in risk

shaded field denotes not statistically significant where p > 0.05

Table 9 depicts the actual number of expected (Exp) dwelling-burglary offences –

assuming again that they were randomly distributed using 20 cycles or the NRC tool ,

the actual number of observed (Obs) offences within the same temporal and spatial

parameter and the difference between the two (Dif). Again, a grey shaded field or

cell indicates the value is not considered statistically significant (p >0.05) whereas a

red number in the difference or (Dif) column represents a reduction in actual

numbers and a black number an increase. It can be seen that in the case of the

spatial and temporal band 1 to 100m and 0 to 7 days, 13 additional burglary-dwelling

offences were observed when compared to the expected randomly assigned. The

other four statistically significant areas (excluding greater than 400m and 28 days) all

show and increase in actual offences of 15, 12, 11 and 14 offences.

	0 to 7 days			8 to 14 days			15 to 21 days			22 to 28 days			> 28 days		
	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif
1 to 100m	15	28	**13**	16	18	**2**	14	20	**6**	15	20	**5**	325	299	**26**
101 to 200m	36	45	**9**	36	48	**12**	34	45	**11**	35	28	**7**	769	744	**25**
201 to 300m	48	54	**6**	49	53	**4**	46	60	**14**	46	49	**3**	1036	1010	**26**
301 to 400m	62	77	**15**	63	70	**7**	60	67	**7**	59	69	**10**	1322	1282	**40**
> 400m	9026	8963	**63**	9257	9229	**28**	8722	8687	**35**	8750	8741	**9**	195000	195195	**195**

Table 9 The numerical difference between expected (based on random selection) and observed
dwelling burglary offences In Reading local police area 2012/13 where black numbers denote increase
and red numbers denote reduction in actual offences across time and space
shaded field denotes not statistically significant where p > 0.05

Table 10 provides a graphical representation of the changes in risk (y-axis) over time (x-axis) and distance (coloured lines). Whilst this depiction does not differentiate between statistically significant and non-statistically significant values, it does provide an overall graphical representation of the sudden drop in risk beyond 100 meters and 7 days. The remaining lines are less statistically significant, but do show a sustained increase in risk 15 to 28 days above the 1.00 (or no change in risk) y-axis value.

Table 10 Line chart depicting risk of near repeat victimisation in In Reading local police area 2012/13
X axis = time in days; lines = distance (depending on colour); Y axis = change in risk
where 1.00 = no change; above 1.00 = increase risk; below 1.00 = decrease in risk

As detailed earlier, table 11 depicts the statistical significance of the NRC tool calculation, based on a p value 0.05 having applied random distribution of the overall level of reported offences (n=686) across the Reading police area across 20 separate cycles, comparing the results of the distribution to the observed level on every occasion. A p value of or higher than 0.05 is not considered statistically significant.

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	0.003	0.312	0.088	0.099	1.000
101 to 200m	0.064	0.037	0.043	0.903	0.988
201 to 300m	0.198	0.324	0.030	0.360	0.983
301 to 400m	0.034	0.194	0.171	0.102	0.995
More than 400m	1.000	0.985	0.999	0.804	0.001

Table 11 Statistical significance test where p < 0.05
shaded field denotes not statistically significant where p > 0.05

Period During Operation Reacher – July 2013 to July 2014

Table 12 shows the changes in observed risk of dwelling-burglary offences against the mean expected value having inputted the 497 recorded offences during the 12 month (July 2013 to July 2014) Operation Reacher period across Reading LPA. As before, the grey shaded cells represent non-statistically significant values (p >0.5). It can be seen that there is again an increased risk of victimisation the closer the spatial and temporal parameter is to the trigger burglary offence (1.88 or 180% up to 100m and 7 days). Similarly there are further statistically significant increases in risk ranging from 1.26 to 1.64 (excluding the value at more than 400 metres and 28 days).

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	1.88	1.64	1.07	0.53	0.94
101 to 200m	1.35	1.27	1.04	1.54	0.94
201 to 300m	1.45	1.40	1.43	0.99	0.94
301 to 400m	1.37	1.03	1.26	0.92	0.97
More than 400m	0.99	1.00	1.00	1.00	1.00

Table 12 The risk of near repeat victimisation in time (columns) and space (rows)
In Reading local police area 2013/14
n = 1.00 no change in risk; n> 1.00 = increase in risk; n < 1.00 = decrease in risk
shaded field denotes not statistically significant where p > 0.05

Table 13 translates the increase in risk to actual offence numbers and shows the overall difference in mean expected and actual observed offences across the 25 temporal and special parameters. Again, grey shaded cells are not considered statistically significant (p>0.05)

	0 to 7 days			8 to 14 days			15 to 21 days			22 to 28 days			> 28 days		
	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif
1 to 100m	10	18	8	10	17	7	9	10	1	9	5	4	193	182	11
101 to 200m	22	30	8	24	30	6	21	22	1	21	33	12	446	419	27
201 to 300m	28	41	13	30	42	12	27	39	12	27	27	0	568	532	36
301 to 400m	34	47	13	36	37	1	33	41	8	33	30	3	682	662	20
> 400m	5084	5008	76	5351	5324	27	4870	4851	19	4855	4850	5	100812	100913	101

Table 13 The numerical difference between expected (based on random selection) and observed
dwelling burglary offences In Reading local police area 2013/14 where black numbers denote increase
and red numbers denote reduction in actual offences across time and space
shaded field denotes not statistically significant where p > 0.05

Table 14 depicts the change in risk graphically, and whilst the majority of fields are not considered statistically significant, it does demonstrate the drop off and change in in risk up to 100m across 0 to 7 and 8 to 14 days, both of which are statistically significant values.
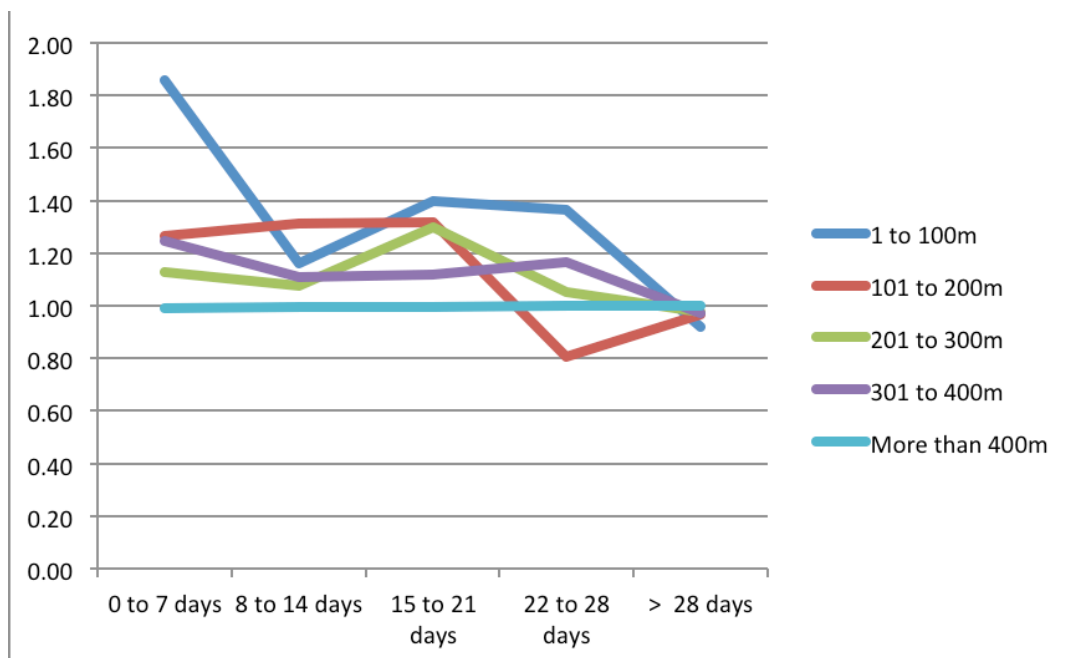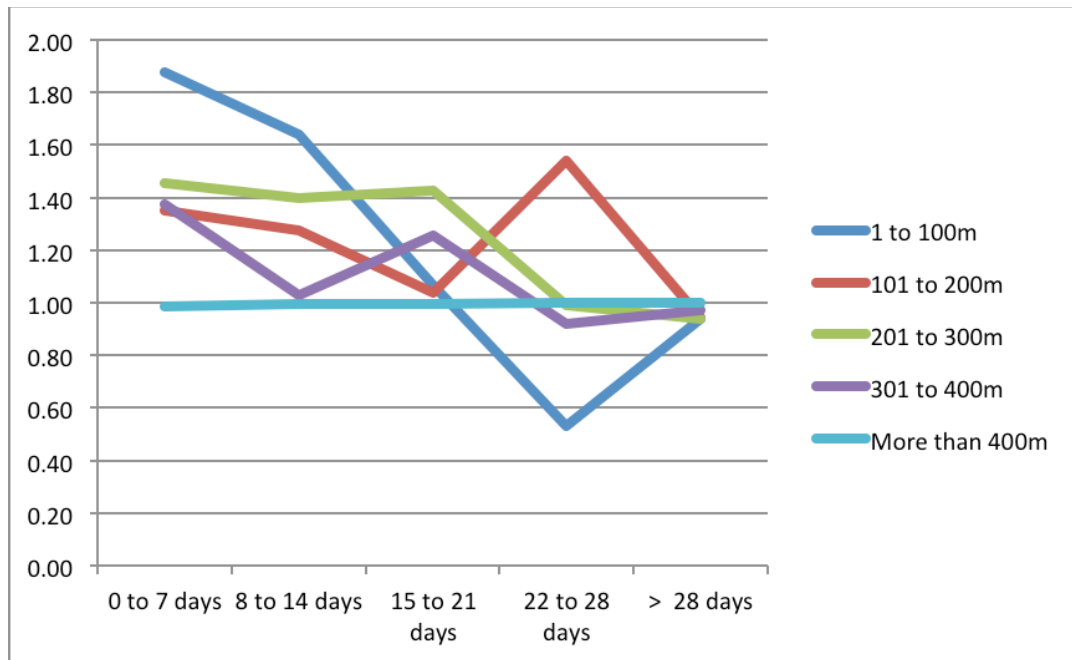
Table 14 Line chart depicting risk of near repeat victimisation in In Reading local police area 2013/14

X axis = time in days; lines = distance (depending on colour); Y axis = change in risk

where 1.00 = no change; above 1.00 = increase risk; below 1.00 = decrease in risk

Finally, table 15 shows the p values across all spatial and temporal parameters with non-statistically significant cell values shaded in grey. These shaded fields are transposed onto the tables above to clearly signify statistically or non-statistically significant results gained from the NRC calculations.

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	0.011	0.031	0.466	0.967	0.968
101 to 200m	0.072	0.109	0.467	0.019	0.996
201 to 300m	0.015	0.021	0.025	0.562	1.000
301 to 400m	0.025	0.447	0.103	0.710	0.961
More than 400m	1.000	0.998	0.974	0.630	0.001

Table 15 Statistical significance test where p < 0.05

shaded field denotes not statistically significant where p > 0.05

Comparison of Difference Before and During Operation Reacher in Reading

Table 16 subtracts the risk factor as detailed earlier in table 8 (the 12 month period before Operation Reacher) from the risk factor values detailed in table 12 (the 12-month period during Operation Reacher). The resultant value represents a Level-2 evaluation of the period before the operation and that during. A black number represents an increase in the risk (where the subtraction results in a positive number) during the Operation Reacher period, whilst a red number signifies a reduction in overall risk (or negative comparison value) over the same period. It can bee seen that across the 25 spatial and temporal parameters, the risk actually increased during the period of the operation in 14 out of the 25 spatial and temporal parameters or bands. However, whilst this could indicate that the operation had no effect, it needs to be considered against other changes in overall risk across other police areas. If the change in risk in Reading increased by a smaller value than other Operation Reacher areas or the rest of the force, then the operation may have had an effect, which is not immediately obvious from evaluating these results alone.

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	0.02	0.49	-0.33	-0.83	0.02
101 to 200m	0.08	-0.04	-0.28	0.73	-0.03
201 to 300m	0.33	0.32	0.13	-0.06	-0.04
301 to 400m	0.13	-0.08	0.14	-0.25	0.00
> 400m	-0.01	-0.00	0.00	0.00	0.00

Table 16 Difference in risk of near repeat dwelling burglary victimisation in
Reading local police area 2013/14 compared to 2012/13
where black positive number signifies an increase in risk during treatment period
and red negative number signifies a reduction in risk during treatment period

Similarly, table 17 depicts the actual change in burglary-dwelling offence numbers by undertaking a Level-2 evaluation by subtracting the difference (Dif) values in all of the spatial and temporal parameters in table 9 (12 month period before Operation Reacher) and table 13 (12 month period during the operation). Red values indicate a reduction in the difference between expected and observed results in actual offences (in effect a difference in the difference) when comparing the 12-months before the operation and that during the operation whilst black values signify an increase. For example, the value at 1 to 100 metres at 0 to 7 days indicates there were ten less actual offences in that spatial and temporal parameter during the Operation Reacher period compared to the 12-months before. Whilst not all of the reductions and the single increase in offences (at 101 to 200m and 22 to 28 days) are statistically significant, those that are, are considered later in table 52 in calculating an actual assessed reduction (n=107) in dwelling-burglary offences during the operation period.

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	-10.00	-1.00	-10.00	-15.00	-117.00
101 to 200m	-15.00	-18.00	-23.00	5.00	-325.00
201 to 300m	-13.00	-11.00	-21.00	-22.00	-478.00
301 to 400m	-30.00	-33.00	-26.00	-39.00	-620.00
> 400m	-3955.00	-3905.00	-3836.00	-3891.00	-94282.00

Table 17 Difference in risk of near repeat dwelling burglary victimisation in
Reading local police area 2013/14 compared to 2012/13
black positive number signifies actual number of dwelling burglary increases
red negative number signifies actual number of burglary dwelling reductions

Oxford Local Police Area

The recorded dwelling-burglary values (n=585) for the 12 month period before Operation Reacher (July 2012 to July 2013) and the 12-months worth of recorded

dwelling-burglary offences (n=402) during the operation (July 2013 to July 2014) across Oxford police area were tagged with the relevant temporal and spatial values and analysed using the Near-repeat Calculator (NRC) – using the same parameters and statistical significance values as detailed in question 1) and question 2) (Reading area). The resultant values in changes in risk, changes in offence numbers and statistical significance are detailed in appendix 'E' tables 18 to 21 (before the operation) and tables 22 to 25 (during the operation period). Interestingly, and unlike the other two Operation Reacher areas and the rest of the force (all before and during the operation), table 18 does not show a statistically significant value in increased risk at the closest spatial and temporal parameter (0 to 7 days and up to 100 metres). Further more, excluding the value at more than 400 metres and 28 days, only two of the values in table 18 (before) detail any statistically significant change in risk. In those that do, the range is between a factor of 1.81 (at 1 to 100 metres and 8 to 14 days) to 1.32 (201 to 300 metres at 0 to 7 days). Conversely, table 22 does indicate a statistically significant increase in risk at 0 to 7 days and 1 to 100 metres of 1.93.

Comparison of Difference Before and During Operation Reacher in Oxford

Table 26 details the difference in risk factor by subtracting the values in all of the spatial and temporal parameters in table 18 from table 22 (appendix 'E'). The Level-2 before and after evaluation indicates whether the NRC calculated risk increased (black value) or decreased (red value) during the operation 12-month period. The results show that in 13 of the 25 spatial and temporal parameters there was an observed increase or no change in risk of victimisation, whilst 12 of the time and

space parameters represented a reduction. The increase in risk was greater at the nearer temporal and spatial parameters (0 to 7 days 1 to 400 metres and 101 to 200m 0 to 21 days). As discussed within the Reading Operation Reacher findings, the values detailed in the periods greater than 400 metres and 28 days are not considered relevant to this study. The spatial value in excess of 400m could represent any location up to the force border whilst the temporal value > 28 days could refer to recorded dwelling-burglary offences going back as far as the mid 1990's when electronic crime recording began. The values up to 28 days and 400 metres represent are far more scientifically relevant maximum value.

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	0.52	0.37	-0.39	0.52	-0.05
101 to 200m	0.33	0.39	0.10	-0.08	-0.03
201 to 300m	0.15	-0.43	0.33	-0.08	0.00
301 to 400m	0.98	0.56	-0.11	-0.01	-0.06
> 400m	-0.01	-0.00	-0.00	0.00	0.00

Table 26 Difference in risk of near repeat dwelling burglary victimisation in
Oxford local police area 2013/14 compared to 2012/13
where black positive number signifies an increase in risk during operation
and red negative number signifies a reduction in risk during operation

Table 27 details a Level-2 evaluation in the difference between tables 19 and 23, where again, a black number depicts an increase in actual burglary-dwelling offences and a red negative number a reduction in actual offences. It can be seen that despite an increased risk in table 26 across 13 out of 25 spatial and temporal parameters, 24 out of 25 parameters in table 27 describe an actual reduction in offences. Again, whilst not all of these figures are considered statistically significant, those that are, are used in table 53 later on in the thesis to indicate an actual

statistically significant reduction in burglary offences (n=22) when comparing the Operation Reacher period to the 12-months before.

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	-1.00	-4.00	-5.00	1.00	-71.00
101 to 200m	-9.00	-11.00	-13.00	-12.00	-242.00
201 to 300m	-20.00	-29.00	-15.00	-18.00	-388.00
301 to 400m	3.00	-2.00	-26.00	-20.00	-451.00
> 400m	-3198.00	-3624.00	-3460.00	-3024.00	-75552.00

Table 27 Difference in risk of near repeat dwelling burglary victimisation in Oxford local police area 2013/14 compared to 2012/13
black positive number signifies actual number of dwelling burglary increases
red negative number signifies actual number of burglary dwelling reductions

Milton-Keynes Local Police Area

Tables 28 to 35 (appendix 'E') depict the change in risk, actual burglary offences and statistical significance of analysing the 12 month (July 2012 to July 2013) of recorded dwelling-burglary data (n=680) prior to Operation Reacher and 12-months (July 2013 to July 2014) of recorded offence data (n=637) during the operation – as assessed by the NRC.

In both the 12-month period before (n=3.69) and during (n=4.13), the spatial and temporal parameter at 0 to 7 days and 1 to 100 metres resulted in a statistically significant increase in risk of near-repeat victimisation when compared to a random distribution of offences. Both of these figures represent a significant increase in risk of repeat victimisation and during the period of the operation, an observed risk of over 4 times the random allocation of offences during the closest spatial and temporal period (1 to 100 metres, 0 to 7 days) (n=4.13 or 413% increase in likelihood of victimisation).

Comparison of Difference Before and During Operation Reacher in Milton-Keynes

Table 36 details the difference in risk between tables 28 and 32 (appendix 'E'), whereby a black positive number indicates an increase in risk and a red negative number a reduction. The results show that in 13 of the 25 time and space parameters there was an observed increase or no change in risk of victimisation, whilst 12 of the time and space parameters represented a reduction. However, unlike Reading (table 16) and Oxford (table 26) where in the time period 0 to 7 days saw an increase in risk in 4 out of five of the distance/space parameters, Milton-Keynes showed a reduction or no change in risk in 4 out of 5. Only the result at 1 to 100m within the 7-day grouping detailed an increase in risk.

Table 37 details the difference between tables 29 and 33, where again, a black number depicts an increase in actual burglary-dwelling offences and a red negative number a reduction in actual offences. It can be seen that despite an increased risk in table 26 across 13 out of 25 time and space parameters, 21 out of 25 parameters in table 37 describe an actual reduction in offences. The values beyond 400 metres are excluded for the purposes of this study, as they represent offences beyond the boundary of the Operation Reacher police area (right up to the force border). Whilst not all of these figures are considered statistically significant, those that are, are used in table 54 later on in the thesis to indicate an actual statistically significant reduction in burglary offences (n=12) when comparing the Operation Reacher period to the 12-months before.

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	0.44	1.11	-0.56	-0.04	-0.03
101 to 200m	-1.17	0.45	0.19	-0.19	0.03
201 to 300m	-0.28	-0.52	0.72	-0.01	0.00
301 to 400m	-0.31	-0.39	-0.11	0.21	0.03
> 400m	0.00	0.00	-0.00	0.00	0.00

Table 36 Difference in risk of near repeat dwelling burglary victimisation in
Milton Keynes local police area 2013/14 compared to 2012/13
where black positive number signifies an increase in risk during operation
and red negative number signifies a reduction in risk during operation

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	-4.00	5.00	-5.00	-3.00	-32.00
101 to 200m	-19.00	3.00	1.00	-5.00	-22.00
201 to 300m	-10.00	-13.00	8.00	-4.00	-83.00
301 to 400m	-16.00	-14.00	-7.00	-3.00	-92.00
> 400m	-1231.00	-1333.00	-1010.00	-1423.00	-22973.00

Table 37 Difference in risk of near repeat dwelling burglary victimisation in
Milton Keynes local police area 2013/14 compared to 2012/13
black positive number signifies actual number of dwelling burglary increases
red negative number signifies actual number of burglary dwelling reductions

Rest of Force (Ten Police Areas)

Tables 38 to 45 (appendix 'E') depict the change in risk, actual burglary offences and statistical significance of analysing the 12 month (July 2012 to July 2013) of recorded dwelling-burglary data (n=4,288) prior to Operation Reacher and 12-months (July 2013 to July 2014) of recorded offence data (n=3,453) during the operation – as assessed by the NRC.

It is immediately obvious that (appendix 'E') table 38 (risk factor before operation) and table 42 (risk factor during operation) depict a greater of proportion of statistically significant results (13 out of 25 and 9 out of 35) respectively when

compared to the results in the three Operation Reacher areas. This is likely to be

due to the randomised distribution of the offences across a wider geographical area

during the NRC 20 cycle expected mean calculation (where it would include rural

locations as well as urban). The three Operation Reacher areas are far more densely

populated which is likely to result in a higher density of random allocation during the

20 cycle mean expected calculation thus resulting in less statistically significant

results. The rest of the force does however support the previous findings that there

is an observed greater risk and clustering of victimisation the closer the address is to

a previously burgled house. The risk before the 12-month Operation Reacher period

in the rest of the force at 0 to 7 days and up to 100 metres results in an observed

factor of 2.90 (or 290%), whilst the risk during the 12-month operation period for the

same spatial and temporal parameter increases to 3.54 (or 350%). Tables 39, 40, 41

and tables 43, 44, 45 (Appendix 'E') depict the actual number of burglary-dwelling

offences, a graphical representation of the change in risk and the calculated

statistical significance for the period before and during the operation respectively.

Comparison of Difference Before and During Operation Reacher Rest of Force

Whilst the ten police areas making up the rest of the force were not included within

Operation Reacher, tables 46 and 47 are included to bench mark the changes in risk

and actual offences to offer a comparison against the three operation areas.

As in the three Operation Reacher areas, table 46 results are calculated by

subtracting the observed risk factor for the 12 month period prior to the operation

from the observed risk for the 12-months of the operation. It is immediately clear

that when compared to tables 16 (Reading), 26 (Oxford) and 36 (Milton-Keynes) the cumulative change in risk between the period before the operation and that during has reduced (a red number) in the rest of the force across more temporal and spatial parameters than when compared to the three Operation Reacher areas. It would appear therefore that in the Operation Reacher areas, the risk of repeat victimisation has increased in the majority of parameters at a higher rate than that of the rest of the force.

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	0.64	0.18	0.24	-0.14	-0.04
101 to 200m	-0.24	-0.20	-0.02	0.17	0.01
201 to 300m	-0.37	-0.10	-0.11	-0.30	0.04
301 to 400m	-0.10	-0.08	-0.28	-0.05	0.02
> 400m	0.00	0.00	0.00	0.00	0.00

Table 46 Difference in risk of near repeat dwelling burglary victimisation in
in the rest of the Force 2013/14 compared to 2012/13
where black positive number signifies an increase in risk during operation
and red negative number signifies a reduction in risk during operation

Table 47 details the difference between tables 39 and 43, where again, a black solid number depicts an increase in real terms of burglary-dwelling offences and a red negative number a reduction in actual offences. It can be seen that other than the three parameters from 1 to 100 metres across 0 to 7, 8 to 14 and 15 to 21 days, the rest of the force saw a reduction in actual recorded offences.   However, looking at the change in actual burglary offences at the closest spatial and temporal cluster (0 to 7 days and 1 to 100 metres), the actual level of real victimisation fell in Reading, Oxford and Milton-Keynes (-10, -1, and -4 respectively), yet in the rest of the force, the actual number of offences observed between the 12 month period before the operation and that during increased by 13 offences. This result would suggest that

in terms of real offence numbers, the three Operation Reacher areas saw a reduction in offences when comparing the 12 moths of the operation to the 12 month period before, when compared to the rest of the force, which saw an observed increase of 13 offences during the same periods.

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	13	2	6	-9	-98
101 to 200m	-53	-42	-27	-8	-349
201 to 300m	-87	-49	-51	-67	-517
301 to 400m	-66	-56	-79	-44	-659
> 400m	-122751	-128533	-128113	-125237	-2724544

Table 47 Difference in actual numbers of near repeat dwelling burglary victimisation in
in the rest of the Force 2013/14 compared to 2012/13
black positive number signifies actual number of dwelling burglary increases
red negative number signifies actual number of burglary dwelling reductions

Comparison of the Operation Reacher areas and the Rest of the Force (RoF)

In order to assess the change in risk factor between the 12-months period before the operation and the 12-months during, tables 48, 49, and 50 (appendix 'E') detail the change in risk on each of the three Reacher police areas, alongside the change in risk for the rest of the force and then calculates the difference by subtracting the rest of the force from the Operation Reacher area (shown as 'Dif' in all three tables). The red numbers with green shading within the 'Dif' fields indicate a reduction in risk across the Reacher area when compared to the rest of the force. A black number within the 'Dif' field indicates the risk has increased in the Reacher area when compared to the rest of the force. Whilst it can bee seen that the results are inconsistent, there is an observed similarity in the 0 to 7 days and 1 to 100m spatial

and temporal cluster, where all three Operation Reacher areas saw a reduction in risk when compared to the rest of the force.

Table 51 depicts a summary of the results from tables 48, 49 and 50 and provides a comparison between the changes in risk across Reading, Oxford, Milton-Keynes and the rest of the force (RoF). Black numbers represent an increase in the overall risk of repeat victimisation when comparing the observed risk from July 2012 to July 2013 and July 2013 to July 2014. A red number indicates a reduction in the overall risk during the same observation period. It can be seen in Table 51, that whilst the risk of dwelling-burglary victimisation increased across the three Operation Reacher areas and the rest of the force in the closest temporal and spatial cluster (0 to 7 days and 1 to 100 metres), the risk in the rest of the force increased more (n=0.64) when compared to Reading (n=0.02)m Oxford (n=0.52) and Milton-Keynes (n=0.44).

	0 to 7 Days				8 to 14 Days				15 to 21 Days				22 to 28 Days				more than 28 Days			
	Rea	Oxf	MK	RoF	Rea	Oxf	MK	RoF	Rea	Oxf	MK	RoF	Rea	Oxf	MK	RoF	Rea	Oxf	MK	Rof
1 to 100m	0.02	0.52	0.44	0.64	0.49	0.37	1.11	0.18	0.33	0.39	0.56	0.24	0.83	0.52	0.04	0.14	0.02	0.05	0.03	0.04
101 to 200m	0.08	0.33	1.17	0.24	0.04	0.39	0.45	0.20	0.28	0.10	0.19	0.02	0.73	0.08	0.19	0.17	0.03	0.03	0.03	0.01
201 to 300m	0.33	0.15	0.28	0.37	0.32	0.43	0.52	0.10	0.13	0.33	0.72	0.11	0.06	0.08	0.01	0.30	0.04	0.00	0.00	0.04
301 to 400m	0.13	0.98	0.31	0.10	0.08	0.56	0.39	0.08	0.14	0.11	0.11	0.28	0.25	0.01	0.21	0.05	0.00	0.06	0.03	0.02
> 400m	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 51 The overall change in risk, where black indicates an increase in risk
and red indicates a reduction in risk when comparing the overall before (2012/13)
and during (2013/14) effect on levels of risk of repeat victimisation across Reading (Rea),
Oxford (Oxf), Milton Keynes (MK) and the rest (Rof) of Thames Valley's other ten police areas

Whilst the results of the operation and evaluation do not represent a consistent reduction in risk across all spatial and temporal parameters, Table 51 does

summarise a consistent relationship between a lower increase in risk across the three Operation Reacher areas when compared against the larger increase in risk across the rest of the force within the 0 to 7 days and 1 to 100 meter cluster. It would therefore appear that a whilst the Operation has had an inconsistent or no measurable effect across all the spatial and temporal clusters, all of the results thus far would indicate a risk reduction effect within the closest cluster to the trigger offence (0 to 7 days and 1 to 100 metres).

In order to convert the effect of the operation into actual changes in dwelling-burglary offences - and to inform the cost benefit calculations in question 3) -, the values identified in tables 17, 27, 37 and 47 (the actual changes in burglary numbers across each of the three Reacher areas and the rest of the force) were overlaid with the calculation of statistical significance (p=0.5) for the 12-months of the operation (tables 15, 25, 35 and 45). Tables 52, 53, 54 and 55 (appendix 'E') provide a summary of the actual changes in burglary numbers across Reading, Oxford, Milton-Keynes and the rest of the force. The final row presents a sum of those changes in offence levels that were observed within statistically significant clusters (shaded values are excluded as being non-statistically significant). The total value, shaded in green, details the total sum of the increases and decreases in observed changes in actual offence numbers across all temporal and spatial clusters, again, only counting those figures from the results deemed statistically significant during the 12 month period of the operation. The values for clusters beyond 28 days and 400 metres are excluded from the calculation as the results include burglary offences well beyond the scope this evaluation.

Table 56 provides a summary of the recorded dwelling-burglary performance information across Reading, Oxford, Milton-Keynes and the rest of the force for the 12 month period before the operation (July 2012 to July 2013) and the 12 month period of the operation (July 2013 to July 2014).

Row a) details the recorded levels of burglary-dwelling offences for the 12 month period July 2012 to July 2013. Row b) details the level of recorded dwelling-burglary offences for the area for the period July 2013 to July 2014. Row c) details the year on year reduction (the sum of row a) – row b)).

Row d) summaries the calculated reductions as detailed in tables 52, 53, 54 and 55 (appendix 'E'), whilst row e) represents the reduction in recorded dwelling-burglary offences across the rest of the area (the sum of row c) minus row d)).

Row f) depicts the overall percentage reduction in dwelling-burglary offences year on year (2013/14 compared to 2012/13). Row g) details the percentage contribution to the year on year burglary-dwelling reduction in statistically significant observations to the area as a whole whilst h) details the percentage reduction in non-statistically significant observations. The sum of g) and h) add up to f). Row i) details the share of overall reductions in statistically significant observations where the total reduction in row c) is judged to be 100%.

	Reading	Oxford	Milton Keynes	Rest of Force
a) Total number of dwelling burglary offences 2012/13	686	585	680	4288
b) Total number of dwelling burglary offences 2013/14	497	402	637	3453
c) Total year on year reduction in burglary dwelling offences	189	183	43	835
d) Total year on year reduction in statistically significant areas	107	22	12	282
e) Total reduction in rest of police area	82	161	31	553
f) Total year on year percentage reduction in reported dwelling burglary offences 2012/13 to 2013/14	27.55%	31.28%	6.32%	19.47%
g) Year on year percentage reduction in statistically significant areas	15.60%	3.76%	1.76%	6.58%
h) Year on year percentage reduction in rest of police area	11.95%	27.52%	4.56%	12.90%
i) % of offences in statistically significant locations compared to whole area	55.94%	25.12%	12.72%	27.48%

Table 56 Summary of dwelling burglary performance information for Reading, Oxford, Milton Keynes and the Rest of the Force police area

Summary of results in answering Question 2).

It can be seen across all three Operation Reacher police areas and the rest of the force, that, congruent with the result in question 1), there is a risk of near-repeat victimisation the nearer the address is to a previously burgled premises. The risk is greater in spatial and temporal clusters closer to the trigger offence, and at it's highest at 1 to 100 metres and up to 7 days.

In order to assert a relationship between the effect of super-cocooning and the change in risk across the three Operation Reacher areas when compared to the rest of the force, the risk of victimisation either needs to demonstrate a statistically significant reduction in risk when compared to the rest of the force area or, if there is an increase, a consistently smaller one than across the rest of the force area.

The evaluation has shown that the effect is inconsistent across all spatial and temporal parameters. However, there does appear to be a consistent difference between the increase in risk across the three Operation Reacher areas across the

closest spatial and temporal cluster (1 to 100 metres, 0 to 7 days) than the rest of the force area.

In considering the changes to actual dwelling-burglary offences, the evaluation again is unable to consistently attribute consistent and reliable reductions across all of the spatial and temporal clusters. However, when considering the overall reduction in those spatial and temporal clusters in which the 12-month operation results were considered statistically significant, a calculation on the net reduction can be made. The observed actual reduction in offences in Reading area when comparing the 12-months prior to the operation and 12-months during resulted in a reduction in 107 crimes. The net observed reduction in Oxford for the same periods was calculated to be a reduction of 22 offences and in Milton-Keynes a reduction of 12 offences.

This evaluation does therefore suggest a relationship between a small reduction in risk of near-repeat victimisation and the super-cocooning intervention, but only in those spatial and temporal clusters closest in time and space to a previously burgled premises. There does also appear to be a relationship between the small-observed reduction in risk across the three operation Reacher Police areas and the net reduction in recorded offences.

Q3. Is super-cocooning and leaflet dropping a cost effective use of PCSO time?

In effort to address this question, the following section will present information on the number of houses each of the three Operation Reacher police areas visited following a trigger offence, an assessment of the time taken to complete the activity,

a calculation of the overall cost in PCSOs hours to the police area and finally, a cost benefit calculation based on the recognised cost of victimisation.

In order to assess the overall cost benefit, it is necessary to consider how many houses, on average, were visited by PCSOs during the period of super-cocooning. PCSOs were asked to attempt to visit 26 houses, although the actual number was largely left to their direction based on topography and local knowledge. Table 57 details the total number of burglary-dwelling offences between July 2013 and July 2014 in Reading, Oxford and Milton-Keynes (column 2), the total number of tracked and recorded super-cocooning visits undertaken within 48 hours of the trigger offence (column 3) and a mean average calculation of the number of houses visited on each area per trigger burglary-dwelling offence (column 4). It is clear that PCSOs in Milton-Keynes visited 9 more houses on average than PCSOs in Oxford for each trigger offence, with only Milton-Keynes exceeding the mean average of 22 visits across all three police areas.

Police Area	Offences 2013/14	Houses Super Cocooned	Average number receiving super cocooning visits per offence
Reading	497	10183	20
Oxford	402	6686	17
Milton Keynes	637	16251	26
Total	1536	33120	22

Table 57 Detailing number of offences, total houses receiving super cocooning visits and mean average per Operation Reacher police Area

In order to assess the time committed to super-cocooning and the ratio of face-to-face contact compared with leaflet drops, a simple four-question survey (see

appendix 'B') was forwarded to 30 PCSOs; 10 per police area (Reading, Oxford and Milton-Keynes). Whilst a wider cohort of PCSOs would have attracted a more scientifically valid result, the decision to ask only 30 PCSOs was taken minimise the impact on the three police areas. The overall response rate is detailed in table 58 with all PCSOs in Milton-Keynes submitting a return (100%), 8 in Oxford (80%) and 7 in Reading (70%) resulting in an 83% mean average response rate to the survey across all three areas.

	Resquests	Returns	Response Rate
Reading	10	7	70%
Oxford	10	8	80%
Milton Keynes	10	10	100%
Total	30	25	83%

Table 58 Detailing distribution of PCSO questionnaires across three Operation Reacher police areas, number of responses and response rate

Table 59 details a summary of the survey results per police area in column 1 along with the PCSOs identification shoulder number in column 2. Where a ranged answer was provided by the PCSO (for example 10 to 15 minutes for a task) a median average was taken between the two values. Column 3 details the length of time taken for undertaking one round of complete super-cocooning following a dwelling-burglary trigger offence (for example visiting 20 houses in Reading). Column 4 details the assessed percentage of households visited that received face-to-face advice. This is however dependent on the time of day and day of the week super-cocooning was carried out. Column 5 details the average length of time taken per face-to-face contact, and again, where a ranged answer was provided, the median value was taken. Column 6 provides a numerical value to question 4 satisfaction

criteria. These results were assigned a numerical value based on the PCSOs perception on the recipient's satisfaction (the lower the value the least satisfied up to a maximum of 3). However, these values are not considered further in this study, but may support a further qualitative assessment of police interactions.

			Q1	Q2	Q3	Q4
			Average in minutes	Average in %	Average in minutes	Satisfaction score (3 most)
	Reading	PCSO C9755	60.0	10.00%	10.0	3.0
		PCSO C9704	45.0	30.00%	10.0	2.0
		PCSO C9341	50.0	inc	7.5	3.0
		PCSO C9216	37.5	17.50%	3.0	1.0
		PCSO C6556	25.0	20.00%	12.5	3.0
		PCSO C9889	15.0	7.50%	2.0	2.0
		PCSO C9705	12.5	20.00%	3.0	2.0
		Reading Average	**35.0**	**17.50%**	**6.9**	**2.3**
	Oxford	PCSO C8375	90.0	inc	3.0	2.0
		PCSO C9301	105.0	inc	2.0	2.0
		PCSO C2283	90.0	50.00%	7.5	2.0
		PCSO C9268	60.0	33.00%	7.5	1.0
		PCSO C9251	45.0	40.00%	5.0	3.0
		PCSO C6916	60.0	inc	0.8	2.0
		PCSO C9242	35.0	inc	4.0	2.0
		PCSO C9640	45.0	7.50%	5.0	1.0
		Oxford Average	**66.3**	**32.63%**	**4.3**	**1.9**
	Milton Keynes	PCSO C8643	35.0	7.50%	3.0	3.0
		PCSO C9789	55.0	inc	7.5	3.0
		PCSO C9437	nil	50.00%	15.0	2.0
		PCSO C9144	nil	50.00%	12.5	2.0
		PCSO C9842	60.0	40.00%	10.0	3.0
		PCSO C9941	75.0	45.00%	12.5	3.0
		PCSO C9043	150.0	50.00%	10.0	2.0
		PCSO C9206	45.0	inc	22.5	3.0
		PCSO C6601	37.5	inc	10.0	3.0
		PCSO C9789	60.0	30.00%	10.0	2.0
		Milton Keynes Average	**64.7**	**38.93%**	**11.3**	**2.6**
Op Reacher	**Total Average for all**		**56.2**	**29.88%**	**7.9**	**2.3**

Table 59 Showing responses to questions 1 to 4 within PCSO questionnaire. Where a ranged answer is provided, a median response of the value is used

Table 60 multiplies the average number of hours per super-cocooning event (as calculated in table 59) by the number of burglary-dwelling offences in each of the three police areas between July 2013 and July 2014. The result in column five provides an overall number of PCSO hours engaged in super-cocooning for the entire 12-month operation period.

	Average time per burglary	dwelling burglary 2013/14	Total annual minutes	Total annual hours
Reading	35	497	17395	290
Oxford	66.3	402	26653	444
Milton Keynes	64.7	637	41214	687
Op Reacher	56.2	1536	85262	1421

Table 60 Details the total number of PCSO hours dedicated to super cocooning based on questionnaire responses times the number of burglary dwelling offences for 2013/14

	Total houses visited	Average % receiving face to face contact	Assessed no. receiving face to face	Average time for face to face contact	Total annual minutes	Total annual hours
Reading	10183	17.50%	1782	6.9	12220	204
Oxford	6686	32.63%	2181	4.3	9475	158
Milton Keynes	16251	38.93%	6326	11.3	71487	1191
Op Reacher	33120	29.88%	9897	7.9	78320	1305

Table 61 Details the total time spent by PCSOs engaged in face to face contact based on the mean average of questionaire resposnes for both percentage of house holds present and the time taken

Table 61 provides an assessment of the time spent in face-to-face contact, based on the survey results provided by the PCSOs (and detailed in table 59). It can be seen however that the calculation of time spent in hours on face-to-face activity in Milton-Keynes (n=1191, table 61, column 7) exceeds the total alleged time taken to complete super-cocooning as a whole (n=687, table 60, column 5). This is likely to be as a result of assessment bias in the total number of houses where occupiers were in at the time and the amount of time spent giving advice. Whilst the locations of all houses (n=16,251) visited in Milton-Keynes were recorded, details on whether the household received the face-to-face contact or a leaflet were not. In Milton-Keynes a median value of the difference between the total time in hours in table 60 and 61 is used ((1191-687)/2=252) and then added to the lower value (n=687) to achieve an acceptable average calculation (n=939). This increases the overall time spent on super-cocooning in Milton-Keynes as detailed in Table 62. For Oxford and Reading it is assumed that the face-to-face contact is included within the overall time spent figure in table 60 and formed part of the burglary event calculations.

Interestingly, there does not appear to be a relationship between the percentage of houses attracting a face-to-face visit and the overall reduction in risk and actual offences during the operation period. Milton-Keynes for example attracted the highest percentage of face-to-face visits (n=38.93%) yet saw an overall calculated net reduction of 12 offences, whilst Reading achieved the lowest percentage of face-to-face visits (n=17.50%) yet resulted in the highest overall net reduction in burglary-dwelling offences (n=107)

	Total hours cocooning	Total hours face to face	Average only if face to face > super cocooning	Total adjusted annual hours
Reading	290	204	n/a	290
Oxford	444	158	n/a	444
Milton Keynes	687	1191	939	939
Op Reacher	1439	1305	n/a	1673

Table 62 Details the total assessed hours engaged in super cocooning taking into account the relationship between face to face and non face to face contact

The hourly cost for a PCSO is built from a range of factors including hourly salary, inland revenue contributions, national insurance, pension costs, training, uniform and other associated costs. The Association of Chief Police Officers have an agreed re-charge rate for PCSOs at £23.00 per hour, which is included within the TVP Ready Reckoner (appendix 'A').

Table 63 details the total annual costs of undertaking super-cocooning in Reading, Oxford and Milton-Keynes and the operation as a whole as well as being broken down into an average cost per burglary-dwelling event (set of super-cocooning visits) and an average cost per house visited. It can be seen that in Reading, the total annual cost is the by far least (n=6,6700) whilst the average cost per burglary event

(n=13.42) and cost per house visited (n=0.66) is significantly less than the operation average.

	PCSO hourly rate	Total adjusted annual hours	Total annual cost	Offences 2013/14	Cost per burglary dwelling event	Average number receiving super cocooning visits per	Cost per house super cocooned
Reading	£23.00	290	£6,670.00	497	£13.42	20	£0.66
Oxford	£23.00	444	£10,212.00	402	£25.40	17	£1.53
Milton Keynes	£23.00	939	£21,597.00	637	£33.90	26	£1.33
Op Reacher	£23.00	1673	£38,479.00	1536	£25.05	22	£1.16

Table 63 Details the total annual cost of super cocooning on each police area based on the hourly charge provided by TVP's ready reckoner and a cost per burglary dwelling event and cost per premises visit

In order to assess the economic cost of crime to victims, the police, criminal justice systems and the wider society, table 64 details the calculated costs of dwelling-burglary offences as detailed within the 2005 Home Office Online Report (Home Office 2005) 'The economic and social costs of crime against individuals and households 2003/04'. In order to calculate current (or at least more current) costs, the uplift as recommended in the Home Office circular 'Revisions made to multipliers and unit costs of crime used in the Integrated Offender management Value for Money Toolkit' is used (Home Office 2011) which resulted in an uplift by a factor of 1.201 (or 20.1% increase) from the assessed 2003 total cost to society of a burglary-dwelling (n=3,268) to the 2011 value (n=3,925).

Defence Expenditure	Insurance Admin	Physical and Emotional Impact on Direct Victims	Value of Property Stolen	Property Damaged or Destroyed	Property Recovered	Victim Services	Lost Output	Health Services	Criminal Justice System	Average 2003 Cost	Average 2003 Cost Published in Paper
£221.00	£177.00	£646.00	£846.00	£187.00	£22.00	£11.00	£64.00	£0.00	£1,137.00	£3,267.00	£3,268.00
£265.42	£212.58	£775.85	£1,016.05	£224.59	£26.42	£13.21	£76.86	£0.00	£1,365.54	£3,923.67	£3,925.00

Table 64 Showing economic and social costs of a burglary dwelling crime taken from Home Office online report 30/05 (row 2) with the calculated multiplication uplift of 1.201 as detailed in the Home Office September 2011 Offender Management Value for Money Toolkit (row 3)

Table 65 provides a breakdown of the criminal justice system costs as detailed in the 2005 Home Office Online Report (Home Office 2005) along with the 2011 Integrated offender management Toolkit (Home Office 2011) uplift (n=1.201). Table 65 determines the overall cost to police per reported dwelling-burglary (n=691.78).

Police Activity	Prosecution	Magistrates Court	Crown Court	Jury Service	Legal Aid	Non Legal Aid Defence	Probation Service	Prison Service	Other CJS Costs	CJS Overheads	Criminal Injuries Com	Average 2003 CJS Costs
£576.00	£14.00	£14.00	£19.00	£4.00	£34.00	£24.00	£68.00	£309.00	£31.00	£44.00		£1,137.00
£691.78	£16.81	£16.81	£22.82	£4.80	£40.83	£28.82	£81.67	£371.11	£37.23	£52.84	£0.00	£1,365.54

Table 65 Showing breakdown of Criminal Justice System element of Home Office Online Report 30/05 dwelling burglary costs, in particular police element plus uplift of 1.201 as detailed in Home Office September 2011 Offender Management Value for Money Toolkit

In order to calculate the total annual cost of police activity in dealing with reported dwelling-burglary offences and the annual total cost to society, table 66 applies the identified costs from table 64 (total cost to society n=3,925) and table 65 (total cost to police per burglary n=691.78) to the recorded level of offences in Reading, Oxford, Milton-Keynes and all three police areas.

To arrive at a cost benefit figure for each of the police areas, the total number of assessed statistically significant reductions from each area is multiplied by the cost of attending a dwelling-burglary offence (n=691.78) and represents the calculated cost saving to the police (column 4, table 67). By subtracting the annual cost of super-cocooning in each police area a total cost benefit can be assessed (column 6, table 67).

Similarly, using the same principles, the resultant annual cost benefit to society for each police area can be assessed detailed in table 68.

	Total Offences	Cost to Police per Offence	Total Cost to Police 2013/14	Cost to Society per Offence	Total Cost to Society 2013/14
Reading	497	£691.78	£343,812.67	£3,925.00	£1,950,725.00
Oxford	402	£691.78	£278,093.95	£3,925.00	£1,577,850.00
Milton Keynes	637	£691.78	£440,661.31	£3,925.00	£2,500,225.00
Op Reacher	1536	£691.78	£1,062,567.94	£3,925.00	£6,028,800.00

Table 66 Detailing the total cost to the police (column 4) and society (column 6) of dwelling burglaries in each of the three LPAs during the period 2013/14

	Statistically Significant Observed Reduction in Near Repeat Burglaries	Cost to Police per Offence	Total Saving to Police 2013/14	Total Opportunity Cost of Super Cocooning	Total Benefit in Opportunity Cost Saving to Police
Reading	107	£691.78	£74,020.03	£6,670.00	£67,350.03
Oxford	22	£691.78	£15,219.07	£10,212.00	£5,007.07
Milton Keynes	12	£691.78	£8,301.31	£21,597.00	£13,295.69
Op Reacher	141	£691.78	£97,540.42	£38,479.00	£59,061.42

Table 67 Detailing the total cost (black numbers in column 6) and savings (red numbers in column 6) when comparing the police opportunity cost of the operation to the police expenditure

	Statistically Significant Observed Reduction in Near Repeat Burglaries	Cost to Society per Offence	Total Saving to Society 2013/14	Total Opportunity Cost of Super Cocooning	Total Benefit in Opportunity Cost Saving to Police
Reading	107	£3,925.00	£419,975.00	£6,670.00	£413,305.00
Oxford	22	£3,925.00	£86,350.00	£10,212.00	£76,138.00
Milton Keynes	12	£3,925.00	£47,100.00	£21,597.00	£25,503.00
Op Reacher	141	£3,925.00	£553,425.00	£38,479.00	£514,946.00

Table 68 Detailing the total cost (black numbers in column 6) and savings (red numbers in column 6) when comparing the opportunity cost of the operation to the overall offence cost to society

The cost-benefit analysis shows that if only one takes into account police costs, then Operation Reacher was cost effective overall, and in particular in Reading and Oxford. For Milton-Keynes, where only a small number of near-repeats were prevented, the costs to the police were greater than the saving. However, if one considers total costs to society (which are larger) then even the small reduction in burglaries in Milton-Keynes is cost effective, so that the operation is cost-effective in all geographic areas.

In summary, when comparing the business or cost benefit of undertaking super-cocooning, it can be argued that for every £1 invested in PCSO activity to reduce dwelling-burglary offences, Reading saved £11.10 whilst Oxford saved £1.49. Conversely in Milton-Keynes, for every £1 invested, the 12-month operation cost the police area an additional 38p. The overall business benefit to the three police areas, taking all costs into account, resulted in an assessed saving of £2.53 for every £1 invested which equates to a 1:2.53 cost to benefit ratio. The overall analysis for question 3) would therefore suggest that super-cocooning and leaflet dropping is a cost effective, efficient and economical use of PCSO time.

Discussion

This chapter will summarise the study findings in relation to the three research questions, consider the limitations of the study and finally introduce improvements to future super-cocooning evaluations.

Summary of study findings

In answering question 1), the data for all recorded dwelling-burglary offences (n=6239), reported between July 2012 and July 2013 across TVP area, were tagged with geo-synced information and inputted into the Temple University, Jerry Ratcliffe Near-repeat Calculator (NRC) (Ratcliffe 2009). The analysis showed a relationship between an increase in the risk of burglary-dwelling victimisation the closer a premises was in time (temporal) and space (spatial) to another offence location. The increase in statistically significant risk ranged from a factor of 2.68 (an observed increase of 113 offences) at a distance of 1 to 100m and within 7 days down to an increase by a factor of 1.12 (or an additional 26 houses) at a distance of 201 to 300 metres between 22 and 28 days. The total number of additional observed offences compared to those randomly distributed during the NRC's 20 calculation cycles totalled an additional 828 crimes.

This risk reduces rapidly over time and space, but it can be concluded that, across TVP area for the period July 2012 to July 2013, there is a relationship between a

greater risk of becoming a burglary-dwelling victim the closer you live to a previously burgled premises in both time and space.

In considering question 2), drawing a conclusion on general reductions and successes in all time and space parameters across Reading, Oxford and Milton-Keynes police areas is problematic. The analysis has shown statistically significant reductions in risk of repeat victimisation closer to the trigger offence as detailed within the individual analysis, but which is not replicated across the wider police area population.

However, when considering the differences in actual dwelling-burglary offences (as apposed to changes in the risk factor) in those temporal and spatial parameters or bands considered statistically significant, there does appear to be a relationship between a reduction in offences and those areas subjected to PCSO super-cocooning.

In answer to question 3, there appears to be an overall cost benefit to society of £514,946 by reducing the number of dwelling burglaries across the three Operation Reacher police areas. However, the cost benefit is not equitable across the three police areas.

In Milton-Keynes the smaller observed statistically significant reductions in dwelling-burglary offences (n=12) and the greater police staff costs associated with a larger average number of houses visited per event (n=26) results in a much smaller saving

to society (n=25,503). Furthermore, due to the same factors, Milton-Keynes police area is not observed to have benefited financially at all from the 12 month operation and is assessed to have cost the police area £13,295.69.

Conversely for Reading, the larger observed statistically significant reduction in dwelling-burglary offences (n=107) coupled with a smaller number of super-cocooning visits and more efficient use of police time results in an assessed annual societal saving of £413,305.00 and a saving to the police area of £67,350.03.

Finally, in Oxford, despite undertaking the least number of super-cocooning visits per burglary event (n=17) and greater time spent doing so (n=66.3), there was still an observed saving to both the police area of £5,007.07 and wider society of £76,138.00.

Limitations

This study has a number of limitations, principally the Level-2 Maryland Scale (Sherman et al 1998) evaluation methodology, the subject matter - burglary-dwelling reduction intervention - and the activity, application and interpretation of Operation Reacher across the three police areas and neighbourhood PCSO teams (Reading, Oxford and Milton-Keynes).

Firstly, the Level-2 comparison on the effect of an intervention - in this case super-cocooning – is better suited to studies whereby an intervention is observed to have been applied in a treatment group (or time period) and not in the control.   In

evaluating the results in support of answering question 2), the two time periods - July 2012 to 2013 for control and July 2013 to 2014 for treatment – cannot be said to have had no intervention or activity in the control period and only an intervention in the treatment. Whilst certainly it can be seen that the treatment period (July 2013 to July 2014) received an enhanced intervention, crime prevention initiatives, including house to house enquires post offence would still have taken place in the control period (July 2012 to July 2013).

Secondly, the primary mission in policing is to prevent crime and it is incumbent on all police commanders to develop strategies within their commands to tackle offending and reduce victimisation. Reducing the number of burglary-dwelling offences has, for many years, been a key priority in policing. It is therefore reasonable to expect that the three police areas within Operation Reacher and the wider force to have developed initiatives to target dwelling-burglary offences. Furthermore, other initiatives would also have been carried out across Reading, Oxford and Milton-Keynes including offender management interventions and other criminal justice interventions. It is therefore difficult to assert with certainty that the reductions in risk are as a result of super-cocooning or some other intervention. It is reasonable to argue that the results in both the treatment and control groups (or time periods) within the Operation Reacher LPAs and the wider force area are affected or biased by other crime prevention or policing interventions.

Finally, the interpretation and application of the Operation Reacher methodology and tactics across the three police areas is inconsistent. It can be observed that on

average, officers in Milton-Keynes visited more houses (n=26) per burglary-dwelling trigger offence when compared to Reading (n=20) and Oxford (n=17) and spent significantly more annual hours (Milton-Keynes n=939) than Reading and Oxford (n=290 and n=444, total of n=734) combined. Furthermore, the requirement to only visit each address once – in order to maximise the efficiency of the operation – resulted in an inconsistent number of houses receiving face-to-face contact and advice. The likelihood of homeowner being present at the time of the visit was dependent on the time of the patrol and the day of the week. The data collection principles failed to measure exactly which houses received face-to-face advice, resulting in the need to calculate approximate values from the results of the small PCSO survey.

Conclusion

This study has shown that in answer to question 1), and in support of the work by Johnson & Bowers (2004), Bowers & Johnson (2005) and Johnson, Summers and Pease (2009), that there is a statistically significant increase in risk of becoming a Victim of a burglary-dwelling offence the nearer the premises or dwelling is to a recent offence. This is an important finding for TVP and can be used operationally to support situational and environmental crime reduction strategies.

The study has also shown that, despite the limitations of the study, there is a small yet statistically significant relationship between super-cocooning premises and a reduction in dwelling-burglary offences. The study has shown that there is a greater effect the nearer you are in time and space to a previously burgled house and that

the intervention in some observed temporal and spatial parameters does appear to reduce victimisation.

Finally, by assessing the time spent in carryout super-cocooning, the average number of houses visited and the cost of PCSO activity, a calculation can be made on the cost benefit to the police and wider society of the operation. The study asserts that whilst not consistently considered to represent good value in all three of the Operation Reacher police areas, the overall cost to benefit ratio was calculated at 1:2.53 or, for every £1 invested, the operation saved the police force £2.53. There are also additional benefits to super-cocooning beyond crime prevention (such as increasing engagement opportunities, developing crime and community intelligence, welfare checks and improving police confidence levels) not considered within this study.

Developing this study

In developing the overall statistical and scientific strength of this study, the methodology in support of question 2) and 3) should be consistently implemented and, if possible, randomly applied. By ensuring that all houses within a super-cocooning event either attracted face-to-face contact or leaflet drops only – using Level-5 Maryland Scale Randomly Controlled Trial methodology (Sherman et al 1998) - a better measure of the effect of face-to-face contact versus leaflet dropping could be evaluated. Houses could be surveyed to assess the success of the intervention, in particular considering whether the visit or leaflet drop affected their household

activity, changed their confidence in the police service or increased their fear of crime - all which were beyond the scope of this study.

Finally, greater tracking and activity analysis of the PCSOs involved in the operation would support a more accurate assessment of the time spent engaged on super-cocooning and a significantly more accurate calculation on the overall cost benefit of the intervention to the police service and wider society.

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Appendix A

Extract taken from item 10, page 8 of the Thames Valley Police 'Current Fees & Chargeable Rates 2014/15' Association of Chief Police Officers approved Ready Reckoner.

10. SPECIAL POLICE SERVICES RATES (incl. Football)

Rank / Grade	2014-15 COST PER HOUR (£)		
	Normal Hourly Rate	Additional Premium	Enhanced Hourly Rate
Police Special	29.50	5.31	34.81
Police Constable	59.00	10.62	69.62
Police Sergeant	71.00	13.10	84.10
Police Insp	70.00		70.00
Police C/Insp	77.00		77.00
Police Supt	96.00		96.00
Police C/Supt	104.00		104.00
CCTV Operator	20.00	6.00	26.00
Mounted Section Groom	22.00	6.00	28.00
PCSO	**23.00**	**7.00**	**30.00**
CRED Operator	26.00	7.00	33.00
CRED Team Leader	30.00	9.00	39.00
CTW Advisor	30.00	9.00	39.00
Custody Manager	30.00	9.00	39.00
Custody Officer	26.00	7.00	33.00
ANPR Operator	30.00	9.00	39.00
Logistics Officer (Police Staff)	32.00	9.00	41.00
ELO - Emergency Liaison Officer	30.00	9.00	39.00
CTW Senior Advisor	37.00	11.00	48.00

Public Holiday/Short notice enhancements only apply to the Police ranks of PC and Sgt and Police Staff equivalents because only these ranks are eligible for overtime payments

Appendix B

Script to be used when underatking face to face super cocooning visits

Good Morning/Good Afternoon

I am PCSO...........................from your local Neighbourhood Policing Team. Thank you for taking the time to speak to me. I am making contact because there has recently been a burglary in your area.

Burglary is rare but we take it very seriously. We act on reports from the community to ensure we are patrolling the right areas and if an offence occurs it is thoroughly investigated by local detectives. We are very successful at catching burglars but by working with the community we can prevent the burglaries happening in the first place.

We are helping to investigate the burglary and also asking you to be vigilant and consider your home security.

Here are a few tips. They might seem obvious but in many burglaries we find that the burglars have taken advantage of basic lapses in security. Burglars tend to target insecure homes because they know that there is a much greater risk of getting caught if they have to force their way in or take longer getting in and out.
- Make sure you keep your doors and windows locked, even if you are inside or just in the garden
- Keep all your valuables out of sight
- Keep both house keys and car keys out of reach and sight of doors and windows
- Ensure garages and sheds are also locked
- Mark your valuables with a UV pen or marking kit

Please look out for your neighbour's property when they are not at home and if you see anything suspicious please report it immediately to the police using telephone number 101 or 999 if a crime is happening.

There is also an online security assessment you can complete to ensure your home is secure – the details can be found at www.thecrimepreventionwebsite.com and it is well worth a look.

Please also consider signing up to www.thamesvalleyalert.co.uk to receive local crime alerts.

Appendix C

A5 card left at premises during super cocooning visit if occupant was absent

Police warning

There has been a burglary in your area

Help us to keep crime down and make life harder for criminals by following the advice overleaf.

Thames Valley is a safe place to live, work and visit. Please help us to keep it that way.

- Make sure you keep doors and windows locked, even if you are only in the garden.
- Keep all valuables out of sight.
- Keep house and car keys out of reach and sight of doors and windows.
- Ensure sheds and garages are fully secured.
- Lock away ladders, garden tools and other items that burglars could use to gain access to your home.
- Mark your valuables using a uv pen or forensic marking kit.
  Visit www.securedbydesign.com for further info on property marking. Register your valuables for free at www.immobilise.com to help police identify property if stolen.
- Complete the online security assessment at www.thecrimepreventionwebsite.com to ensure your home is secure, or you can contact your neighbourhood team on 101 for advice.

Thank you for helping us to keep crime down.

For further info and advice visit www.thamesvalley.police.uk
or follow us on Twitter @thamesvp
Receive free local crime alerts by signing up to
www.thamesvalleyalert.co.uk today.

THAMES VALLEY POLICE

CP21 (07/2012) CI4541

Op Reacher Super Cocooning – PCSO Questionnaire

10 PCSOs per LPA (Milton Keynes, Oxford and Reading) were asked to complete the below questionnaire.

Q1 – On average how long did it take you to cocoon a burglary?

Q2 – Before you put the CP21 leaflet through the letter box you would have knocked on the door.   On average how many people answered the door during cocooning?

Q3 – When someone did answer the door on average how long did it take you to give them crime prevention advice?

Q4 – In general what was their reaction to you calling and informing them of a recent burglary nearby and giving the crime prevention advice?

Tables as detailed within main body of thesis

Oxford - Period Before Operation Reacher – July 2012 to July 2013

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	1.41	1.81	0.97	0.74	0.96
101 to 200m	1.24	1.31	1.25	1.15	0.96
201 to 300m	1.32	1.16	1.08	1.07	0.97
301 to 400m	0.97	0.65	1.20	1.17	1.00
More than 400m	1.00	1.00	1.00	1.00	1.00

Table 18 The risk of near repeat victimisation in time (columns) and space (rows)

In Oxford local police area 2012/13

n = 1.00 no change in risk; n> 1.00 = increase in risk; n < 1.00 = decrease in risk

shaded field denotes not statistically significant where p > 0.05

	0 to 7 days			8 to 14 days			15 to 21 days			22 to 28 days			> 28 days		
	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif
1 to 100m	9	12	3	9	16	7	8	8	0	8	6	2	192	184	8
101 to 200m	22	27	5	23	30	7	22	27	5	21	24	3	498	477	21
201 to 300m	33	43	10	35	40	5	32	35	3	31	33	2	742	721	21
301 to 400m	39	38	1	41	27	14	39	47	8	38	44	6	888	889	1
> 400m	6262	6237	25	6586	6579	7	6242	6230	12	6028	6016	12	142978	142978	0

Table 19 The numerical difference between expected (based on random selection) and observed

dwelling burglary offences In Oxford local police area 2012/13 where black numbers denote increase

and red numbers denote reduction in actual offences across time and space

shaded field denotes not statistically significant where p > 0.05

Table 20 Line chart depicting risk of near repeat victimisation in In Oxford local police area 2012/13

X axis = time in days; lines = distance (depending on colour); Y axis = change in risk

where 1.00 = no change; above 1.00 = increase risk; below 1.00 = decrease in risk

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	0.157	0.014	0.600	0.828	0.944
101 to 200m	0.142	0.090	0.140	0.265	0.990
201 to 300m	0.032	0.185	0.343	0.399	0.977
301 to 400m	0.602	0.998	0.122	0.151	0.473
More than 400m	0.991	0.641	0.930	0.843	0.004

Table 21 Statistical significance test where p < 0.05

shaded field denotes not statistically significant where p > 0.05

Oxford - Period During Operation Reacher – July 2013 to July 2014

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	1.93	2.19	0.58	1.25	0.91
101 to 200m	1.57	1.70	1.35	1.07	0.93
201 to 300m	1.47	0.73	1.42	0.99	0.97
301 to 400m	1.95	1.21	1.09	1.16	0.94
More than 400m	0.99	1.00	1.00	1.00	1.00

Table 22 The risk of near repeat victimisation in time (columns) and space (rows)

In Oxford local police area 2013/14

n = 1.00 no change in risk; n> 1.00 = increase in risk; n < 1.00 = decrease in risk

shaded field denotes not statistically significant where p > 0.05

	0 to 7 days			8 to 14 days			15 to 21 days			22 to 28 days			> 28 days		
	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif
1 to 100m	6	11	**5**	5	12	**7**	5	3	**2**	6	7	**1**	124	113	**11**
101 to 200m	11	18	**7**	11	19	**8**	10	14	**4**	11	12	**1**	254	235	**19**
201 to 300m	16	23	**7**	15	11	**4**	14	20	**6**	15	15	**0**	342	333	**9**
301 to 400m	21	41	**20**	21	25	**4**	19	21	**2**	21	24	**3**	467	438	**29**
> 400m	3082	3039	**43**	2970	2955	**15**	2778	2770	**8**	2995	2992	**3**	67359	67426	**67**

Table 23 The numerical difference between expected (based on random selection) and observed
dwelling burglary offences In Oxford local police area 2013/14 where black numbers denote increase
and red numbers denote reduction in actual offences across time and space
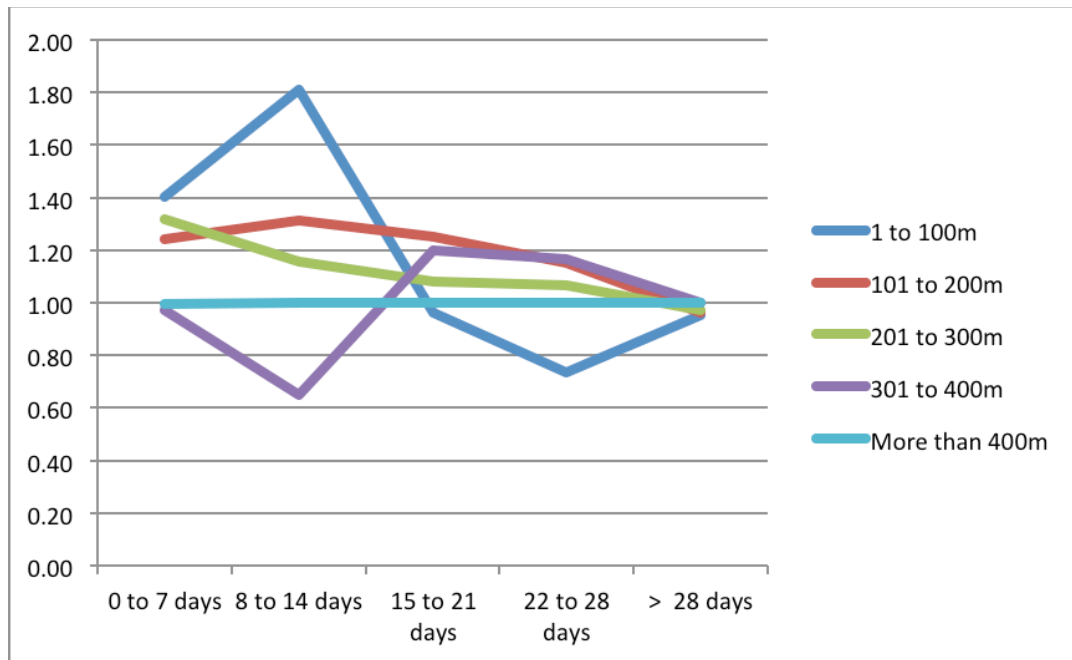shaded field denotes not statistically significant where p > 0.05
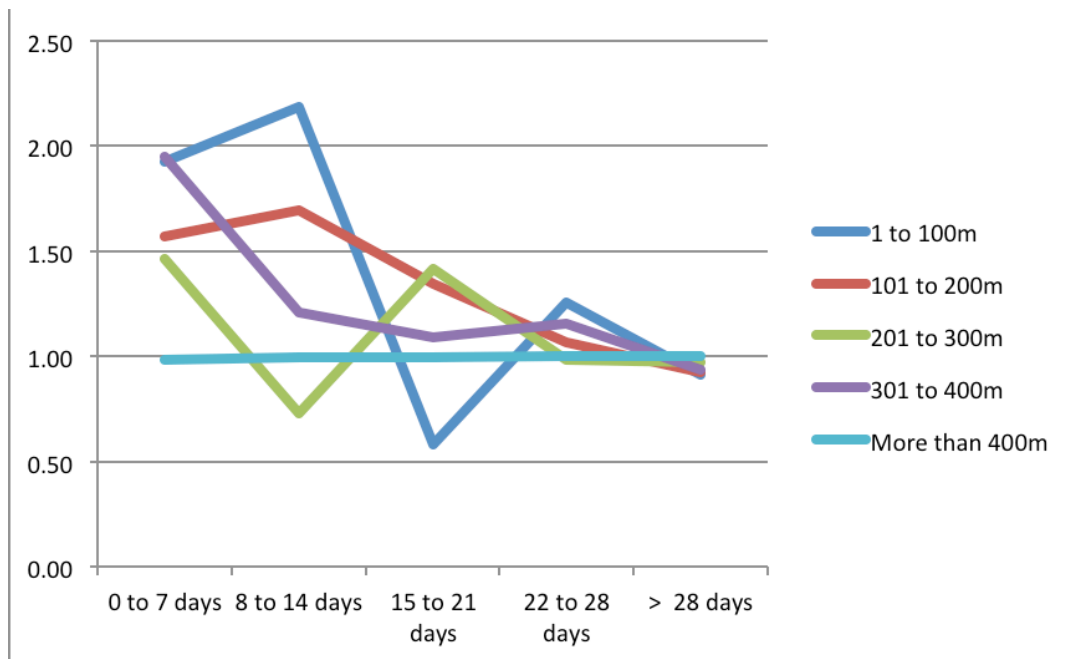
Table 24 Line chart depicting risk of near repeat victimisation in In Oxford local police area 2013/14
X axis = time in days; lines = distance (depending on colour); Y axis = change in risk
where 1.00 = no change; above 1.00 = increase risk; below 1.00 = decrease in risk

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	0.030	0.011	0.892	0.342	0.995
101 to 200m	0.048	0.023	0.173	0.451	1.000
201 to 300m	0.053	0.885	0.084	0.555	0.902
301 to 400m	0.001	0.192	0.371	0.246	1.000
More than 400m	1.000	0.982	0.919	0.772	0.001

Table 25 Statistical significance test where p < 0.05
shaded field denotes not statistically significant where p > 0.05

Milton Keynes - Period Before Operation Reacher – July 2012 to July 2013

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	3.69	0.91	1.06	1.62	0.85
101 to 200m	2.49	1.11	0.88	1.28	0.92
201 to 300m	1.48	1.30	0.61	0.82	0.99
301 to 400m	1.81	1.24	1.03	1.18	0.94
More than 400m	0.99	1.00	1.00	1.00	1.00

Table 28 The risk of near repeat victimisation in time (columns) and space (rows)

In Milton Keynes local police area 2012/13

n = 1.00 no change in risk; n> 1.00 = increase in risk; n < 1.00 = decrease in risk

shaded field denotes not statistically significant where p > 0.05

	0 to 7 days			8 to 14 days			15 to 21 days			22 to 28 days			> 28 days		
	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif
1 to 100m	8	28	20	8	7	1	8	8	0	7	12	5	169	144	25
101 to 200m	14	35	21	14	16	2	14	12	2	14	18	4	315	290	25
201 to 300m	18	27	9	18	24	6	18	11	7	18	15	3	408	404	4
301 to 400m	23	42	19	23	29	6	22	23	1	23	27	4	513	484	29
> 400m	8710	8632	78	8796	8778	18	8523	8532	9	8727	8718	9	194516	194516	0

Table 29 The numerical difference between expected (based on random selection) and observed

dwelling burglary offences In Milton Keynes local police area 2012/13 where black numbers denote increase

and red numbers denote reduction in actual offences across time and space

shaded field denotes not statistically significant where p > 0.05

Table 30 Line chart depicting risk of near repeat victimisation in In Milton Keynes local police area 2012/13

X axis = time in days; lines = distance (depending on colour); Y axis = change in risk
where 1.00 = no change; above 1.00 = increase risk; below 1.00 = decrease in risk

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	0.001	0.665	0.476	0.066	1.000
101 to 200m	0.001	0.372	0.730	0.182	1.000
201 to 300m	0.029	0.109	0.977	0.809	0.723
301 to 400m	0.001	0.159	0.473	0.218	0.998
More than 400m	1.000	0.971	0.176	0.857	0.001

Table 31 Statistical significance test where $p < 0.05$

shaded field denotes not statistically significant where $p > 0.05$

Milton Keynes - Period During Operation Reacher – July 2013 to July 2014

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	4.13	2.02	0.50	1.58	0.82
101 to 200m	1.32	1.55	1.07	1.09	0.96
201 to 300m	1.21	0.78	1.33	0.81	0.99
301 to 400m	1.50	0.85	0.92	1.39	0.97
More than 400m	1.00	1.00	1.00	1.00	1.00

Table 32 The risk of near repeat victimisation in time (columns) and space (rows)

In Milton Keynes local police area 2013/14

n = 1.00 no change in risk; n> 1.00 = increase in risk; n < 1.00 = decrease in risk

shaded field denotes not statistically significant where $p > 0.05$

	0 to 7 days			8 to 14 days			15 to 21 days			22 to 28 days			> 28 days		
	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif
1 to 100m	6	24	**18**	6	12	**6**	6	3	**3**	6	9	**3**	137	112	**25**
101 to 200m	12	16	**4**	12	19	**7**	12	13	**1**	12	13	**1**	281	268	**13**
201 to 300m	14	17	**3**	14	11	**3**	14	19	**5**	14	11	**3**	323	321	**2**
301 to 400m	17	26	**9**	18	15	**3**	17	16	**1**	17	24	**7**	403	392	**11**
> 400m	7438	7401	**37**	7452	7445	**7**	7522	7522	**0**	7302	7295	**7**	171543	171543	**0**

Table 33 The numerical difference between expected (based on random selection) and observed

dwelling burglary offences In Milton Keynes local police area 2013/14 where black numbers denote increase and red numbers denote reduction in actual offences across time and space

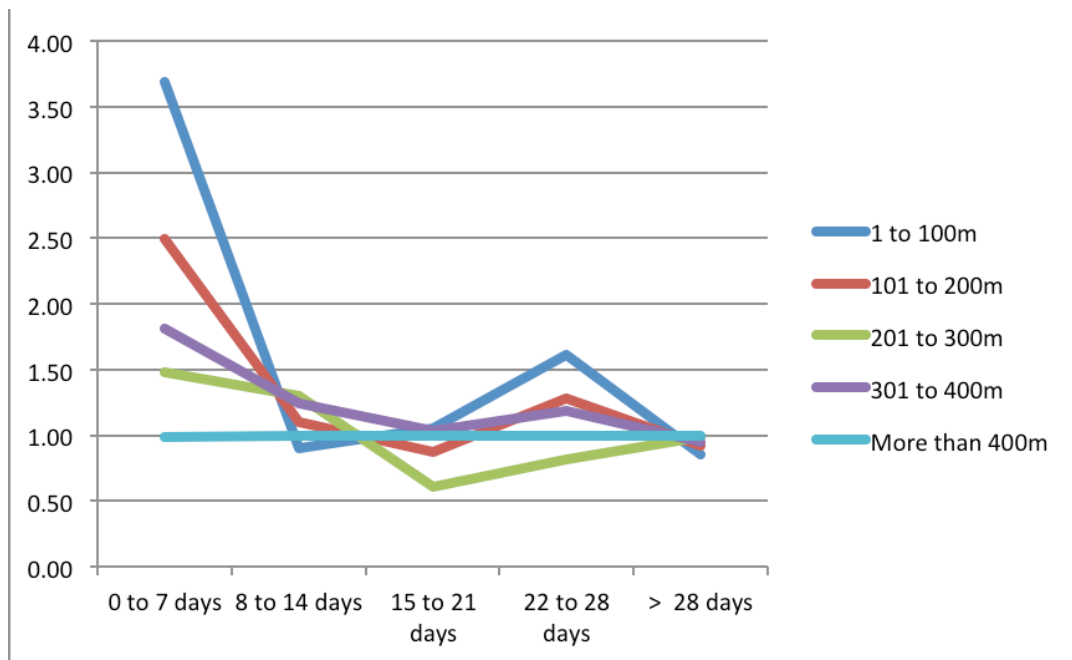shaded field denotes not statistically significant where p > 0.05
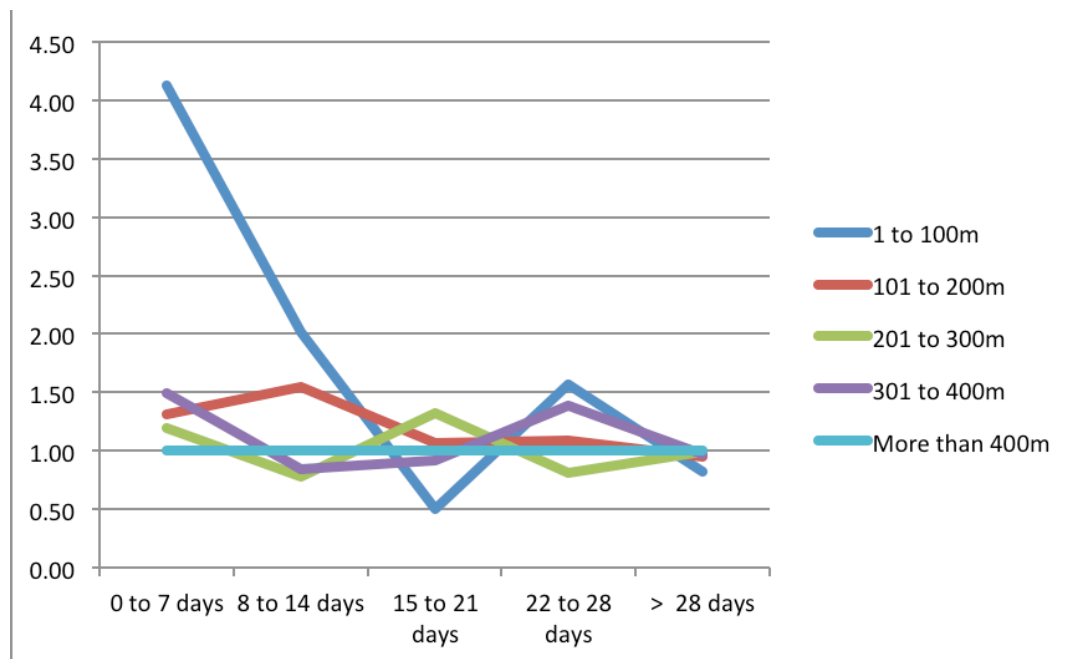
Table 34 Line chart depicting risk of near repeat victimisation in In Milton Keynes local police area 2013/14

X axis = time in days; lines = distance (depending on colour); Y axis = change in risk

where 1.00 = no change; above 1.00 = increase risk; below 1.00 = decrease in risk

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	0.001	0.015	0.950	0.115	1.000
101 to 200m	0.156	0.038	0.452	0.407	0.980
201 to 300m	0.263	0.839	0.132	0.799	0.633
301 to 400m	0.033	0.783	0.674	0.068	0.932
More than 400m	1.000	0.842	0.724	0.917	0.001

Table 35 Statistical significance test where p < 0.05

shaded field denotes not statistically significant where p > 0.05

Rest of Force (Ten Police Areas) - Period Before Operation Reacher – July 2012 to

July 2013

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	2.90	1.35	0.83	1.09	0.91
101 to 200m	1.91	1.32	1.30	1.08	0.93
201 to 300m	1.67	1.24	1.25	1.18	0.94
301 to 400m	1.52	1.26	1.17	1.03	0.96
More than 400m	1.00	1.00	1.00	1.00	1.00

Table 38 The risk of near repeat victimisation in time (columns) and space (rows)

In the rest of the Force 2012/13

n = 1.00 no change in risk; n> 1.00 = increase in risk; n < 1.00 = decrease in risk

shaded field denotes not statistically significant where p > 0.05

	0 to 7 days			8 to 14 days			15 to 21 days			22 to 28 days			> 28 days		
	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif
1 to 100m	39	113	**74**	42	56	**14**	41	34	**7**	40	44	**4**	901	816	**85**
101 to 200m	91	175	**84**	98	129	**31**	96	125	**29**	95	103	**8**	2111	1959	**152**
201 to 300m	129	215	**86**	136	168	**32**	135	168	**33**	133	157	**24**	2947	2770	**177**
301 to 400m	156	237	**81**	165	207	**42**	164	191	**27**	161	165	**4**	3581	3427	**154**
> 400m	339099	338760	**339**	358953	358953	**0**	354380	354380	**0**	349058	349058	**0**	7778771	7778771	**0**

Table 39 The numerical difference between expected (based on random selection) and observed

dwelling burglary offences in the rest of the Force 2012/13 where black numbers denote increase

and red numbers denote reduction in actual offences across time and space

shaded field denotes not statistically significant where p > 0.05

Table 40 Line chart depicting risk of near repeat victimisation in the rest of the Force 2012/13

X axis = time in days; lines = distance (depending on colour); Y axis = change in risk

where 1.00 = no change; above 1.00 = increase risk; below 1.00 = decrease in risk

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	0.001	0.014	0.886	0.301	1.000
101 to 200m	0.001	0.002	0.003	0.219	1.000
201 to 300m	0.001	0.003	0.006	0.029	1.000
301 to 400m	0.001	0.001	0.022	0.396	1.000
More than 400m	1.000	1.000	1.000	0.971	0.001

Table 41 Statistical significance test where $p < 0.05$

shaded field denotes not statistically significant where $p > 0.05$

Rest of Force (Ten Police Areas) - Period During Operation Reacher – July 2013 to

July 2014

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	3.54	1.53	1.07	0.95	0.87
101 to 200m	1.67	1.12	1.29	1.26	0.94
201 to 300m	1.30	1.14	1.14	0.89	0.98
301 to 400m	1.42	1.18	0.89	0.97	0.98
More than 400m	1.00	1.00	1.00	1.00	1.00

Table 42 The risk of near repeat victimisation in time (columns) and space (rows)

In the rest of the Force 2013/14

n = 1.00 no change in risk; n> 1.00 = increase in risk; n < 1.00 = decrease in risk

shaded field denotes not statistically significant where p > 0.05

	0 to 7 days			8 to 14 days			15 to 21 days			22 to 28 days			> 28 days		
	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif	Exp	Obs	Dif
1 to 100m	36	126	**90**	38	58	**20**	37	40	**3**	37	35	**2**	829	718	**111**
101 to 200m	73	122	**49**	78	87	**9**	76	98	**22**	76	95	**19**	1709	1610	**99**
201 to 300m	99	128	**29**	104	119	**15**	103	117	**14**	102	90	**12**	2299	2253	**46**
301 to 400m	120	171	**51**	128	151	**23**	126	112	**14**	124	121	**3**	2824	2768	**56**
> 400m	216225	216009	**216**	230420	230420	**0**	226267	226267	**0**	223821	223821	**0**	5054227	5054227	**0**

Table 43 The numerical difference between expected (based on random selection) and observed

dwelling burglary offences in the rest of the Force 2013/14 where black numbers denote increase

and red numbers denote reduction in actual offences across time and space

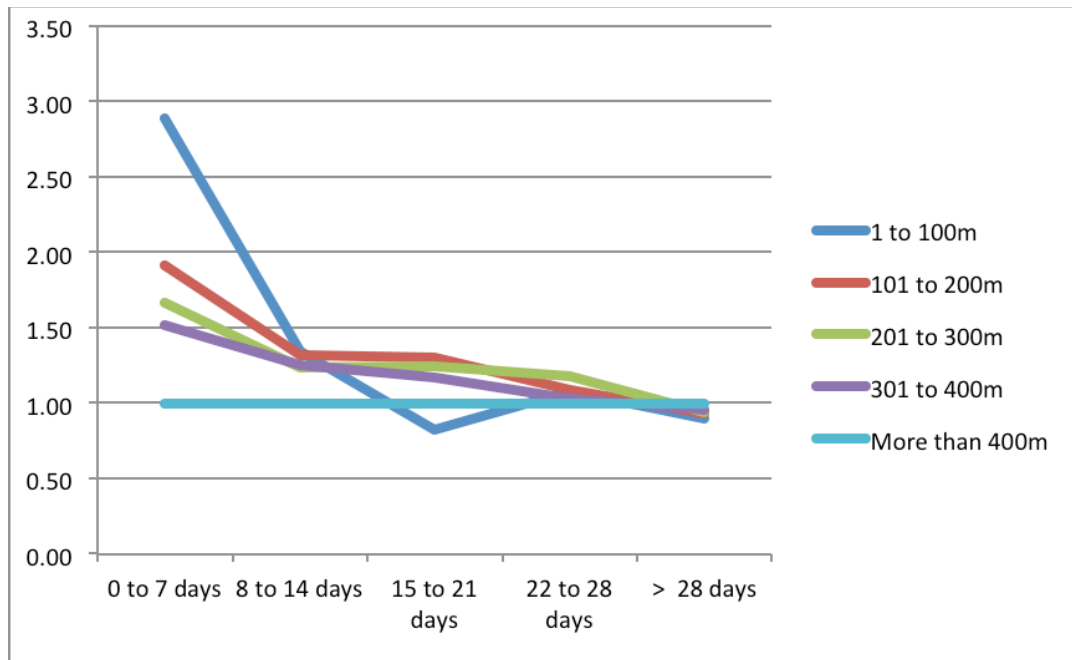shaded field denotes not statistically significant where p > 0.05
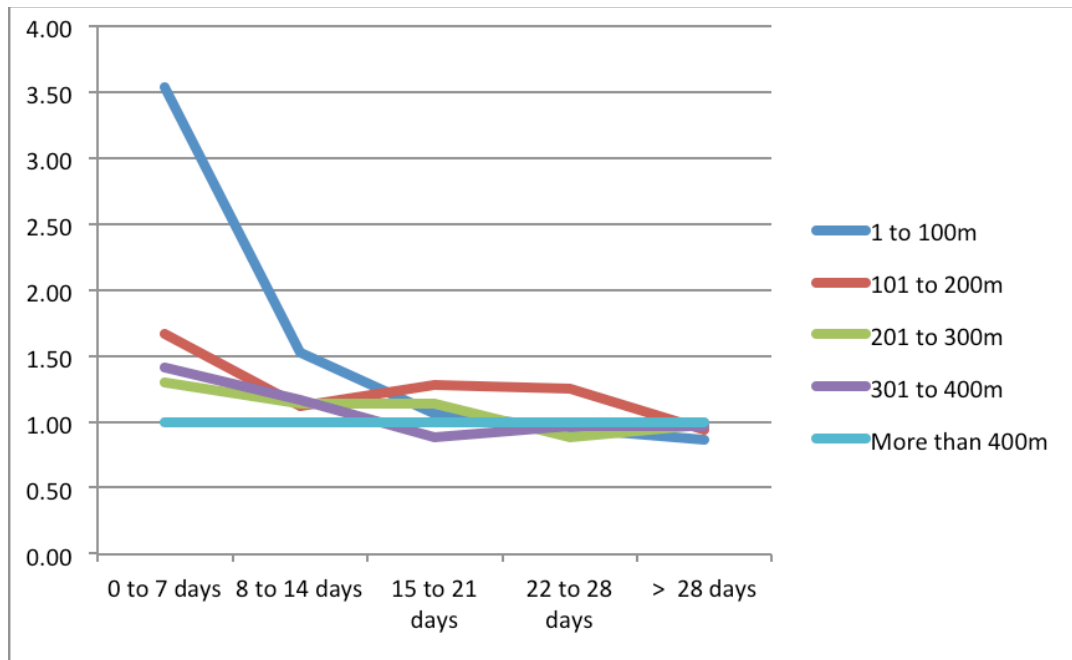
Table 44 Line chart depicting risk of near repeat victimisation in the rest of the Force 2013/14

X axis = time in days; lines = distance (depending on colour); Y axis = change in risk

where 1.00 = no change; above 1.00 = increase risk; below 1.00 = decrease in risk

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	0.001	0.003	0.355	0.635	1.000
101 to 200m	0.001	0.146	0.007	0.017	1.000
201 to 300m	0.003	0.080	0.081	0.904	0.995
301 to 400m	0.001	0.027	0.904	0.638	0.999
More than 400m	1.000	1.000	0.920	0.600	0.001

Table 45 Statistical significance test where p < 0.05

shaded field denotes not statistically significant where p > 0.05

Comparison of the Operation Reacher areas and the rest of the force

	0 to 7 Days			8 to 14 Days			15 to 21 Days			22 to 28 Days			More than 28 Days		
	Rea	RoF	Dif	Rea	RoF	Dif	Rea	RoF	Dif	Rea	RoF	Dif	Rea	RoF	Dif
1 to 100m	0.02	0.64	0.62	0.49	0.18	0.31	0.33	0.24	0.57	0.83	0.14	0.69	0.02	0.04	0.06
101 to 200m	0.08	0.24	0.32	0.04	0.20	0.15	0.28	0.02	0.27	0.73	0.17	0.56	0.03	0.01	0.04
201 to 300m	0.33	0.37	0.70	0.32	0.10	0.42	0.13	0.11	0.23	0.06	0.30	0.23	0.04	0.04	0.08
301 to 400m	0.13	0.10	0.22	0.08	0.08	0.00	0.14	0.28	0.42	0.25	0.05	0.19	0.00	0.02	0.02
> 400m	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 48 Total cumulative difference (Dif) in risk considering the overall effect between
Reading (Rea) police area and the other ten police areas not taking part in operation (RoF)

	0 to 7 Days			8 to 14 Days			15 to 21 Days			22 to 28 Days			More than 28 Days		
	Oxf	RoF	Dif	Oxf	RoF	Dif	Oxf	RoF	Dif	Oxf	RoF	Dif	Oxf	RoF	Dif
1 to 100m	0.52	0.64	0.13	0.37	0.18	0.19	0.39	0.24	0.63	0.52	0.14	0.65	0.05	0.04	0.01
101 to 200m	0.33	0.24	0.57	0.39	0.20	0.58	0.10	0.02	0.11	0.08	0.17	0.25	0.03	0.01	0.05
201 to 300m	0.15	0.37	0.52	0.43	0.10	0.33	0.33	0.11	0.44	0.08	0.30	0.22	0.00	0.04	0.04
301 to 400m	0.98	0.10	1.08	0.56	0.08	0.64	0.11	0.28	0.17	0.01	0.05	0.05	0.06	0.02	0.09
> 400m	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 49 Total cumulative difference (Dif) in risk considering the overall effect between
Oxford (Oxf) police area and the other ten police areas not taking part in operation (RoF)

	0 to 7 Days			8 to 14 Days			15 to 21 Days			22 to 28 Days			More than 28 Days		
	MK	RoF	Dif	MK	RoF	Dif	MK	RoF	Dif	MK	RoF	Dif	MK	RoF	Dif
1 to 100m	0.44	0.64	0.21	1.11	0.18	0.94	0.56	0.24	0.80	0.04	0.14	0.10	0.03	0.04	0.01
101 to 200m	1.17	0.24	0.93	0.45	0.20	0.65	0.19	0.02	0.21	0.19	0.17	0.36	0.03	0.01	0.02
201 to 300m	0.28	0.37	0.10	0.52	0.10	0.42	0.72	0.11	0.83	0.01	0.30	0.29	0.00	0.04	0.04
301 to 400m	0.31	0.10	0.21	0.39	0.08	0.31	0.11	0.28	0.17	0.21	0.05	0.26	0.03	0.02	0.01
> 400m	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 50 Total cumulative difference (Dif) in risk considering the overall effect between
Milton Keynes (MK) police area and the other ten police areas not taking part in operation (RoF)

Summary of actual changes in burglary offence numbers

Reading

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	-10	-1	-10	-15	-117
101 to 200m	-15	-18	-23	5	-325
201 to 300m	-13	-11	-21	-22	-478
301 to 400m	-30	-33	-26	-39	-620
> 400m	-3955	-3905	-3836	-3891	-94282

Sum of statistically significant	-53	-12	-47	5	Total = -107

Table 52 Details the statistically significant reductions in burglary dwelling offences
In Reading from July 2013 to July 2014 (no shading) with a sum for each time period and a total for all parameters. The figure for greater than 400m and 28 days has been excluded

Oxford

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	-1	-4	-5	1	-71
101 to 200m	-9	-11	-13	-12	-242
201 to 300m	-20	-29	-15	-18	-388
301 to 400m	3	-2	-26	-20	-451
> 400m	-3198	-3624	-3460	-3024	-75552

Sum of statistically significant	-7	-15			Total = -22

Table 53 Details the statistically significant reductions in burglary dwelling offences
In Oxford from July 2013 to July 2014 (no shading) with a sum for each time period and a total for all parameters. The figure for greater than 400m and 28 days has been excluded

Milton Keynes

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	-4	5	-5	-3	-32
101 to 200m	-19	3	1	-5	-22
201 to 300m	-10	-13	8	-4	-83
301 to 400m	-16	-14	-7	-3	-92
> 400m	-1231	-1333	-1010	-1423	-22973

Sum of statistically significant	0 to 7 days	8 to 14 days			
	-20	8			Total = -12

Table 54 Details the statistically significant reductions in burglary dwelling offences
In Milton Keynes from July 2013 to July 2014 (no shading) with a sum for each time period and a total for all parameters. The figure for greater than 400m and 28 days has been excluded

Rest of Force

	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	> 28 days
1 to 100m	13	2	6	-9	-98
101 to 200m	-53	-42	-27	-8	-349
201 to 300m	-87	-49	-51	-67	-517
301 to 400m	-66	-56	-79	-44	-659
> 400m	-122751	-128533	-128113	-125237	-2724544

Sum of statistically significant	0 to 7 days	8 to 14 days	15 to 21 days	22 to 28 days	
	-193	-54	-27	-8	Total = -282

Table 55 Details the statistically significant reductions in burglary dwelling offences
In the rest of the force from July 2013 to July 2014 (no shading) with a sum for each time period and a total for all parameters. The figure for greater than 400m and 28 days has been excluded