

Reducing gang related crime

A systematic review of ‘comprehensive’ interventions

Review conducted by the Gang related violence and anti-social behaviour review group

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**TECHNICAL
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CONTENTS

Abstract	5
1. Background	7
1.1 Aims and rationale for current review	7
1.2 Definitional and conceptual issues	9
1.3 Policy and practice background	9
1.4 Research background	9
1.5 Authors, funders and other users of the review	11
1.7 Review questions	11
2. Methods used in the review	12
2.1 User involvement	12
2.2 Identifying and describing studies	12
2.3 In-depth review	14
3. Identifying and describing studies: results	18
3.1 Studies included from searching and screening	18
3.2 Characteristics of the included studies (systematic map)	20
3.3 Identifying and describing studies: quality-assurance results	34
3.4 Summary of systematic map	34
4. In-depth review: Results	35
4.1 Weights of evidence	36
4.2 Comparison of the studies selected for in-depth review with the total studies in the systematic map	36
4.3 Synthesis of evidence for all 17 in-depth review studies	37
4.4 Synthesis of studies with crime reduction outcomes	39
4.5 Overview of sensitivity analysis	44
4.6 Analysis of effects by theories of change	45
4.7 Summary of results	57
5. Implications	60
5.1 Summary of principal findings	60
5.2 Discussion and conclusions	60
5.3 Strengths and weaknesses of this systematic review	61
5.4 Weaknesses	62
6. References	63
6.1 Studies included in map and synthesis	63
6.2 Studies included in the in-depth review	69
6.3 Other references used in the text of the technical report	70
Appendices	72
Appendix 1.1 Authorship of this report	72
Appendix 1.2 Search sources	74
Appendix 2 Bibliographic databases searched for the review	77
Appendix 3 Details of studies included in the systematic map	81
Appendix 4 Description of studies in the in-depth review	113
Appendix 5 Calculation of effect sizes for synthesis	136
Appendix 6 Calculation of heterogeneity for synthesis	138
Appendix 7 Effectiveness interpretation framework (Newman 2008)	153

List of abbreviations

BRGV	Birmingham Reduced Gang Violence
CBT	Cognitive-behavioural therapy
DWP	Detached work programmes
GOWM	Government Office West Midlands
MSSM	Maryland Scale of Scientific Methods
REA	Rapid evidence assessment
WoE	Weight of evidence

Abstract

What do we want to know?

The specific aims of this systematic review were as follows:

- to produce a systematic map describing the range of research on interventions implemented in response to gang related crime and anti-social behaviour
- to carry out an in-depth review focusing on a specific sub-group of 'comprehensive' interventions to assess the effectiveness of this type of intervention
- to explore which 'mechanisms of change' might be important to underpin the practice of effective comprehensive interventions
- to make recommendations for policy and practice, based on these findings

After the initial mapping stage, the decision was taken to focus on the following in-depth review question:

Are comprehensive interventions more effective at reducing gang related criminal activity and anti-social behaviour than usual service provision?

('Comprehensive' refers to multi-faceted approaches encompassing more than one distinct type of intervention.)

In answering this question, the review also explored whether some types of comprehensive interventions were more effective than others.

Why do we want to know?

Gang-related crime and anti-social behaviour continue to be issues of concern at both a national and local level. The majority of available research

concentrates on explanations of risk factors, gang definitions and sociological explanations of gang behaviour. In short, it does not focus on the effectiveness of specific approaches or interventions which are designed to impact on gang-related crime.

This systematic review was undertaken in order to respond to a need for evidence for developing interventions in areas experiencing problems concerning gang-related criminal activity. The review focuses on assessing the effectiveness of interventions so that recommendations can be made around replication and implementation.

What did we find?

The in-depth review focused on studies that:

- evaluated comprehensive interventions
- included gang members
- contained some element of evaluation and scored at least 3 on the Maryland Scale of Scientific Methods
- reported crime reduction outcomes
- provided data necessary for statistical synthesis

The synthesis found that, overall, the comprehensive interventions had a positive, but not statistically significant, effect on reducing crime outcomes compared with usual service provision (i.e. whatever was in place either in a comparison area or before the specific intervention).

The review identified a number of mechanisms of change which were present in those interventions associated with positive outcomes. In the higher quality studies¹ with positive effects, the comprehensive interventions included one or more of the following mechanisms of change:

¹ Those studies which had a higher weight of evidence based on the reviewers' assessment of the methodological design of the study

6 Reducing gang related crime: a systematic review of ‘comprehensive’ interventions

- case management / provision of a personalised holistic approach
- community involvement in the planning of interventions
- community involvement in the delivery of interventions
- expertise shared between agencies
- delivery of incentives to change offending behaviour, as part of a wider comprehensive intervention approach

It is not clear whether only one of these mechanisms of change is the effective one, or if more than one of these mechanisms is needed to produce the desired outcome (and in which combination). In addition, the evidence does not suggest that the actual number of components in a comprehensive intervention is associated with effect size. These are issues that warrant further investigation in the evaluation of new comprehensive interventions

What are the implications?

While the evidence does not allow us to justify a policy recommendation to use, or not use, comprehensive interventions to tackle gang-related criminal activity, the review has identified a small positive effect for comprehensive interventions.

All the interventions evaluated in the studies included in this review took place in the United States and it is therefore not possible to be sure of their transferability into a UK context. Comprehensive interventions warrant further rigorous evaluation in a UK context and policy should support the use of such interventions in the context of a rigorous evaluation.

The future design of comprehensive interventions in the UK context should also allow further investigation of those mechanisms of change, which the review suggests are important in successful comprehensive interventions.

How did we get these results?

In order to ensure that the review is relevant to policy and practice, it has been informed by a range of users that have an interest in the results, including practitioners, policymakers and academics. The views of the user group informed both the scope and direction of the review.

A thorough search strategy was developed and all the main social science databases were searched, in addition to handsearching of bibliographies and searches of grey literature. This systematic search processes identified studies which:

- were linked to gang-related crime or anti-social behaviour
- focused on an intervention
- reported outcomes that were specifically related to reducing or preventing gang-related anti-social or criminal behaviour

The characteristics of studies meeting the inclusion criteria defined above were mapped in order to refine the research question for the in-depth review. The in-depth review then focused on ‘comprehensive’ interventions (multifaceted approaches encompassing more than one type of intervention), and studies describing this type of approach were subject to data-extraction and quality appraisal, using the Maryland Scale of Scientific Methods.

Narrative and statistical synthesis of the included studies was undertaken, focusing firstly on the intervention type and then on the different outcome measures in the studies.

CHAPTER ONE

Background

This chapter describes the aims and rationale of the review, considers the definitional and conceptual issues surrounding the area of gangs, and examines the policy, practice and research background. Finally it states the question addressed by this review.

1.1 Aims and rationale for current review

Media reports and research evidence suggest that there is increasing concern about gang membership and its relationship to violent crime in the UK (Bullock and Tilley, 2002; Bennett and Holloway, 2004), despite the fact that the actual prevalence of gangs in the UK and the degree to which they contribute to crime are not very well understood (Klein et al., 2006; YJB, 2007).

Despite the evident concern about gang-related criminal activity, there appear to have been few attempts to review systematically the lessons learnt from evaluations of interventions targeting this group despite their appearing to be a wealth of published literature in this field (Klein and Maxson, 2006, p 12).

This systematic review has been undertaken in order to respond to a need for evidence and support in developing interventions in areas experiencing problems around gang-related criminal activity. The review focuses on assessing the effectiveness of interventions so that recommendations can be made around replication and implementation.

Before undertaking any new intervention or approach, implementers should be confident that they are informed about relevant research, policies or practices that already exist in relation to the subject area in question. While several narrative reviews relevant to gang issues are readily available, these are not based on a clear and systematic methodology that ensures unbiased searching and the transparent appraisal of relevant material. In addition, reviews in existence are generally not focused on the ‘effectiveness’ of approaches or interventions which impact on gang-related violence.

A systematic review provides ordered and filtered evidence that can be widely disseminated in order to support the more effective targeting of resources on reducing high profile gang-related crime and anti-social behaviour.

This review aims to answer the following broad review question:

What interventions are effective in preventing or reducing gang-related criminal activity and anti-social behaviour?

The specific objectives of the review are as follows:

- to produce a systematic map describing the range of interventions that have been implemented to try to reduce or prevent gang-related criminal activity and anti-social behaviour
- to sift and critically appraise the evidence in order to produce an in-depth review focusing on a specific aspect of gang interventions
- where possible, to synthesise the results of identified studies in order to identify effective interventions
- to highlight the knowledge, skills, principles and theories underpinning the practice of effective interventions
- to make recommendations for policy and practice based on the findings in order to inform future decision making on suitable interventions

1.2 Definitional and conceptual issues

There is little consensus about how ‘Gangs’ should be defined (YJB, 2007). For example, the degree to which they represent well organised subcultures (Thrasher, 1927), the degree to which criminal activity is a feature of a ‘gang’ (Huff, 1993; Bullock and Tilley, 2002; Howell, 1997) and the degree to which social recognition and identity are necessary to the constitution of ‘gangs’ (Klein, 1971) are matters of debate.

Any definition of ‘gangs’ will be partial and limiting in some way but for the purposes of this review, the following definition of a gang was adopted:

a group of people who identify together by a name and/or a territory whose core members are involved in anti-social and/or criminal behaviour

This definition was informed by the views of the Advisory Group, a group of researchers, policymakers and practitioners, established to advise the Review Group on the direction of the work.

It was an early intention to focus this review on gang-related violence. Subsequent discussions, consultation with users and the adoption of this definition of ‘gang’ have resulted in a broadening of the review question to consider gang-related criminal activity and anti-social behaviour. The focus of the review has therefore shifted from the specific type of offending behaviour (i.e. violence) to offending as a whole.

In addition, the review needs to be clear about the nature of the population for the study. Originally, the review focused upon those individuals who were members of a gang as defined above, plus those who were at-risk of becoming gang members likely to engage in anti-social or criminal behaviour.

The review did not set parameters for the definition of the latter group. Rather, this is predetermined by the focus of studies, identified as part of the review. In other words, if a paper relates to individuals, whom the author believes to be at risk of becoming gang members likely to engage in anti-social or criminal behaviour, then such a paper has been included.

Focusing the review on ‘young people’ was also discussed in depth; however, based on feedback from the Advisory Group, applying exclusion criteria based on the age of gang members was discounted. In addition, criminal ‘firms’ or organised crime groups were not considered within the remit of this review.

As the work has progressed to the in-depth review stage, so the focus has become tighter. Studies were only considered for inclusion in the in-depth review if gang members were one of the study populations; gang members did not have to be the

only population studied but they had to be one of them.

The in-depth review also focused on ‘comprehensive’ interventions, which the Review Group defined as intentionally designed multi-faceted approaches encompassing more than one of the defined intervention types. The intervention types are discussed further in Chapter 3.

1.3 Policy and practice background

Firearm offences (excluding air weapons) in England and Wales experienced a period of increase between 1998/99 and 2005/06. In 2006/07 levels fell for the first time since 1997/98 with a provisional 9,608 firearm offences recorded in England and Wales. This represents a 13% decrease on 2005/06 and is also the lowest number recorded since 2000/01 (Nicholas et al., 2007).

However the number of firearms offences remains a cause for much concern within government and there continue to be reports of shootings around the country.

Following the shooting of two young women in Birmingham in 2003 the efforts of a range of agencies were focused on addressing gang-related behaviour in the city. The City Strategic Partnership in Birmingham convened a strategic group to consider issues relating to the proliferation of guns and gangs in Aston and Handsworth. This led to the development of an operational management forum, ‘Birmingham Reducing Gang Violence’ (BRGV), to agree a strategy designed to review and re-focus work and to improve the response of services. A number of key strands were identified and agreed, and formed the basis of a work programme for BRGV. These strands were as follows:

- research
- communication
- interventions for young people who are at risk of getting involved in guns and gangs
- enforcement

Government Office West Midlands (GOWM) lead on the research strand, with a specific role in advising BRGV on research evidence of what is effective in reducing gang and gun-related activity. Members of the Review Group for this systematic review were all originally based within GOWM.

The growing focus on anti-social behaviour and ‘gangs of young people’ provides further impetus for this review. The current government’s Respect programme highlighted the importance to policymakers of work which considers the effectiveness of interventions targeted at gang-related criminal activity and anti-social behaviour.

Further to this, the government has established a gang task force to address the problem of gangs of young people, with particular reference to the use of firearms and the role of guns within the gang.

1.4 Research background

This section outlines how thinking around gangs and gang-related interventions has developed over time. In addition to tracking the development of the body of knowledge in these areas over time, it also demonstrates the breadth of research and the lack of a consistent view regarding what a 'successful' intervention might look like.

An initial review of relevant research suggests that the majority of evidence both in terms of the study of gangs and interventions to counter gang based criminal behaviour originates in the USA. Gang and group-related criminal behaviour is also well established in other countries, and this review recognises that evidence of intervention effectiveness may originate from these areas; this has been considered within the remit of the review.

The Review Group were also aware of the work of the Eurogang network, a thematic international network for comparative and multi-method research on violent youth groups. A member of the network is a member of the review Advisory Group. This has helped to ensure that appropriate linkages are maintained with the network.

1.4.1 Gangs and gang membership

In a seminal study of gang behaviour, Thrasher (1927) describes the street gangs of 1920s Chicago. He considers the geography and definition of gangs, types of gangs and gang activities, both conventional and criminal. Thrasher considers the cycle of gang warfare and drivers behind it, and the racial and ethnic dimension to gang membership and identity. He describes gang structure, social patterns and mechanisms for control. Finally, Thrasher offers pointers as to the focus for interventions to 're-direct the gang' and its members, including enforcement and transformation of the role of the gang.

Updating the work of Thrasher, Huff (in Goldstein and Huff, 1993) describes different types of gangs in the USA but focuses on youth gangs. He explores definitional issues between gangs and how they differ from groups, suggesting that the term 'gang' implies a group that commits crime and that this differentiates it from a group (a gathering which does not commit crime).

Huff (ibid) also explores how gangs differ from organised crime groups. He suggests that youth gangs have the following features:

- primarily adolescent
- members interacting frequently with each other

- frequently and deliberate involvement in illegal activity
- sharing common collective identity (usually through gang name)
- expressing identity through the adoption of symbols and/or claim of control over turf (people, place, things, economic markets)

He further suggests that an organised crime group is:

- primarily adults
- members interacting frequently with each other
- frequent and deliberate involvements in illegal activity
- better defined leadership and organisational structure than to be found in youth gangs

Huff (ibid) suggests that there are fuzzy boundaries between the two as gangs become increasingly involved in criminal activity traditionally associated with organised crime (e.g. drug trafficking). Links between gangs and drug trafficking are strong but not all gang members are involved in drug trafficking; neither does drug trafficking in the USA depend on gangs

Huff states that gang members are primarily male in 14-24 age band and that there are few female gangs, but there is evidence of female gang 'groupies'. He also introduces the concept of gang migration where gangs (and/or gang identity) move into other areas.

Finally, Huff suggests that conflict within gangs is now almost as great as conflict between gangs and offers that the splitting out of factions is part of an organic/constantly evolving process, which is a feature of all gangs.

Curry and Decker (2003) suggest that the most important aspect of the gang-life context is the neighbourhood or community in which gang members live and operate. They also suggest that a number of elements are present in all gangs, such as group identity, the use of symbols, communication, a degree of permanence, a 'turf' and involvement in crime.

Klein (1995) argues that there is great variety in the type and nature of gangs but that there is still a need to attempt to develop a typology in order to focus interventions. He also suggests that age is becoming less of a characteristic and that the setting in which the gang operates and the style and nature of gang activity now seem more relevant. Definitions should now consider the 'street' aspect rather than youth or juvenile aspects, as many gang members are in their mid-twenties.

1.4.2 Interventions

Identifying high quality evidence in relation to reducing or preventing gang-related crime and anti-social behaviour is challenging. The majority of available literature reviews available concentrate on explanations of risk factors, gang definitions and sociological explanations of gang membership. In short, they are not focused on the effectiveness of approaches or interventions which impact on gang-related violence.

Where the research literature describes strategies that have been designed and implemented in order to prevent and/or control gang violence problems, there is often a lack of rigorous scientific evaluation. Therefore it is difficult to assess which strategy or what combination of strategies is the most effective.

Goldstein (in Goldstein and Huff 1993) suggests that interventions fall into three broad groupings, namely psychological, contextual and criminal justice based. Goldstein also argues that there are four cross-cutting types of interventions, namely detached work programmes, opportunities provision, deterrence, and comprehensive programmes which include elements of the previous three.

Spergel suggests that early interventions were primarily detached work programmes (DWP)s or a 'systematic effort of an agency worker within a neighbourhood context to help a group of young people described as delinquent or partially delinquent to achieve a conventional adaptation' (in Goldstein and Huff, 1993, 22).

The assumption is that youth gangs are adaptive and can be re-directed (Klein 1971), but evaluation in USA suggests that DWP alone has little impact on gang offending behaviour, for the following reasons:

- failure of programme integrity - not implemented as planned
- failure of programme intensity - not implemented as intensely as planned
- absence of delinquency relevant techniques i.e. interventions which are appropriate to address delinquency or offending behaviour.
- failure of programme prescriptiveness - not tailored to individual needs
- failure of programme comprehensiveness - unidimensional

In the 1970s, opportunities provision programmes were developed through a recognition that DWP alone could not work. Klein (1968), in describing the Ladino Hills project, identifies a typology of gang member and a need for interventions targeted at the specific needs of individuals.

Goldstein (in Goldstein and Huff, 1993) argues that deterrence/incarceration programmes emerged in the late 1970s from impatience with other approaches. These focused on social control rather than social improvement, and success was measured in terms of violence reduction rather than group or individual change in behaviour. Fritsch et al. (1999) describe one such initiative in Dallas, and indicate that an aggressive curfew and truancy enforcement programme led to significant reductions in gang-related criminal activity.

Finally, Goldstein (*ibid*) suggests that comprehensive programmes have emerged, which incorporate elements of each of the other programme types. They are multi-modal, multi-level and co-ordinated, but were still felt to be more of an aspiration than a reality in the mid-1990s.

Bilchik (1999, p xi) supports this view by arguing that there 'is general recognition by gang experts that the most effective strategies are likely to be comprehensive, multi-pronged approaches that incorporate prevention, intervention, and suppression activities'.

Much of the later literature has reinforced this view, including Wyrick and Howell (2004), who add that such an approach may not be possible in all areas. Where this is the case, they feel that programmes should involve strategic partners among diverse service providers and draw together knowledge of youth gangs and local gang problems with risk factor identification and targeted activity.

One of the most influential programmes to adopt such an approach was Operation Ceasefire or the Boston Gun Project (Kennedy et al., 2001), a problem-oriented policing initiative in which a broad coalition of federal, state and local governmental agencies, non-profit community service organisations, businesses, religious leaders, parents and resident stakeholders developed several programmes to address the escalating number of juvenile homicides. In addition to enforcement efforts and local problem-solving, Boston also employed numerous prevention and intervention initiatives. Working with community partners, the city built on existing services in the communities to create a more extensive and effective continuum of services.

Other strategies and interventions are described within the literature, including Burch and Chemers (1997) and Howell (2000). Such programmes include recreation and diversionary activities, community mobilisation, mentoring and advocacy, outreach or street work, police enforcement, provision of increased economic opportunities, educational programmes, vocational training and aggression replacement therapy.

Soriano (in Goldstein and Huff, 1993) states that research consistently finds that there

is disproportionate representation of ethnic minorities in gangs. He suggests that, for any intervention to be successful, it must be culturally sensitive and relevant to the ethnic groups it seeks to target.

In one of the few studies of gang-related criminal activity in the UK, Bullock and Tilley (2002) describe the nature of the gang-related violence problem in Manchester, specifically South Manchester. They outline a problem-oriented approach to the issue: that is, detailed analysis of the problem to identify modifiable conditions for violent events to occur. They then propose a series of measures designed to address the problem, based on the analysis. The work draws heavily on the Boston model referred to above, but recognises that context and conditions are different and that straight replicability is problematic. Bullock and Tilley also recognise significant issues with core data and incomplete data sets, which may influence the validity of the findings.

1.4.3 Rapid evidence assessment (REA)

This systematic review follows a rapid evidence assessment (REA), effectively an interim systematic review, previously conducted by members of this Review Group (Butler et al., 2004). The REA was undertaken on behalf of BRGV. The REA addressed the following question:

What is effective in preventing or reducing young people's involvement in gang and gun-related activity, as victims or offenders?

The REA identified a number of gang-related interventions that showed positive results and were subject to evaluations using experimental methods. The REA made recommendations based on their common key findings.

The resulting report proved to be a timely and valuable piece of work for BRGV and many other partnerships and agencies in the West Midlands region. The REA highlighted the value of practitioner informed research, driven by users in order to address a question relating to their work in a relevant manner.

The report produced from the REA was widely disseminated and was utilised not only by BRGV to inform strategic planning and direct funding allocation, but was also drawn on by Home Office colleagues in order to brief policy colleagues within the violent crime unit. The REA was also instrumental in Government Office West Midlands (GOWM) setting up local initiatives to combat gun and gang crime in other localities, showing the significance of this area of work for many of the region's high crime partnerships.

While not the focus of the review, it will be possible to make comparisons between the REA and systematic review approaches, to ascertain the relative sensitivity (ability to locate all studies of interest) of the two approaches, and to clarify reasons for any difference in sensitivity. This is the first time that both approaches have been used to address a similar question and the comparison would make a significant contribution to understanding the value of each approach. However, it is re-stated that the primary focus of this systematic review is to address the review question.

1.5 Authors, funders, and other users of the review

The authors of this review were all based in GOWM, which co-ordinates the delivery of Government policy in the West Midlands region, helps people to understand that policy, and informs Ministers of the region's needs. GOWM has contributed funding towards the review as it will be used to inform policy and practice within targeted areas of the region with gang-related problems.

The Review Group includes research and policy staff in order to provide a range of skills and experience. All have worked within the crime and community safety arena for a number of years. Members of the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre), with expertise in systematic reviewing and meta-analysis, have provided the quality assurance for all stages of the review.

User perspectives are represented in the membership of both the Review Group and Advisory Group. This includes views from the practitioner, policymaker and academic perspectives, and is described in greater detail in Chapter 2. In addition, Birmingham Reduced Gang Violence (BRGV), the operational group that commissioned the previous REA, has acted as an additional cell to the core Advisory Group. The BRGV is a multi-agency group established to focus specifically on the issue of gang violence in the Birmingham City Council area. The group consists primarily of practitioners and policymakers and has a narrower focus of interest than the Advisory Group.

1.6 Review question

The review question is as follows:

What interventions are effective in preventing or reducing gang-related crime and anti-social behaviour?

CHAPTER TWO

Methods used in the review

This chapter describes how the review was conducted. The account of user involvement is followed by an outline of how EPPI-Centre review procedures were adopted. These included procedures for searching for and documenting studies; applying inclusion and exclusion criteria; keywording; mapping included studies in relation to keywords; in-depth data extraction; and synthesis of findings. The chapter also considers the quality-assurance processes adopted.

2.1 User involvement

2.1.1 Approach and rationale

In order to ensure that the review is relevant to policy and practice, it has been informed by a range of users that have an interest in the results. User involvement in the review is primarily through membership of the Advisory Group. The Advisory Group comprises a combination of practitioners, policymakers and academics, all of whom have an interest in the subject matter of the review.

In addition, Birmingham Reduced Gang Violence (BRGV), the operational group that commissioned the previous rapid evidence assessment (REA), acts as an additional cell to the core Advisory Group.

These users have influenced the scope of the review by assisting in a number of areas including in relation to:

- the definition of the term ‘gang’
- defining the population focus for the review
- type of intervention to include
- relevant search terms
- methods for the dissemination of the findings
- refining the review question

2.1.2 Methods used

An initial meeting was held with stakeholders represented on BRGV. The meeting allowed the opportunity (i) to develop initial definitions of key terms within the review question and (ii) to help set the initial parameters for the scope of the review.

Following this meeting, the resulting definitions were circulated to the Advisory Group in the form of a questionnaire which was designed to use the initial definitions as prompts in order to generate further debate. Respondents were asked whether they agreed with the definitions and were also asked to contribute any other possible definitions or relevant material. BRGV and the Advisory Group were also asked to put forward relevant search terms.

The views of the Advisory Group have subsequently been sought on a number of occasions throughout the review, primarily by use of email.

2.2 Identifying and describing studies

Following consultation with the Advisory Group, it was decided that all the studies considered as part of this review must:

- relate to an intervention
- report an outcome
- have outcomes, which are explicitly linked to reducing or preventing gang-related anti-social or criminal behaviour

It was recognised that, as a result, the review had the potential to identify a very large number of studies and consideration was therefore given to placing limits around the inclusion criteria by specifying them in greater detail, such as:

- types of participant
- types of intervention
- types of outcome

Ultimately, it was decided that the review should be as inclusive as possible and that the chosen inclusion and exclusion criteria would provide appropriate filters. It was anticipated that, through using these criteria, the number of studies identified would be manageable with existing team resources.

There was a considerable amount of discussion in relation to the use of a start year for studies and the search strings to be used for the searches of electronic databases. Early attempts identified an unmanageable number of studies (over 4 million in one pass). Through an iterative process, the search strings were refined such that the search process and the number of identified studies, to which inclusion/exclusion criteria were applied, became viable. No limits were placed on the start year for searches, save those that the databases searched applied themselves. The searches of electronic databases were conducted in January 2006, and hence any study published after that date, would not have been included in the review. Handsearching took place in June of the same year.

2.2.1 Defining relevant studies: inclusion and exclusion criteria

The following exclusion and inclusion criteria were applied to the papers identified through the database search. These were intended to focus the search process and ensure that only relevant papers were reviewed. Any papers that were not excluded, after applying the criteria, were requested for review.

The following exclusion criteria were adopted:

- **Non-English reference details:** Although it was possible for translation, the search strategy dealt with databases and journals in English. Studies with titles and abstracts which were not published in English were excluded. If the title and abstract were in English, but the paper was in a foreign language and if it met all the criteria for inclusion, then the paper was to be called and translation considered once the paper has been received. As the search progressed however, no such papers fell into this category.
- **Not related to gangs:** Any studies not explicitly linked to gang-related anti-social or criminal behaviours were excluded.

- **Not an intervention:** Any studies which did not report on an intervention or programme were excluded.

- **No outcome reported:** Any studies where no data (numerical or textual) on outcomes was reported were excluded.

Where it was uncertain from the abstract whether or not the paper should be excluded, a second opinion was sought from another team member; if uncertainty remained, the paper was included.

All those papers which were not excluded under any of the above criteria were included. During the screening process, studies were included or excluded according to the single most relevant criteria.

2.2.2 Identification of potential studies: search strategy

Studies were identified through a combination of approaches. The primary method was to search bibliographic electronic databases. Details of those databases identified and subsequently searched can be found in appendices 1 and 2.

Some of the databases originally identified were not directly relevant to the subject matter of the review and initial searching helped to identify this. In such cases, these databases were ignored for the purposes of the review and a note to this effect was entered on the database log.

A small number of databases could only be accessed by registered users, and registration invariably required payment of a subscription fee. In such situations, decisions were taken on a case by case basis, with regard to the value of the database to the review. Where it was felt that searching the database would not contribute significantly to the review, it was not included and a note to this effect entered on the database log. Where it was felt that such a database would add value to the review, registration would be pursued and the database included in the search process.

Further studies were identified through handsearching. Sources used in this approach included media abstracts; reviewing identified published texts; scanning reference lists of already identified reports; contacting members of the Advisory Group; and using personal contacts. In addition, a small number of websites were reviewed and these are also listed in appendices 1 and 2.

If appropriate, authors of included studies were to be contacted for clarification of methodological issues, additional data and unpublished research. However, such a situation did not arise in the review.

2.2.3 Screening studies: applying inclusion and exclusion criteria

The exclusion criteria were applied successively to titles and abstracts. Full-text articles were ordered for all those articles meeting the inclusion criteria and also for those articles where the abstract information was not of a sufficiently good quality to allow an informed decision to be made.

Application of the inclusion and exclusion criteria was carried out individually, but, where there was uncertainty, other members of the Review Group were asked to comment.

Despite the best efforts of the Review Group and colleagues in the Home Office library, it was not possible to obtain copies of a number of papers. These were therefore excluded from the review. While a relatively large number of studies proved unobtainable, the efforts of Home Office library colleagues were considerable, including phoning potential sources in the USA and contacting the authors of some papers.

2.2.4 Characterising included studies

The studies that remained were characterised by assigning them generic keywords devised by the Review Group in order to allow the production of a ‘systematic map’ of the literature. The review-specific keywords were particularly designed to describe:

- the type of intervention implemented
- the population focus of the intervention
- the setting of the intervention

Through the keywording process, a number of studies were identified for exclusion from the review. The original exclusion process used titles and abstracts, some of which contained limited information. The presence of the full paper at the keywording stage enabled the inclusion/exclusion decisions to be revisited, particularly in relation to those studies included where there was uncertainty regarding their relevance.

2.2.5 Identifying and describing studies: quality-assurance process

The keywording was conducted by members of the Review Group working independently.

EPPI-Centre staff provided quality control in relation to the application of screening criteria. The quality control of the screening process identified 98% agreement between screening decisions of the Review Group and EPPI-Centre staff, based on a sample of 209 references. Approximately 150 hand screened references were also quality assessed and again there was 98% agreement between the decisions of the Review Group and EPPI-Centre staff.

2.3 In-depth review

2.3.1 Moving from broad characterisation (mapping) to in-depth review

A total of 208 studies were mapped in terms of keywords and a number of tables were presented to a meeting of the Review Group.

Key findings from the systematic map were identified and then related to the review’s original research question; these findings are discussed in greater depth in Chapter 3. In particular, the following was noted:

- **The type or focus of intervention:** The most common type of intervention in the map was comprehensive (66%), as defined in section 1.2.
- **The population upon which the intervention focused:** Unsurprisingly, given the original question and search terms, 67% of papers in the map focused on gang members.
- **The design of the study described:** 49% of the papers in the map contained some degree of evaluation.

Given the time and resources available for the review, there was a need to focus on one subgroup of interventions. Using the information from the systematic map, a proposal was formulated and submitted to the Advisory Group recommending that the in-depth review be focused on **comprehensive interventions that target gang members and have been subject to some degree of formal evaluation**. The Advisory Group agreed the recommendation.

The focus on comprehensive initiatives is consistent with prevailing government policy, which promotes multi-agency partnership working and a recognition that social problems, such as gangs, are multi-faceted in nature and cause.

Application of these criteria reduced the number of studies to be considered in the in-depth review from 208 to 54. Subsequently, the focus of the in-depth review was further refined in order to ensure that the 54 studies identified were of sufficient rigour to provide evidence of causality. This was achieved by applying the Maryland Scale of Scientific Methods (MSSM) to each of the studies.

The MSSM (Sherman et al., 1998) was designed by a group of researchers in the University of Maryland for their review of ‘what works’ in crime prevention. It is a five-point scale used to classify the strength of scientific evidence; it does not classify the strength of a programme’s or intervention’s effect. Sherman argues that only studies with a robust comparison group design can provide evidence of causality. This equates to level three and above in the MSSM details of which are set out below:

Level 1	Correlation between a crime prevention programme and a measure of crime or crime risk at a particular point in time
Level 2	Temporal sequence between the programme and the crime or risk outcome clearly observed, or the presence of a comparison group without demonstrated comparability to the treatment group
Level 3	A comparison between two or more comparable units of analysis, one with and one without the programme
Level 4	Comparison between multiple units with and without the programme, controlling for other factors or using comparison units that evidence only minor differences
Level 5	Random assignment and analysis of comparable units to programme and comparison groups

Some commentators have questioned the validity of the MSSM. Hope (2005) argues that a key ingredient of grassroots, ‘bottom-up’ initiatives, is their spontaneity and voluntaristic nature and that these cannot therefore be evaluated using robust comparison groups. He suggests that evaluations of such initiatives will therefore be rated at a low level on paradigms such as the MSSM, and that such paradigms are therefore biased against more local community driven initiatives. The inference from this is that, by using the MSSM, the Review Group may have excluded valid community-based initiatives.

While this is a reasonable argument, the MSSM was only applied to 54 studies and, since none of these could be considered to be purely grassroots, ‘bottom up’ type initiatives, it is not believed that using MSSM systematically excluded such studies.

Members of the Review Group assessed the strength of the scientific evidence of each study and only those studies including elements of evaluation rated at levels 3, 4 and 5 were included in the in-depth review, as these were felt to be the most robust and reliable.

- The study did not focus on a comprehensive intervention(s).
- The study did not include gang members in the population of interest.
- The study did not contain some element of evaluation.
- The study did not score at least 3 on the Maryland Scale of Scientific Methods.

2.3.2 Detailed description of studies in the in-depth review

For the in-depth review, the 17 remaining studies were read in detail and information was extracted using EPPI-Centre software.

Data were extracted from all the studies by at least two members of the Review Group, working independently, together with two EPPI-Centre staff. On completion of this process, findings were compared, differences reconciled and an agreed set of data compiled through a series of discussions between the relevant members of the Review Group.

2.3.3 Assessing quality of studies and weight of evidence for the review question

In order to ensure that conclusions were based on the most sound and relevant evidence, judgements were made using the EPPI-Centre ‘weight of evidence’ criteria. This involved making judgements about three aspects of each study and the combination of these to give an overall judgement of the weight that could be attached to the evidence from a particular study, to answer the review question.

Each study was assigned a weight of evidence based on four criteria: A, B, C and D as outlined in the following chart:

Table 2.1: Studies rated according to the Maryland Scale of Scientific Methods

Maryland Scale Score	Number of studies	Percentage (%)
5	0	0
4	5	9.3
3	12	22.2
2	26	48.1
1	11	20.4

As shown in Table 2.1, a further 38 studies were excluded as a result, leaving 17 studies to form the basis for the in-depth review.

In summary, studies were excluded from the in-depth review on the basis of the following criteria:

A	The overall methodological quality of the study, regardless of its appropriateness to the requirements of the systematic review. This closely mirrors the method of assessment used in the MSSM, but here applies to a reading of the full paper rather than using the scale as a filtering device (as in Table 4.1). A score of 3 on the MSSM was considered to provide ‘low’ weight of evidence; 4 was ‘medium’; 5 was ‘high’.
B	The appropriateness of the study methodology for answering the specific review question
C	The relevance of the study focus (e.g. topic, population, setting) to answering the specific review question
D	An overall weight of evidence based on a mean value of the ratings for weight of evidence A, B and C for that study

2.3.4 Synthesis of evidence

The synthesis of evidence for this review comprises the following:

- A narrative synthesis of the results of the studies, as reported by the authors, exploring the relationships between the characteristics of the intervention, the types of outcomes reported and the key mechanisms that may be driving changes in behaviour.
- A statistical meta-analysis of standardised effect sizes (for those studies where this is possible). The effect size analysis considers the impact of controlling for study quality; the particular outcome measure utilised, and incorporates some additional sensitivity analyses to attempt to control for statistical heterogeneity.

The conceptual framework which formed the basis of the synthesis focused firstly on the intervention type and on the different outcome measures in the studies. Broad achievement of outcomes (according to the data extraction based on the views of the authors of the papers and a pair of reviewers from the Review Group) was considered by intervention type.

The effectiveness of the different interventions was then established by a standard measure of effect (the standardised mean difference, referred to as an ‘effect size’) for the range of crime-related outcomes, notably crime rates and arrest rates, in the included studies. The standardised mean difference, or ‘effect size’, is a standardised measure that allows studies using different outcome measures to be compared using the same metric (i.e. the mean difference between groups divided by a pooled standard deviation). To facilitate this process, specialised software (EPPI-Reviewer) was utilised to calculate effect sizes from the range of data encountered.

The approach used to select the outcomes for effect size calculations was to calculate effect sizes for all outcomes which could be interpreted as assessing the impact of comprehensive interventions on crime and anti-social behaviour (as this was most closely related to our original research question), and for which data was available. Only 12 of the 17

studies in the in-depth review contained data on crime-related outcomes (presented in Table 4.11) of sufficient quality to allow calculation of effect size. Further detail on how the effect sizes were calculated can be found in section 4.4 and Appendix 5.

Statistical synthesis of outcomes (meta-analysis)

A meta-analysis essentially pools the results from a number of studies together, using a statistical method that gives the greatest weight to the studies with the smallest standard errors, which usually means the largest studies. The included studies were pooled in a series of meta-analyses that investigated effectiveness in reducing crime firstly for all the interventions, and then according to the different theories of change behind the comprehensive interventions, where the studies had suitable outcome data for meta-analysis. This allowed consideration of which particular mechanism of change appeared to have the most effect on reducing gang-related criminality.

HETEROGENEITY

As the meta-analysis was being used to try to estimate a combined effect from a group of similar studies, the effects found in the individual studies needed to be checked to ensure they were similar enough to be confident a combined estimate would be a meaningful description of the set of studies. In doing this, it was necessary to consider if the amount of variation was more than would be expected by chance alone because the individual estimates of treatment effect will vary by chance, due to randomisation, and thus some variation would be expected.

When this excessive variation occurs, it is referred to as ‘statistical heterogeneity’ (or just ‘heterogeneity’), and thus tests were conducted for heterogeneity (using EPPI-Reviewer) for all the effect size calculations.

SENSITIVITY ANALYSES

As the studies included in the effect sizes synthesis scored highly for statistical heterogeneity, a series of sub-analyses were performed to consider the effect of controlling for broad outcome measure,

as well as methodological quality, and to explore the differences between the studies. In addition, sensitivity analyses were also conducted excluding the largest studies to consider how much they dominated the results.

Further, as there was clinical heterogeneity among the selected studies, in that they looked to tackle the same issues but using different intervention types, an extensive set of analyses of effects by theories of change (e.g. multi-agency working or local community involvement) was conducted.

Publication bias

One source of bias for systematic reviews is through publication bias. If studies showing a positive (beneficial) effect are more likely to be published than negative or inconclusive studies, this will give a biased estimate of effect. One method of determining the existence of publication bias is to draw a funnel plot. This plots the effect size of a study (on the x-axis) against its sample size (on the y-axis). Very small studies will have a high probability of showing an inconclusive effect, even if the intervention is effective, just as they will have a raised probability of showing a positive effect if the intervention is ineffective. If there is no publication bias, small studies should be scattered along the x-axis, with the larger trials being situated closer to the true estimate of effect (as they are less subject to variability). A funnel plot was therefore drawn to investigate whether or not there was any publication bias in research in the effectiveness of comprehensive interventions on reducing gang-related crime.

2.3.5 In-depth review: quality-assurance process

All 17 studies in the in-depth review were data-extracted independently by at least two of members of the Review Group and then compared, including in relation to weight of evidence. The EPPI Centre staff extracted five of the 17 studies, including one by each member of the Review Group. There were relatively few differences between reviewers on the core questions on the data-extraction guidelines, other than discrepancies about the extent of the data from the studies needed to be recorded. Differences identified were resolved by the two independent reviewers without the need to seek further arbitration. Effect size measures were largely calculated by one reviewer, although they were additionally checked by the EPPI-Centre.

CHAPTER THREE

Identifying and describing studies: results

This chapter outlines the search strategy employed to identify studies for the systematic review, and describes the nature and extent of the research studies within this field.

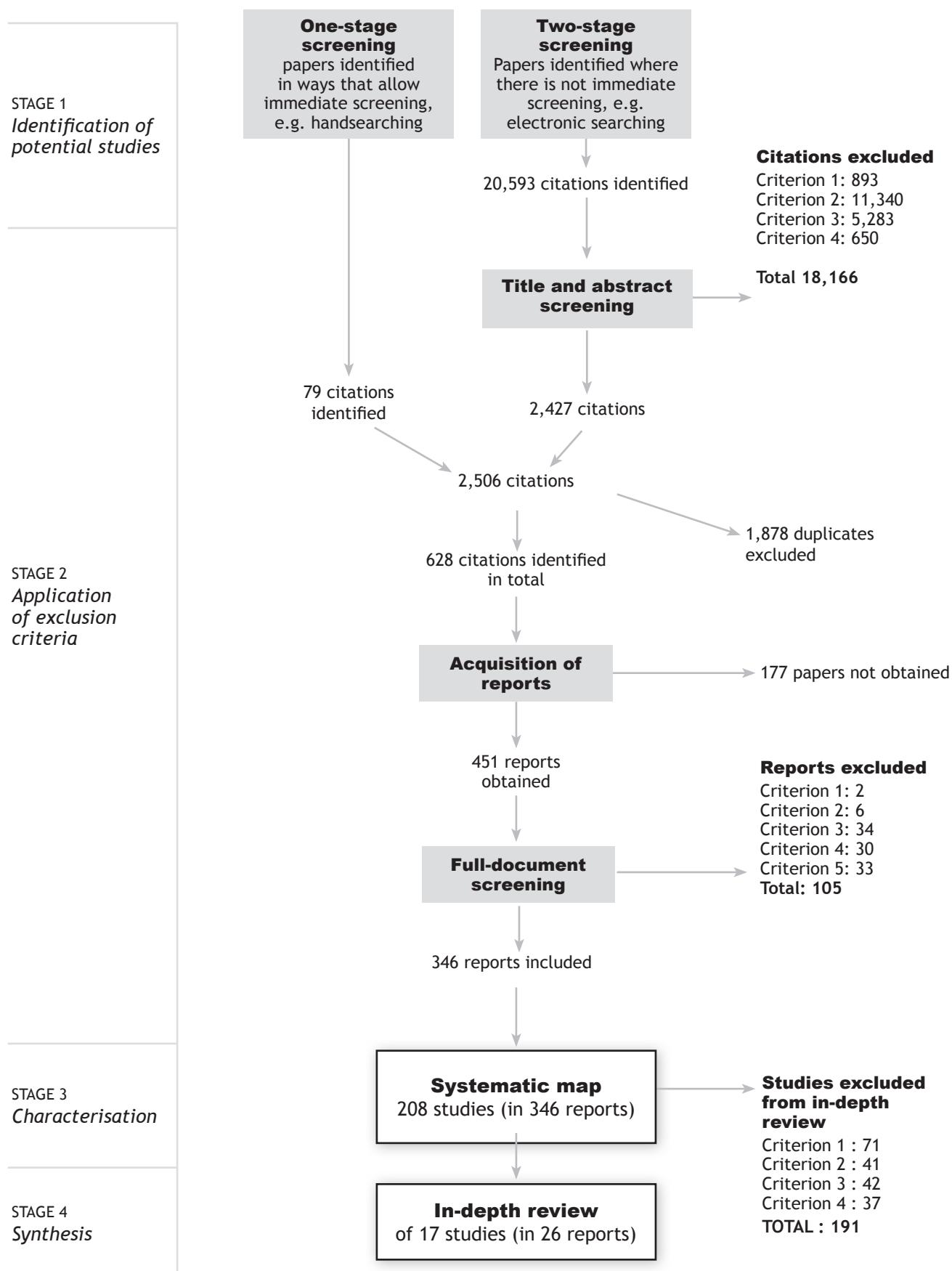
3.1 Studies included from searching and screening

The initial search strategy yielded 20,593 papers from 31 bibliographic databases, and an additional 79 papers were identified through handsearching of bibliographies; thus the review handled a total of 20,672 records.

In the first instance, duplicate papers were excluded; the exclusion criteria were then applied to the titles and abstracts of the 20,672 citations identified through the search process. Of these, 628 fulfilled the relevant criteria and full copies of these papers were called. 177 papers (28%) were either unobtainable or not received within the timetable for this review. Screening of the full papers resulted in a further 105 papers being excluded, leaving 208 studies (in 346 papers) for inclusion in the systematic map.

This chapter describes the systematic map in order to influence the final review question and the resulting in-depth analysis.

Figure 3.1 illustrates the searching and screening process employed in this review.

Figure 3.1 Filtering of papers from searching to map to synthesis

3.2 Characteristics of the included studies (systematic map)

Box 1

Exclusion criteria

- Criterion 1 Not an English language paper
- Criterion 2 Not gang-related
- Criterion 3 Not an intervention
- Criterion 4 No outcome data reported
- Criterion 5 Papers that were obtained and identified through hand searching and excluded for any of the above reasons

Studies excluded from in-depth review

- Criterion 1 The study did not focus on a comprehensive intervention(s).
- Criterion 2 The study did not include gang members in the population of interest, although it did focus on a comprehensive intervention(s).
- Criterion 3 The study did not contain some element of evaluation*, although it did focus on gang members in their populations of interest and focused on a comprehensive intervention(s).
- Criterion 4 The study did not score at least 3 on the Maryland Scale, although it did contain some element of evaluation, focus on gang members in their populations of interest and focused on a comprehensive intervention(s).

* Studies had to fall into one of the following categories of evaluation in order to be included:

- Evaluation: naturally occurring
- Evaluation: researcher manipulated
- Review: systematic review
- Review: other review

The tables in this section present analyses of the 208 included and keyworded studies. All percentages quoted are based on these 208 studies.

Appendix 3 includes a summary of studies included in the systematic map.

Table 3.1: Source of origin for identifying the studies (N = 208)

Source	Number of studies	Percentage (%)
Electronic database	155	75.5
Citation	32	15.4
Handsearch	21	10.1
Total number of studies	208	100

Table 3.1 shows the original source through which the 209 included studies were identified. The vast majority of the reports (74.2%) were found by searching electronic databases. An examination of citations within the bibliographic lists of the reports identified, together with the handsearching of journals and books unavailable electronically, found the remaining studies.

Table 3.2: Country in which the study was carried out (N = 208)

Country	Number of studies	Percentage (%)
USA	192	92.3
England	11	5.3
Germany	1	0.5
Israel	1	0.5
Papua New Guinea	1	0.5
Scotland	1	0.5
England and Scotland	1	0.5
Total number of studies	208	100

Over 90% of the studies included in the systematic map were conducted in the USA. Gang-related research is certainly more prevalent in America, however, these figures may reflect bias within the original search criteria as the Review Group only searched for studies in English.

Table 3.3: Type of interventions identified (N = 209, not mutually exclusive)

Intervention focus	Number of studies	Percentage (%)
Comprehensive	137	66.0
Educational	105	50.4
Enforcement	91	44.0
Diversion	62	29.8
Other	61	29.3
Organisation and management	53	25.4
Criminal Justice	46	22.1
Psychological	42	20.2
Social inclusion	36	17.3
Opportunities provision	34	16.3
Community mobilisation	34	16.3
Legal	25	12.0
Vocational skills training	20	9.6
Situational	15	7.2
Total number of studies	208	100

Table 3.3 identifies the types of intervention identified by each study. Many of the studies in this review include several types of intervention which all need to be captured. This means that each study may appear under a number of intervention headings and as a result, the total number of studies listed under the interventions greatly exceeds the 208 studies identified.

The majority of the studies encompassed some kind of ‘comprehensive’ intervention (that is, multifaceted interventions). The constituent parts of these interventions were also recorded separately and education, enforcement and ‘other’ were the three most common individual categories.

Of the texts where the ‘other’ category was selected, the dominant themes were parenting and family, information, analysis and problem-solving, mediation, health care, the media and substance abuse.

Table 3.4 shows the types of population on which the study interventions focused. Unsurprisingly, given the original review question and search terms, 67% of papers focused on gang members, followed by 27.4% with a geographic focus.

As previously, the interventions outlined in each study may have more than one population focus, and therefore each study may appear under a number of headings.

Box 2**Categories of intervention**

Comprehensive	Projects which include more than one type of intervention
Educational	Focus on educating or re-educating the study group, including mentoring and advocacy programmes
Enforcement	Focus on enforcement activity designed to deter gang-related criminal behaviour
Other topic focus	When the focus of the material does not fit into any other category
Diversion	Focus on diversionary activity designed to turn individuals away from gang-related criminal behaviour (e.g. recreational activities)
Organisation and management	Focus on the organisation, planning and development, ethos, governance, leadership and management of interventions
Criminal justice	Focus on interventions based in the criminal justice system (i.e. post offence and post charge)
Psychological	Psychological interventions (e.g. aggression replacement therapy, anger management)
Opportunities provision	Focus on provision of new, long-term opportunities for those engaged in gang-related criminal behaviour (e.g. employment, housing)
Social inclusion	Focus on interventions which seek to reintegrate the study group into the wider community
Community mobilisation	Focus on the engagement and mobilisation of the community in addressing gang-related criminal behaviour
Legal	Focus on interventions which relate to legal provisions
Vocational skills training	Focus on interventions which deliver vocational skills training to the study group
Situational	Focus on activity which makes physical changes to the local area and which are designed to prevent gang-related criminal behaviour (e.g. lighting, gating)

Table 3.4: Type of population on which the intervention focused (N = 208, not mutually exclusive)

Population focus	Number of studies	Percentage (%)
Gang members	139	67.0
Geographic area	57	27.4
Targeted at risk	43	20.6
Schools	41	19.7
Other population focus	28	13.4
Individual	25	12.0
Agencies and organisations	24	11.5
Communities	21	10.0
Gang members' families	18	8.7
Crime type	15	7.2
Ethnic group	7	3.4
Government	2	1.0
Other educational institution	2	1.0

Table 3.4 shows the types of population on which the study interventions focused. Unsurprisingly, given the original review question and search terms, 67% of papers focused on gang members, followed by 27.4% with a geographic focus.

As previously, the interventions outlined in each study may have more than one population focus, and therefore each study may appear under a number of headings.

Box 3

Categories of population

Gang members	Focus of the study is on gang members
Geographic area	Focus of the study is on a geographic area (e.g. interventions targeted in specific locations)
Targeted at risk	Focus of the study is on those individuals identified as being at risk of becoming gang members.
Schools	Focus of the study is on pupils or staff (teaching or non-teaching) within schools.
Other population focus	Focus of the study is not covered by any of the other specified foci.
Agencies and organisations	Focus of the study is on those with responsibility for the strategic leadership, management and delivery of interventions.
Individual	Focus of the study is on those individuals at risk of becoming gang members but not identified and/or targeted as such.
Communities	Focus of the study is on communities affected by gang-related violence.
Gang members' families	Focus of the study is on the families of known gang members.
Crime type	Focus of the study is on gang members responsible for committing a specific type or types of crime.
Ethnic group	Focus of the study is on a particular ethnic group.
Government	Focus of the study is on representatives from government or governing bodies.
Other educational institutions	Focus of the study is on students or staff (teaching or non-teaching) within other educational institutions (e.g. college)

Table 3.5: Age of intervention participants (N = 208, not mutually exclusive)

Age group	Number	Percentage (%)
0 - 5	1	0.5
6 - 11	4	1.9
12 - 16	13	6.3
17 - 19	5	2.4
20 - 25	2	1.0
Mixed age group	45	22.1
Not specified	146	70.1

The majority of the studies did not specify the ages of the intervention participants. Relatively few interventions focused specifically on 'early years'; of those studies where an age group was specified, there was a concentration on a 'mixed' age range.

Table 3.6: Gender of intervention participants (N = 208)

Sex of participants	Number	Percentage (%)
Male only	21	10.0
Mixed sex	65	31.2
Not specified	121	58.2
Female only	1	0.5
Total number of studies	208	100

In terms of the gender of intervention participants, again the majority of the studies did not specify a particular focus; of those studies that did specify gender, most were open to both male and female participants.

Table 3.7: Setting in which the intervention occurred (N = 208, not mutually exclusive)

Setting focus	Number	Percentage (%)
On street	96	46.1
School	64	30.8
Organised community setting	61	29.3
Home	38	18.2
Police premises	35	16.8
Criminal justice institution	29	13.9
Correctional institution	19	9.1
Other setting	16	7.7
After school setting	14	6.7
Health	10	4.8
Other educational institution	8	3.8
Government department	6	2.9
Workplace	5	2.4

Table 3.7 identifies the physical setting for each intervention being studied i.e. where the intervention actually takes place. The setting criteria identified a wide variety of responses with ‘on street’ being the highest response with 46.%.

Once again, the intervention identified in each study may have more than one setting; therefore each study may appear under a number of headings.

Table 3.8: Type of study described in the report (N = 208, not mutually exclusive)

Type of study	Number of studies	Percentage (%)
Description	95	45.7
Evaluation: naturally occurring	78	37.5
Evaluation: researcher-manipulated	23	11.1
Exploration of relationships	15	7.2
Methodology	0	0.0
Review: systematic review	0	0.0
Review: other review	0	0.0

Table 3.8 identifies the types of study conducted. This helps to understand the rigour of those studies selected from a methodological perspective. Studies with a descriptive element were the most frequently occurring individual category in terms of the type of studies. However, around half of the studies in the systematic map contain some element of evaluation. As in previous tables, these categories are not necessarily mutually exclusive.

Box 4**Categories of setting**

On street	Takes place on the street or in a local neighbourhood (e.g. outreach work, community mobilisation programmes)
School	Takes place on school premises in normal school hours
Organised community setting	Takes place in an organised community setting (e.g. a youth club, community centre)
Home	Takes place at the home of the population focus (e.g. gang member, targeted at risk)
Police premises	Takes place in police premises
Criminal justice institution	Takes place in post sentence premises e.g. courts, probation offices
Correctional institution	Takes place in a correctional institution (e.g. young offenders' institution)
Other setting	Takes place in settings not covered in the other categories
After school setting	Takes place on school premises outside normal school hours
Health	Takes place on health premises (e.g. hospitals, clinics, drug referral agencies)
Other educational institution	Takes place in a further or higher educational institution
Government department	Takes place within a government department or body
Workplace	Takes place in the workplace of the study population (e.g. apprenticeships and modern apprenticeships; continuing professional development)

Box 5**Categories of study design***Description*

Studies in which the aim is to produce a description of a state of affairs or a particular phenomenon, and/or to document its characteristics. In these types of study, there is no attempt to evaluate a particular intervention programme, or to examine the associations between one or more variables. These types of studies are usually, but not always, conducted at one point in time (i.e. cross-sectional).

Evaluation ‘naturally occurring’

Studies which *evaluate* a policy, practice, programme or other intervention by assessing whether it works well in terms of, for example, its acceptability, feasibility, financial implications or intended/unintended effects on outcomes. The researcher(s) is not involved in determining who does or does not experience the policy or practice. Instead, the researcher evaluates phenomena which would have been experienced by the specific participants in the study whether or not the research study had been undertaken.

Evaluation ‘researcher-manipulated’

Studies which *evaluate* a policy, practice, programme or other intervention by assessing whether it works well in terms of, for example, its acceptability, feasibility, financial implications or intended/unintended effects on outcomes. There is an attempt as part of the research to change people’s experience and as a consequence have control over which groups of people are ‘introduced’ or ‘exposed’ or ‘allocated’ to the experience, policy or practice. The researcher determines the process by which participants do or do not receive an intervention. This manipulation can be based on *random allocation* of participants to receive different interventions or different intensities/levels of an intervention. If the allocation is not fully random, it may be *quasi-random* (e.g. by alternate numbers, or by date of birth), or *some other form of systematic allocation* chosen by the researcher. In other cases, allocation (and thus experience of the intervention) may not be systematic in any obvious way, but still dependent upon the researcher.

Exploration of relationships

Studies which examine relationships and/or statistical associations between variables in order to build theories and develop hypotheses. These studies may describe a process in order to explore how a particular state of affairs might be produced, maintained and changed.

These studies do not directly evaluate the effects of policies and practices.

Methodology

Studies which focus on the development or discussion of methods: for example, discussions of a statistical technique, a recruitment or sampling procedure, a particular way of collecting or analysing data, etc. This may also refer to a description of the processes or stages involved in developing an ‘instrument’.

Review: other review

Studies which bring together information, findings, opinions or conclusions from a range of previous reports

Review: systematic review

A review which is explicit in reporting a systematic strategy for searching, screening and assessing the quality of included studies

The following cross tabulations (Tables 3.9 to 3.15) seek to understand relationships between the key study questions and to identify discrete groupings of studies. These tables were also used to help form the basis for the future direction of the review.

Table 3.9: Type of population the intervention focused on and the type of interventions identified

	Gang members	Agencies and organisations	Communities	Schools	Gang members' families	Government	Geographic area	Other educational institution	Individual	Ethnic group	Crime type	Other population focus
Educational	60	10	13	35	14	1	28	2	35	21	6	6
Enforcement	69	17	12	15	6	1	38	0	15	9	2	12
Criminal justice	34	13	8	5	4	1	21	0	12	4	2	9
Legal	19	10	4	3	4	1	9	0	4	1	1	4
Psychological	27	4	4	3	4	1	12	0	15	7	2	2
Organisation and management	40	17	11	12	6	2	27	0	11	9	2	7
Opportunities provision	29	5	7	5	5	1	14	0	11	5	2	4
Community mobilisation	23	10	15	9	7	1	16	0	12	8	3	3
Social inclusion	25	5	6	8	3	1	12	1	15	7	4	1
Comprehensive	96	22	19	27	16	1	46	2	39	23	6	12
Situational	9	2	3	2	2	0	10	0	3	4	0	2
Vocational skills training	14	3	4	2	3	0	8	0	8	2	1	1
Other	39	4	3	9	3	0	19	1	21	11	3	2
Diversion	46	9		10	14	11	1	14	1	25	13	1
												6

Table 3.9 clearly shows the prevalence of studies that related to gang members (as might be expected) but within these, the prevalence of enforcement type activity. Many intervention types also had some degree of geographical focus, especially comprehensive and enforcement activities. Table 3.10 highlights the prevalence of on-street based activity, particularly in relation to those initiatives targeted at gang members and those at risk.

Table 3.10: Setting in which the intervention occurred and the type of population on which the intervention focused

	Gang members	Agencies and organisations	Communities	Schools	Gang members' families	Government	Geographic area	Other educational institution	Targeted individual at risk	Individual	Ethnic group	Crime type	Other population focus
Organised community setting	36	10	9	6	7	1	24	0	19	7	2	2	10
School	31	6	6	40	9	1	10	2	19	15	3	2	8
Other educational institution	7	0	0	1	0	0	0	1	4	4	0	0	1
Correctional institution	16	5	1	0	0	0	1	0	5	5	2	0	2
Government department	5	3	0	0	0	1	0	0	0	0	0	0	0
Police premises	30	7	2	3	3	1	11	0	3	1	0	2	4
On street	75	14	14	6	0	0	44	0	22	12	1	13	15
Home	26	4	5	7	8	0	9	1	11	13	1	4	12
Workplace	4	1	0	0	6	0	0	0	2	2	0	0	0
Criminal justice institution	28	9	3	2	1	0	7	0	6	2	2	4	2
Health	9	1	1	0	2	0	2	0	3	5	0	0	2
After school setting	8	4	3	3	0	0	6	0	6	2	1	2	2
Other setting	13	2	3	0	3	0	6	0	6	5	0	3	5

Table 3.10 highlights the prevalence of on-street based activity, particularly in relation to those initiatives targeted at gang members and those at risk.

Table 3.11: ‘Gang members’ and ‘targeted at risk’ populations profiled by the setting in which the intervention occurred

	Gang members		Targeted at risk	
	Number	Percentage (%)	Number	Percentage (%)
Organised community setting	36	17.3	19	9.1
School	31	14.9	19	9.1
Other educational institution	7	3.4	4	1.9
Correctional institution	16	7.7	5	2.4
Government department	5	2.4	0	0.0
Police premises	30	14.4	3	1.4
On street	75	36.0	22	10.6
Home	26	12.5	11	5.3
Workplace	4	1.9	2	1.0
Criminal justice institution	28	13.5	6	2.9
Health	9	4.3	3	1.4
After school setting	8	3.8	6	2.9
Other setting	13	6.3	6	2.9

Table 3.11 reinforces the point made in relation to on street activity. It also highlights the greater focus of interventions identified overall, with gang members rather than with those targeted at risk.

Table 3.12: Type of intervention identified and the setting in which the intervention occurred

	Organised community setting	School	Other educational institution	Correctional institution	Government department	Police premises	On street	Home	Workplace	Criminal justice institution	Health	After school setting	Other setting
Educational	42	54	7	12	0	10	38	18	4	11	8	12	8
Enforcement	27	24	4	9	3	25	68	15	2	20	2	8	7
Criminal justice	15	13	2	10	1	12	28	10	4	19	2	5	2
Legal	5	3	0	5	3	8	15	4	1	7	0	2	3
Psychological	19	7	1	8	1	4	16	8	3	3	5	3	6
Organisation and management opportunities provision	21	21	1	7	4	16	38	17	0	14	4	5	3
Community mobilisation	25	13	2	4	0	6	21	7	3	5	1	5	2
Social inclusion	12	15	0	2	1	4	17	13	2	7	4	2	3
Comprehensive	53	46	6	16	4	25	72	30	5	22	10	14	14
Situational	3	4	1	0	0	2	13	6	0	1	1	2	3
Vocational skills training	16	2	0	2	0	1	9	0	0	2	1	1	2
Other	27	21	3	6	1	13	28	16	4	9	8	5	7
Diversion	26	22	5	6	1	7	30	14	4	7	8	8	8

Table 3.12 again reinforces the view that the highest proportion of most intervention types identified took place on street. Similarly enforcement activity was also prevalent in police and criminal justice premises and educational activity took place in schools, organized community or after school settings.

Table 3.13: Type of population the intervention focused on and the type of study described in the report

	Gang members	Agencies and organisations	Communities	Schools	Gang member's families	Government	Geographic area	Other educational institution	Targeted at risk	Individual	Ethnic group	Crime type	Other population focus
Description	63	6	5	14	5	1	27	0	15	7	2	6	13
Exploration of relationships	10	2	0	2	2	1	4	0	4	0	0	1	2
Evaluation: Naturally occurring	57	15	15	20	10	0	22	1	19	17	4	8	9
Evaluation: Researcher-manipulated	12	1	1	6	1	0	4	1	5	1	1	0	4
Methodology	0	0	0	0	0	0	0	0	0	0	0	0	0
Review: Systematic review	0	0	0	0	0	0	0	0	0	0	0	0	0
Review: Other review	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3.13 shows that while there were a high proportion of descriptions, many studies also provided naturally occurring evaluations of interventions targeted at gang members. Given the search and exclusion criteria applied, this was perhaps to be expected.

Table 3.14: Type of interventions identified and the type of study the report described in the report

	Educational	Enforce- ment	Criminal justice	Legal	Psycho- logical	Organis- ation and manage- ment	Diversion	Opportunities provision	Community mobilis- ation	Social inclusion	Com- pre- hensive	Vocational skills training	Situational	Other
Description	39	47	19	10	16	24	24	12	9	12	55	10	8	27
Exploration of relationships	6	10	5	1	4	5	4	4	4	2	11	1	0	7
Evaluation: Naturally occurring	46	31	20	12	18	23	29	16	19	18	62	7	6	25
Evaluation: Researcher- manipulated	15	6	4	2	4	2	5	3	2	4	12	2	1	4
Methodology	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Review: Systematic review	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Review: Other review	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3.14 again shows the prevalence of naturally occurring evaluations within the studies identified, particularly in relation to comprehensive and educational activities.

Table 3.15: Setting in which the intervention occurred and the type of study described in the report

	Organised community setting	School	Other educational institution	Correctional institution	Government department	Police premises	On street	Home	Workplace	Criminal justice institution	Health	After school setting	Other setting
Description	30	22	3	5	4	21	47	18	1	12	4	6	5
Exploration of relationships	5	5	0	0	0	9	10	2	0	2	0	2	0
Evaluation: Naturally occurring	24	28	4	11	2	9	37	15	3	13	5	5	7
Evaluation: Researcher-manipulated	3	10	1	3	0	1	3	3	1	3	1	1	4
Methodology	0	0	0	0	0	0	0	0	0	0	0	0	0
Review: Systematic review	0	0	0	0	0	0	0	0	0	0	0	0	0
Review: Other review	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3.15 once again highlights the prevalence of on street interventions within those studies identified and the high proportion of descriptions and naturally occurring evaluations.

3.3 Identifying and describing studies: quality-assurance results

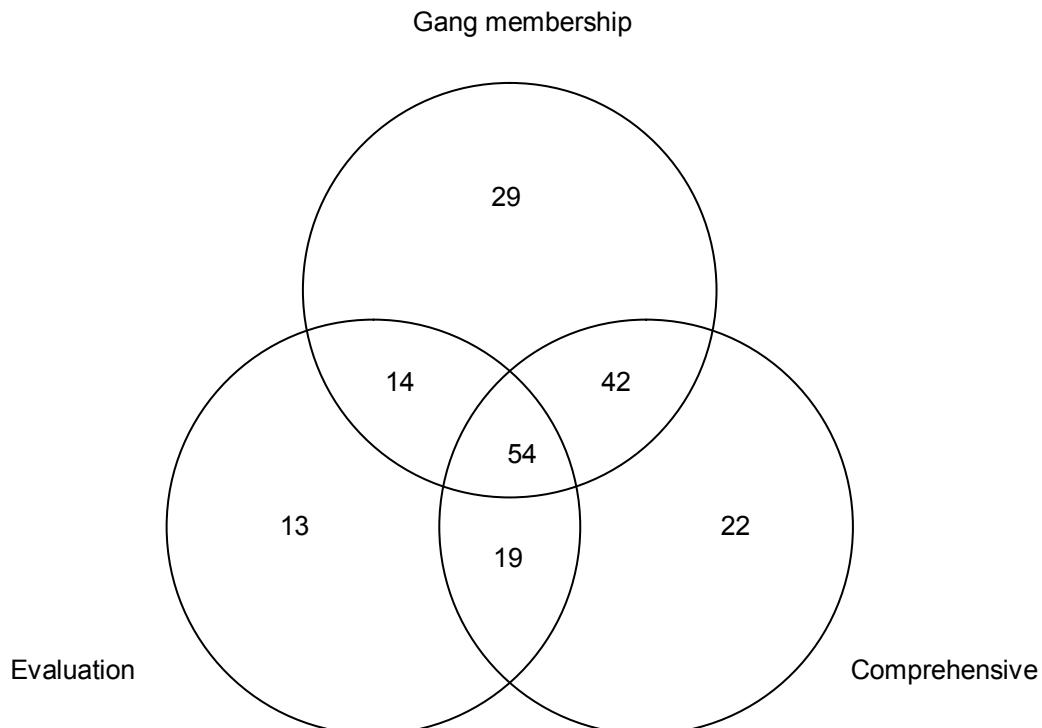
As with other stages of the review staff of the EPPI-Centre cross-checked a sample of studies and also helped in applying criteria and keywording structure for a sample of studies.

3.4 Summary of systematic map

The systematic map demonstrates that the majority of literature in this field originates from the USA and focuses on comprehensive interventions targeted at gang members.

Figure 3.2 shows that the highest proportion of studies identified meet all three key criteria of the review. While a significant number also relate to comprehensive activity targeted at gang members, they had no evaluation component. It is also worth noting that 15 of the 208 studies were neither comprehensive, focused on gang members, nor evaluated and as such do not appear in the Venn diagram.

Figure 3.2: Combination of papers in relation to key review criteria



CHAPTER FOUR

In-depth review: results

This chapter details the weights of evidence for the studies that were selected for in-depth review (section 4.1) and compares the studies in the systematic map with those in the in-depth review (section 4.2). It presents a synthesis of evidence (sections 4.3 onwards). The approach to quality assurance results is also discussed.

Table 4.1: Weight of evidence (WoE) for studies in the in-depth review

Study	WoE A - overall methodological quality	WoE B - Appropriateness of study design	WoE C - Relevance of study focus to the review question	WoE D - Overall WoE based on A, B and C
Arbreton and McClanahan (2002)	Low	Low	Medium	Low/Medium
Caplan (1968)	Low	Medium	Low	Low/Medium
Cohen et al. (1995)	Low	Medium	High/Medium	Medium
Goldstein et al. (1994)	Low	Medium	Medium	Medium
Groger (2002)	Medium	High	High	High/Medium
Higgins and Coldren (2000)	Low	High	High	Medium
Jesilow et al. (1998)	Low	Medium	Medium	Medium
Kapsch et al. (2003)	Low	Medium	High	Medium
Kennedy et al. (2001)	Medium	High	High/Medium	High/Medium
Klein (1969)	Low	High	High	Medium
Klein (1971)	Low	High	High	Medium
Maxson et al. (2005)	Low	Medium	Medium	Medium
Miethe and McCorkle (1997)	Low	High	Medium	Medium
Miller (1962)	Medium	High	High	High/Medium
Spergel et al. (2003)	Medium	High	High	High/Medium
Spergel (1986)	Low	High	Medium	Medium
Tita et al. (2003)	Medium	High	High/Medium	High/Medium

4.1 Weights of evidence

A summary of the 17 studies selected for the in-depth review is found in Appendix 4 and further information on the methods used to select studies for the in-depth review can be found in chapter 2.

As noted in section 2.3.3, during the data extraction process, each study was assigned a weight of evidence (WoE). The WoE judgments assigned to each of the studies by the review team are shown in Table 4.1.

Overall, five studies were judged to provide a high/medium weight of evidence in answering the review question; a further ten studies were judged to have medium weight of evidence and two studies had low/medium weight of evidence. No studies were judged to provide high weight of evidence overall and 12 of the 17 studies were considered to provide low weight of evidence on methodological quality alone (WoE A).

4.2 Comparison of the studies selected for in-depth review with the total studies in the systematic map

This section describes the key characteristics of the studies selected for in-depth review and compares them to the studies in the wider systematic map (definitions of terms in the tables are provided in chapter 3). Key similarities and differences are highlighted. As noted above, Appendix 4 provides a description of all of the studies included in the in-depth review.

Table 4.2: Source of origin for identifying the studies

Source	Number of Studies	Percentage
Electronic database	12	70.6
Handsearch	3	17.6
Citation	2	11.8

Table 4.2 shows that the majority of the studies were identified through electronic databases. Of these studies, eight came from CSA Illumina, and one each came from Ingenta, COPAC, Swetswise and Hollis.

All 17 studies were carried out in the USA mirroring the situation at the keywording stage where over 90% of the studies identified were also conducted in the USA.

Table 4.3: Type of interventions identified

Intervention focus	Number of Studies	Percentage
Comprehensive	17	100
Enforcement	11	64.7
Organisation and management	7	41.2
Educational	7	41.2
Diversion	7	41.2
Opportunities provision	7	41.2
Legal	6	35.3
Criminal justice	5	29.4
Community mobilisation	5	29.4
Psychological	4	23.5
Social inclusion	4*	23.5
Other	3	17.6
Vocational skills training	3	17.6
Situational	2	11.8

* Including one additional study where the other category was selected.

Table 4.3 identifies the types of intervention in each study in the in-depth review. All of the studies in the in-depth review are necessarily comprehensive, as part of the inclusion criteria. There is a relatively higher proportion of enforcement interventions compared to that seen in the systematic map, this may be explained by the decision to focus on interventions targeting existing gang members as opposed to preventative interventions. Interventions which had an organisational or managerial element to them were also more likely to be comprehensive, reflecting the fact that in multi-stranded interventions organisational factors are liable to become more important.

Of the texts where the 'other' category was selected, the themes were: individualised case management (1 study), tattoo removal and driver license renewal (1) - which can be seen as interventions related to 'social inclusion', and substance abuse (1).

Table 4.4: Type of population the intervention focused on

Population focus	Number of Studies	Percentage
Gang members	17	100
Geographic area	6	35.3
Other population focus	4	23.5
Communities	3	17.6
Targeted at risk	3	17.6
Agencies and organisations	2	11.8
Gang member's families	2	11.8
Crime type	2	11.8
Government	2	11.8
Other educational institution	2	11.8
Individual	1	5.9
Schools	1	5.9
Ethnic group	1	5.9

Table 4.4 shows the types of population that the in-depth study interventions focused on. All these studies necessarily had a focus on gang members. Only one intervention in the in-depth review focused on schools in terms of population, in contrast to the systematic map, again reflecting the focus on existing gangs rather than preventive work.

Table 4.5 identifies the physical setting for each intervention being studied. This shows that again, a high proportion of studies related to on-street interventions and this is consistent with earlier stages of the systematic review. There were a much smaller proportion of studies based in schools in the in-depth review compared to the systematic map and this again reflects the decision to focus on interventions targeting existing gang members as opposed to preventative interventions.

All of the studies in the in-depth review necessarily were evaluations. Studies classified as 'description' or 'exploration of relationships' were therefore excluded. The study types at this stage therefore were quite different to those at the keywording stage. This review considers that the more rigorous the evaluation, the more reliable the findings and hence the more relevant the lessons/practice emerging.

Table 4.5: Setting in which the intervention occurred

Setting focus	Number of Studies	Percentage
On street	11	64.7
Organised community setting	5	29.4
Other setting	5	29.4
Criminal Justice institution	4	23.5
Home	3	17.6
Correctional institution	3	17.6
School	2	11.8
Police premises	1	5.9
Workplace	1	5.9
Other educational institution	1	5.9
Government department	0	0
Health	0	0
After School Setting	0	0

Table 4.6: Type of study described in the report

Type of study	Number of Studies	Percentage
Evaluation: Naturally occurring	10	58.8
Evaluation: Researcher-manipulated	7	41.2
Methodology	0	0
Exploration of relationships	0	0
Description	0	0
Review: Systematic review	0	0
Review: Other review	0	0

4.3 Synthesis of evidence for all 17 in-depth review studies

In considering the approach to the synthesis of evidence, the review team revisited the review question:

'What interventions are effective in preventing or reducing gang related criminal activity and anti-social behaviour?'

The term 'effective' implies the relative achievement of some form of outcome from the intervention. The identification of the outcomes in the in-depth review was therefore a crucial first stage of the synthesis. The review group felt that the outcomes could be clustered into three broad groupings:

- reduction in crime
- change in subject behaviour
- change in the attitudes of the community

Interventions in the in-depth review studies sought to achieve one or more of these types of outcomes. Having identified the outcomes, the synthesis explored whether or not they were achieved in each of the 17 studies. In short, did the interventions bring about a reduction in crime; a change in subject behaviour; or a change in community attitude?

The meta analysis of effect size however, focused only one of the above outcomes, namely the reduction in crime.

In order to consider the contribution of all the in-depth review studies, the Review Group initially considered how the results of each study were reported by the original authors of the papers. The reported results have been grouped as follows:

- Studies providing affirmative results for the original study hypothesis
- Studies providing mixed or inconclusive results for the original study hypothesis
- Studies providing negative results for the original study hypothesis

However, great caution should be taken in interpreting these results as they are quite different to the results from the effect sizes derived from the papers for this review.

Table 4.7: Achievement of desired outcomes²

Rating	Number of Studies	Percentage
Affirmative	10	58.8
Inconclusive/other or some parts affirmative and some negative	5	29.4
Negative	2	11.8

Table 4.7 shows that in 10 of the 17 studies, authors felt that the interventions had achieved the desired outcomes. In this context the 'negative' studies, where desired outcomes were not achieved, are particularly interesting.

These were Klein (1969) and Cohen et al. (1995). Klein (1969) evaluates the effectiveness of the detached worker approach. In a different paper commenting on his earlier work, Klein (1971) (also in the in-depth review) notes this approach tends to increase the cohesiveness of gangs, and he found greater positive impact in reducing the volume of gang crime by using detached workers specifically and primarily to reduce gang cohesiveness.

Cohen et al. (1995) evaluate a set of community-based consortia projects designed to increase community level efforts to focus on gang problems and develop comprehensive co-ordinated approaches to them, involving agencies from voluntary, law enforcement, local government, recreational, youth, business, churches, medical or college sectors. In this sense it is similar to other studies in the in-depth review, but there is no specific enforcement angle above consultation with the relevant agencies. In addition, the only outcome measures described relate to the level of involvement with gang members, not criminal activity, so it could be argued that this study is measuring a different outcome.

The inconclusive studies include some with a combination of positive, negative and inconclusive results. To illustrate, in Miethe and McCorkle (1997), the population group believe that the anti-gang legislation in question is effective, but they also find a number of negative findings regarding the application of that legislation.

4.3.1 Achievement of outcomes by broad intervention type

Table 4.8 shows the achievement of outcomes by the intervention typology. However, as each of the interventions considered in the in-depth review were multi-stranded it proved difficult to understand the efficacy of any particular model or type of intervention.

Nevertheless Table 4.8 does highlight that certain individual components of multi-stranded approaches are closely correlated with affirmative outcomes, though there must be clarity around the precise outcomes being investigated here. That enforcement, for example, is so closely associated with successful outcomes does in part reflect that the focus of this review is on crime reduction amongst existing gang members rather than preventing people from joining gangs. The correlation of affirmative outcomes with interventions with an organisational or managerial element to them is also interesting, as this review has already noted that such interventions are more likely to be comprehensive, as organisational

² The figures for this table reflect the data extraction, which involved an in-depth reading of full articles, and hence the number in each category of intervention does not exactly correspond to that in the systematic map or keywording stage (e.g. Table 4.8).

Table 4.8: Intervention focus by success of outcome

Intervention Focus	Affirmative	Inconclusive	Negative
Enforcement	6	4	0
Educational	4	3	1
Organisation and management	5	4	1
Diversion	3	2	2
Psychological	4	1	1
Opportunities Provision	2	4	1
Criminal Justice	3	2	0
Community Mobilisation	2	4	1
Legal	3	1	0
Social inclusion	3	2	0
Situational	2	0	0
Vocational skills training	1	3	0
Individual support	2	0	0
Media/ advertisements	0	1	0
Substance abuse support	1	0	1
Transportation	1	0	0
Publicity	2	0	0
Mediation	1	0	0

factors are liable to become increasingly important in the multi-stranded interventions.

4.4 Synthesis of studies with crime reduction outcomes

The ‘reduction in crime’ outcome most closely relates to the original research question. The following synthesis therefore focuses on the group of studies with crime reduction outcomes and considers the interventions related to these outcome measures and the findings.³

Key crime outcome measures highlighted in the in-depth review studies include:

- recidivism
- likelihood of being sentenced to custody by a court

- number of homicide victims
- number of drive-by shootings
- amount of gang crime in a specified area
- amount of narcotic crime in a specified area
- the level of violent crime
- number of calls to the police for shots fired
- number of gun assault incidents
- number of offences committed by gangs
- number of arrests
- number of court appearances
- serious violence offences
- property offences
- drug-related crime
- gang loitering
- disorderly conduct and mob action
- self-reported delinquency

Of the 17 studies in the in-depth review, 12 have outcome measures related to a reduction in criminal activity. Five did not measure crime reduction outcomes in a way that facilitated comparison between intervention and control group outcomes (they used victimisation surveys) and were therefore excluded from the following analysis: Caplan (1968), Cohen et al. (1995), Jesilow et al. (1998), Maxson et al. (2005), and Miethe and McCorkle (2002).

Table 4.9: Intervention Focus of In-Depth Review studies, using keywording categories (N = 17, not mutually exclusive)

Intervention Focus	Number of studies	Percentage
Enforcement	7	58.3
Educational	7	58.3
Opportunities provision	7	58.3
Organisation and management	5	41.7
Community mobilisation	5	41.7
Diversion	5	41.7
Criminal Justice	4	33.3
Psychological	4	33.3
Social inclusion	3	25
Legal	3	25
Vocational skills training	3	25
Situational	2	16.7
Individualised case management	1	8.3

³ The other two types of outcome - changes in subject behaviour and change in attitudes of the community - are also briefly considered in future sections.

The types of interventions included in the studies with crime reduction outcomes are shown in table 4.9. This profile is similar to that for the in-depth review overall and again shows the pre-eminence of enforcement type activity.

Table 4.10: Achievement of the ‘reduction in crime’ outcome

Rating	Number of studies	Percentage
Affirmative	7	58.3
Inconclusive/other or some parts affirmative and some negative	4	33.3
Negative	1	8.3

Table 4.10 shows how the authors of those studies with crime reduction outcomes reported the achievement of these outcomes. This outcome featured in three quarters of all of the in-depth review studies and the proportion of studies in each category closely mirrors that for the all of the in-depth review studies.

4.4.1 Background to the effect size synthesis

The effect size synthesis comprises a number of parts:

- First, the pooled effect size and heterogeneity of all remaining studies together are considered.
- Second, to facilitate quality assessment, studies with higher weights of evidence are then considered separately
- Section 4.5 details the sensitivity analyses undertaken in addition to the main meta-analyses.
- Finally, section 4.6 takes each mechanism of change in turn and considers the interventions featuring that specific mechanism of change in terms of their effect on crime reduction outcomes.

The studies included in this section of the synthesis focused on different types of crime reduction outcomes. The results of the individual studies therefore had to be standardised in some way in order to allow for their synthesis. Standardised effect sizes were calculated for all studies, details of the approach used are given in Chapter 2.

In all but two studies for the outcome of interest the data used was the only data available. Only one outcome is selected from each study for the effect size analyses, including the two where more than one was available. This was because where a study had multiple crime reduction outcomes,

each applicable outcome measure was related to the other relevant outcome measure(s), with one often being a subset of the other (e.g. appearances in court and reappearances in court). In these cases to use both would prejudice the results. The variable selected for inclusion was based on prior specification of relevance, so violent gang crime data would be used rather than all violent crime, which would itself be preferred to all crime.

Table 4.11 shows the precise outcome measures utilised in this synthesis, to improve the transparency of the analysis and to illustrate the heterogeneity of these measures. Appendix 5 explains how the effect sizes (corrected Hedges' g) for each study were calculated.

4.4.2 Interpreting the effect sizes

The effect size analysis is presented in forest plots. The forest plots show the study, the effect size estimate (the dot), a 95% confidence interval for the effect size estimate (the whiskers), the weight (the proportion any one study contributes to the overall effect size calculation) and sample size.

Interpretation of effect size relates to where the estimate lies in relation to zero (i.e. the point of no effect) and the magnitude of effect. Where the dots are to the right side of the line, this shows the effect favours the intervention, i.e. that the intervention has a positive effect (in the case of these studies in reducing either crime or arrests). The further the dot is from zero, the greater the effect. If the whole of the 95% confidence interval is to the right side of the line, this shows that an intervention’s positive effect is statistically significant.

The heterogeneity of the interventions in terms of the nature of the interventions, the populations targeted, and the diverse array of outcome measures utilised means great care should be taken in interpreting the results of the pooled effect size analyses. Following Higgins et al. (2003: 559) we may ‘tentatively assign adjectives of low, moderate, and high to I^2 values of 25%, 50%, and 75%’.⁴

For this analysis and others following, results are reported using both a fixed effect model (inverse variance) and a random effect model (DerSimonian and Laird). However, as the heterogeneity scores are typically very high, and as it cannot assume that each study is trying to estimate the same true effect size, the results from the random effect model may be considered more valid and it is these that the report will focus on.

4.4.3 Publication bias

The possibility of publication bias was considered using a funnel plot. Figure 4.1 compares the relationship of the effect size of the twelve ‘crime reduction outcome’ studies against their standard

⁴ It should be noted that, before providing this means of assessment, Higgins et al. warn that a ‘naïve categorisation of values for I^2 would not be appropriate for all circumstances’; however, it is certainly useful as an initial guide.

Table 4.11: List of the outcomes used to calculate effect size

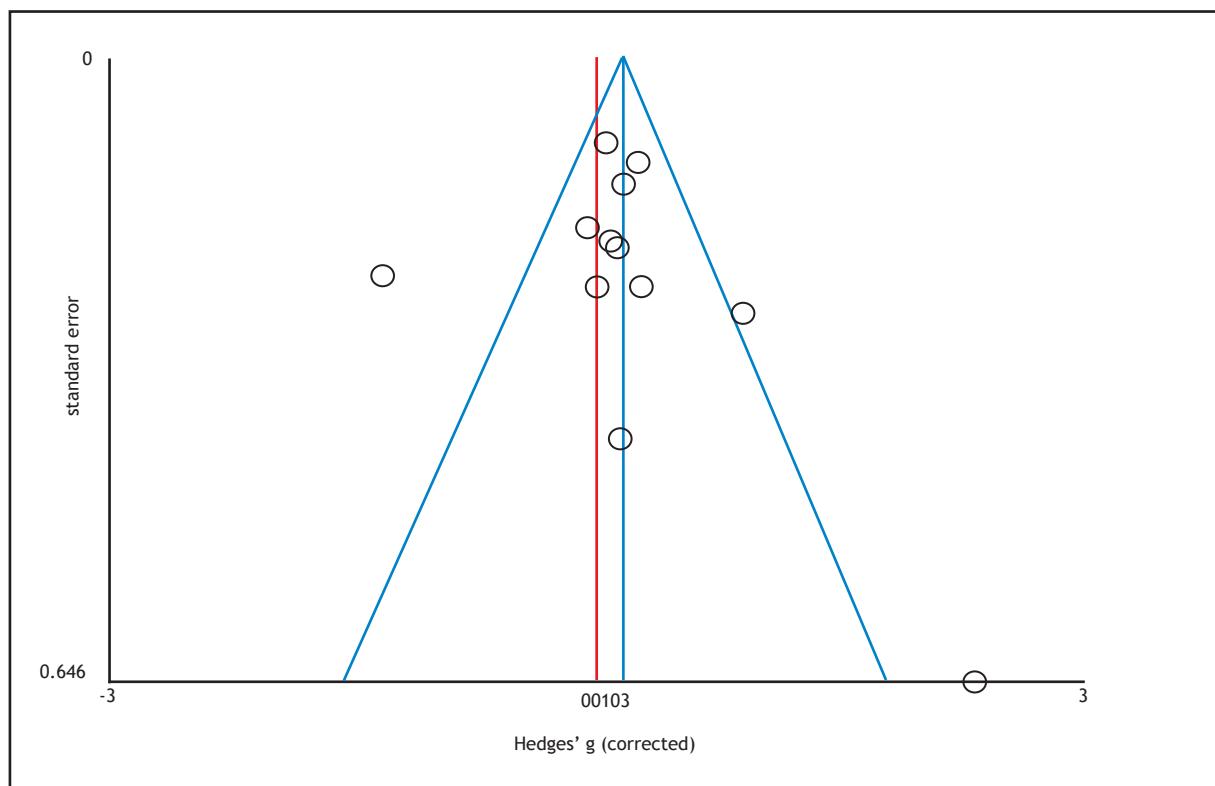
Study name	Outcome	Description
Arbretton and McClanahan (2002)	Arrested and went to court	Unstandardised estimates from regressions examining the effect of being a target <i>versus</i> a comparison youth on having been arrested and sent to court in the last year.
Goldstein et al. (1994)	Recidivism	Arrest data for youths participating in Aggression Replacement Therapy and respective control groups for 8-month period.
Groger (2002)	Violent Crime	Difference-in-difference estimates of the effect of injunctions on mean violent crime comparing target areas to comparison areas matched to targeted Reporting Districts. Violent crime is defined as murder, rape, robbery and aggravated assault.
Higgins and Coldren (2000)	Narcotics offences	Data derived from whether the Chicago Police Department reported narcotics offence rate got better or worse by each block within District 2 (intervention) <i>versus</i> District 9 (control). Narcotics offences were an aggregate of all cases related to manufacturing, delivery and possession of cannabis or a controlled substance.
Kapsch et al. (2003)	Re-arrests for the African-American Program	Re-arrests for the 'African-American Program' and the comparison group Jan 98 - Dec 99. Comparison is against an expected rate based on figures from the same county
Kennedy et al. (2001)	Homicides	Number of homicides in under 24 population, pre <i>versus</i> post intervention
Klein (1969)	Offences	Number of months that expected frequencies of delinquency are greater than observed. Intervention <i>versus</i> Control, pre-project and project period. Delinquency is defined as the number of offences charged against the individuals.
Klein (1971)	Offences	Actual offences charged against individuals per month pre-project compared to during project (n is number of months in each period the effect size favours intervention i.e. where there was less offending in project period)
Miller (1962)	Appeared in court	Proportion of individuals who had appeared in court by age 23, intervention <i>versus</i> control
Spergel et al. (2003)	Serious violence arrests	Adjusted mean change in serious violence arrests, comparing program to comparison youth (Serious violence is defined as homicide, aggravated battery, aggravated assault, and armed robbery). 4.5 year pre-program period compared to 4.5 year program period
Spergel (1986)	Gang crime	Changes in reported gang crime in target and non-target areas, pre-project and during project. Reported part 1 gang crimes by district and area: 10-month comparison of target and non-target area, pre-project and project. (Part 1 crimes are defined as homicide, robbery, aggravated assault and aggravated battery.)
Tita et al. (2003)	Offences	Change in total number of reported violent offences between pre intervention and post intervention - Intervention area (5 targeted Reporting Districts) <i>versus</i> Control area (rest of Boyle Heights)

error. If there is no publication bias, then the studies should form an 'inverted' funnel with the largest studies at the top.

Though the clustering of the studies around the top of the funnel plot (with larger studies closer to the standardized mean difference, and smaller studies more widely scattered), provides some confidence that the effects of publication bias have been minimized, the spread of all twelve of the studies on the funnel plot suggests there is a risk of publication bias, as there are very few studies with negative effect sizes, and in particular no smaller studies with negative results. However, a minimum of 10 studies would be required to assess this and as this

analysis only considers 12, there is a danger of over-analysing here, especially as smaller studies might be expected to produce asymmetry in the plot.

Further complicating easy interpretation of this plot, as most of the studies had fairly small effect sizes, they are likely to fall within the funnel anyway. Conversely, heterogeneity can produce 'non-funnel' plots, and statistical heterogeneity amongst the 12 studies was considerable, as will be discussed below. Thus two factors may be pulling the funnel plot in different directions, and potentially exerting more effect than publication bias per se.

Figure 4.1: Funnel plot of included studies

As previously discussed, concerted efforts were made to identify and capture unpublished studies, but no unpublished studies were considered of sufficient quality or relevance to warrant inclusion in the in-depth review, though three were retrieved at the systematic mapping stage.

4.4.4 Exclusion of heterogeneous studies

Appendix 6 details our assessment of the heterogeneity of the studies for each analysis. These calculations led us to conclude that two studies - Klein (1969) and Klein (1971) - should be excluded from the synthesis not only on the grounds that their results were different enough to the others to be non-comparable in a meta-analysis, but that we had further concerns over the validity of the effect size results for these studies (both of which we weighted low for weight of evidence). In addition, one further study - Goldstein et al. (1994) - was on the threshold of being an outlier in terms of heterogeneity, so we have provided results both with (in Appendix 6) and without this study. As there is arguably stronger evidence for its exclusion as an outlier than for its retention, the plots (without it) are the ones referred to in the main text of the report below.

4.4.5 Overview of the effect size analysis

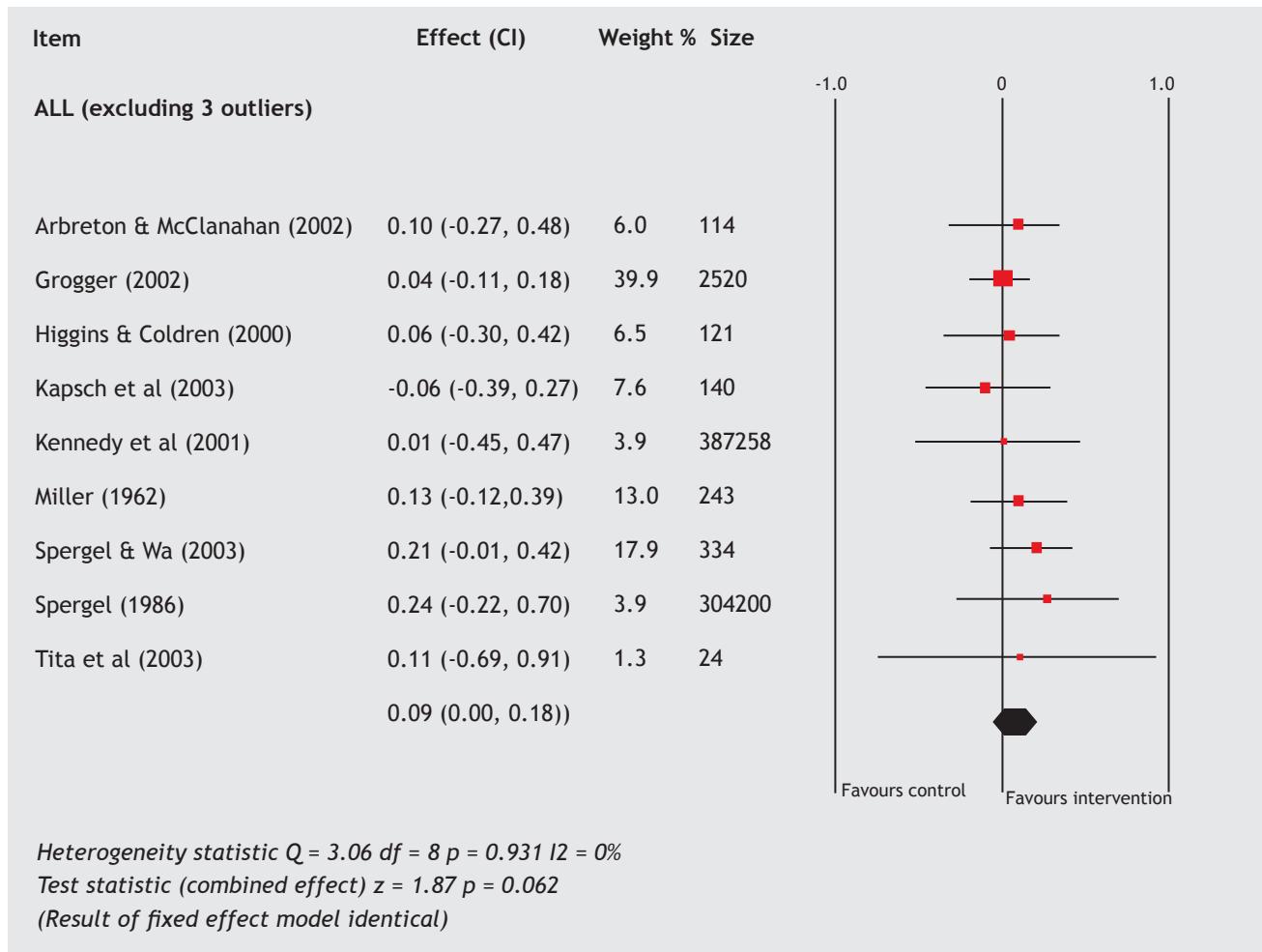
Initially, it is useful to consider the effect sizes of all the studies together, shown in Figure 4.2. The forest plot shows that of the effect sizes listed, eight were positive and one negative. However, none of the studies provided statistically significant positive results, though the excluded outlier study Goldstein

et al. (1994) provided a significant result (Fig. A6.2 in Appendix 6 shows the result if this were included. Klein [1969] provided a significant negative effect and Klein (1971) a significant positive effect, but as discussed, we do not consider their effect sizes reliable).

The pooled effect size (corrected Hedges' g) was 0.09 (C.I. 0.00 to 0.18). Heterogeneity (i^2) is zero, but the test statistic ($p = 0.062$) shows the result is not statistically significant. Including Goldstein et al. (1994), the result of the random effect model is 0.12 (0.01-0.18), a significant positive result shown in Figure A6.2, in Appendix 6. As heterogeneity is low (20%) when Goldstein et al. is included, it is difficult to know whether to exclude this study or not, and yet whether it is included or not alters whether the overall result reaches borderline statistical significance or not. However, using the inter-quartile range method of assessing outlier status when considering heterogeneity of study effect sizes (Figure A6.4 in Appendix 6), Goldstein et al. does appear as an extreme outlier, and so it is more appropriate for it to be excluded from the forest plot of overall pooled effect (further discussion of this issue is contained in Appendix 6).

It may be noted that there is a discrepancy in the size (population) and weighting for two studies in Figure 4.2, namely Kennedy et al. (2001) and Spergel (1986). Both have very large sizes listed but unremarkable weightings. This is because the standard error used in the calculation of effect size for these studies is the average for all the studies in the in-depth review (hence the weighting is the average weighting for any one study)⁵.

⁵ A full discussion of the rationale for this is contained in Appendix 5. For information, the impact of using an average standard error for these studies can be illustrated by the effect on the confidence intervals. Using the standard errors derived from their own population size, the C.I.s for Kennedy et al. are narrowed to 0.01-0.02 and for Spergel to 0.23-0.25, so both would generate positive statistically significant results, while the pooled result changes to 0.09 (-0.04 - 0.21).

Figure 4.2: Forest plot of effectiveness of interventions (random effect model)**Table 4.12:** Comparison of narrative result and effect size result

	Narrative result(view of original author as interpreted by review team) of the effectiveness of the intervention	Effect size g (95% C.I)
Arbreton and McClanahan (2002)	Positive	0.10 (-0.27 to 0.48)
Groger (2002)	Positive	0.04 (-0.11 to 0.18)
Higgins and Coldren (2000)	Positive	0.06 (-0.30 to 0.42)
Kapsch et al. (2003)	Inconclusive	-0.06 (-0.39 to 0.27)
Kennedy et al. (2001)	Positive	0.01 (-0.45 to 0.47)
Miller (1962)	Inconclusive	0.13 (-0.12 to 0.39)
Spergel et al. (2003)	Inconclusive	0.21 (-0.01 to 0.42)
Spergel (1986)	Positive	0.24 (-0.22 to 0.70)
Tita et al. (2003)	Inconclusive/Mixed	0.11 (-0.69 to 0.91)

Table 4.12 highlights that there are some discrepancies between the perceived success of the interventions according to the original authors and the effect sizes calculated by the review team. According to the effect sizes derived for this review, none of the studies provided statistically significant positive results. This initially appears to be a somewhat different pattern to the narrative results where 5 out of 9 studies were rated by the authors as providing 'positive' evidence of the success of the intervention they were evaluating.

The effects size synthesis does then appear to bring out differences in the interpretation of findings. There are a number of studies where the authors viewed their reported results as providing positive evidence of the success of an intervention but this is not backed up by the effects size analysis. The difference to the result in Table 4.12, which as well as reflecting study author opinion also simply assesses the direction of effect rather than its significance, derives in part from our use of a method of calculating a standardized mean difference (corrected Hedges' g) that produces a more conservative estimate of effect than risk ratios, for example. This is likely to be a factor in the perhaps surprisingly very small effect produced by Kennedy et al.'s Operation Ceasefire study (just as the method of generating an effect size is liable to have produced an over-estimate in the case of Klein, 1971, as discussed in Appendix 6). However, the difference in interpretation may also reflect over-confidence in their results on the part of some authors in a set of studies where no study was rated as providing a high weight of evidence in terms of methodological quality.

On the other hand, Spergel et al. (2003) use a series of Logistic Regression analyses that show the program sample did better under their intervention of interest, but not significantly better, than the comparison sample. Their conservatism about their findings (which are in fact very close to reaching statistical significance according to our effect size calculations) mirrors the interpretation in this report.

4.5 Overview of sensitivity analyses

In order to interpret the results, and reduce statistical heterogeneity where possible, a number of sensitivity analyses were conducted. The particular sensitivity analyses performed were:

- to ascertain if larger studies were dominating the overall effect
- to consider the effect when only those five studies judged to provide higher weight of evidence were included
- to consider the impact of any outlier studies
- to see if the different primary outcomes (i.e. crime rates or arrest rates) produced distinctive effects

The effect of larger studies has already been discussed, as concern over this was a pivotal reason for the approach taken to Kennedy et al. (2001) and Spergel (1986), as well as a factor in preferring to use pooled results from random effect models to fixed effect model results. Furthermore, the issue of outlier studies is considered in depth in Appendix 6. The next sections therefore focus on the remaining sensitivity analyses, in particular weight of evidence.

4.5.1 Weight of evidence

It is essential to consider if there is a difference in the findings generated by studies with better weight of evidence compared to the others. In this instance, there are no studies that were rated as 'high' on overall weight of evidence. However, it is still useful to plot the five studies labelled as having weight of evidence 'medium/high' separate from those rated as 'low' or 'medium' (Figure 4.3).

For these studies, the I^2 is 0% - there is no statistical heterogeneity for these studies - and the effect size is 0.09 (-0.01 - 0.20).

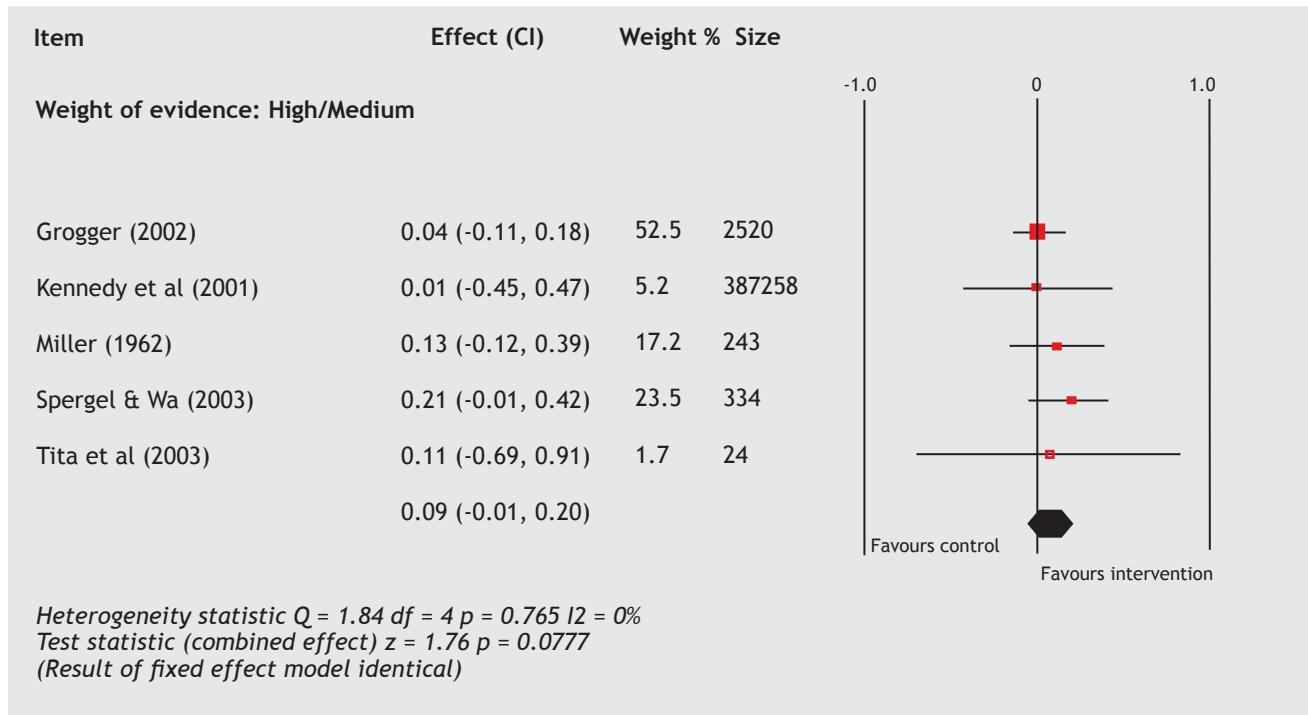
The result of focusing on those studies with (somewhat) higher weight of evidence is very similar to that of the overall result (also 0.09 from the random effects model for all nine studies in Figure 4.2, with heterogeneity again 0%). It suggests that removing variations in study quality and focusing on methodologically higher quality studies has little impact on the pooled estimate of effect. As the C.I.s still cross zero, even when restricting analysis to studies with higher quality evidence the pooled estimate of effect remains non-significant.

4.5.2 Summary of the sensitivity analysis

One further possible factor in the amount of heterogeneity is that the studies are measuring different outcomes. While the synthesis has been restricted to those studies which provide crime reduction outcome measures, it has already been noted that these outcome types are themselves heterogeneous in nature (Table 4.12). Such differences could contribute to the different effect sizes found in the individual studies i.e. be a cause of heterogeneity in the study results. However given the limited amount of information provided in a number of the studies, this is difficult to quantify.

In summary sensitivity analyses suggest that heterogeneity is caused primarily by the outlier studies as heterogeneity is removed when they are excluded. Nevertheless, to ensure the reliability of results. Any statistically significant results should be checked by focusing on studies providing the highest available weight of evidence before any firmer conclusions are drawn. The interpretive framework (Appendix 7) we have used to assess the effectiveness of interventions accordingly

Figure 4.3: Forest plot of effectiveness of interventions (random effect model), for studies with medium/high WoE



privileges only those studies with medium or high scores on weight of evidence.

4.6 Analyses of effects by theories of change

Previous research (discussed earlier in the report) has highlighted the effectiveness of comprehensive approaches and the majority of interventions in the in-depth review reported some positive impact. As a result the review group felt that it was important to understand the mechanisms that brought about change, specifically, which aspects of comprehensive interventions are most associated with positive crime reduction outcomes. Considering the effectiveness of such mechanisms is more germane in a review assessing the impact of intervention comprehensiveness than analysing the effect by single intervention type (such as 'enforcement' or 'education'); as the intervention types can only be single-stranded in themselves.

The review group considered each paper in order to identify those mechanisms that may have brought about change. Table 4.13 summarises the mechanisms identified.

Table 4.14 details which interventions included which features of these mechanisms of change and this clearly shows that the most common change mechanisms are the use of an incentive and the sharing of expertise across agencies. It is interesting to note that more interventions include the carrot than the stick, particularly when, as noted above, they appear to work in tandem and lie at the heart of the comprehensive ethos.

It is also worthy of note that, for the studied interventions, the community appear to be more involved in the delivery of interventions than their planning. This implies that various agencies plan and prepare interventions and then look to communities to help them deliver the interventions. The relatively small number of interventions that include a problem-solving element is also of interest, considering the emphasis on such an element in problem-oriented policing.

So far only the effectiveness of comprehensive interventions as a whole in reducing gang-related criminal activity has been considered. With only (at most) ten studies eligible for inclusion in the overall meta-analysis, each individual mechanism of change may be present in only a very small number of studies, restricting the validity and generalisability of any results - especially as it would be most useful in any sub-analysis to focus on those studies providing medium/high weight of evidence, typically reducing numbers of studies available for analysis to one or two.

Despite this caveat, it remains valuable to examine the effectiveness of the interventions grouped by the theories of change. Where a particular mechanism of change produced a significant pooled effect size, it was also useful to further break down the result to consider the impact of removing studies with low weight of evidence on methodological quality.

Klein (1971) was the only study that had 'reducing gang cohesiveness' as one of its explicit theories of change and therefore this mechanism of change has not been plotted (even in Appendix 6 which provides

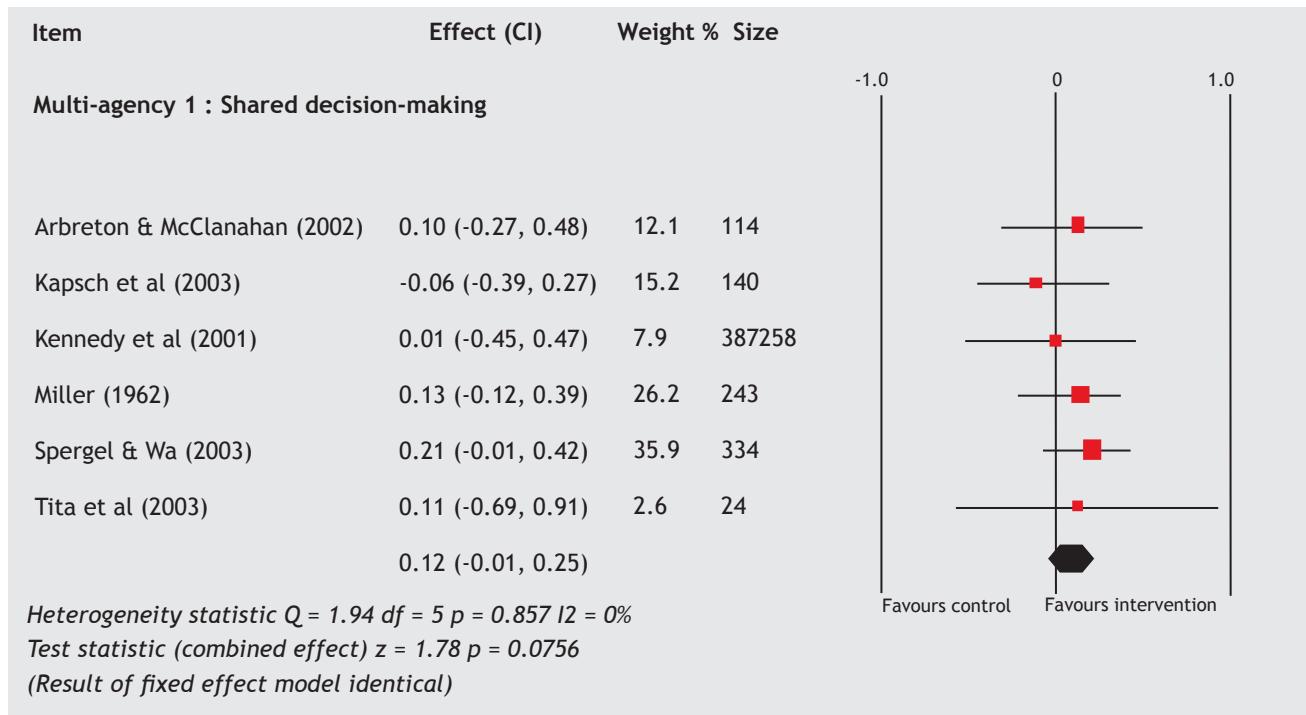
Table 4.13: Mechanisms of change identified

Mechanism of change	Description
Multi-agency: Shared decision-making by partnership agencies	Actions being decided collectively, theoretically improving effectiveness through better consistency and co-ordination of activity
Multi-agency: Explicit information-sharing arrangements between agencies	The existence of data-sharing protocols, intelligence sharing or other measures to improve communication between agencies.
Multi-agency: Pooling of resources	This related to efficiency, though it would also aim to increase consistency and co-ordination of activity.
Multi-agency: Shared expertise	Improved insight through shared wisdom and experience, providing a more holistic understanding of the problem.
Carrot	Intervention offers a ‘carrot’ by providing opportunities out of gang activity through such factors as employment, training, treatment and family support.
Stick	Intervention offers a ‘stick’ through enforcement, prohibitions and sanctions.
The combined carrot and stick approach	This is inherently comprehensive because it combines an incentive to change; a form of sanction or deterrence for non-compliance and the means to change (as alternatives are provided). This is built on the premise that offenders need both to be motivated to change behaviour and have the realistic possibility of changing their behaviour.
Community and agency planning	Involvement of the community as well as agencies in the planning of interventions
Community and agency delivery	Involvement of the community as well as agencies in the delivery of interventions. Involving local communities may lead to an improved understanding of the problem and improved motivation of the community to do something about the problem because they feel empowered and listened to by people in positions of power. The distinction is whether communities are actively involved in delivering aspects of the intervention or simply supporting those that do.
Publicity	The intervention strategy is marketed to the target audience and the wider community. This is inherently comprehensive because the intervention agents are not just doing something but also communicating that they are doing something. Theoretically this will increase the likelihood of community mobilisation and of the impact of an intervention on gang members, as they will be aware of it, so increasing deterrence.
Problem-solving	The intervention is built on a problem-solving approach and analyses of the local problem rather than simply importing an intervention. Effective problem-solving inherently requires a multi-faceted approach. To tackle a local gang crime problem effectively, agencies will have to problem-solve together.
Recognition of local context and treatment of subjects holistically (e.g. by providing individualised services)	This is not a ‘one size fits all’ approach (but does not necessarily involve a problem-solving element). Services provided to tackle the problem are individualised rather than standardised and treat subjects holistically.
Setting out to reduce the cohesiveness of gangs	Reducing gang cohesiveness inherently requires a multi-faceted or holistic intervention (this is likely to be a subset of the above issues but where an intervention specifically addresses this concern, this is recorded in the table below).

Table 4.14: Theories of Change for studies in the in-depth review

	Multi-agency working: shared decision-making	Multi-agency working: information-sharing	Multi-agency working: shared expertise	Carrot (incentives)	Stick (sanctions)	Involve-ment of community: planning	Involve-ment of community: delivery	Problem-solving	Publicity	Person-alised/ holistic service	Reduce gang cohesiveness
Arbretton and McCleanahan (2002)	X		X	X		X		X			
Caplan (1968)				X							
Cohen et al. (1995)	X	X	X	X	X	X	X				
Goldstein et al. (1994)					X						X
Groger (2002)	X					X					X
Higgins and Coldren (2000)		X			X						
Jesilow et al. (1998)					X	X	X				X
Kapsch et al. (2003)					X	X	X				X
Kennedy et al. (2001)	X	X			X	X	X			X	X

Figure 4.4: Effectiveness of interventions incorporating multi-agency working: shared decision-making (random effect model)



the results of the analyses including such outlier studies). Though the difference in effect between Klein (1969) and Klein (1971) may appear to suggest that working to reduce gang cohesiveness should be a cornerstone of any effective intervention, the review cannot be sure of this, as Klein (1971) (even if it were included, despite being an outlier) does not offer medium/high weight of evidence, as this study's interpretative framework (Appendix 7) demands.

As for the overall effect size analysis, Klein (1969) and Klein (1971) were excluded, as for each of the theory of change analyses they proved once again to be outliers (calculations of this are shown in Appendix 6), though the results including them are provided in Appendix 6. Similarly, tests for heterogeneity led to the exclusion of Goldstein et al. (1994) from some theory of change forest plots.

4.6.1 Multi-agency working

Four elements of multi-agency working were considered: shared decision-making, information sharing, pooling of resources, and shared expertise. The resulting meta-analyses are shown in Figures 4.4 - 4.7 (Figure 4.7 excludes Klein 1971 though this study includes the relevant critical mechanism. The effect of retaining this study is shown in Figure A6.8 in Appendix 6).

What emerged from these plots is that the multi-agency working mechanisms produced small positive effects that did not reach statistical significance, with the exception of shared expertise where the positive impact was only just significant.

4.6.2 Involvement of the community in the intervention

There were two aspects to community involvement in the interventions considered: involvement of the wider community in the planning of the intervention, and involvement of the community in its delivery.

Both of these mechanisms of change produced positive effects (Figures 4.9 and 4.10), with the effects narrowly reaching statistical significance. There was no purpose in separately analysing the impact when the wider community is involved in both the planning and delivery of an intervention, as all the studies which incorporated community involvement in intervention planning also involved them in delivery. (Results including the two Klein studies for involvement of the community in the delivery of the intervention are detailed in Appendix 6, Figure A6.11.)

All of the studies in which the community was involved in planning the intervention - Miller (1962), Spergel et al. (2003), and Tita et al. (2003) - were rated as medium/high on Weight of Evidence, so this result was identical even when controlling for quality of evidence.

The four studies in which the community was involved in delivering the intervention which have high/medium weight of evidence are the same as those where there was sharing of expertise across agencies, i.e. Kennedy et al. (2001), Miller (1962), Spergel et al. (2003), and Tita et al. (2003). Therefore the result was identical to that in Figure 4.8, a positive statistically significant relationship

Figure 4.5: Effectiveness of interventions incorporating multi-agency working: information sharing (random effect model)

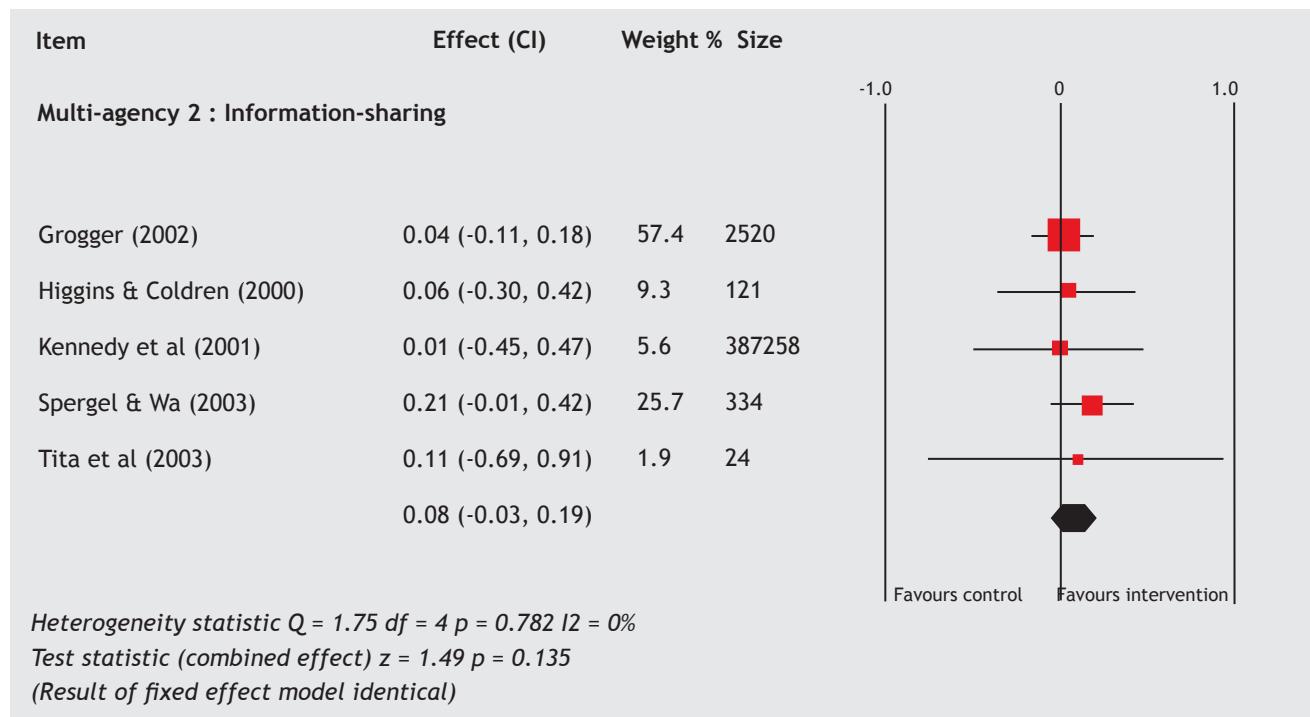


Figure 4.6: Effectiveness of interventions incorporating multi-agency working: pooling of resources (random effect model)

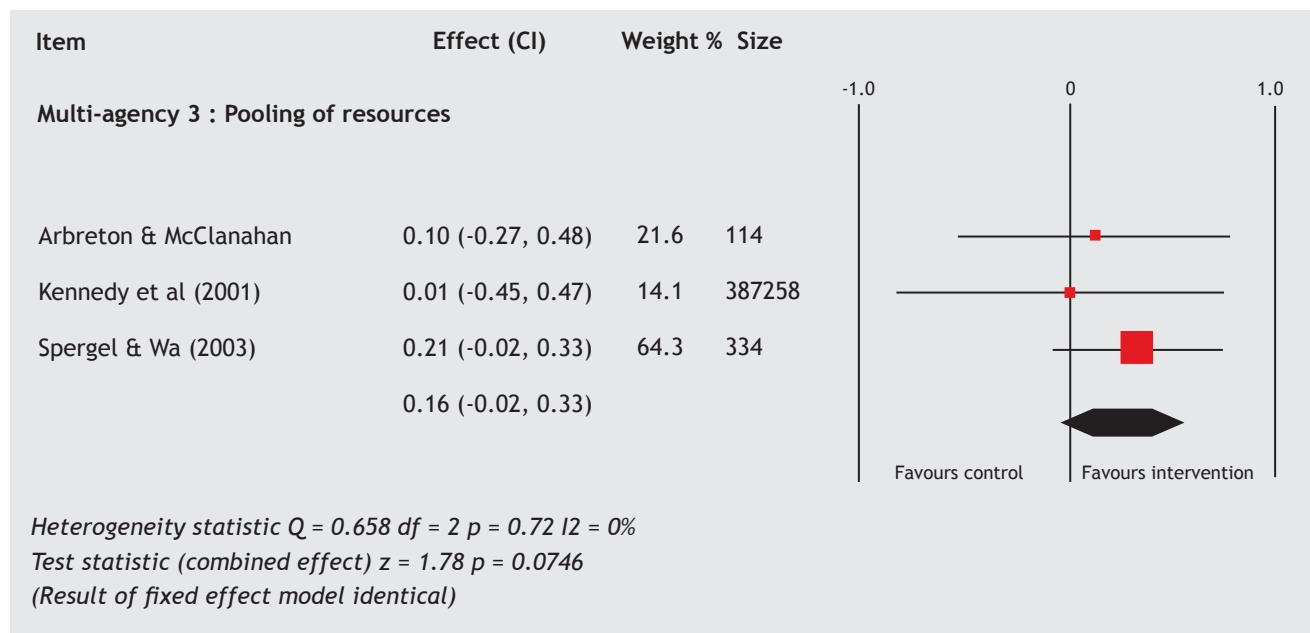


Figure 4.7: Effectiveness of interventions incorporating multi-agency working: shared expertise (random effect model)

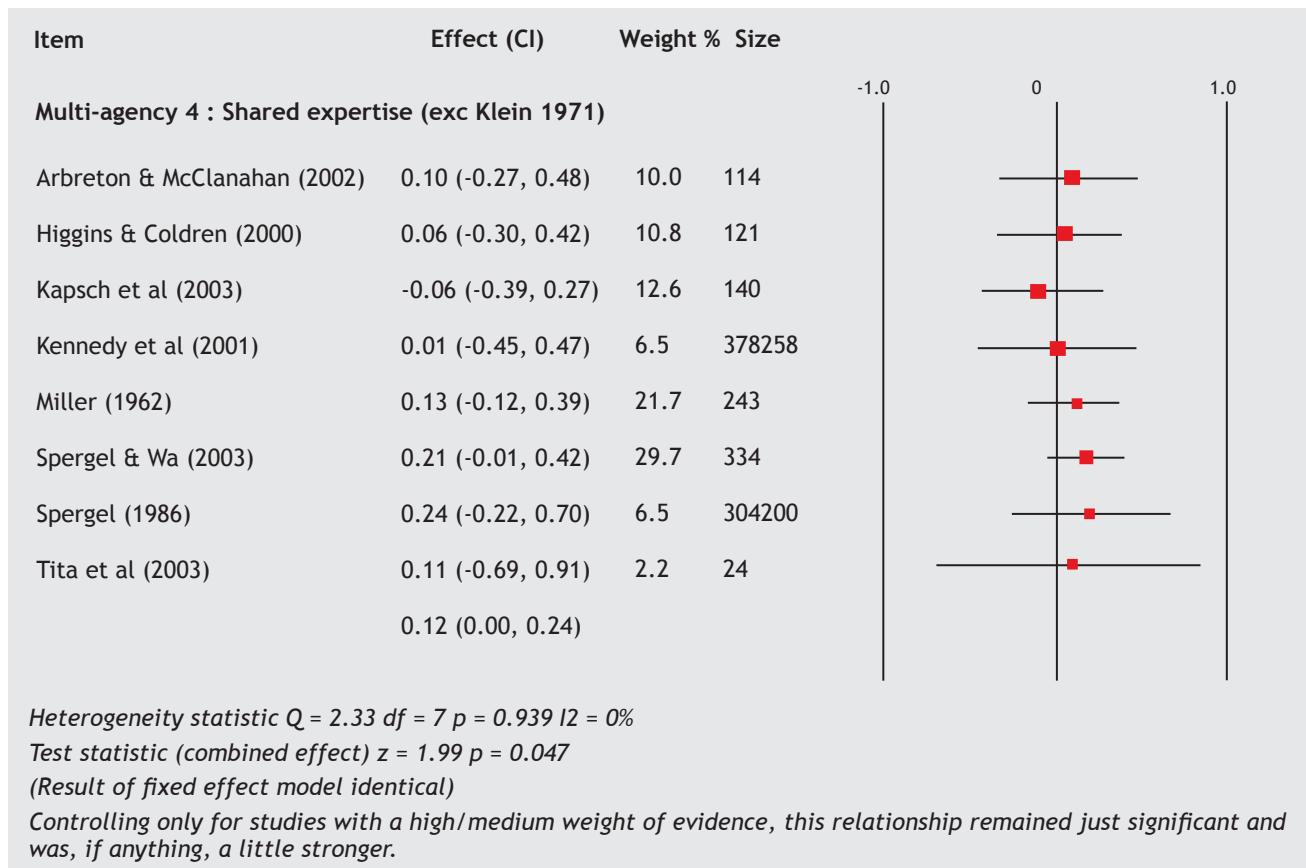


Figure 4.8: Effectiveness of interventions incorporating multi-agency working: shared expertise (high/medium weight of evidence, random effect model)

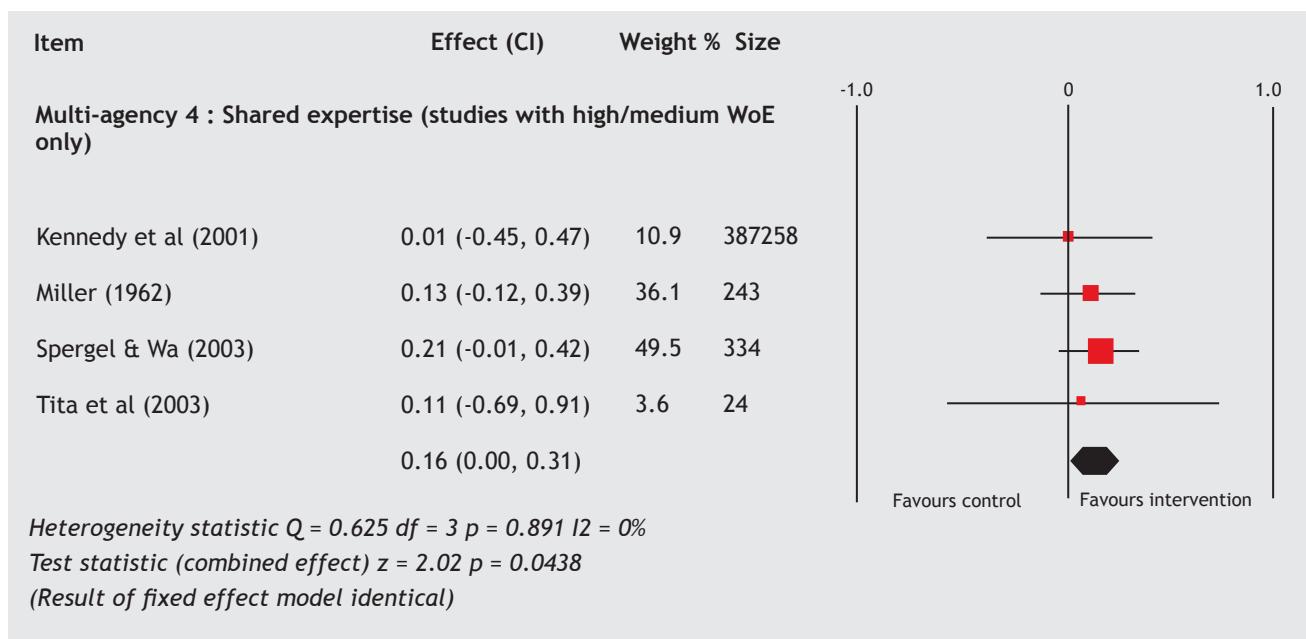


Figure 4.9: Effectiveness of interventions incorporating community involvement in the planning of the intervention (random effect model)

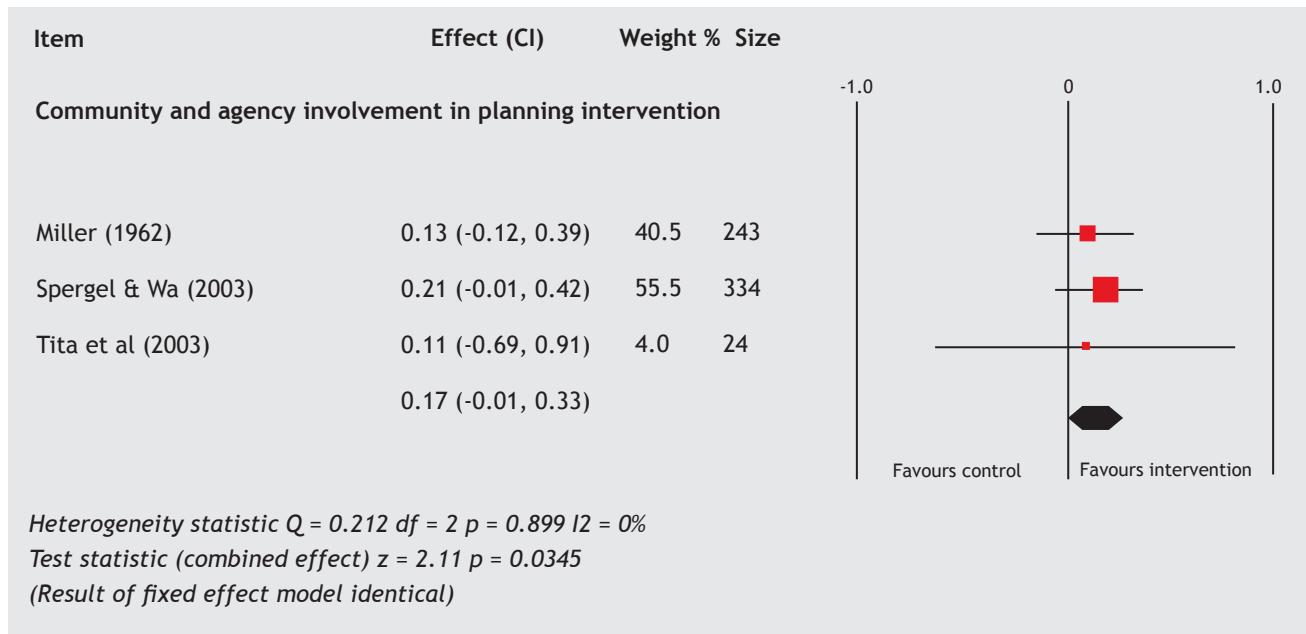


Figure 4.10: Effectiveness of interventions incorporating community involvement in the delivery of the intervention (random effect model)

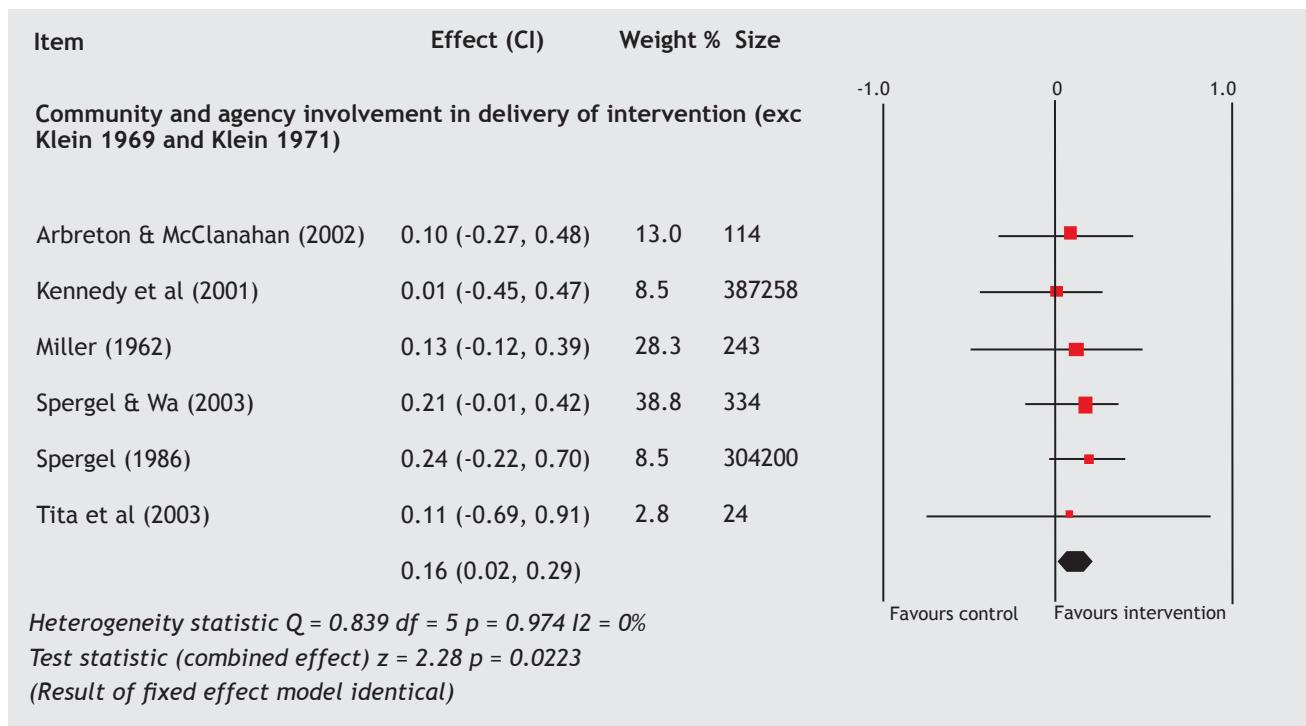


Table 4.15: Effectiveness of interventions by their inclusion of elements of stick (sanction) or carrot (incentive)

	No. of studies (/10)	Effect size(random effect model)	Heterogeneity(I ²)
Provision of carrot (incentives)	8	0.17 (C.I. 0.02 to 0.32)	25.9%
Use of stick (sanctions)	7	0.08 (C.I. -0.02 to 0.18)	0%
Provision of carrot only (no stick)	3	0.31 (C.I. -0.08 to 0.70)	69.9%
Use of stick only (no carrot)	2	0.04 (C.I. -0.09 to 0.17)	0%

which provides further support for the initial finding in Figure 4.10.

4.6.3 Carrots and sticks

Before considering the effectiveness of the interventions in terms of their comprehensiveness, i.e. where an intervention incorporates both 'carrots' (incentives) and 'sticks' (sanctions), it is useful to consider the effectiveness of each approach in its own right.

Table 4.15 highlights that though the group 'provision of incentives only' produced the greatest effect, the confidence intervals were very wide (and included zero), and there was great heterogeneity even amongst as few as three studies. It included two studies, Arbreton and McClanahan (2002) and Miller (1962), which produced no significant effect with the outlier study Goldstein et al. (1994) providing much of the positive thrust (see Figure A6.16 in Appendix 6). Furthermore, only one study (Miller, 1962) was rated above low on weight of evidence A in the provision of incentives only group, so a pooled effect size cannot be calculated, but the result from this study alone is small and non-significant (in fact the author considers the findings negative and the hypothesis behind the intervention disproved). Thus this finding cannot be trusted.

However, the provision of incentives group (where sanctions may or may not additionally be provided) recorded a statistically significant positive result.. This group included Goldstein et al. (1994) but excluding this study the result remained (just) significant and all statistical heterogeneity was removed (Fig. A6.14 in Appendix 6). The result from the four studies in the provision of carrot group with medium/high weight of evidence, however, was 0.16 (0.00 - 0.31), which was just statistically significant ($p = 0.0438$) with zero heterogeneity - these are again the four studies in which there was community involvement in delivering the intervention and sharing of expertise across agencies (Kennedy et al. (2001), Miller (1962), Spergel et al. (2003), and Tita et al. (2003)), so the result was the same as Figure 4.9.

Provision of carrot (incentives) : all those interventions which provided incentives, which may include those which provide sanctions as well

Use of stick (sanctions) : all those interventions which provided sanctions, which may include those which provide incentives as well

Provision of carrot only (no stick) : all those interventions which provided incentives, excluding all those which provided sanctions

Use of stick only (no carrot) : all those interventions which provided sanctions excluding all those which provided incentives

While there was some evidence of a relationship between interventions providing an incentive to change and positive impact on reducing gang crime, there was limited evidence of any such relationship for interventions providing sanctions. The effect both for interventions using sanctions and no incentives, and using sanctions regardless of whether incentives were provided or not, was similarly weak and non-significant.

Figure 4.11 presents the results for those interventions where both elements of carrot (incentive) and stick (sanction) were provided together to try to change gang members' criminal or anti-social behaviour. The pooled effect of 0.13 (-0.03 - 0.28) was perhaps surprisingly less impressive than for the provision of incentives group.

Using only studies with high/medium weight of evidence, the result receives further confirmation. The pooled effect for the three studies concerned (Kennedy et al. (2001), Spergel et al. (2003) and Tita et al. (2003)) is 0.17 (-0.02 - 0.36).

4.6.4 Other mechanisms of change

A number of other mechanisms of change, that may explain the effectiveness or otherwise of comprehensive interventions, were considered. These were: the incorporation of a publicity or marketing element; use of problem-solving; and

Figure 4.11: Effectiveness of interventions incorporating both sticks and carrots (sanctions and incentives) - random effect model

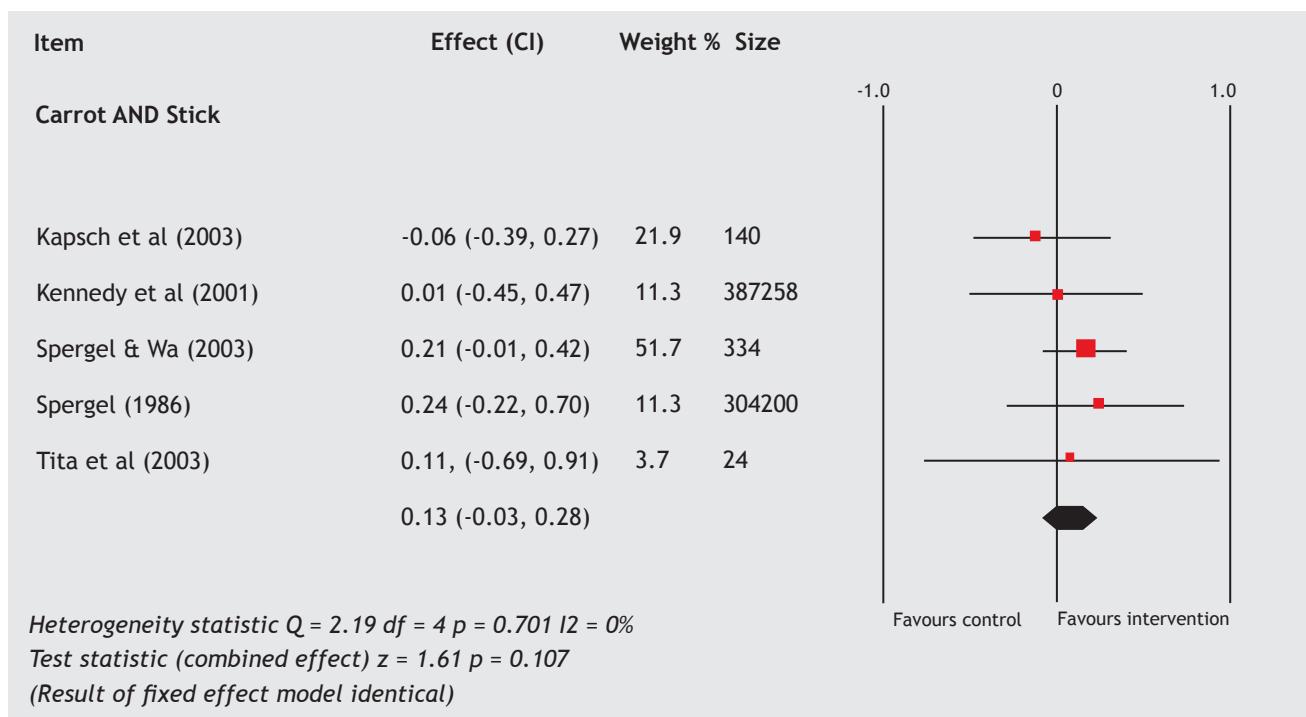
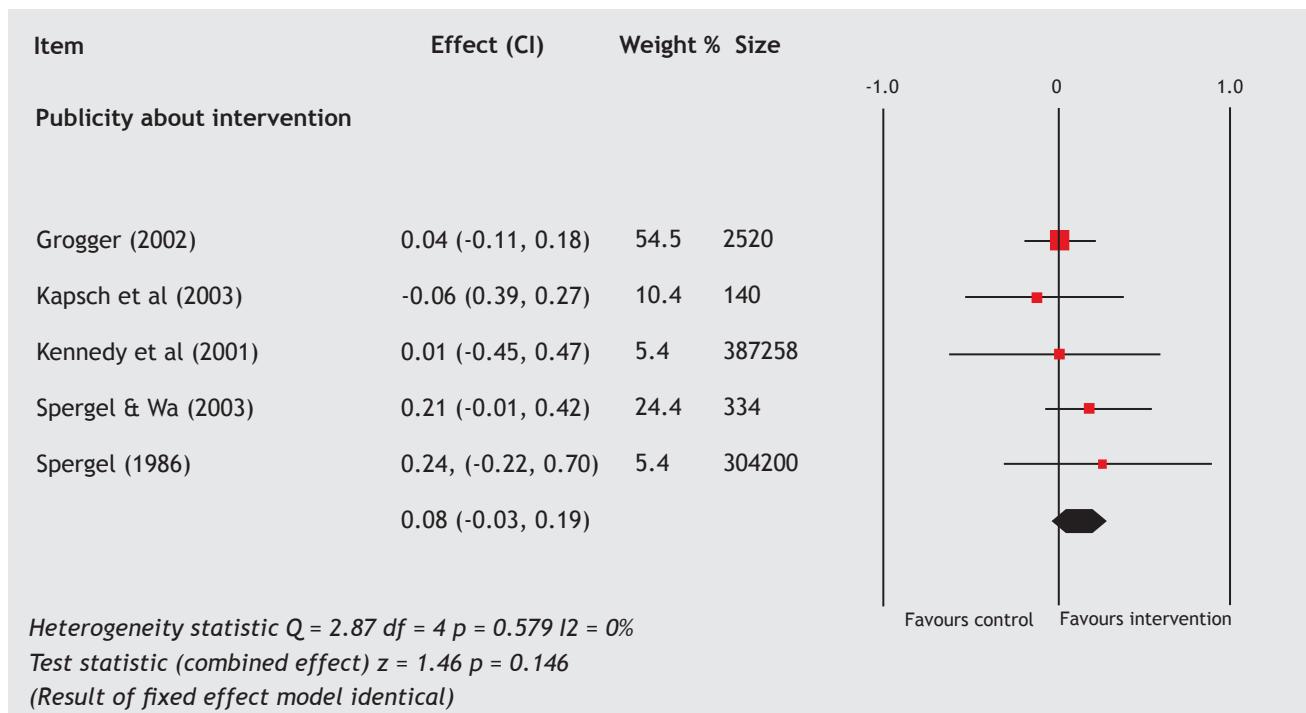


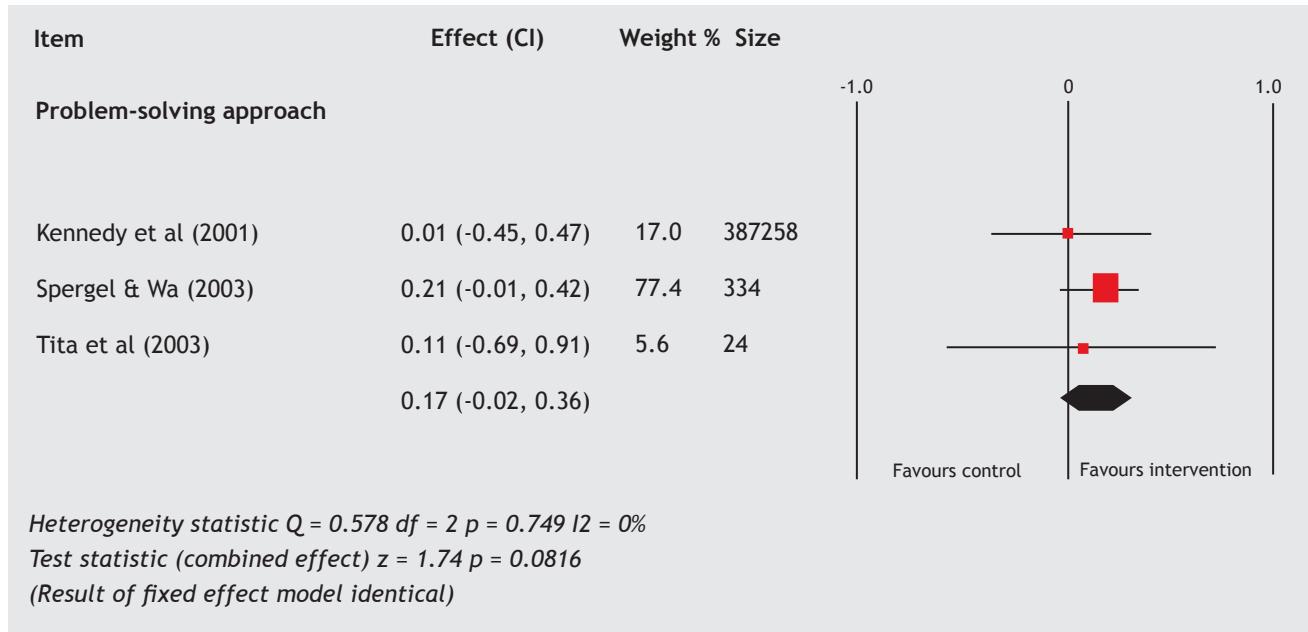
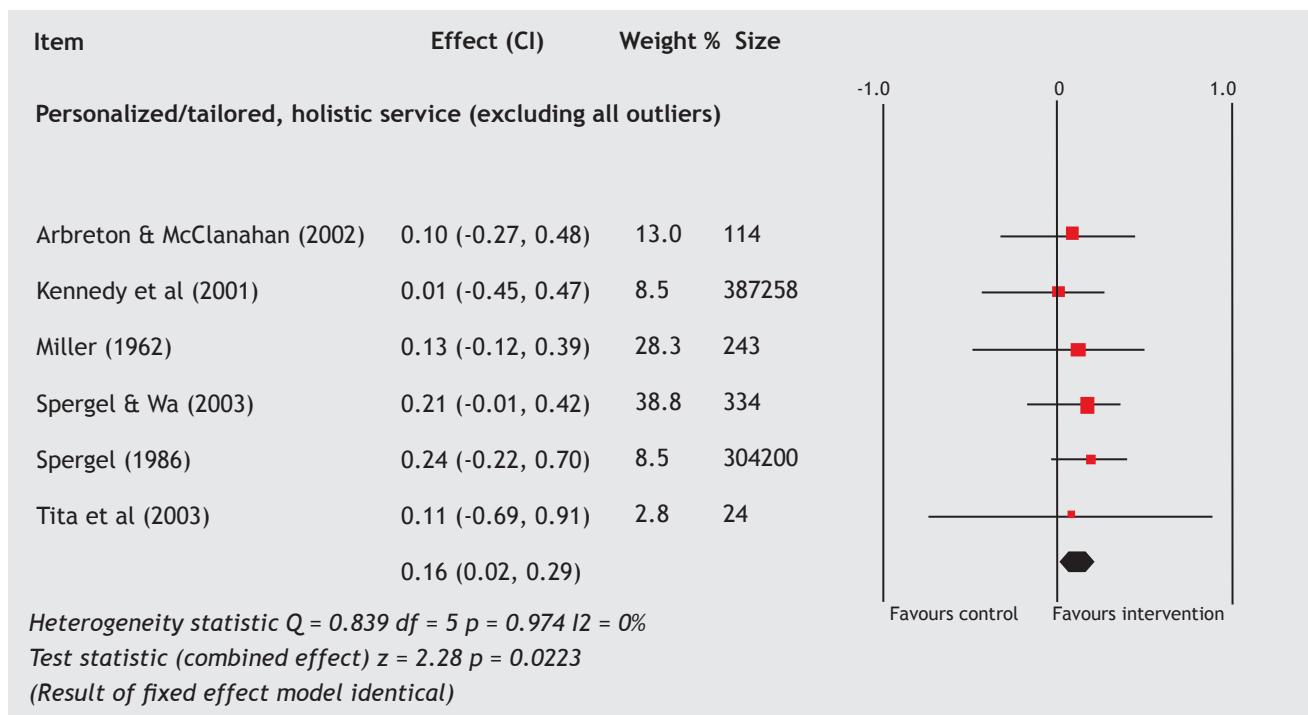
Figure 4.12: Effectiveness of interventions incorporating publicity or marketing elements - random effect model



personalising the intervention so it affects subjects holistically (in a similar way to a case management approach).

Figure 4.12 shows the effect size generated by those comprehensive interventions that incorporated marketing or publicity elements; the effect was positive but not statistically significant.

Figure 4.13 plots the effect size of the three interventions that incorporated problem-solving elements. Again the effect was positive, but not statistically significant.

Figure 4.13: Effectiveness of interventions featuring problem-solving - random effect model**Figure 4.14:** Effectiveness of interventions providing a personalised or holistic service - random effect model

Finally, the effectiveness of interventions incorporating a personalised or tailored holistic service to subjects was considered (Figure 4.14). Even after excluding all three outlier studies due to their contribution to heterogeneity (See Figs A6.20-22 in Appendix 6), this theory of change produced a positive and significant effect.

Taking the analysis one stage further, and focusing only on those studies with medium/high weight of evidence, excluded half the studies from Figure 4.14 and left four studies, as shown in Figure 4.15.

The pooled effect size here is as strong at 0.16 (0.00 - 0.31), but only just reaches statistical significance ($p = 0.0438$) with no statistical heterogeneity. Once more, the result was exactly the same as for the medium/high weight of evidence studies in Figure 4.8. as the four studies are again the same - indeed the six original studies are identical to those where the local community was involved in the delivery of the intervention, so the result of Figure 4.14 is the same as Figure 4.10.

Figure 4.15: Effectiveness of interventions with medium/high weight of evidence providing a personalised or holistic service - random effect model

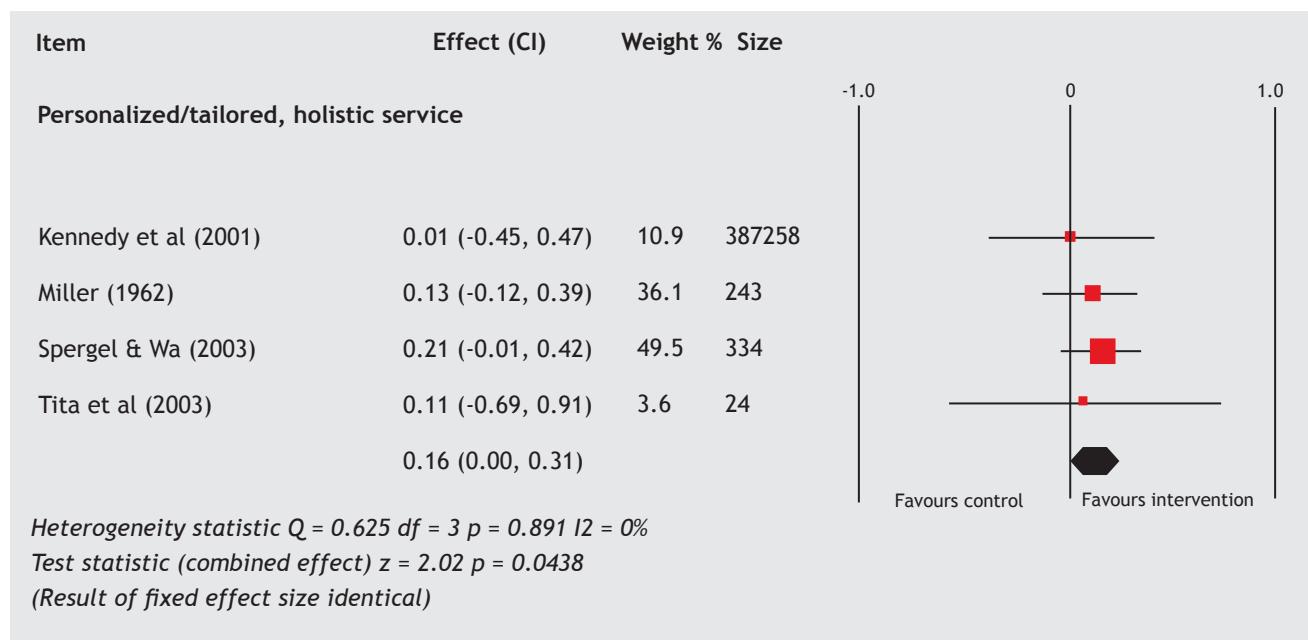


Table 4.16: Summary of effect sizes by theories of change

Mechanism of change	No. of studies (/9)*	Effect size(random effect model)	Heterogeneity
Community involved in planning	3	0.17 (C.I. 0.01 to 0.33)	0%
Problem-solving	3	0.17 (C.I. -0.02 to 0.36)	0%
Personalised/holistic service	6	0.16 (C.I. 0.02 to 0.29)	0%
Community involved in delivery	6	0.16 (C.I. 0.02 to 0.29)	0%
Pooling of resources across agencies	3	0.16 (C.I. -0.02 to 0.33)	0%
Carrot and stick	5	0.13 (C.I. -0.03 to 0.28)	0%
Expertise shared between agencies	8	0.12 (C.I. 0.00 to 0.24)	0%
Shared decision-making by agencies	6	0.12 (C.I. -0.01 to 0.25)	0%
Publicity	5	0.08 (C.I. -0.03 to 0.19)	0%
Information-sharing between agencies	5	0.08 (C.I. -0.03 to 0.19)	0%
All nine eligible studies	9	0.09 (0.00 to 0.18)	0%

* The three outlier studies have been excluded from this set of analyses.

4.6.5 Overview of the mechanisms of change

To provide some insight into the relative effectiveness of the different mechanisms of change, Table 4.16 lists the various theories of change in order of the effect sizes generated, alongside their heterogeneity (for all studies regardless of weight of evidence rating). Where the effect size is statistically significant the effect size is presented in bold. The number of studies is also detailed, as where there are fewer studies that incorporate a particular mechanism of change, the confidence intervals for the effect size are more liable to be influenced by any one study. The figure at the bottom of the table provides a comparison effect size generated by all nine studies eligible to be included in this analysis (as the table excludes the three outlier studies).

None of the mechanisms of change can be rejected as ineffective from the evidence here; all generate a positive effect and approach very close to that effect being statistically significant. However, there appear to be few mechanisms that stand out from the general pattern.

Both mechanisms that incorporate community involvement have positive effects: community involvement in intervention delivery (which in all cases involved community involvement in planning too) to a statistically significant level.

Only one of the four mechanisms relating to multi-agency working, produce a significant effect, although, in each case, the effect is positive and close to statistical significance; the exception, by the narrowest of margins, is shared expertise.

Similarly, the effect of an intervention including both sticks and carrots (sanctions and incentives) to change behaviour is positive but not significant. A focus on incentives alone produced a weak but significant effect.

The result for studies where a personalised, holistic service was provided is identical to that for studies with community involvement in delivery intervention, as the studies themselves are the same. The overall impression is that it is difficult to state clearly which mechanisms of change are better than others.

One further question remains: are those interventions with more comprehensive elements to them more effective than those with fewer, regardless of what the particular elements are? That is, is it a case of the more multi-stranded the intervention the better? With the low number of studies in the in-depth review, it is difficult to examine this systematically without taking the atheoretical approach of examining each distinct combination of different ways of being comprehensive in turn, effectively a form of data dredging. One way of considering this is to

ascertain if interventions which have a multi-agency element, a community involvement element, involve both sanctions and incentives, and have one other key element (publicity, problem-solving or a personalised, holistic service) are more effective than the set of comprehensive interventions in general. Figure 4.16 considers the four studies that incorporate all these elements.

This produced an effect size of 0.18 (C.I. 0.00 to 0.35) - a positive effect and one that just reaches statistical significance ($p = 0.045$). This effect size is (by a very small margin) larger than those of any individual theory of change, though in reality very similar to most of those listed in Table 4.17. However, focusing solely on studies with medium or high WoE on methodological quality, the result (Figure 4.17) became non-significant, as one study (Spergel, 1986) is then excluded.

If having a greater number of comprehensive attributes is then associated with some success for these interventions, this is clearly not the most resounding evidence to substantiate our original hypothesis about the effectiveness of comprehensive interventions in reducing crime-related outcomes. Otherwise, one would anticipate those interventions with the most multi-stranded elements would be much more successful than those with only one or two.

Why might this be? From the evidence provided this must remain speculative, but it is interesting to consider a discussion in one of these papers. Tita et al.'s (2003) study was an attempt to replicate in Los Angeles the success of the Operation Ceasefire model used in Boston by Kennedy et al. (2001), and the paper discusses the implementation difficulties the intervention faced at length. Speculatively, one could conjecture that the implementation problems encountered by Tita et al. highlight a potential problem with complex interventions i.e. that the practical achievement of comprehensive, multi-faceted interventions may not be as effective as the theory behind them due to the very complexity of the approach taken.

4.7 Summary of results

Table 4.16 provided a summary of results for all the studies in the in-depth review. Table 4.17 provides a summary of results for those studies with medium/high weight of evidence, according to our interpretative framework (Appendix 7).

The five mechanisms of changes shown above were the only ones which provide potential effects, following the effectiveness interpretation framework. Of these, the most comprehensive subset provided limited evidence of effectiveness, since, although the relationship was positive and significant for all the studies, it was not significant for studies of medium/high weight of evidence.

Figure 4.16: Effectiveness of interventions providing the most comprehensive aspects - random effect model

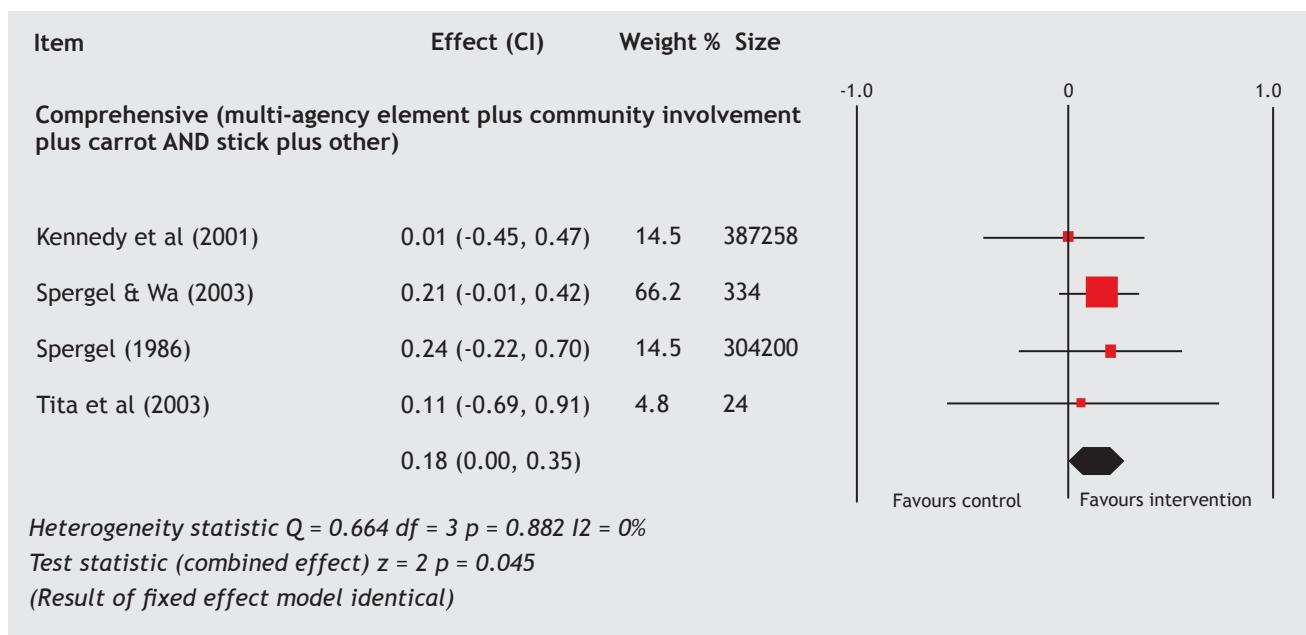
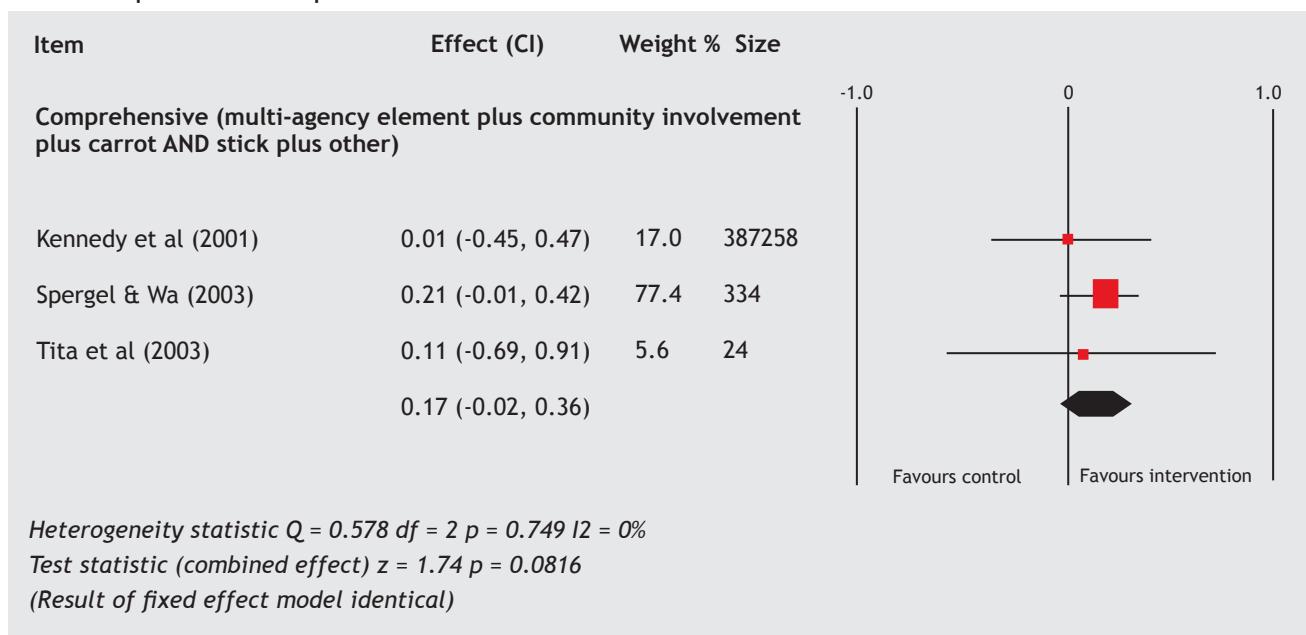


Figure 4.17: Effectiveness of interventions with medium/high weight of evidence providing the most comprehensive aspects - random effect model



However, there was consistent evidence of positive effects for the other mechanisms of changes. Thus offering a personalised, holistic service, involving the local community and agencies jointly in the planning and in the delivery of the intervention, and sharing expertise between agencies all showed a positive effect size favouring the intervention that was statistically significant for those studies which scored at least medium/high on the weight of evidence framework.

The major caveat in interpreting these findings is that it is the same three studies operating in each of these change mechanisms, and the same four in all but community planning involvement. It is therefore impossible to determine which one of these theories of change is having this (weak) effect, or if all are necessary to have any impact on gang crime.

Table 4.17: Summary of effect sizes by theories of change for studies with medium/high weight of evidence

Mechanism of change	No. of studies (/5)*	Effect size(random effect model)	Heterogeneity
Community involved in planning	3	0.17 (0.01 to 0.33)	0%
Personalised/holistic service	4	0.16 (0.00 to 0.31)	0%
Community involved in delivery	4	0.16 (0.00 to 0.31)	0%
Expertise shared between agencies	4	0.16 (0.00 to 0.31)	0%
Most comprehensive	3	0.17 (-0.02 to -0.36)	0%

CHAPTER FIVE

Implications

5.1 Summary of principal findings

- The systematic map identified 346 papers, reporting 208 studies of interventions to reduce gang-related violence.
- Of these studies, 17 met the criteria for the in-depth review; that is, they were evaluations of comprehensive interventions (defined as multi-faceted approaches encompassing more than one type of intervention) to tackle gang-related violence.
- All the comprehensive interventions took place in the United States.
- Five studies were judged to provide a high/medium weight of evidence in answering the review question; a further ten studies were judged to have medium weight of evidence and two studies had low/medium weight of evidence.
- In ten studies, the authors' interpreted their results as evidence of a successful intervention, two as evidence that the intervention was not successful and five authors reported inconclusive results.
- Of the 17 studies, 12 reported crime reduction outcomes.
- The effect size synthesis included nine of these 12 which met the quality criteria for statistical synthesis.
- Of these nine studies, eight had positive effect sizes and one negative.
- However, for none of these studies was the effect size statistically significant.
- The pooled effect size meta-analysis of results from the five medium/high quality studies was $d=0.09$ (95% C.I -0.01 to 0.20). Thus the results did not exclude a finding of 'no effect'.

- The results of exploratory subgroup analysis suggest that comprehensive interventions which include the mechanisms of personalisation, community involvement in planning and delivery, and/or sharing of expertise between agencies may have greater effect.

The number of components in a comprehensive intervention does not appear to be associated with effect size.

5.2 Discussion and conclusions

The review began with a broad focus on interventions for reducing gang-related criminal activity and anti-social behaviour. After the initial mapping stage the decision was taken to focus on the following in-depth review question:

Are comprehensive interventions more effective at reducing gang-related criminal activity and anti-social behaviour than 'usual service provision'?

In answering this question, the review also explored whether some types of comprehensive interventions were more effective than others.

The discussion therefore focuses on the synthesis undertaken to answer these questions.

5.2.1 The effectiveness of comprehensive interventions

The synthesis combined the effect size results from individual studies to produce a summary pooled estimate of effect size. For the five medium/high quality studies i.e. those for which it is argued that their effect size estimate was a valid measure of impact, the pooled estimate of effect was $d=0.09$. This suggests that on average the interventions had a positive effect. i.e. reduced crime and anti-social behaviour. However the result did not exclude the possibility that the effect size was negative.

To interpret this result, the Review Group used an ‘effectiveness interpretation framework’ (Appendix 7). Using this framework, they interpret the results of the synthesis as suggesting that there are ‘potentially positive effects’ of comprehensive interventions but with only limited evidence of support. In other words, the evidence in this review suggests that comprehensive interventions may be more effective than non-comprehensive interventions but there is insufficient evidence so far to confirm that this is the case. It is also the case that none of the studies in the review consider the cost benefit of any of the interventions. This information is also required to facilitate more informed choice when choosing between different strategies. Any advantage of comprehensive interventions over non-comprehensive interventions may, for example, come at a greater financial cost.

This more cautious set of results and interpretation is in marked contrast to the conclusions of the authors themselves and the more positive claims made about such interventions in the media. There may be all sorts of reasons for this, but one is undoubtedly that the review restricts the interpretation to only those studies which met a higher quality standard in terms of controlling for threats to validity.

It may also be the case that, as Tita et al. (2003) suggest, while in theory comprehensive interventions seem desirable, in practice their very complexity prohibits successful implementation.

5.2.2 Does type of comprehensive interventions matter?

The analysis also explored which combination of components or change mechanisms in a comprehensive intervention produced the largest effect size.

In high/medium quality studies in which the pooled effect size was positive and excluded the possibility of a negative effect, the comprehensive interventions included one or more of the following components:

- case management / personalised, holistic approach
- community involvement in the planning of interventions
- community involvement in the delivery of interventions
- expertise shared between agencies
- delivery of incentives to change offending behaviour (as part of a wider comprehensive intervention approach)

Given that these mechanisms of change all feature in the same studies (Miller, 1962; Spergel et al., 2003; Tita et al., 2003), it is not possible to be sure if only one of these mechanisms of change is the effective one, or if more than one of these mechanisms are needed to produce the desired outcome. The results suggest that this is an issue that should be investigated further in the evaluation of new comprehensive interventions.

5.3 Strengths and weaknesses of this systematic review

5.3.1 Strengths

This is the first systematic review in the UK that considers the effectiveness of comprehensive interventions that target gang related criminal activity. Given the current prominence of the ‘gang related criminality’ problem, the review is timely and has received much interest from the research community and policy makers in the UK.

From a methodological perspective it also builds on a Rapid Evidence Assessment (REA), previously completed by several of the review team. It is thought that this review is the first occasion where a similar question has been addressed by both a REA and a Systematic Review. As a result, it has received much interest from the research community, in relation to the relative merits and disadvantages of each approach.

Due to the significant potential policy implications of the review it was felt that both policy makers and practitioners should be encouraged to help support and shape the review. For this reason, an advisory group was established comprising a number of key individuals from the policy, practice and research worlds. Their brief was to advise the review team regarding the focus of the work and the scope and nature of the review.

It is noted however that they were an ‘advisory’ group and that the final decisions regarding the review rested ultimately with the review team.

Given the importance of the subject matter, the Review Group felt that the review should be as wide ranging and inclusive as possible. This was particularly the case in the early stages of the review where search criteria were kept intentionally wide across a relatively large number of databases. In the short-term, this caused problems as an early database search identified over a million ‘hits’. Clearly, this was unworkable and led to the revision of the search criteria through several iterations. Even then, with more tightly defined criteria, the searches identified over 20,000 citations for screening.

Regular team meetings as the review progressed also enabled a consistent approach to develop and ensured that quality checks were constantly being carried out on the methodology. For example,

a review meeting during the keywording stage highlighted differing interpretations of the term ‘comprehensive’. The ensuing discussion ensured that a consistent approach was being taken by the whole of the team.

5.3.2 Weaknesses

Given the wide ranging nature of the review, after the screening process, 600 citations that were felt to be relevant to the review question remained, for which papers were requested. Despite the best efforts of colleagues in the Home Office library, 177 (28%) of the total identified citations were not obtained.

Although a proportion of these are likely to have failed the full document screening stage, there may have been studies that might have been of use to the review that it was not possible to obtain.

In a similar vein, while the search strategy was comprehensive in its focus on publication links and databases, it failed to include a search of conference proceedings of the American Society of Criminology. This limited the extent to which the searches considered the grey literature, which may have led to the omission of potentially relevant studies from the review.

Therefore, while the Review Group has attempted to be as transparent, inclusive and thorough as possible in its search strategy, this highlights potential gaps in the review.

One of the exclusion criteria was that the review would not consider any papers that were not written in English. This excluded almost 900 papers from the initial list of over 20,000 citations and could again be viewed as a weakness. Time and resources within the review did not, however, allow for the translation of non-English language papers and a conscious decision was therefore made to exclude these.

The review is also dated. As the searches for the review were carried out in January 2006 any studies published after that date would not be included in the review and it is likely that other relevant studies will have been published in the intervening period. However, given that the search only identified 17 reasonable quality evaluations of comprehensive interventions ever, the members of the Review Group do not believe that it is likely that many more high quality studies of comprehensive interventions will have been published since January 2006. Nevertheless, given the continuing and escalating problems of gang violence and the ‘potential effectiveness’ identified by this review, it is clearly a priority to provide funding to update this review as soon as possible.

It is also the case that other definitions of ‘comprehensive interventions’ and/or ‘gang members’ may have resulted in the selection of additional or alternative studies into the review. This is to be expected in any systematic review and the strength of this systematic review is that the transparency and systematic way in which the review was conducted means that it can be updated and expanded to explore these issues.

5.4 Implications

There is insufficient evidence to justify a policy recommendation to use or not to use comprehensive interventions as a means of tackling gang violence. Nevertheless the pooled estimate of effect of the high/medium quality studies is positive. This pooled effect size of $d=0.9$ may in conventional interpretation (e.g. Cohen, 1998) appear to be ‘small’. However there is an argument that an effect of this size obtained from real ‘field based’ experiments could be important. A second issue is that all the interventions evaluated in the studies included in this review took place in the USA, and Review Group cannot therefore be sure of the transferability to a UK context

It is argued that the results suggest that comprehensive interventions warrant further rigorous evaluation in a UK context. Policy should therefore support the use of such interventions only in the context of rigorous evaluation.

Furthermore, it is argued that the design of comprehensive interventions in context should allow further investigation of those mechanisms of change which the analysis carried out here suggest are important for the design of successful comprehensive interventions.

CHAPTER SIX

References

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Appendix 1.1: Authorship of this report

This work is a report of a systematic review conducted by the Gang related violence and anti-social behaviour review group.

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Appendix 1.2: Search sources

Electronic databases

Criminology

- Butterworths Services (includes journal ‘Crime Online’)
- Campbell Collaboration C2 SPECTR
- CJA (Criminal Justice Abstracts)
- Criminal Justice (The International Journal of Policy and Practice)
- Criminology: a SAGE full-text collection
- Emerald (includes e.g. journal ‘Policing’)
- Jane’s (includes e.g. journal ‘Police Review’)
- Lexis Nexis (legal journals)
- NCJRS (National Criminal Justice Reference Service)
- Proquest (includes a Criminal Justice Periodicals Index)
- Security and Risk Abstracts (includes e.g. journal ‘Crime prevention and community safety’)

Psychology

- Mental Health Abstracts
- PsycArticles
- PsycINFO

Education

- BEI (British Education Index)
- ERIC (Educational Resources Information Centre)
- AEI (Australian Education Index)

Health

- ARIV (Alcohol Related Injury and Violence Literature Database)
- Medline
- EMBASE (similar to MEDLINE but with stronger European coverage)

Social sciences/humanities (general)

- ASSIA (Applied Social Sciences Index and Abstracts)
- EconLit
- IBSS (International Bibliography of the Social Sciences)
- ICPSR (Inter-University Consortium for Political and Social Research)
- PAIS (Public Affairs Information Service)
- PolicyFile
- Social SciSearch (SSCI)
- Social Policy and Practice
- Social Sciences - Full Text
- Social Services Abstracts
- Sociological Abstracts
- Sociology: a SAGE full-text collection
- SOSIG (Social Science Information Gateway)

Miscellaneous

- Accompline
- BOPCAS and BOPCRIS
- British Library Inside Web
- CEPOL-eDOC
- Childlink
- COPAC
- FRANCIS
- HOLLIS (Harvard Online Library Information System)
- Ingenta Connect
- NLM Locator Plus
- PCI Full Text
- Periodicals Archive online
- Planex
- Policy Hub Portal

- POPLINE
- Project MUSE
- QUIN, The Lamar Soutter Library
- RAND Books and Publications
- RedLightGreen
- Sage online
- SwetsWise
- Urbaline
- Web of Knowledge
- XreferPlus
- Zetoc

Websites

- The Archives Hub: <http://www.archives.hub.ac.uk>
- Evidence based practice for public health: <http://library.umassmed.edu/ebpph/>
- Institute of Employment Studies: <http://www.employment-studies.co.uk>
- Tavistock Institute of Human Relations: <http://www.tavinstitute.org/index.php>

Grey literature databases

- Dissertation Abstracts International
- Index to Theses
- ProQuest Digital Dissertations
- Regard (ESRC funded research projects)
- SIGLE
- Social Programs That Work

Appendix 2: Bibliographic databases searched for the review

Database	Search strategy	Number of references
BOPCRIS	'gang or gangs or gangland* or gangster*'	16
British Library Inside Web	'gang OR gangs OR gangland* OR gangster*'	1796
Butterworths	'gang', 'gangs', 'gangland' , 'gangland*', 'gangster', 'gangster*'	7
Campbell Collaboration - C2 SPECTR	All indexed fields: {gang} or {gangs} or {gangland} or {gangster} OR All Non-Indexed Fields: {gang} or {gangs} or {gangland} or {gangster}	6
CEPOL - eDOC	gang*	33
COPAC	[Anything]:gang* crim*	1022
CSA	(KW=Chang* Consequen* Decreas* Differen* Effect* Evaluat* Fall Impact* Increas* Maintain Outcome* Product Reduc* Result* Ris* Abus* Adolesce* Aggrav* Aggress* Anger Anti social Anti-social Antisocial Arm* Arson Assault Attack* Beat* Betting Burglar* Citizenship Cohesi* Convict* Correct* Crim* Damag* Delinquent* Detect* Disorder Drug* Extort* Fatal* Fear* Felon* Fight* Firearm* Forgery Fraud Gaming Graffiti Gun* Handling Harass* Harm* Hit Homicide* Hostil* Indecen* Injur* Interfer* Intimidat* Kidnap Kill Kni* Larceny Manslaughter Mug* Murder* Narcotic Nuisance Offen* Possess* Pro social Pro-social Prosocial Prostitut* Rape* Recedivi* Rehab* Re-offend* Reoffend* Restor* Riot* Rob* Shoot* Shot Solicit* Stab* Tamper Theft* Threat* Traffick* Trauma* Vandal* Violen* Weapon* Wound* Wrong) and (KW=Behav* Cognitive Communit* Curricul* Disciplin* Enforc* Experiment Famil* Initiative* Interven* Mediat* Mentor* Moral* Order Penal Pilot Plan Policy Practice Prevent* Prison* Program* Project Punish* Recreation* Scheme School Sentenc* Stud* Test Therap* Treat* Trial) and (KW=gang gangs gangland* gangster*)	

Database	Search strategy	Number of references
Dialog:	gang or gangs or gangland* or gangster*	950
AEI		
BEI		
Mental Health Abstracts		
Emerald	'gang OR gangs OR gangland* OR gangster*'	346
Evidence based practice for public health	POPLINE (gang / gangs / gangland* / gangster*) & (Behav* / Cognitive / Communit* / Curricul* / Disciplin* / Enforc* / Experiment / Famil* / Initiative* / Interven* / Mediat* / Mentor* / Moral* / Order / Penal / Pilot / Plan / Policy / Practice / Prevent* / Prison* / Program* / Project / Punish* / Recreation* / Scheme / School / Sentenc* / Stud* / Test / Therap* / Treat* / Trial*) & (Chang* / Consequen* / Decreas* / Differen* / Effect* / Evaluat* / Fall / Impact* / Increas* / Maintain / Outcome* / Product / Reduc* / Result* / Ris* / Abus* / Adolesce* / Aggrav* / Aggress* / Anger / Anti social / Anti-social / Antisocial / Arm* / Arson / Assault / Attack* / Beat* / Betting / Burglar* / Citizenship / Cohesi* / Convict* / Correct* / Crim* / Damag* / Delinquen* Detect* / Disorder / Drug* / Extort* / Fatal* / Fear* / Felon* / Fight* / Firearm* / Forgery / Fraud / Gaming / Graffiti / Gun* / Handling / Harass* / Harm* / Hit / Homicide* / Hostil* / Indecen* / Injur* / Interfer* / Intimidat* / Kidnap / Kill / Kni* / Larceny / Manslaughter / Mug* / Murder* / Narcotic / Nuisance / Offen* / Possess* / Pro social / Pro-social / Prosocial / Prostitut* / Rape* / Recedivi* / Rehab* / Re-offend* / Reoffend* / Restor* / Riot* / Rob* / Shoot* / Shot / Solicit* / Stab* / Tamper / Theft* / Threat* / Traffick* / Trauma* / Vandal* / Violen* / Weapon* / Wound* / Wrong)	141
	RAND Books and Publications (gang or gangs or gangland* or gangster*)	343
	QUIN, The Lamar Souter Library (gang OR gangs OR gangland OR gangster)[in Keyword Anywhere].	14
	Harvard OnLine Library Information System (HOLLIS) 'gang or gangs or gangland* or gangster*' in keyword: subject, english language	812
	NLM LocatorPlus (gang OR gangs OR gangland)[in advanced search in Keyword Anywhere]	270

Database	Search strategy	Number of references
	RedLightGreen - From RLG, the Research Libraries Group (gang or gangs or gangland* or gangster*) and (behav* or cognitive or communit* or curricul* or disciplin* or enforc* or experiment or famil* or initiative* or interven* or mediat* or mentor* or moral* or order or penal or pilot or plan or policy or practice or prevent* or prison* or program* or project or punish* or recreation* or scheme or school or sentenc* or stud* or test or therap* or treat* or trial*) and (chang* or consequen* or decreas* or differen* or effect* or evaluat* or fall or impact* or increas* or maintain or outcome* or product or reduc* or result* or ris* or abus* or adolesce* or aggrav* or aggress* or anger or anti social or anti-social or antisocial or arm* or arson or assault or attack* or beat* or betting or burglar* or citizenship or cohesi* or convict* or correct* or crim* or damag* or delinquen* or detect* or disorder or drug* or extort* or fatal* or fear* or felon* or fight* or firearm* or forgery or fraud or gaming or graffiti or gun* or handling or harass* or harm* or hit or homicide* or hostil* or indecen* or injur* or interfer* or intimidat* or kidnap or kill or kni* or larceny or manslaughter or mug* or murder* or narcotic or nuisance or offen* or possess* or pro social or pro-social or prosocial or prostitut* or rape* or recedivi* or rehab* or re-offend* or reoffend* or restor* or riot* or rob* or shoot* or shot or solicit* or stab* or tamper or theft* or threat* or traffick* or trauma* or vandal* or violen* or weapon* or wound* or wrong)	433
ICPSR	'gang"	106
Index to Theses	gang or gangs or gangland* or gangster*	32
Ingenta	'gang or gangs or gangland* or gangster"	2908
Janes	(gang OR gangs OR gangland* OR gangster*)	1252
Lexis Nexis	((hlead(gang* OR gangland* OR gangster*)) w/p (hlead(reduc! or prevent!) And(terms(crim!)) And Not (bbc monitoring)) AND NOT (Publication(WIRE or NEWSWI!or PRESSWI! or AP or AfX or ABIX or Company News Fe! or agence fra! or aap or asia pul! or jiji or newsby! or press assoc! or xin!))) and date geq(2001-01-19)	164
Periodicals Archive Online	gang or gangs or gangland* or gangster* Citations only	255
Proquest	(gang or gangs or gangland* or gangster*) and not (gang or gangs or gangland* or gangster*) in person	328
Project MUSE	gang or gangs or gangland* or gangster*	2531
Regard	gang OR gangs OR gangland* OR gangster*	224
Sage online	gang or gangs or gangland* or gangster*	124

Database	Search strategy	Number of references
SIGLE	(gang or gangs or gangland* or gangster*) and (behav* or cognitive or communit* or curricul* or disciplin* or enforc* or experiment or famil* or initiative* or interven* or mediat* or mentor* or moral* or order or penal or pilot or plan or policy or practice or prevent* or prison* or program* or project or punish* or recreation* or scheme or school or sentenc* or stud* or test or therap* or treat* or trial*) and (chang* or consequen* or decreas* or differen* or effect* or evaluat* or fall or impact* or increas* or maintain or outcome* or product or reduc* or result* or ris* or abus* or adolesce* or aggrav* or aggress* or anger or anti social or anti-social or antisocial or arm* or arson or assault or attack* or beat* or betting or burglar* or citizenship or cohesi* or convict* or correct* or crim* or damag* or delinquen* or detect* or disorder or drug* or extort* or fatal* or fear* or felon* or fight* or firearm* or forgery or fraud or gaming or graffiti or gun* or handling or harass* or harm* or hit or homicide* or hostil* or indecen* or injur* or interfer* or intimidat* or kidnap or kill or kni* or larceny or manslaughter or mug* or murder* or narcotic or nuisance or offen* or possess* or pro social or pro-social or prosocial or prostitut* or rape* or recedivi* or rehab* or re-offend* or reoffend* or restor* or riot* or rob* or shoot* or shot or solicit* or stab* or tamper or theft* or threat* or traffick* or trauma* or vandal* or violen* or weapon* or wound* or wrong)	59
Silverplatter	#1 and #2 and #3(798 records)#3 Chang* or Consequen*or Decreas* or Differen* or Effect* or Evaluat* or Fall or Impact* or Increas* or Maintain or Outcome* or Product or Reduc* or Result* or Ris* or Abus* or Adolesce* or Aggrav* or Aggress* or Anger or Anti social or Anti-social or Antisocial or Arm* or Arson or Assault or Attack* or Beat* or Betting or Burglar* or Citizenship or Cohesi* or Convict* or Correct* or Crim* or Damag* or Delinquen* or Detect* or Disorder or Drug* or Extort* or Fatal* or Fear* or Felon* or Fight* or Firearm* or Forgery or Fraud or Gaming or Graffiti or Gun* or Handling or Harass* or Harm* or Hit or Homicide* or Hostil* or Indecen* or Injur* or Interfer* or Intimidat* or Kidnap or Kill or Kni* or Larceny or Manslaughter or Mug* or Murder* or Narcotic or Nuisance or Offen* or Possess* or Pro social or Pro-social or Prosocial or Prostitut* or Rape* or Recedivi* or Rehab* or Re-offend* or Reoffend* or Restor* or Riot* or Rob* or Shoot* or Shot or Solicit* or Stab* or Tamper or Theft* or Threat* or Traffick* or Trauma* or Vandal* or Violen* or Weapon* or Wound* or Wrong(10321995 records)#2 Behav* or Cognitive or Communit* or Curricul* or Disciplin* or Enforc* or Experiment or Famil* or Initiative* or Interven* or Mediat* or Mentor* or Moral* or Order or Penal or Pilot or Plan or Policy or Practice or Prevent* or Prison* or Program* or Project or Punish* or Recreation* or Scheme or School or Sentenc* or Stud* or Test or Therap* or Treat* or Trial*(9306238 records)#1 gang or gangs or gangland* or gangster*(1261 records)	798
SOSIG	gang OR gangs OR gangland OR gangster	9
Swetswise	gang or gangs or gangland* or gangster* Not gang* in Author.	500
XreferPlus	gang or gangs or gangland* or gangster*	0
Zetoc: general	gang OR gangs OR gangland* OR gangster*	0

APPENDIX 3

Details of studies included in the systematic map

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Adams (1969)	The Stonewall Jackson Project	Gang members	Psychological	Correctional institution	Evaluation: Researcher-manipulated
Adams (1967)	Group guidance	Gang members	Comprehensive intervention comprising psychological, diversion and other (detached worker support, mentoring) elements.	On street	Exploration of relationships
Agopian (1990)	Intensive Supervision of Probationers	Gang members	Criminal Justice	Focused on multiple settings including criminal justice institution and probation	Evaluation: Researcher-manipulated
Armandes (1979)	Hire a Gang Leader	Gang members	Opportunities Provision	Organised community setting	Evaluation: Naturally occurring
Anda (1999)	Project Peace: A Safe Schools Skills Training Program for Adolescents	Focused on a number of populations including schools, individuals and ethnic groups.	Comprehensive intervention comprising educational and psychological elements.	School	Evaluation: Naturally occurring
Arbretton and McClanahan (2002)	Gang Intervention Through Targeted Outreach (GITTO)	Focused on a number of populations including gang members, targeted at risk and individuals.	Comprehensive intervention comprising educational, enforcement, criminal justice, juvenile justice, diversion, community mobilisation elements and other (individualized case management) elements.	Focused on multiple settings including organised community setting, school, other educational institution, correctional institution, on street, workplace and criminal justice institution	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Arnette and Walsleben (1998)	Parents and Schools Succeeding in Providing Organized Routes to Travel (PASSPORT)	Geographic area	Situational	On street	Description
Baker (1998)	Gang Intelligence System (GANGIS)	Gang members	Other (gang photo database)	Police premises	Description
Barrett (2003)	Manchester Multi agency gang strategy (MMAGS)	Focused on a number of populations including gang members, schools and individuals.	Comprehensive intervention comprising educational, enforcement, diversion and other (outreach support, mentoring) elements	Focused on multiple settings including organised community setting, youth centres, school and on street	Description
Bassett (1993)	Aurora Gang Task Force	Gang members	Comprehensive intervention comprising enforcement, criminal justice and opportunities provision elements.	Focused on multiple settings including organised community setting, on street and police presence	Description Evaluation: Naturally occurring
Beebee (1999)	Saath Togetherness	Focused on a number of populations including gang members, agencies and organisations, communities, geographic area, targeted at risk and crime type.	Comprehensive intervention comprising educational, criminal justice, psychological and diversion elements.	Focused on multiple settings including on street and other setting	Description
Benson (1990)	CHANGE (Citizens Helping Austin Neighbourhood Gang Environment)	Focused on a number of populations including gang members and crime type.	Comprehensive intervention comprising diversion, community mobilisation and other (mediation) elements	Focused on multiple settings including organised community setting, police premises and on street	Description
Bishop (1995)	Los Angeles Civil Gang Abatement	Gang members	Enforcement	On street	Description

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Braga, Kennedy and Tita (2002)	Operation Safe Neighbourhoods	Focused on a number of populations including gang members, geographic area and crime type.	Comprehensive intervention comprising enforcement, organisation and management, opportunities provision, social inclusion and other (communication strategies, local problem-solving) elements	Focused on multiple settings including on street and criminal justice institution	Exploration of relationships
Braga et al. (2001)	Boston Gun Project Operation Ceasefire	Focused on a number of populations including gang members, geographic area and crime type.	Comprehensive intervention comprising educational, enforcement, criminal justice, organisation and management and opportunities provision elements.	Focused on multiple settings including on street and criminal justice institution	Evaluation: Naturally occurring
Branch (1999)	The Family Intervention Project (FIP)	Focused on a number of populations including gang members and gang member's families.	Comprehensive intervention comprising educational, criminal justice, legal, psychological, diversion and community mobilisation elements.	Focused on multiple settings including organised community setting and workplace	Description
Broadfoot and Jones (2005)	PAGE - Proactively addressing gangs effectively	Focused on a number of populations including gang members, geographic area, targeted at risk and individual	Comprehensive intervention comprising educational, enforcement and organisation and management elements.	Focused on multiple settings including school, on street, home and other settings (shopping malls)	Description
Bureau of Justice Assistance (1997)	no name - Suppressing the Black Park Gang / White Light Park	Focused on a number of populations including gang members and geographic area.	Comprehensive intervention comprising enforcement, criminal justice, diversion and situational elements.	Focused on multiple settings including police premises and on street	Description
Burns and Deakin (1989)	Not specified	Focused on a number of populations including gang members and agencies and organisations.	Comprehensive intervention comprising enforcement, criminal justice, legal and organisation and management elements.	Focused on multiple settings including correctional institution and criminal justice institution	Description

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Caplan (1993)	Anti gang curriculum	Schools	Educational	School	Description
Caplan (1968)	Chicago Youth Development Project	Focused on a number of populations including gang members and geographic area.	Comprehensive intervention comprising psychological, diversion and social inclusion elements.	On street	Evaluation: Naturally occurring
Carstarphen and Shapiro (1997)	Not specified	Focused on a number of populations including gang members, agencies and organisations, communities, geographic area and targeted at risk	Comprehensive intervention comprising educational, enforcement, psychological, organisation and management, community mobilisation and social inclusion elements.	Focused on multiple settings including organised community setting and on street	Evaluation: Naturally occurring
Center for Neighborhood Enterprise (2006)	The Violence-Free Zone Initiative	Targeted at risk	Comprehensive intervention comprising educational, opportunities provision, community mobilisation and other (youth advisors) elements.	Focused on multiple settings including organised community setting, school and after school setting	Exploration of relationships
Chapel Peterson and Joseph (1999)	Not specified	Focused on a number of populations including gang members, targeted at risk and individual.	Comprehensive intervention comprising educational, psychological, comprehensive and other (media) elements.	Focused on multiple settings including organised community setting, correctional institution, home and other settings (media)	Evaluation: Naturally occurring
Chesney-Lind et al. (2005)	Youth Gang Response System (YGRS)	Focused on a number of populations including gang members, geographic area and targeted at risk.	Comprehensive intervention comprising educational, enforcement, organisation and management and community mobilisation elements.	Focused on multiple settings including organised community setting, school, police premises and on street	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Christeson and Newman (2004)	Philadelphia youth violence reduction partnership	Gang members	Comprehensive intervention comprising organisation and management, diversion, opportunities provision and social inclusion elements.	Focused on multiple settings including on street and home	Description
Christeson and Newman (2004)	Operation Eiger	Focused on a number of populations including gang members, gang member's families and geographic area.	Comprehensive intervention comprising legal, organisation and management, diversion, adult mentors, opportunities provision and social inclusion elements.	Focused on multiple settings including police premises, on street, home and criminal justice institution	Description
Cohen et al. (1995)	National Youth Gang Drug Prevention program	Gang members	Comprehensive intervention comprising diversion and other (drug abuse) elements.	Not specified	Evaluation: Researcher-manipulated
Cook, Capizi and Schumacher (1994)	TARGET	Gang members	Comprehensive intervention comprising enforcement and organisation and management elements.	Focused on multiple settings including government department, police premises and on street	Description
Dahmann (1982)	Operation Hardcore	Gang members	Criminal Justice	Criminal Justice institution	Evaluation: Naturally occurring
Dean (2004)	Use of Anti-Social Behaviour Act 2003	Geographic area	Enforcement	On street	Description
Derezotes (1995)	Late Nite Basketball Project	Focused on a number of populations including gang members, agencies and organisations and gang member's families.	Comprehensive intervention comprising educational and diversion elements.	Organised community setting	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Dinnen (2001)	Mass surrenders	Focused on a number of populations including gang members and other people with police records for murder, rape, robbery, car theft, break and entering, stealing)	Not specified	Criminal justice institution	Description
Duxbury (1993)	Gang Awareness Necessary for Growth in Society (GANGS)	Gang members	Educational	Correctional institution	Description
Engel (1973)	Psychotherapy with German gang boys	Gang members	Psychological	Correctional institution	Evaluation: Researcher-manipulated
Esbensen (1996)	GREAT, Gang Resistance Education and Training	Focused on a number of populations including gang members and schools.	Educational	School	Evaluation: Researcher-manipulated
Esbensen (1999)	Gang Resistance and Education Training (GREAT)	Schools	Educational	School	Evaluation: Researcher-manipulated
Esbensen (2004)	G.R.E.A.T. (Gang Resistance Education and Training)	Schools	Educational	School	Evaluation: Researcher-manipulated
Esbensen and Osgood (1997)	Gang Resistance Education and Training (G.R.E.A.T.)	Schools	Educational	School	Evaluation: Researcher-manipulated
Figlio and Ludwig (2000)		Schools	Educational	School	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Frank (1996)	A Chance for Youth	Targeted at risk	Comprehensive intervention comprising educational, psychological, diversion and community mobilisation elements.	Organised community setting	Description
Freed (1995)	CRASH (Community Resources Against Street Hoodlums)	Gang members	Enforcement	Focused on multiple settings including police premises and on street	Exploration of relationships
Fremon (2001)	Dolores Mission Church, Boyle Heights	Gang members	Comprehensive intervention comprising educational, psychological and opportunities provision elements.	On street	Description
Fritsch, Caeti and Taylor (1999)	Dallas anti-gang initiative	Gang members	Enforcement	On street	Evaluation: Naturally occurring
Gallacher (2005)	Purchase of police officers time	Focused on a number of populations including gang members, communities and geographic area.	Enforcement	On street	Description
Gandy (1959)	Hyde Park Youth Project	Focused on a number of populations including geographic area and targeted at risk.	Social inclusion	Focused on multiple settings including organised community setting and on street	Evaluation: Naturally occurring
Gates, Burke and Pierce (1990)	Gang Enforcement Team (GET)	Focused on a number of populations including gang members, agencies and organisations, schools and gang member's families.	Comprehensive intervention comprising enforcement and organisation and management elements.	Focused on multiple settings including school, police premises and criminal justice institution	Exploration of relationships
Goldstein and Kodluboy (1998)	Big Brothers/ Big Sisters of America	Targeted at risk	Educational	Focused on multiple settings including on street and home	Description evaluations exist

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Goldstein and Kodluboy (1998)	Golden Eagles	Focused on a number of populations including geographic area and ethnic group.	Comprehensive intervention comprising educational, social inclusion and other (traditional Native American arts and crafts, values, health lifestyles, personal safety, having a safe place) elements.	Focused on multiple settings including organised community setting and after school setting	Description
Goldstein and Kodluboy (1998)	Gulf Coast Trades Center		Targeted at risk	Comprehensive intervention comprising educational, psychological, diversion, vocational skills training and other (substance abuse services) elements.	Organised community setting
Goldstein et al. (1994)	Aggression Replacement Training		Focused on a number of populations including gang members and other (young people at risk)	Comprehensive intervention comprising educational and psychological elements.	Evaluation: Naturally occurring
Green and Miller (1996)	Lima (Ohio) partnership approach to gang violence		Focused on a number of populations including gang members, targeted at risk and individuals.	Comprehensive intervention comprising educational, organisation and management, diversion, situational and other (truancy crackdown) elements.	Focused on multiple settings including school, other educational institution, on street, home and health
Grogger (2002)	Civil Gang Injunctions		Gang members	Comprehensive - Legal Injunction and Enforcement	Other setting (dependent on the injunction imposed)
Hagedorn (1988)	Youth Diversion Project (YDP) (Milwaukee)		Gang members	Comprehensive intervention comprising educational, criminal justice, diversion, opportunities provision and social inclusion elements.	On street

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Hagenbucher (2003)	Proactive Gang Resistance Enforcement, Suppression, and Supervision (PROGRESS)	Focused on a number of populations including gang members and other (offenders)	Criminal Justice	Home	Evaluation: Naturally occurring
Hannah (2002)	Sports facilities to prevent gang activity	Focused on a number of populations including gang members and geographic area.	Diversion	Organised community setting	Description
Harrell, Cavanagh and Sridharan (1999)		Targeted at risk	Comprehensive intervention comprising educational, enforcement, criminal justice and diversion elements.	Other setting (dependent on the aspect of the programme)	Evaluation: Researcher-manipulated
Harris and O'Connell (1998)	Operation Cul De Sac (OCDS)	Geographic area	Comprehensive intervention comprising educational, enforcement, diversion, social inclusion and other (parenting, victim support) elements.	Focused on multiple settings including organised community setting and on street	Evaluation: Naturally occurring
Harris, Fried and Arana (1995)	The Cat Rock Gang	Focused on a number of populations including gang members, targeted at risk and individuals.	Comprehensive intervention comprising educational, psychological, diversion and other (outdoor activities, leadership) elements.	Other setting (outdoor)	Evaluation: Naturally occurring
Herd (1998)	Rocksprings Injunctions	Gang members	Enforcement	Focused on multiple settings including police premises and on street	Exploration of relationships
Hernandez (1998)	set up one-room schoolhouse in LA to teach 30 gang members for a year	Gang members	Educational	Organised community setting	Description
Higgins and Coldren (2000)	MDGE Municipal Drug and gang Enforcement	Focused on a number of populations including gang members, agencies and organisations, geographic area, crime type and other (locations)	Comprehensive intervention comprising enforcement, criminal justice, legal, organisation and management and situational elements.	Focused on multiple settings including on street and home	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Howell (1999)	TARGET - Tri agency resource gang enforcement team	Gang members	Comprehensive intervention comprising enforcement, Legal and organisation and management elements.	Focused on multiple settings including government department, police premises and on street	Description
Huff and Trump (1996a)	Cleveland Public School's Youth Gang Unit	Focused on a number of populations including gang members, schools and gang member's families.	Comprehensive intervention comprising educational, enforcement, diversion and other (proactive mediation) elements.	Focused on multiple settings including school and home	Evaluation: Naturally occurring
Huff and Trump (1996b)	Tri city task force on juvenile behaviour	Focused on a number of populations including gang members, schools, gang member's families, targeted at risk and other (school administrators)	Comprehensive intervention comprising educational, enforcement, organisation and management, diversion and situational elements.	Focused on multiple settings including school, on street, home and after school setting	Evaluation: Naturally occurring
Humphrey and Baker (1994)	GREAT (Gang Resistance Education and Training)	Schools	Educational	School	Description
Hunt and Weiner (1977)	Not Specified- 'Detroit Curfews 1976'	Focused on a number of populations including agencies and organisations, geographic area and crime type.	Comprehensive intervention comprising enforcement, criminal justice and legal elements.	Focused on multiple settings including on street and after school setting	Evaluation: Naturally occurring
Illinois Criminal Justice Information Authority (2000)	Little Village Gang Violence Reduction project	Gang members	Comprehensive intervention comprising enforcement, opportunities provision and social inclusion elements.	Focused on multiple settings including organised community setting, on street and home	Evaluation: Naturally occurring
Jackson (1999)	African American/Hispanic Male Transition project	Focused on a number of populations including gang members and ethnic group.	Comprehensive intervention comprising educational, psychological, opportunities provision, social inclusion and other (mentoring, conflict resolution, 24 hour crisis response) elements.	Correctional institution	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Jesilow et al. (1998)	Problem oriented policing approach to gangs	Focused on a number of populations including gang members, schools and individuals.	Comprehensive intervention comprising educational, enforcement and organisation and management elements.	Focused on multiple settings including organised community setting, school, on street and home	Evaluation: Naturally occurring
Johnson, Webster and Connors (1995)	Racketeer Influenced and Corrupt Organisations Act (RICO), Street Terrorism Enforcement and Prevention Act (STEP)	Gang members	Legal	Focused on multiple settings including government department and police premises	Description
Kapsch, Louis and Oleson (2003)	Portland STACS Project Strategic Approaches Community	Focused on a number of populations including gang members, agencies and organisations, geographic communities, targeted at risk, ethnic group and other (not specified)	Comprehensive intervention comprising educational, enforcement, criminal justice, legal organisation and management, diversion, opportunities provision, community mobilisation, vocational skills training, and other (tattoo removal, driver license renewal) elements.	Focused on multiple settings including organised community setting, correctional institution, on street and criminal justice institution	Evaluation: Researcher-manipulated
Katz, Maguire and Roneck (2002)	Specialised police gang units	Gang members	Enforcement	On street	Exploration of relationships
Kennedy and Braga (1998)	Minneapolis HEALS (Hope, Education, Law and Safety) Initiative	Focused on a number of populations including gang members, geographic area and crime type.	Comprehensive intervention comprising educational, enforcement, criminal justice, organisation and management and opportunities provision elements.	Focused on multiple settings including on street and criminal justice institution	Exploration of relationships
Kennedy et al. (2001)	The Boston Gun Project's Operation Ceasefire	Focused on a number of populations including gang members, geographic area and crime type.	Comprehensive intervention comprising educational, enforcement, criminal justice, organisation and management and opportunities provision elements.	Focused on multiple settings including on street and criminal justice institution	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Kensic (1992)	Target gang operation	Focused on a number of populations including gang members and geographic area.	Comprehensive intervention comprising enforcement, organisation and management and other (identification, profiling and tracking of key individuals) elements.	On street	Description
Kent et al. (2000)	TARGET Tri agency resource gang enforcement team	Focused on a number of populations including gang members and agencies and organisations.	Comprehensive intervention comprising enforcement, criminal justice, legal and organisation and management elements.	Focused on multiple settings including correctional institution, government department, police premises, on street and criminal justice institution	Evaluation: Naturally occurring Methodology
Klein (1969)	Group Guidance Project	Focused on a number of populations including gang members, communities, gang member's families, geographic area and targeted at risk.	Comprehensive intervention comprising educational, psychological, diversion and opportunities provision elements.	On street	Evaluation: Naturally occurring
Klein (1971)	The Ladino Hills Project	Gang members	Comprehensive intervention comprising psychological, diversion and social inclusion elements.	Other setting (not specified)	Evaluation: Researcher-manipulated
Klein (1992)	Operation Hammer	Gang members	Enforcement	On street	Description
Klein (1995)	Gang Violence Reduction Program (East LA)	Gang members	Comprehensive intervention comprising enforcement, diversion and other (older gang leaders hired as gang workers, feud mediation) elements.	On street	Description
Klein (1995)	Operation Hammer	Gang members	Enforcement	On street	Description

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Klein (1995)	Los Angeles County Probation Department's Specialized Gang Supervision Program (SGSP)	Focused on a number of populations including gang members and targeted at risk.	Comprehensive intervention comprising enforcement and criminal justice elements.	Focused on multiple settings including on street and home	Exploration of relationships
Kordas (2000)	Controlling gang violence through banning gang dress and insignia	Focused on a number of populations including gang members and other (any individuals displaying insignia or wearing banned items of dress)	Enforcement	Focused on multiple settings including school, other educational institution and on street	Description
Krisberg (1974)	Urban Leadership Training Program	Gang members	Vocational Skills Training	Organised community setting	Description
Lasley (1998)	Operation Cul De Sac (OCDS)	Geographic area	Situational	On street	Evaluation: Naturally occurring
Lawrence (1995)	Kansas City Gun Experiment	Crime type	Enforcement	On street	Evaluation: Naturally occurring
Levitt (1968)	Mobilisation for Youth	Focused on a number of populations including gang members and other (drug addicts)	Comprehensive intervention comprising educational, diversion, opportunities provision, vocational skills training and other (drug rehabilitation, country camp) elements.	Focused on multiple settings including health and other setting (country camp)	Evaluation: Naturally occurring
Lingwall (1990)	Strategic Complement Against Thugs (SCAT)	Focused on a number of populations including Gang members and crime type.	Enforcement	Focused on multiple settings including police premises and on street	Description
Marans and Berkman (1997)	Child Development - Community Policing (CD-CP)	Focused on a number of populations including geographic area and other (children who are victims, witnesses or perpetrators of violent crime)	Comprehensive intervention comprising enforcement, psychological, organisation and management and other (problem-solving) elements.	Focused on multiple settings including organised community setting, school, police premises, on street, home and health	Description

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Mason and Walker-Barnes (2004)	Not specified	Focused on a number of populations including gang members and individual.	Other (parenting behaviour, behavioural control, psychological control, parental warmth, parent adolescent conflict)	Home	Evaluation: Naturally occurring
Maxson, Hennigan and Sloane (2005)	Civil gang injunction	Gang members	Comprehensive intervention comprising enforcement and legal elements.	Other setting (dependent on the specific injunction)	Evaluation: Naturally occurring
McBride (1993)	Operation Safe Streets	Gang members	Comprehensive intervention comprising enforcement, criminal justice and other (family counselling) elements	Focused on multiple settings including police premises and criminal justice institution	Description Evaluation: Naturally occurring
McClanahan(2004)	Philadelphia Youth violence Reduction Programme (YVRP)	Focused on a number of populations including gang members and agencies and organisations.	Comprehensive intervention comprising psychological, diversion, opportunities provision, social inclusion and other (intensive supervision, mentoring and support) elements.	Focused on multiple settings including government department, on street, home, workplace and after school setting	Evaluation: Naturally occurring
Meares and Kahan (1998)	Chicago Alternative policing Strategy (CAPS)	Focused on a number of populations including agencies and organisations, communities and geographic area.	Organisation and management	Organised community setting	Evaluation: Naturally occurring
Mieth and McCorkle (1997)	Gang prosecution units - Nevada	Gang members	Comprehensive intervention comprising enforcement, criminal justice, legal and organisation and management elements.	Focused on multiple settings including correctional institution, police premises, on street, home and criminal justice institution	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Miller (1962)	The Midcity Project	Focused on a number of populations including gang members, communities and gang member's families.	Comprehensive intervention comprising educational, psychological, organisation and management, diversion, opportunities provision, community mobilisation, social inclusion and vocational skills training elements	Focused on multiple settings including organised community setting and on street	Evaluation: Naturally occurring
Moore and Vigil (1993)	Teen Post/ Neighborhood Youth Corps	Focused on a number of populations including gang members and targeted at risk.	Comprehensive intervention comprising diversion, social inclusion, vocational skills training and other (mediation) elements.	Organised community setting	Evaluation: Naturally occurring
Murray (2005)	Playing classical music at tube stations	Focused on a number of populations including gang members and geographic area.	Situational.	Other setting (tube stations)	Description
Murray and Belenko (2005)	Casastart - 'A Community Based School Centred Intervention for High Risk Youths.'	Focused on a number of populations including agencies and organisations, schools, government and targeted at risk.	Comprehensive intervention comprising educational, enforcement, criminal justice, legal, psychological, organisation and management, diversion, opportunities provision, community mobilisation and social inclusion elements.	Focused on multiple settings including organised community setting and school	Exploration of relationships
Office of Juvenile Justice and Delinquency Prevention (1990)	(CRP) Community Reclamation Project	Focused on a number of populations including gang members, agencies and organisations, communities, schools, gang member's families, geographic area, targeted at risk and crime type.	Comprehensive intervention comprising educational, enforcement, criminal justice, legal, organisation and management, diversion, opportunities provision, community mobilisation and vocational skills training elements.	Focused on multiple settings including organised community setting, school, on street and after school setting	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Office of Juvenile Justice and Delinquency Prevention (1999a)	Baltimore Comprehensive Communities Program	Geographic area	Comprehensive intervention comprising educational, enforcement, criminal justice, legal, psychological, organisation and management opportunities provision, community mobilisation, vocational skills training and situational elements.	Organised community setting	Description
Office of Juvenile Justice and Delinquency Prevention (1999b)	Baltimore Police Violent Crime Division and Youth Violence Strike Force	Focused on a number of populations including gang members and geographic area.	Comprehensive intervention comprising enforcement and criminal justice elements.	Focused on multiple settings including police premises and on street	Description
Office of Juvenile Justice and Delinquency Prevention (1999c)	Buffalo Weed and Seed Initiative	Focused on a number of populations including geographic area and other (violent perpetrators)	Comprehensive intervention comprising educational, enforcement, psychological, organisation and management, diversion, community mobilisation, vocational skills training, situational and other (truancy abatement, curfews) elements.	Focused on multiple settings including organised community setting and on street	Description
Office of Juvenile Justice and Delinquency Prevention (1999d)	Comprehensive Homicide Initiative, Richmond	(individuals who commit violent crime)	Focused on a number of populations including geographic area and other (individuals who commit violent crime)	Focused on multiple settings including organised community setting, school, on street, home and after school setting	Exploration of relationships
Office of Juvenile Justice and Delinquency Prevention (1999e)	Dept of Education, Violence and Weapons Prevention and Intervention Program	Focused on a number of populations including gang members and schools.	Comprehensive intervention comprising educational and enforcement elements.	School	Description

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Office of Juvenile Justice and Delinquency Prevention (1999f)	East Bay Public Safety Corridor Partnership	Geographic area	Comprehensive intervention comprising educational, enforcement, criminal justice, organisation and management and other (conflict resolution) elements	Focused on multiple settings including organised community setting and on street	Description
Office of Juvenile Justice and Delinquency Prevention (1999g)	Indianapolis Weed and Seed initiative	Focused on a number of populations including gang members, geographic area and other drug traffickers, straw gun purchasers, violent criminals	Comprehensive intervention comprising educational, enforcement, criminal justice, psychological, organisation and management, opportunities provision, community mobilisation, vocational skills training and other (crime data analysis) elements.	Focused on multiple settings including organised community setting, police premises and on street Exploration of relationships	Exploration of relationships
Office of Juvenile Justice and Delinquency Prevention (1999h)	Mayor's Anti-Gang Office and Gang Task Force	Focused on a number of populations including gang members and targeted at risk.	Comprehensive intervention comprising educational, enforcement, organisation and management, social inclusion, situational and other (gang-related information tracking system) elements.	Focused on multiple settings including school, on street and criminal justice institution	Description
Office of Juvenile Justice and Delinquency Prevention (1999i)	Minnesota Anti-Violence (MAVI) - part of HEALS	Other (probationers)	Criminal Justice	Home	Description
Office of Juvenile Justice and Delinquency Prevention (1999j)	Operation Night Light	Other (probationers)	Criminal Justice	Home	Description

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Office of Juvenile Justice and Delinquency Prevention (1999k)	Se Puede San Juan	Focused on a number of populations including gang member's families and targeted at risk.	Comprehensive intervention comprising educational, psychological and diversion elements.	School	Exploration of relationships
Office of Juvenile Justice and Delinquency Prevention (1999l)	Teens on Target	Focused on a number of populations including schools, geographic area and targeted at risk.	Comprehensive intervention comprising educational, and other (mediation) elements.	School	Description
Office of Juvenile Justice and Delinquency Prevention (1999m)	US Attorney's Office Initiatives Rochester	Focused on a number of populations including gang members, geographic area, targeted at risk and crime type.	Comprehensive intervention comprising enforcement, criminal justice and social inclusion elements.	Criminal Justice institution	Description
Office of Juvenile Justice and Delinquency Prevention (1999n)	Violent Crime Task Force, Charlotte	Focused on a number of populations including geographic area and other (violent career criminals)	Enforcement	Police premises	Description
Office of Juvenile Justice and Delinquency Prevention (1999o)	Youth Firearms Initiative, Birmingham	Focused on a number of populations including schools and geographic area.	Comprehensive intervention comprising educational and other (computerized crime tracking system) elements.	Focused on multiple settings including school and police premises	Description
Office of Juvenile Justice and Delinquency Prevention (1999p)	Youth Firearms Initiative, Ingewood	Focused on a number of populations including gang members and geographic area	Comprehensive intervention comprising educational and enforcement elements.	Comprehensive intervention comprising educational and enforcement elements.	Description
Office of Juvenile Justice and Delinquency Prevention (1999q)	Youth Firearms Initiative Milwaukee	Focused on a number of populations including geographic area and other (youth involved in less serious offences involving firearms and gangs)	Comprehensive intervention comprising educational and enforcement elements.	Focused on multiple settings including organised community setting and on street	Description
Office of Juvenile Justice and Delinquency Prevention (1999r)	Youth Firearms Initiative, Salinas	Gang members	Comprehensive intervention comprising enforcement and other (GIS database) elements.	Focused on multiple settings including police premises and on street	Exploration of relationships

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Office of Juvenile Justice and Delinquency Prevention (1999s)	Youth Firearms Initiative, Seattle	Focused on a number of populations including geographic area and other (chronic youth weapons offenders)	Comprehensive intervention comprising educational, enforcement, criminal justice and social inclusion elements.	Focused on multiple settings including school, police premises and on street	Description
Office of Juvenile Justice and Delinquency Prevention (2000)	Gang Rehabilitation, Assessment, and Services Program (GRAASP), San Antonio	Focused on a number of populations including gang members and geographic area.	Comprehensive intervention comprising educational, enforcement, criminal justice, community mobilisation, vocational skills training and other (graffiti cleanup, community health fairs, community development) elements.	Focused on multiple settings including organised community setting and on street	Evaluation: Naturally occurring
Orr-Munro (2001)	Operation Eagle	Gang members	Enforcement	Police premises	Description
Ovaert, Cashel and Sewell (2003)	Psychotherapy for incarcerated juveniles	Individual	Comprehensive intervention comprising educational and psychological elements.	Correctional institution	Evaluation: Naturally occurring
Palumbo and Ferguson (1995)	GREAT (Gang Resistance and Education Training)	Schools	Educational	School	Evaluation: Naturally occurring
Pennell (1996)	Jurisdictions Unified for Drug Gang Enforcement (JUDGE)	Gang members	Enforcement	Criminal Justice institution	Evaluation: Naturally occurring
Pennell and Melton (2002)	Jurisdictions United for Drug Gang Enforcement (JUDGE) San Diego	Focused on a number of populations including gang members and agencies and organisations.	Comprehensive intervention comprising enforcement, criminal justice, legal and organisation and management elements.	Focused on multiple settings including correctional institution, police premises, on street, criminal justice institution	Evaluation: Naturally occurring
Peterson and Esbensen (2004)	GREAT Gang resistance education and training	Focused on a number of populations including schools and individuals.	Educational	School	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Pope and Lovell (2000)	Boys and Girls Clubs - as part of Weed and Seed	Targeted at risk	Comprehensive intervention comprising educational, diversion, comprehensive and other (programming strategy providing focused group discussions tailored to teens) elements.	Organised community setting	Evaluation: Naturally occurring
Popkin et al. (1999)	Chicago Housing Authority anti drug initiative	Focused on a number of populations including communities, geographic area, individual, crime type and other (Chicago Housing Authority property)	Comprehensive intervention comprising enforcement, organisation and management, community mobilisation, situational and other (drug prevention and treatment) elements.	Focused on multiple settings including on street, home and other (Chicago Housing Authority property)	Evaluation: Naturally occurring
Porche-Burke and Fulton (1992)	California Youth Gang Services Project	Focused on a number of populations including gang members, agencies and organisations, communities, schools, targeted at risk and individuals.	Comprehensive intervention comprising educational, diversion, opportunities provision, community mobilisation, social inclusion and vocational skills training elements.	School	Evaluation: Naturally occurring
Porche-Burke and Fulton (1992)	(PAGE) Parents Against Gang Entrapment	Focused on a number of populations including communities and gang member's families.	Comprehensive intervention comprising educational and c	Organised community setting	Evaluation: Naturally occurring
Porter (1982)	Segregation and lock down of gang members in prison	Focused on a number of populations including gang members and ethnic group.	Enforcement	Criminal Justice institution	Description
Powell (2003)	Operation Hythe	Focused on a number of populations including gang members, agencies and organisations, communities and crime type.	Comprehensive intervention comprising enforcement, criminal justice, legal and organisation and management elements.	Focused on multiple settings including on street and home	Description

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Pratcher (1994)	Wilmington Enforcement of curfew violations	Other (any person under the age of 18 out on the streets between 10pm and 6am)	Comprehensive intervention comprising enforcement, legal and organisation and management elements	On street	Description
Promising Practices Network (2002)	Perry pre-school project	Focused on a number of populations including individuals and other (families of children taking part)	Comprehensive intervention comprising educational and social inclusion elements.	Focused on multiple settings including school and home	Evaluation: Researcher-manipulated
Promising Practices Network (2004)	Child development project	Focused on a number of populations including schools, other educational institution and other (6th, 7th and 8th grade students and their parents)	Comprehensive intervention comprising educational, social inclusion and other (mentoring) elements.	Focused on multiple settings including school and home	Evaluation: Researcher-manipulated
Promising Practices Network (2005)	Casastart	Focused on a number of populations including schools, geographic area and individuals.	Comprehensive intervention comprising educational, criminal justice, legal, psychological, organisation and management, diversion, opportunities provision, community mobilisation and social inclusion elements.	School	Evaluation: Naturally occurring
Rachman (1969)	Group therapy intervention	Gang members	Comprehensive intervention comprising educational, psychological and diversion elements.	Health	Evaluation: Naturally occurring
Ramsey, Rust and Sobel (2003)	GREAT	Schools	Educational	School	Evaluation: Researcher-manipulated
RAND (n.d.)	Hollenbeck Initiative	Geographic area	Comprehensive intervention comprising enforcement and situational elements.	On street	Evaluation: Researcher-manipulated

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Redfearn (2003)	Bringing Youth to Education (BYTE)	Focused on a number of populations including gang members and gang member's families.	Comprehensive intervention comprising educational and vocational skills training elements	Focused on multiple settings including organised community setting and on street	Description
Rodheffer (1949)	Not specified	Gang members	Other (mediation)	School	Evaluation: Naturally occurring
Rodriguez (1994)	Youth (94) Struggling for Survival Conference	Other (young people)	Other (conference)	Organised community setting	Description
Sampson (2005)	Operation Trap	Focused on a number of populations including gang members, geographic area and crime type.	Enforcement	Focused on multiple settings including on street, home and other (nightspots, bars, takeaways, restaurants)	Description
Santo (2000)	Gang-related anti-loitering laws (City of Chicago vs. Morales)	Gang members	Legal	On street	Description
Schlossman and Sedlak (1983)	Chicago Area Project	Focused on a number of populations including gang members, agencies and organisations, communities and schools	Comprehensive intervention comprising enforcement, diversion and community mobilisation elements.	Focused on multiple settings including organised community setting, on street and criminal justice institution	Evaluation: Naturally occurring
Schram and Gaines (2005)	The Home Run Program	Gang members	Comprehensive intervention comprising educational, criminal justice, psychological, social inclusion and other (public health nurse) elements.	Focused on multiple settings including school, police premises, home, workplace, criminal justice institution and health	Evaluation: Researcher-manipulated
Sellers, Taylor and Esbensen (1998)	Gang Resistance Education and Training (GREAT)	Schools	Educational	School	Description

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Shaw (1989)	San Jose Del Mar High School gang intervention	Focused on a number of populations including gang members, schools and individuals.	Comprehensive intervention comprising educational, enforcement, organisation and management and diversion elements.	School	Description
Sheehan et al. (1999)	Cabrini Green Youth Program	Geographic area	Educational	Organised community setting	Evaluation: Researcher-manipulated
Sherer (1985)	Positive Peer Culture Programme	Gang members	Educational	Other educational institution	Evaluation: Researcher-manipulated
Short (1963)	Youth Gangs Program or Program for Detached Workers	Gang members	Social inclusion	On street	Exploration of relationships
Short (1996)	Beethoven Project	Focused on a number of populations including geographic area and targeted at risk.	Comprehensive intervention comprising psychological, social inclusion and other (health and social services) elements.	Focused on multiple settings including organised community setting and home	Description
Skogan and Hartnett (1997)	Community policing	Focused on a number of populations including gang members, agencies and organisations, communities, geographic area, individual and other (not specified)	Comprehensive intervention comprising enforcement, organisation and management, community mobilisation and situational elements.	Focused on multiple settings including organised community setting, on street, home and other (in the wider community)	Evaluation: Naturally occurring
Smith, Farrant and Marchant (1972)	Wincroft Youth Project	Focused on a number of populations including geographic area and targeted at risk.	Comprehensive intervention comprising educational, psychological, diversion, social inclusion and other (assessment of client needs) elements.	Focused on multiple settings including organised community setting and on street	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Smith, (1996)	New Mexico Center for Dispute Resolution	Gang members	Other (mediation)	School	Evaluation: Naturally occurring
Smith (2000)	Utah's gang enforcement statute	Gang members	Legal	Criminal Justice institution	Description
Spergel (1972)	Youth Manpower Demonstration Project (Lincolndale Association)	Gang members	Comprehensive intervention comprising opportunities provision and vocational skills training elements.	Organised community setting	Description
Spergel (1986)	Crisis Intervention Services Project (CRISP)	Gang members	Comprehensive intervention comprising opportunities provision community mobilisation and situational elements.	On street	Evaluation: Naturally occurring
Spergel et al. (2003)	The Little Village Gang Violence Reduction Project	Gang members	Comprehensive intervention comprising educational, enforcement, opportunities provision and community mobilisation elements.	Organised community setting	Evaluation: Researcher-manipulated
Sullivan (2002)	Pre-crime targeting of gang members	Gang members	Enforcement	On street	Description
Suter (1997)	LEAD - Law Enforcement Against Delinquency	Focused on a number of populations including gang members and targeted at risk.	Other (mentoring)	Focused on multiple settings including police premises and on street	Description
Suter (1997)	Rural youth gang intervention project	Targeted at risk	Comprehensive intervention comprising educational, psychological and diversion elements.	Focused on multiple settings including school, home and after school setting	Description

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Suter (1997)	Lubbock County gang intervention/prevention	Focused on a number of populations including gang members and targeted at risk.	Comprehensive intervention comprising educational and enforcement elements.	Focused on multiple settings including organised community setting, other educational institution, on street and after school setting	Description
Tabish and Orell (1996)	Respect - Respect encourages student participation in empowering communication techniques	Focused on a number of populations including gang members, communities, schools and gang member's families.	Comprehensive intervention comprising educational, diversion and social inclusion elements.	School	Evaluation: Naturally occurring
Thompson and Jason (1988)	Broader Urban Involvement and Leadership Development (BUILD)	Targeted at risk	Comprehensive intervention comprising educational and diversion elements.	Focused on multiple settings including school and after school setting	Evaluation: Researcher-manipulated
Thrasher (1936)	Boys club	Geographic area	Comprehensive intervention comprising diversion and other (vocational placements, lunchroom selling food at cost, medical examinations and dental clinic, nurse family visits) elements	Organised community setting	Exploration of relationships
Thurman et al. (1996)	Neutral Zone	Focused on a number of populations including gang members and targeted at risk.	Comprehensive intervention comprising educational, psychological, diversion, vocational skills training and other (food provision) elements.	Organised community setting	Evaluation: Naturally occurring
Tita et al. (2003)	Hollenbeck Operation Ceasefire	Focused on a number of populations including gang members, geographic area and targeted at risk.	Comprehensive intervention comprising enforcement, organisation and management, opportunities provision and vocational skills training elements.	On street	Evaluation: Researcher-manipulated

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Tork and Trump (1994)	School Youth/Gang Unit	Focused on a number of populations including gang members and schools.	Comprehensive intervention comprising educational, enforcement, organisation and management and other (mediation), attempt to dispel gang-related rumours, better exchange of information) elements.	School	Description
Tremblay et al. (1996)	Montreal Prevention Experiment	Focused on a number of populations including Gang member's families and targeted at risk	Educational	School	Evaluation: Researcher-manipulated
Turner et al. (2003)	Comprehensive Youth Services Act and Temporary Assistance to Needy Families (CYSA/TANF)	Focused on a number of populations including targeted at risk and other (mixed, dependent on how the funding is targeted)	Comprehensive intervention comprising educational, legal, psychological, diversion, opportunities provision, social inclusion, vocational skills training and other (parenting, counselling, transportation to services) elements.	Other setting (dependent on how the funding is targeted)	Evaluation: Naturally occurring
Turner et al. (2005)	Los Angeles Gang Intervention Services (GIS)	Gang members	Comprehensive intervention comprising organisation and management, diversion and social inclusion elements.	Focused on multiple settings including organised community setting, school and home	Evaluation: Naturally occurring
Turzman (1989)	Not specified - Joseph Quarles at Artesia High School	Focused on a number of populations including gang members and gang member's families.	Other (school principal visited gang member's family homes)	Home	Description
Turzman (1989)	Chicago Intervention Network	Focused on a number of populations including geographic area and other (former gang members, those not returning to school)	Comprehensive intervention comprising enforcement, psychological, organisation and management and vocational skills training elements.	Focused on multiple settings including organised community setting and on street	Description

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Twemlow and Sacco (1998)	Martial arts to treat violent adolescents	Focused on a number of populations including gang members and individuals.	Comprehensive intervention comprising educational, psychological and diversion elements.	Focused on multiple settings including other educational institution, correctional institution, health and after school setting	Evaluation: Naturally occurring
US Bureau of Justice Assistance (1997)	Houston anti-gang plan	Focused on a number of populations including gang members, communities, schools, gang member's families and individuals.	Comprehensive intervention comprising educational, enforcement, criminal justice, organisation and management, community mobilisation and situational elements.	Focused on multiple settings including school, police premises, on street, home and after school setting	Description
US Conference of Mayors (1997)	Youth Curfews	Other (young people)	Enforcement	Focused on multiple settings including on street and home	Description
US Department of Justice (1997)	OJJD Comprehensive community-wide approach to gang prevention	Gang members	Comprehensive intervention comprising enforcement, organisation and management, diversion, opportunities provision, community mobilisation and social inclusion elements.	Focused on multiple settings including organised community setting, on street and home	Description
US Department of Justice Office of Juvenile Justice and Delinquency Prevention (2000)	Street Terrorism Offender Project (STOP) - part of TARGET	Focused on a number of populations including gang members and agencies and organisations.	Comprehensive intervention comprising enforcement and organisation and management elements.	Focused on multiple settings including police premises, on street and criminal Justice institution	Evaluation: Naturally occurring
US General Accounting Office (1995)	Alternatives to Gang Membership Program	Focused on a number of populations including schools and gang member's families.	Comprehensive intervention comprising educational and community mobilisation elements.	Focused on multiple settings including organised community setting, school and home	Evaluation: Naturally occurring
US General Accounting Office (1995)	School Management and Resource Teams Program (SMART)	Schools	Comprehensive intervention comprising organisation and management and other (incident profiling system, safety and security audit) elements.	School	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
US General Accounting Office (1996)	LA Met Task Force	Focused on a number of populations including gang members and geographic area.	Comprehensive intervention comprising enforcement and legal elements.	Focused on multiple settings including police premises and on street	Evaluation: Naturally occurring
US Government Printing Office (1994)	Amer-i-Can	Individual	Comprehensive intervention comprising educational and vocational skills training elements.	Organised community setting	Description
US Government Printing Office (1994)	Glen Mills School	Other (students referred by State courts)	Comprehensive intervention comprising educational and criminal justice elements.	Focused on multiple settings including school and correctional institution	Evaluation: Naturally occurring
US Government Printing Office (1994)	Milwaukee Youth Diversion Program	Focused on a number of populations including gang members and targeted at risk.	Comprehensive intervention comprising educational, criminal justice, diversion, opportunities provision and social inclusion elements.	Focused on multiple settings including organised community setting, school, correctional institution, police premises, on street and criminal justice institution	Evaluation: Naturally occurring
US Government Printing Office (1994)	Oregon Police Gang Intervention Program	Focused on a number of populations including gang members and agencies and organisations.	Comprehensive intervention comprising educational, enforcement and organisation and management elements.	Focused on multiple settings including organised community setting, school, correctional institution, police premises and criminal justice institution	Description
US Government Printing Office (1994)	No name - sports program in West High School	Schools	Diversion	School	Description
Vigil (1999)	(ALAS) Achievement for Latinos through Academic Success	Focused on a number of populations including gang members, communities, schools, targeted at risk, individual and ethnic groups.	Comprehensive intervention comprising educational, community mobilisation and social inclusion elements.	Focused on multiple settings including school and home	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Vigil (1999)	Not Specified Continuation Schools	Focused on a number of populations including gang members, schools and other educational institutions.	Comprehensive intervention comprising educational and diversion elements.	Focused on multiple settings including school and other educational institution	Evaluation: Naturally occurring
Vigil (1999)	Not Specified Gang dress Codes in Schools	Focused on a number of populations including gang members and schools.	Comprehensive intervention comprising educational and enforcement elements.	School	Evaluation: Naturally occurring
Vigil (1999)	Mujeres Y Hombres Nobles (Noble Men and Women)	Focused on a number of populations including gang members, agencies and organisations, communities, schools, geographic area, targeted at risk and ethnic group.	Comprehensive intervention comprising educational, criminal justice, organisation and management, community mobilisation and social inclusion elements.	School	Evaluation: Naturally occurring
Vigil (1999)	The Boys Council	Focused on a number of populations including gang members and schools.	Comprehensive intervention comprising educational, organisation and management, diversion and social inclusion elements.	School	Evaluation: Naturally occurring
Vogel and Torres (1998)	Operation Roundup	Focused on a number of populations including gang members, communities and geographic area.	Comprehensive intervention comprising enforcement, opportunities provision and community mobilisation elements.	On street	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Walker and Schmidt (1996)	Partnership for a Safer Cleveland	Focused on a number of populations including gang members, agencies and organisations, communities and geographic area.	Comprehensive intervention comprising educational, enforcement, criminal justice, organisation and management, diversion, community mobilisation and other (media, development of parental	Focused on multiple settings including organised community setting, police premises, criminal justice institution, health and after school setting	Description
Wassenberg et al. (2002)	Peoria County anti gang and drug unit		gang awareness, support of business community, removal of graffiti, youth gang recognition seminars for hospital staff, Tabula Rasa project working with females at risk of gang involvement, daytime curfew project to pick up truants) elements.	Focused on multiple settings including on street, home and health	Evaluation: Naturally occurring
Weaver (2004)	Young disciples		Focused on a number of populations including gang members, targeted at risk individuals and juvenile offenders	Focused on comprehensive intervention comprising educational, psychological, diversion, opportunities provision, social inclusion and other (drugs treatment, anger management, counselling) elements.	Focused on multiple settings including on street, home and health
Werdegar (1999)	Blythe Street Gang Injunction	Gang members	Legal	Focused on multiple settings including police premises and on street	Evaluation: Naturally occurring

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Weston (1993)	Community Action Team (CAT)	Gang members	Comprehensive intervention comprising educational, enforcement, psychological, organisation and management, diversion, opportunities provision, community mobilisation and other (accurate information to media) elements.	Focused on multiple settings including organised community setting, correctional institution, police premises and on street	Description
Williams, Curry and Cohen (2002)	Pueblo gang prevention programme for girls		Focused on a number of populations including gang members and individuals.	Focused on multiple settings including school, on street, home and health	Evaluation: Naturally occurring
Winfrey, Lynskey and Maupin (1999)	Gang Resistance Education and Training (GREAT)		Focused on a number of populations including agencies and organisations and government.	Focused on multiple settings including government department and police premises	Description
Woodson (1982)	House of Umoja, Philadelphia	Gang members	Comprehensive intervention comprising educational, diversion, psychological, opportunities provision, social inclusion and other (extended family, mentoring, family support) elements	Focused on multiple settings including home and other setting (hostel)	Description
Yablonsky (1997)	Adult Youth Association Approach	Gang members	Educational	Organised community setting	Description

Details of paper	Intervention name	Population the intervention focuses on	Focus of intervention	Setting of intervention	Type of study conducted on the intervention
Yablonsky (1997)	Psychodrama	Gang members	Psychological	Focused on multiple settings including on street and criminal justice institution	Description
Yablonsky (1997)	Los Angeles County Probation Department's Detached Gang Worker Program	Gang members	Comprehensive intervention comprising criminal justice, psychological and vocational skills training.	Focused on multiple settings including organised community setting, correctional institution and criminal justice institution	Description
Yablonsky (1997)	Therapeutic community approach	Gang members	Psychological	Organised community setting	Description

APPENDIX 4

Description of studies in the in-depth review

Study and intervention description	Aims of the study	Summary of the results of the study	
Arbretton and McClanahan (2002)	<p>The aims of the study:</p> <ul style="list-style-type: none"> • to learn if the clubs succeeded at attracting youth at high risk of gang involvement • to discover if the clubs could keep GPTTO and GITTO youth participating at the club or program • to determine if GITTO and GPTTO youth were indeed receiving positive supports through their participation in the club • to assess if participation had a positive effect on the lives of GPTTO and GITTO youth <p>The specific outcomes of interest to BGCA and pursued in the evaluation were:</p> <ul style="list-style-type: none"> • decreased levels of gang behaviour • decreased contact with the juvenile justice system • increased levels of academic achievement and positive school behaviour <p>Community mobilisation of resources to combat the community gang problem;</p> <ul style="list-style-type: none"> • Recruitment of 50 youth at risk of gang involvement (Prevention) or 35 youth already involved in gangs (Intervention) through outreach and referrals; • Promoting positive developmental experiences for these youth by developing interest-based programs that also address the youth's specific needs through programming and mainstreaming of youth into the clubs; and targeted outreach; 	<p>The evaluation included 21 Boys & Girls Clubs that used the prevention approach and three clubs that used the intervention approach. BGCA selected the sites through a competitive process in summer 1997.</p> <p>The study included 932 prevention youth and 104 intervention youth who were recruited to each Club/Project over approximately a 10-month period.</p> <p>The target youth survey sub-sample consisted of 236 prevention and 66 intervention youths.</p> <p>Given the complexity of the GPTTO and GITTO models, the evaluation used multiple methods for gathering information:</p> <ul style="list-style-type: none"> • To learn about who was recruited, and what information was tracked, the evaluators reviewed case management records • To discover how the youths changed and GITTO target youths when they were first recruited and again approximately 12 months later. They also surveyed a comparison group of youth who did not attend clubs; and again, approximately 12 months later • To understand implementation issues at each club, evaluators surveyed club directors one year after the start of the evaluation. 	<p>The Prevention Clubs drew in on average 44 new youths who were at high risk of gang involvement. The Intervention Clubs attracted 34 new youths on average, the majority of whom were already gang members or demonstrating gang behaviours.</p> <p>Comparisons of the risk factors of both prevention and intervention youth to other national studies of youth show that the clubs are reaching youth with considerable needs.</p> <p>Clubs kept a majority of youth engaged for 12 months; 73% and 68% for prevention and intervention youth respectively were still attending the Clubs/Projects one year after they were initially recruited.</p> <p>96% of the prevention and 86% of the intervention youth reported receiving adult support and guidance from at least one Boys & Girls Club staff member. A majority of youths agreed or strongly agreed that they felt a sense of belonging to the club (64% of prevention and 56% of intervention).</p> <p>More frequent GPTTO Club attendance is associated with the following positive outcomes:</p> <ul style="list-style-type: none"> • delayed onset of gang behaviour (less likely to start wearing gang colours) • less contact with the juvenile justice system (less likely to be sent away by the court) • fewer delinquent behaviours (stealing less and less likely to start smoking pot) • improved school outcomes (higher grades and greater valuing of doing well in school)

Study and intervention description	Aims of the study	Summary of the study methods	Summary of the results of the study
<ul style="list-style-type: none"> Providing individualised case management across four areas (law enforcement/juvenile justice, school, family and club) to target youth to decrease gang-related behaviours and contact with the juvenile justice system, and to increase the likelihood that they will attend school and show improved academic success 	<ul style="list-style-type: none"> To gather in-depth information about implementation, evaluators conducted interviews, held focus groups and collected observation data on site from three Clubs utilizing the prevention approach and three using an intervention approach. 	<ul style="list-style-type: none"> more positive social relationships and productive use of out-of-school time (engaging in more positive after-school activities and increased levels of positive peer and family relationships) 	<p>More frequent attendance among GITTO youth is associated with the following positive outcomes:</p> <ul style="list-style-type: none"> disengagement from gang-associated behaviours and peers (less stealing with gang members, wearing gang colours, flashing gang signals, hanging out at the same place as gang members, being a victim of a gang attack and having fewer negative peers) less contact with the juvenile justice system (a lower incidence of being sent away by the court) more positive school engagement (greater expectations of graduating from high school or receiving a GED)
			<p>Overall, GPTTO and GITTO seem to be meeting their goals. However, whether GPTTO can prevent gang membership and GITTO can stop it for more than the 12-month study period remains to be seen. This evaluation could not definitively answer this question, although it did provide preliminary evidence that more participation in GPTTO and GITTO could help prevent or reduce gang-related delinquent activities for youth.</p>

Study and intervention description	Aims of the study	Summary of the study methods	Summary of the results of the study
<ul style="list-style-type: none"> • group plus low level individual counselling • routine individual counselling three or more times a week • individual counselling plus individual services (lends money, transportation, etc.) • day to day worker/boy interaction • supreme effort - all out effort to modify and influence subject behaviour, including worker giving up free time and/or bringing client into worker's own home 	<p>Cohen et al. (1995)</p> <p>In 1989, the Administration on Children, Youth and Families funded 52 projects aimed at preventing youth drug abuse and gangs.</p> <p>This paper focuses on evaluating the impact of 13 community-based Consortia Projects. These were designed to increase community level efforts to focus attention on current and emerging problems of youth gangs and develop comprehensive, co-ordinated approaches to those problems. Broad-based partnerships, drawing on the resources and experiences of many different groups, were encouraged to prevent and divert youths from joining gangs. These consortia were intended to emphasise early intervention for Junior High School young people aged 11-14.</p>	<p>The outcome component addressed the following basic questions:</p> <ul style="list-style-type: none"> • Did some of the services offered by the prevention projects appear to be more effective than others in preventing at-risk youths from participating in gangs that engaged in illicit drug-related activities? • What participant and project characteristics were associated with positive outcomes for youths? <p>The survey collected information on the following:</p> <ul style="list-style-type: none"> • Did the length of a youth's participation in project programming make a difference in the projects effectiveness? 	<p>A community-based consortium was defined as a formal partnership of at least three city, county, town or neighbourhood, or other local-level organisations and/or individuals with the capacity to generate sustained, collaborative, community-wide commitment to strategies addressing youth gang issues. A consortium could involve voluntary private agencies, law enforcement, local government, recreational agencies, youth organisations, businesses, churches, foundations, medical facilities, and colleges.</p> <p>The result indicated no differences between gang-involved youths in these groups in terms of the amount of time spent with gang members and the desire to leave. Of the gang-involved participants, only 29% believed project participation had affected their gang involvement.</p>
<ul style="list-style-type: none"> • group Adjustment Scale is an eight-stage scale which represents different degrees of behaviour change. Stage 5 and above represent a greater degree of personal adaptation and commitment to the final programme objectives. This behaviour change variable was the dependent variable. 	<p>The independent variable was the variation in treatment input and was labelled the 'Blood, sweat and tears scale' (BST).</p> <p>Each subject was studied for a year, beginning with the initial stage 5 classification. Weekly adjustment and BST scale ratings were made for each subject for 52 consecutive weeks.</p>	<p>The study used a quasi-experimental, retrospective pre-post design. It was designed to enable a comparison of project outcomes for participants and non-participants.</p> <p>A sampling frame was constructed and random samples were drawn of participants and non-participants with similar characteristics.</p> <p>The primary source of data was a self-report survey of participants and non-participants. In-person interviews were conducted with eligible participants and non-participants selected from lists provided by the projects. Successful interviews were conducted with 261 participants and 267 non-participants.</p>	<p>The projects appear to have had little or no influence on participant gang involvement or avoidance.</p> <p>During time periods 1 and 2, the participant and non-participant groups were similar with respect to the percentage of youths who were gang involved (22.8% participants and 22.6% non-participants) and patterns of change in gang involvement at an individual level: time period 1 - 20.8% of participants and 18.1% of non-participants; time period 2 - 12.2% of participants and 11.7% of non-participants. This is backed up by the findings of multivariate analysis, controlling for other variables.</p> <p>The result indicated no differences between gang-involved youths in these groups in terms of the amount of time spent with gang members and the desire to leave. Of the gang-involved participants, only 29% believed project participation had affected their gang involvement.</p>

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Goldstein et al. (1994) Aggression Replacement Training (ART) is a multimodal psycho-educational intervention designed to alter the behaviour of chronically aggressive adolescents and young children. The program incorporates three specific interventions:	<ul style="list-style-type: none"> Skill-streaming uses modelling, role-playing, performance feedback, and transfer training to teach pro-social skills. Anger-control training - participating youths are required to bring to each session one or more descriptions of recent anger-arousing experiences (hassles), and over the duration of the program they are trained in how to respond to their hassles. Training in moral reasoning is designed to enhance youths' sense of fairness and justice regarding the needs and rights of others, and to train youths to imagine the perspectives of others when they confront various moral problem situations. 	<p>The study aims to carry out a comprehensive, quantitative and qualitative evaluation of the efficacy of the ART programme. Specific study research questions are:</p> <ul style="list-style-type: none"> Does ART change gang youth behaviour-interpersonal skills, anger responsiveness, pro-social and antisocial behaviour in real life settings? Were skills learned? Was anger reduced? Was the client arrested during the eight-month period (four months during the project and four months after)? Can ART be used, not only to teach youths to be more pro-social but also to teach fellow gang members to accept, support and even praise such behaviour? 	<p>Comparison of results between study group and control groups.</p> <p>The population group comprises gang members drawn from 10 gangs in Brooklyn, New York; 5 from the Crown Heights area and 5 from the Sheepshead Bay area. The age range is mixed and variable across the 10 gangs and varies from 7 to 40. One of the 10 gangs is purely female.</p> <p>The ethnicity of the population group is mixed and variable across the 10 gangs. Although the ethnic mix of the two neighbourhoods is described, there is no view as to whether the gangs reflect this mix.</p> <p>Data was collected using a variety of methods:</p> <ul style="list-style-type: none"> observation interpersonal skills checklist completed by ART trainers community adjustment rating scale completed by ART trainers self-completion questionnaire anger situations inventory completed by participating youths secondary data, such as publicly available statistics recidivism (arrest data)

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Groger (2002)	<p>Civil gang injunctions are used as a means to reduce gang violence. Injunctions are civil actions that prohibit specifically named individuals from engaging in specified activities within a target area. These activities can be prohibited by law or could include otherwise legal activities (e.g. carrying a mobile phone).</p> <p>Once an injunction is imposed, prosecutors can pursue violations in either the civil or criminal court. While civil procedures have less stringent penalties, they can be imposed without the criminal due process.</p>	<p>This study aims to estimate the extent to which injunctions and enforcement reduce reported violent crime. Specifically:</p> <ul style="list-style-type: none"> • Whether the injunctions reduce reported crime in the target areas • Whether the injunctions cause displacement. 	<p>To determine whether injunction affected recorded crime, data was assembled pertaining to 14 injunctions imposed between 1993 and 1998. The violent crime data analysed was murder, robbery, rape and aggravated assault.</p> <p>Data was collected for three different area types, including two comparison samples:</p> <ul style="list-style-type: none"> • the injunction target areas • areas adjoining the target areas (the doughnut) • neighbouring areas defined as those areas whose boundaries touch the outer boundaries of the doughnut area <p>The effects of the injunctions are estimated using the 'difference-in-differences' approach, which contrasts the mean change in crime level within the target area before and after the injunction is imposed, with the contemporaneous change within the comparison area.</p>
Higgins and Coldren (2000)	<p>In November 1996, the Chicago Police Department implemented a multi-agency programme to tackle increasing criminal gang and narcotics activity in Chicago. Several city departments joined forces to execute the Municipal Drug and Gang Enforcement Pilot Program (MDGE).</p> <p>MDGE aimed to tackle gang and drug problem buildings, known as 'non-owner occupied multi-unit dwellings', by engaging building owners as proactive partners in corrective measures and encouraging them to manage their buildings effectively, presenting a deterrent against those owners who were unresponsive.</p>	<p>The intended impact of the MDGE programme was a reduction of gang and drug crimes in and around locations targeted by the intervention. The impact evaluation addressed the following two questions:</p> <ul style="list-style-type: none"> • Was there a decrease in criminal activity in and around pilot district buildings targeted by the MDGE pilot programme? • Was there a difference in crime levels in and around targeted buildings in the pilot district and a comparison district? 	<p>The impact evaluation found the following:</p> <ul style="list-style-type: none"> • MDGE had the intended impact at the targeted building level, and within catchment areas around the targeted buildings. • There may be some displacement occurring as a result of this programme, but the research design did not address that issue specifically. • When comparing the pilot and comparison districts, there is evidence that the MDGE programme has an add-on benefit above and beyond the inspection/nuisance abatement programme. • There is evidence that the programme effects are lasting; downturns in targeted crimes continued well after the inspection teams left the targeted areas.
			<ul style="list-style-type: none"> • Measured impacts beyond targeted periods. • Measured impacts beyond targeted periods.

Study and intervention description	Aims of the study	Summary of the results of the study
<p>The programme uses an inspections task force to identify city buildings with documented drug and gang problems. They conduct inspections for code violations and provide recommendations for improving properties. Some cases are referred to city attorneys for prosecution under the modified city nuisance abatement ordinance. Administrative proceedings are conducted in these cases to bring landlords into compliance. City attorneys are placed in police districts to assist with case identification and preparation, resulting in quicker access to better case information and a better understanding of neighbourhood problems.</p> <p>The anticipated crime control outcome of the programme was a 20% reduction in gang and narcotics-related crime in and around targeted buildings.</p>	<p>To assess whether there was a difference in crime levels in and around targeted buildings in the pilot district and a comparison district, a quasi-experiment was conducted using a non-equivalent control group design method; a group similar in comparison to the group receiving the intervention is used as the control in both pre-test and post-test observations.</p> <p>The quasi-experimental design used an address-based mapping application that compared before and after inspection time periods. Criminal activity was mapped in a multi-layer analysis for one year before programme implementation and one year after implementation. Data and maps were analysed to assess whether the programme reduced criminal activity around the targeted addresses. An equivalent analysis was also conducted using the sample of buildings in the comparison district.</p> <p>The comparison group was selected using cluster analysis on crime, public disorder, population, demographics, housing and land use information. The results of the cluster analysis were mapped and marginal variables were eliminated. The variables used in the final analysis were related to criminal activity, public disorder and housing and land use characteristics. The final case population for the intervention area was 54 buildings. The final case population for the comparison area was 67 buildings.</p>	<p>The study notes important limitations which preclude any broad or sweeping statements about the programme impact and success. It is not possible to generalise from one district to all districts, or from one sample of targeted properties to all other targeted properties.</p> <p>Both the intervention and comparison areas received some level of intervention. However, the intervention area received full MDGE programme operations, while the comparison area received only one aspect of work (the inspections task force).</p> <p>The data used for the impact evaluation came from three sources:</p> <ul style="list-style-type: none"> • crime data from the Chicago Police Department • data on inspected properties from the Department of Buildings • data on buildings that were worked on by Assistant Corporation Counsels from the Department of Law

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Community Policing has a long history in Santa Ana, California, and was introduced in 1973. The city was divided into four police districts under the command of a lieutenant and with their own substation. Patrol officers were assigned to each district and foot patrols were introduced. Bicycle patrols were added and the use of non-sworn officers was expanded.	The study aims to measure the effectiveness of problem-oriented policing in Santa Ana, California.	Open-ended interviews were conducted to assess Santa Ana residents' opinions of their neighbourhoods and their attitudes towards the police.	In the DPD, there was a significant decrease in the average number of subjects' police related complaints about their neighbourhoods. The DPD was tied for highest average number of complaints in 1990 but only two districts had fewer complaints in 1992. There was no significant measurable difference in three of the control districts. In the remaining two districts, the average number of complaints increased significantly.
In 1990, the Santa Ana Police Department implemented a community-based, problem-oriented policing programme (POP) within a newly formed policing district, known as the developmental policing district (DPD). The department aimed to involve the community to help shape the priorities for policing their local neighbourhoods.		538 residents were interviewed in 1990, prior to the implementation of POP within the DPD and 649 individuals were questioned in 1992. The interviews were conducted either over the phone or face to face.	In the multivariate analysis, three of the covariates (gender, level of education and ethnicity) were not significantly associated with the dependent variable. Age, however, was significantly associated with the dependent variable. Older respondents were less likely to provide police related complaints about their neighbourhoods.

Study and intervention description	Aims of the study	Summary of the results of the study
Kapsch et al. (2003)	<p>The study aimed to evaluate the Portland STACS Project, which focused on gun violence among youths aged 15-24.</p> <ul style="list-style-type: none"> • Stop the Violence Meetings (STV) to deter those identified as at risk of committing gun offences by informing them of the increased scrutiny of their activities and of the consequences of any violations of the 'no violence' policy • Community Based Strategies initiative (CBS), offering clients assistance in solving whatever problems were preventing them pursuing a legitimate lifestyle • Project Re-Entry. Released prisoners with gang affiliations were assigned a Gang Unit parole officer who would establish a release plan with the offender and offer them relevant assistance. • The African-American Program, a non-traditional parole program aimed to lower recidivism rates of post-prison African-Americans <p>This is a program based upon deterrence: that is, the notion that a reduction in crime can be realised by identifying those likely to commit these crimes, and then telling them that:</p> <ul style="list-style-type: none"> • they are known to officials to be involved in the undesirable behaviour • they will be watched carefully • any transgressions will result in immediate and strict enforcement, including the possibilities of arrest and/or revocation of parole • if they do desist, help is available to enable them to turn their lives around 	<p>There were two identified target populations for the STACS project (hereafter delineated as research and intervention).</p> <p>The research target population was defined as those individuals living in Multnomah County who were between the ages of 15 and 24 years old, and who had committed a violent act or were believed to be at a high risk for committing a violent act. Identification of the research target population was done through a survey of Multnomah County parole and probation officers.</p> <p>The purpose in identifying the research target population was to provide a research population base for the surveys to be conducted later in the project and numbered some 458 individuals.</p> <p>The intervention target population was separately identified for specific interventions.</p> <p>The intervention target population was established by a cooperative effort of the Portland Police, Multnomah County parole and probation officers, and Oregon Youth Authority parole and probation officers. Selection was based on the perceptions of the professionals to the level of gang involvement of their clients and the likelihood of their participation in some specific recent events.</p> <p>Use of pre-existing differences created comparison groups</p> <p>Forty-two subjects were identified for the Portland adult STV meetings and three interviewers had sessions with 13 offenders who were part of the target population.</p> <p>Many subjects felt the STV meetings were another form of daily harassment and intimidation, and suggested there should be more help not harassment.</p>

Study and intervention description	Aims of the study	Summary of the study methods	Summary of the results of the study
<ul style="list-style-type: none"> That they will be watched carefully; That any transgressions will result in immediate and strict enforcement including the possibilities of arrest and/or revocation of parole; and That if they do desist, help is available to enable them to turn their lives around. 	<p>The AAP evaluation assessed the outcomes of the programme by comparing a sample of 70 AAP members with a comparable population of 70 non-programme African American male offenders under supervision across a two-year period from January 1998 to December 1999.</p> <p>Data was collected using a variety of methods:</p> <ul style="list-style-type: none"> open-ended interviews with a small sample of the population survey research of a larger sample, using structured interview instruments or questionnaires observation review of recorded crime and firearms statistics and other secondary data 	<p>The analysis is primarily interpretive due to small sample sizes, the lack of an experimental design with a control group and the 'real time' evolution of the STACS project.</p> <p>STACS was about respect for the threat and that seems to have been accomplished.</p> <p>Outcomes of CBS are much more difficult to assess in terms of the numbers of people who were actually served during this time period.</p> <p>Findings in relation to AAP are difficult to confirm due to inconsistencies in and omissions from the source data.</p>	
<p>Kennedy et al. (2001)</p> <p>Operation Ceasefire is a problem-oriented policing intervention aimed at reducing youth homicide and youth firearms violence in Boston. It represented an innovative partnership between researchers and practitioners to assess the city's youth homicide problem and implement an intervention designed to have a substantial near-term impact on the problem.</p> <p>The two main elements of Ceasefire were:</p> <ul style="list-style-type: none"> A direct law enforcement attack on illicit firearms traffickers supplying youths with guns. A 'pulling levers' deterrent strategy focusing criminal justice attention on a small number of chronically offending gang-involved youth responsible for much of Boston's youth homicide problem. <p>The attack in illicit firearms:</p> <ul style="list-style-type: none"> Expanded the focus of local, State, and Federal authorities to include intrastate firearms trafficking in Massachusetts in addition to interstate trafficking. 	<p>The research team evaluating the impact of Operation Ceasefire focused on four key questions:</p> <ul style="list-style-type: none"> Were significant reductions in youth homicide and other indicators of serious non-fatal gun violence associated with the implementation of Operation Ceasefire? Did the timing of these reductions coincide with the implementation of Operation Ceasefire? Were other factors responsible for Boston's reduction in youth homicide? 	<p>Operation Ceasefire's strategy was aimed at all areas of the city, so no control areas were set within the city and a randomised controlled experiment was not possible.</p> <p>Analysis of the impact of Operation Ceasefire followed a basic one-group, time-series design. In addition, a non-randomised quasi-experiment was used to compare youth homicide trends in Boston with those in other large cities in the US.</p> <p>The key outcome variable is the assessment of the programmes impact was the monthly number of homicide victims aged 24 and under.</p> <p>Data was also examined for:</p> <ul style="list-style-type: none"> shots fired citizen calls for service official gun assault incident reports Poisson regression generalised linear models were used to analyse the monthly data counts. <p>In addition, the study controlled for changes in:</p> <ul style="list-style-type: none"> Boston's employment rate Boston's youth population (aged 14-24) 	<p>The time series shows that the Ceasefire intervention was associated with statistically significant reductions including:</p> <ul style="list-style-type: none"> A 63% reduction in the mean monthly number of youth homicides in Boston. A 32% decrease in the monthly number of citywide shots-fired calls. A 25% decrease in the monthly number of citywide all-age gun assault incidents. A 44% decrease in the monthly number of District B-2 youth gun assault incidents. <p>The significant reductions remained when the control variables were added to the Poisson regression time-series models.</p> <p>Analysis suggests the maximal significant decrease in the Boston Youth homicide time series occurred in June 1996, about the same time that Operation Ceasefire was fully implemented.</p> <p>Analysis undermined the argument that the changes seen in Boston simply reflected trends in other cities.</p>

Study and intervention description	Aims of the study	Summary of the study methods	Summary of the results of the study
<ul style="list-style-type: none"> • Focused enforcement attention on traffickers of guns used by the city's most violent gangs. • Attempted to restore obliterated serial numbers of confiscated guns and subsequently investigate trafficking based on those restorations. <p>The 'pulling levers' strategy involved deterring the violent behaviour of chronic gang offenders by:</p> <ul style="list-style-type: none"> • Targeting gangs engaged in violent behaviour. • Reaching out directly to members of the targeted gangs. • Delivering an explicit message that violence would not be tolerated. • Backing up that message by 'pulling every lever' legally available, (i.e., applying appropriate sanctions). • Offering gang members services and other types of assistance. 	<ul style="list-style-type: none"> • Was Boston's significant youth homicide reduction distinct relative to youth homicide trends in other major US and New England cities? 	<ul style="list-style-type: none"> • citywide trends in violent Index crimes <ul style="list-style-type: none"> • homicide victimisation among older victims (aged 25 and older) • Youth involvement in street-level drug market activity. <p>To examine whether Boston's youth homicide reductions were part of national youth homicide trends, monthly counts of the number of homicide victims aged 24 and under were obtained for 29 major New England cities and 39 major US cities. A generalised linear Poisson regression model was used to analyse trends in the other cities.</p>	<p>The project had the overall effect of increasing the number of recorded offences committed by the gangs included in its programme. The project inadvertently led to greater gang delinquency rather than a reduction.</p> <p>The analysis suggests that the project had its most detrimental impact at the younger age.</p> <p>The project's impact on core members and fringe members was about equally negative.</p> <p>The analysis suggests that the impact of the project was not equal in all four of the gang clusters. The suggestion is that the greater the programming, the greater the delinquency involvement.</p> <p>Detached workers inadvertently become sources or foci of gang cohesiveness.</p>
		<p>Klein (1969)</p> <p>The Group Guidance Project in Los Angeles applied standard detached youth work procedures to four large juvenile gang clusters over a four-year period.</p> <p>The programme consisted of five workers who attempted to involve gang members in conversations and activities that might prevent their continued involvement in illegal acts.</p> <p>Worker style was highly diverse, but primarily they focused on individual counselling, weekly club meetings and special group activities (such as sports, dances, outings, etc). Parent meetings, contacts with agency officials about school, recreation and employment issues were secondary.</p>	<p>The study examines gang recruitment and delinquency involvement in order to judge the level of success of the project.</p> <p>The number of offences recorded in probation records was used as the measure of involvement in delinquency.</p> <p>In the absence of any suitable control groups, the comparison analysis was with a pre-project period using the gang members as their own controls. The number of gang members' offences was examined during the project period and for an equal four-year period immediately prior to the project. The project ran from July 1961 to June 1965, and the control period was from July 1957 to June 1961.</p> <p>The analysis procedure was carried out with specific age controls in a variation of a cohort analysis designed to produce an expected number of charges per month against which the actual number would be compared.</p> <p>The total number of participants in the study was 576 boys and 202 girls.</p>

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Klein (1971)	<p>The Ladiano Hills Project employed a gang intervention model, based primarily on targeting gang structure and cohesiveness.</p> <p>It attempted to reduce delinquency through dissipation of the gang by undermining its sources of cohesiveness.</p> <p>It was an attempt to use both action and research to learn more about the delinquent gang, and to test notions about gang delinquency and cohesiveness, and methods by which these could be addressed.</p>	<p>The study was based on a comparison between project and pre-project periods only in relation to specific core group.</p> <p>The population group comprised Mexican-American gang members in Los Angeles, aged from about 12 to early 20s.</p> <p>The study group was of mixed gender; there were two male subgroups and one female subgroup. In addition, 72% of the gang members were on probation.</p> <p>The study considers the effectiveness of this approach.</p>	<p>Cohesiveness</p> <ul style="list-style-type: none"> There was a 40% reduction in the number of gang members seen per mile by an observer, comparing six months prior to the project with six months after the project. During working days, the average number of appearances by gang members was 0.25 as opposed to an average of 0.36 during non-working periods. No new gang members were recruited after the first year; average expected monthly recruitment was three individuals. Reduction of 11% of mutual contacts post project compared with pre-project; this is against a context of a 40% reduction in gang member visibility (see above). Number of mutual contacts per contact situation was 9% lower during working periods. Cliques began to separate into two groups: one allied to project staff which increased in size, and one more delinquent. No growth in clique size after the project. As time went on, the proportion of fringe, compared with core, members increased. A tentative conclusion is that programmes aimed at reducing gang cohesiveness are more likely to affect gang size than gang grouping patterns. <p>Delinquency</p> <ul style="list-style-type: none"> The project had no discernible effect on the number of offences charged against the study group. There were no significant differences between changes in high and low companionship offences. A higher proportion of serious offences were committed during the project period compared with the pre-project period: some 42 offences were committed during 6,330 working days, compared with 61 offences during 4,851 non-working days.

Study and intervention description	Summary of the study methods
Aims of the study	
Summary of the results of the study	<p>Post project</p> <ul style="list-style-type: none"> • Six months after project finished and staff were withdrawn, there was no appreciable change in trend. • Cohesiveness remained low; there was no recruitment in this period, but significant changes in clique structure. <p>Author's conclusions</p> <ul style="list-style-type: none"> • Reduction in number of offences and reduction in number of gang members observed both occurred at similar time (first six months of project). The authors state: 'The coincidence in timing does not prove that the observed reduction in delinquency was caused by the observed reduction in cohesiveness, but it does constitute good supportive evidence'. • The project's employment programme stands out as a crucial factor in the level of success that was achieved. • The project successfully and substantially reduced the amount of delinquency associated with the Latin gang cluster. • It fared better with respect to high companionship offences, but not with respect to more serious offences. • Combining the delinquency data with the cohesiveness data, it seems reasonable to suggest that reduction in gang size accounts for the bulk of the delinquency decrease. • The 11% reduction on grouping was not sufficient to affect delinquency rates; and the hypothesis that the grouping phenomenon in the gang is a partial determinant of the rate of gang delinquency remains untested. • Staff withdrawal led to continuation of trends set in motion by the project. '...the follow-up period in Ladino Hills may therefore be viewed as a reinforcement of already existing patterns.'

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Maxson et al. (2005)	<p>This study presents the findings of an evaluation of the impact of a CGI implemented in the Verdugo Flats neighbourhood in San Bernardino, California in autumn 2002. The research focuses on changes in the quality of life in this neighbourhood, rather than on the injunction's effects on the targeted gang members or on levels of crime.</p> <p>A civil gang injunction (CGI) is a process by which selected gang members are prohibited from engaging in specific problem behaviours: for example, loitering at schools, carrying pagers, riding bicycles, vandalism and public association with other defendants. It is hoped that, by curtailing gangs' activities, they can diminish residents' sense of insecurity and promote a safer, healthier community.</p>	<p>In San Bernardino, residents in five neighbourhoods were surveyed in two waves about their perceptions and experience of crime, gang activity and neighbourhood quality. The waves took place 18 months before and six months after the issuance of an injunction.</p> <p>The researchers tested the impact of the CGIs on neighbourhood residents' attitudes and perceptions. They predicted that specific experiences of gang intimidation, fear of gang members and visibility of the gang members would all decrease within the first six months after the injunction.</p> <p>The impact was also tested on the more intermediate outcomes of fear of crime, crime victimisation, and perceived levels of social disorder. Long-term measures of neighbourhood social cohesion, informal social control, neighbourhood efficacy and willingness to call the police were also included, with the expectation that these changes would evolve over a longer period of time.</p>	<p>Analyses indicated positive evidence of short-term effects in the disordered primary injunction area, including a lower gang presence, fewer reports of gang intimidation and less fear of confrontation with gang members. However, there were no significant changes in intermediate or long-term outcomes, except lower fear of crime. A comparison of this injunction area with a previous one suggested that improvements in neighbourhood dynamics might accrue over the long-term. Negative effects were observed in the secondary, less disordered injunction area.</p> <p>Immediate outcomes:</p> <ul style="list-style-type: none"> Analysis supported the prediction that the injunction would have an impact on gang visibility almost immediately and consequently they have an impact on the level of intimidation by gang members and the level of fear of gang members experienced by residents relatively soon after the injunction was filed and enforced. In the high disorder areas, respondents in Upper Flats reported gang members hanging out less frequently than respondents in North Area after the injunction than before. Although graffiti decreased in both areas, no significant difference appeared between the two areas in the change in the level of graffiti from wave 1 to wave 2. Fewer respondents in Upper Flats reported being hassled, frightened or made anxious by gang members after the injunction than respondents in North Area. From wave 1 to wave 2, the percentage of residents who reported experiencing any kind of intimidation fell by 8% points in Upper Flats and rose by 6% points in North Area. Similarly, fear of confrontation with a gang member decreased in Upper Flats while it increased in North Area. A different pattern emerged in low disorder areas: respondents in Lower Flats reported more gang visibility than the comparison South Area and felt anxious by gang activity more frequently. <p>(2) The same pairs of areas were compared to test whether similar changes had occurred for each intermediate and long-term outcome.</p>

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	<p>(3) A third set of analyses assumed that Seventh Street area was characterised by similar experiences before the implementation of its injunction as those in the Upper Flats area. Outcomes from the wave 2 survey were compared between the earlier injunction area and the new one. The prediction was that long-term effects, unlikely to have developed in the recent injunction area, would evidence higher levels in the older injunction area. This was tested using t-tests and chi-square analyses.</p> <p>Long term outcomes:</p> <ul style="list-style-type: none"> The two low disorder areas did not vary from wave to wave on any other immediate outcome measures. Residents in the primary injunction area, Upper Flats, reported less fear of crime than residents in North Area, but no significant differences on perceived social disorder or victimisation. For the low disorder areas, Lower Flats increased in perceived social disorder and victimisation in the post-injunction survey relative to South Area. <p>Long term outcomes:</p> <ul style="list-style-type: none"> Statistical tests failed to show significant changes in the predicted direction on the long-term outcomes in the injunction areas relative to their comparison areas. Contrary to predictions, perceived neighbourhood efficacy decreased in the secondary injunction area, Lower Flats, relative to South Area. Lower neighbourhood efficacy is consistent with the unexpected perceptions of higher gang visibility and disorder in the secondary injunction area. Seventh Street had undergone an injunction five years before the second survey; comparing this area with Upper Flats provides an opportunity to consider long-term outcomes. These two areas were not significantly different regarding immediate and intermediate outcomes when comparing wave 2 surveys. However four of the six long-term outcomes showed significant differences between the two areas, with more favourable conditions in Seventh Street than Upper Flats.

Study and intervention description	Aims of the study	Summary of the study methods	Summary of the results of the study
Miethe and McCorkle (2002) <p>The study considers two gang prosecution units, underpinned by Nevada's anti-gang legislation.</p> <p><i>The Clark County District Attorney's Office gang prosecution unit (Las Vegas).</i></p> <p>The unit consists of three fulltime deputy district attorneys who deal with all gang-related cases in Las Vegas.</p> <p>The ultimate goals of the Clark County Gang Prosecution Unit are:</p> <ul style="list-style-type: none"> • to reduce the level of gang violence in the community • to enhance communication among law enforcement agencies (federal, state, county, and school police), prosecutors' offices, community-based organisations, probation departments, schools, community leaders, and family members of gangs and potential gang members <p>The prosecution unit attempts to achieve these goals by:</p> <ul style="list-style-type: none"> • developing a computerised gang offender-based tracking system to monitor gang activity • improving operational effectiveness of gang prosecution through vertical prosecution • using a 'team approach' to improve interagency co-ordination of gang intelligence and facilitate multi-jurisdictional investigations • monitoring parole and probation for gang members to facilitate revocations for offenders who continue to participate in gang-related activities • developing a gang hotline through the Las Vegas Metropolitan Police Department to increase gang intelligence and contact with victims and witnesses of gang activity • creating a victim / witness protection programme that offers physical security against potential threats and violence by gang members 	<p>This study examines the frequency of application of Nevada's anti-gang legislation in criminal court practices and the relative effectiveness of the gang prosecution units used in Nevada's two largest counties - Clark County (Las Vegas) and Washoe County (Reno).</p>	<p>To evaluate the effectiveness of the gang prosecution units, conviction and sentencing practices for defendants processed in these units were compared with practice for defendants charged with similar offences but processed in other track units. These 'matched' samples were drawn in each county.</p> <p>By comparing initial charging and sentencing practices before and after the gang prosecution unit of each county was created, it was possible to assess the impact of changes in organisational and community conditions on the successful prosecution of gang cases.</p> <p>The population group for the study was gang members in the two areas.</p> <p>Three types of data were collected and analysed:</p> <ul style="list-style-type: none"> • documentary evidence, including arrest reports, prosecutorial case files, and court records for gang and non-gang cases • field observations of working relationships between police and prosecution gang units, pre-trial conferences, and criminal trials involving gang members • interviews with police officers, prosecutors, defence attorneys, and judges to elicit their opinions of the effectiveness, advantages and disadvantages of the anti-gang statutes and gang prosecution practices in Nevada's urban counties <p>Respondents included:</p> <ul style="list-style-type: none"> • 12 police officers in gang divisions • 19 deputy district attorneys • 28 public defenders • 12 criminal court judges <p>Logistic regression analyses were performed to determine whether differences between gang units and track units in conviction and sentencing decisions remained after controlling for other factors (e.g. prior record, age and number of charges).</p>	<ul style="list-style-type: none"> • Charges for gang sentencing enhancement and drive-by shootings had decreased in Clark and Washoe Counties after the changes, although conviction rates for gang sentencing enhancement were higher in both jurisdictions. • These findings suggest that the gang sentencing enhancement statute is used less often and more effectively, resulting in higher conviction rates under the new administrations. • Conviction rates for other charges involving gang members have remained fairly stable over time. • Analysis of court monitoring data before and after passage of the Nevada anti-gang statutes also reveals no significant change in charging practices for other felony charges in gang cases. Charges for being an accessory, aiding and abetting, racketeering, harassment, witness intimidation, and habitual offending are rare in both Clark and Washoe Counties, and have neither increased nor decreased since the passage of anti-gang legislation. Thus, this legislation had no appreciable impact on other charges levelled against gang members in Nevada. • Although the number of convictions is similar across units, the likelihood of a conviction is higher in the gang unit than in track units in Clark County. Track units in Washoe County, however, have a higher conviction rate than does the DYO unit. • For those convicted of any charge, a higher proportion of defendants in the gang units in both counties was given a prison sentence than were convicted offenders in the track units.

Study and intervention description	Aims of the study	Summary of the study methods	Summary of the results of the study
Washoe County Dangerous Youth Offender (DYO) unit - Reno.	<p>The dual goals of the DYO unit were:</p> <ul style="list-style-type: none"> to prosecute rigorously the minority of gang members who commit serious crimes to provide community alternatives for at-risk youths who are just marginally involved in gang activity <p>It has endorsed a variety of rigorous prosecutorial practices, including:</p> <ul style="list-style-type: none"> withholding plea bargaining to reduced charges opposing pre-trial release for DYOs seeking maximum sentences publicising convictions and sentences of gang members in schools and neighbourhoods where other gang members congregate <p>It built strong working relationships with the Northern Nevada Youth Gang Task Force, the Reno police force Community Action Team (CAT), and the Washoe County School District, to change the social conditions that have promoted gang activity in the first place.</p> <p>Both units use vertical prosecution, apply a 'team approach' that highlights multi-agency collaboration, are relatively small, and strongly endorse rigorous prosecution of violent and habitual youth offenders.</p> <p>Key differences, however, include:</p> <ul style="list-style-type: none"> Gang problems are far more pervasive in Clark County than in Washoe County. The caseload for gang prosecutors is greater in Clark County. Clark County prosecutors have greater experience with gang cases and specialise in gang cases, whereas DYO staff work with all types of youth offences. 		<ul style="list-style-type: none"> Longer prison sentences were also given to defendants processed in the gang units. Logistic regression analyses revealed no statistically significant difference between gang units and track units in the likelihood of conviction and imprisonment upon conviction. This means that the observed differences in conviction and imprisonment practices between gang units and track units are explained by differences in offender and case attributes across these units. Gang prosecution units do not enhance the success of criminal processing beyond that provided by other non-gang prosecution units. A comparison of conviction rates for gang members before and after the implementation of gang prosecution units in Clark County also reveals no significant differences. Anti-gang legislation may be an important tool for prosecutors in plea bargaining negotiations. By requiring a prison sentence and a doubling of the prison term, the threat of conviction under the gang sentencing enhancement statute can be a powerful enticement for a guilty plea. There was anecdotal evidence of the importance of the gang sentencing enhancement statute in plea bargaining. However, no direct empirical evidence was found to support the assertion that the gang sentencing enhancement statute provided leverage during plea bargaining. The highest praise for the anti-gang legislation came from police gang officers and the lowest from public defenders. The majority of judges believed that the legislation was an effective tool, but prosecutors had mixed feelings. Most prosecutors believed that the gang sentencing enhancement statute was effective in addressing gang crime, but few believed that enhancements linked to school-related crimes, firearm forfeitures, or the use of a minor in criminal acts were reducing gang crime. Except for public defenders, the vast majority of those surveyed viewed securing cooperation from victims and witnesses as a 'major problem' in gang cases. The clear majority of gang and track district attorneys also reported victim/witness credibility as a major problem.

Study and intervention description	Aims of the study	Summary of the study methods	Summary of the results of the study
<ul style="list-style-type: none"> Gang cases processed in Clark County are generally more serious (involving a higher concentration of violent crimes) than in Washoe County. 	<ul style="list-style-type: none"> Washoe County's DYO unit uses a more community-oriented response to gangs (based on Reno's longstanding tradition of innovative programmes for community and problem-oriented policing), in contrast to Clark County's more legalistic, law-and-order approach. 	<p>Inconclusive, the results indicate that some anti-gang statutes are widely used (especially those that address aiming firearms) whereas others, such as provisions against drive-by shootings and gang sentencing enhancement, are less commonly employed.</p> <p>Once adjustments are made for different offender and case attributes, gang prosecution units in Clark and Washoe Counties yield conviction and incarceration rates comparable with those for defendants processed in other prosecution tracks.</p> <p>The results of this study have several implications for other jurisdictions that have or are considering establishing anti-gang legislation and gang prosecution units.</p>	<ul style="list-style-type: none"> Most prosecutors, judges and police in the sample believed that the proof requirement for demonstrating that an offence was committed to further a criminal gang was at least a moderate problem in prosecuting gang cases. <p>Authors' conclusions</p> <p>Inconclusive, the results indicate that some anti-gang statutes are widely used (especially those that address aiming firearms) whereas others, such as provisions against drive-by shootings and gang sentencing enhancement, are less commonly employed.</p> <p>Once adjustments are made for different offender and case attributes, gang prosecution units in Clark and Washoe Counties yield conviction and incarceration rates comparable with those for defendants processed in other prosecution tracks.</p> <p>The results of this study have several implications for other jurisdictions that have or are considering establishing anti-gang legislation and gang prosecution units.</p> <ul style="list-style-type: none"> First, anti-gang legislation in Nevada was enacted with little social and political opposition. Media coverage of gang crime and specific instances of brutal and random attacks on citizens provide a strong background for the mobilisation of anti-gang control measures. Second, criminal justice officials have used claims of escalating gang crime to increase their organisational resources. Calls for increased resources were answered, even though there was no evidence from court data that gang crime had increased over time. If the experiences of Nevada are representative of other states, local media coverage of gang crime will play a major role in the development and support of anti-gang legislation and gang prosecution units in other jurisdictions. Third, anti-gang legislation provides district attorneys with additional leverage in prosecuting gang members. Although most charges under the anti-gang statutes in Nevada do not result in a conviction under the specific statute, the threat of conviction under the gang enhancement statute may serve as a major enticement for a guilty plea on other charges. Most jurisdictions across the country have not used anti-gang legislation, relying instead on existing statutes for criminal prosecution. However, other states may benefit from the implementation and selective use of a gang sentencing enhancement statute similar to Nevada's, which doubles the penalty for gang crime, because it mandates a largely non-discretionary prison sentence for these offenders.

Study and intervention description	Aims of the study	Summary of the study methods	Summary of the results of the study
	<p>Miller (1962)</p> <p>The broad aims of the study were to evaluate the effectiveness of the detached worker or area worker approach in inhibiting the amount of illegal activity engaged in by resident adolescents. The programme was described as a delinquency control programme.</p> <p>The study considered the following questions:</p> <ul style="list-style-type: none"> • Did the Project have any impact on the behaviour of the groups with whom it worked? • To what extent was there a measurable reduction in the actual or expected frequency of violative behaviour by Project group members during or after the period of Project contact? • To what extent could observed changes in violative behaviour be attributed to project activity rather than to other possible 'causative' factors such as maturation or police activity? <p>The ultimate objective of these organisational efforts was to focus a variety of diffuse and unco-ordinated efforts on problems of youth and delinquency in a single community in order to bring about more effective processes of prevention and control.</p> <p>The project operated in Midcity, a 'lower class' (defined as that sector of the population in the lowest educational and occupational categories) district of Boston.</p>	<p>The population group consisted of 400 young people between 12 and 21 years old, who made up the membership of some 21 corner gangs. Seven of these (five male and two female), totalling 205 members, were subjected to intensive supervision.</p> <p>The ethnicity of the population group was a mixture of white Irish, Italian, French Canadian and black.</p> <p>A control group, comprising 172 members of 11 other corner gangs, was selected. These were a set of corner gangs as similar as possible to project gangs, but who had not been worked with by the project.</p> <p>The study measured the project in three ways:</p> <ul style="list-style-type: none"> • <i>Change in disapproved forms of behaviour.</i> This was measured by using detailed descriptive field reports from workers, which were then put onto data cards. 100,000 behaviour sequences were recorded under 14 categories. • A second measure was based on the workers' own values. Listings were drawn up for 14 areas of disapproved behaviour. <p>Finally, specialised gang prosecution units are an important arena for processing and adjudicating gang cases. Whether other jurisdictions should establish such specialised units, however, depends on the gravity of the gang problem and specific expertise of the district attorneys. Rather than establishing a separate unit, designating one deputy district attorney as the 'gang prosecutor' may be sufficient for smaller jurisdictions in addressing gang crime, especially if that person has had hands-on training in prosecuting gang members. Although external changes in the structure and composition of gang prosecution units may pose a serious threat to their effectiveness, this problem was minimised in Nevada by making a special effort to retain the most qualified gang prosecutors in spite of this changing political environment.</p> <p>Disapproved behaviour</p> <p>During the full study period, the 205 members of the seven intensive analysis groups engaged in 4,518 approved or disapproved actions. During the initial phase, 785 of 1,604 actions (48.9%) were disapproved; during the final phase, 613 of 1,364 (44.9%) - a reduction of only 4%.</p> <p>Of the 14 behaviour areas, only one (school-oriented behaviour) showed a statistically significant reduction in disapproved action. Of the remaining 13, 10 showed decreases, one no change, and 2 increases.</p> <p>Of the seven analysis groups, only one (white, male, younger, higher social status) showed a statistically significant reduction. Five showed a reduction and the other an increase. In general, the lower the group's social status, the smaller the reduction in disapproved actions.</p> <p>Illegal acts</p> <p>394 offences were committed during the initial phase and 358 during the final, a reduction of only 9.1%. Considering males only, there was an increase of 1.3% between initial and final phases. On major offences (theft, assault, alcohol), male groups showed an increase of 11.2%, with younger groups showing an increase of 21.8%. Thus the modest decrease shown by the total sample was accounted for largely by girls and by minor offences.</p>	

Study and intervention description	Aims of the study	Summary of the study methods	Summary of the results of the study
	<ul style="list-style-type: none"> Illegal acts. Workers observed and received reports of crime while in the field. 1,005 illegal acts were recorded by the projects dispatch workers during the contact period. Offences were categorised under 11 categories. Court appearance data. Contact period appearances, pre- and post- contact period statistics for the study population and appearances of the control population A number of methods were used to collect the data, including: <ul style="list-style-type: none"> observation self-completion report or diary daily field reports of the workers secondary data, such as publicly available statistics 	<p>Court appearances</p> <p>There were 51 court appearances during the initial period and 48 in final, a decrease of 5.8%. For major offences, 31 in initial period rose to 35 in final, an increase of 12.9%. Neither was statistically significant. The period of maximum frequency of court appearances coincided in general with the period of worker contact. The yearly appearance curve does show dip at ages 15 and 18. Though the dip at age 15 was unrelated to the project, the dip at age 18 occurred at time when each of the three older groups was in contact with workers, and thus admits the possibility of worker influence. It is also possible that the post-20 decline may have represented a delayed-action effect.</p> <p>When comparing project and control group trends:</p> <ul style="list-style-type: none"> Court appearance frequency curves for project and control groups are very similar (including the dip at age 18). ‘The fact that a group of similar gangs not worked with by the Project showed an almost identical decrease in court appearance frequency between ages 20 and 23 removes any reasonable basis for attributing the post-20 decline of Project groups to worker efforts’. Project and control groups are also similar in the proportion of individuals who had appeared in court by age 23 (P 74.8%, C 73.2%), who subsequently reappeared (P 73.5%, C 74.3%), and in the number of appearances (P average 5.0 appearances per individual, C 5.4 appearances per individual). These figures all fail to show a statistically significant difference. The author notes that the project did make an impact on the fear of crime in the surrounding adult community. <p>Authors’ conclusions</p> <p>‘It is now possible to provide a definite answer to the principal evaluative research question, ‘Was there a significant measurable inhibition of law-violating or morally-disapproved behaviour as a consequence of Project efforts?’ The answer, with little necessary qualification, is ‘No’. All major measures of violative behaviour - disapproved actions, illegal actions, during-contact court appearances, before-during-after appearances, and Project-Control group appearances - provide consistent support for a finding of ‘negligible impact’.</p>	

Study and intervention description	Aims of the study	Summary of the study methods	Summary of the results of the study
Spergel (1986)	<p>The research purposes of the project were descriptive and evaluative. The research aimed to:</p> <ul style="list-style-type: none"> • develop greater descriptive clarity about the nature of the gang problem in the specific area in which the demonstration was carried out as well as in the comparison areas • evaluate whether crisis intervention and mediation, as well as a related individual counselling strategy, were effective in reducing gang violence 	<p>The target area was selected because it was a 'natural gang sector', according to various community agencies. This area cut across two police districts (14th and 25th).</p>	<p>There was a significant reduction in the rate of increase in Part I offences in target areas compared with non-target area which appeared to occur during the project operation. The rate of increase in the non-target area was almost two and a half times that of the increase in the project area.</p>

Study and intervention description	Aims of the study	Summary of the study methods	Summary of the results of the study
Spergel et al. (2003)	<p>The evaluation sought to assess:</p> <ul style="list-style-type: none"> • whether gang crime (mainly violence) reduced at an individual, gang and area level • if so, whether the Little Village Project accounted for these changes 	<p>Comparative data analysis was completed across three groups:</p> <ul style="list-style-type: none"> • 195 program youths • 90 quasi program youths • 208 comparison youths. <p>The quasi-program and comparison groups consisted of selected members of two gangs, the Latin Kings and the Two Six, who were co-arrestees of programme youths at the time the latter entered the programme. The distinguishing feature between the quasi-programme and comparison group was service contacts. Evaluators discovered that some gang members selected as part of the comparison group did receive some sort of service contact from programme staff, but were not interviewed or targeted by the program staff. These gang members became the quasi-programme group.</p>	<p>Differences in total arrests</p> <p>Evaluators concluded that there was an overall increase in the number of total arrests comparing Time I with Time II for each sample. Older youths generally had fewer arrests across the samples, while the younger gang members had more. The programme group and quasi-programme group of 17- and 18-year-olds did better than the comparison sample. The difference was statistically significant between the quasi-programme and the comparison groups. The youngest group of programme youths, 16 and under, appeared to do worse than the comparison group.</p> <p>Serious violent crime arrests</p> <p>All age categories across each of the three samples reduced their levels of arrest for serious violent crimes. Those 19 years and over experienced the greatest reduction.</p> <p>Total violent crime arrests</p> <p>Looking across sample groups and age categories, the programme group exhibited a larger reduction of arrests for serious violence than the quasi-programme and comparison groups. The reduction in arrests for serious violence was nearly 70% greater for the programme group, controlling for other variables. The findings suggest the project had an effect in reducing the level of arrests for serious violence in relation to the comparison group, and also in relation to the less-served, quasi-programme group.</p> <p>Total violent crime arrests</p> <p>The programme group had a greater reduction of total arrests for violence at all age levels compared with the other samples. Programme sample subgroups with a prior history of more extensive arrests for violence did better than the comparable quasi-programme and comparison sample subgroups. Based on police arrest data, the evaluators felt that the project was effective in reducing total as well as serious violence.</p> <p>Property crime arrests</p> <p>The youngest age group demonstrated the least reduction of property crime arrests during the project period. The 19 years and over group had the greatest reduction in property offences. Although not significant, the patterns for reduction across sample groups were greatest for the quasi-programme group, and almost identical for the programme and comparison groups.</p> <p>Evaluators concluded that the project appeared to have no distinguishable effect on the level of property crime arrests of the programme sample that was different from that of the quasi-programme and comparison samples. While there was generally a reduction of property arrests across all the sample groups, there was no evidence the reduction was associated with the reduction in violent crime.</p>

Study and intervention description	Aims of the study	Summary of the study methods	Summary of the results of the study	
		<p>Drug crime arrests</p> <p>The project did not target drug crime behaviour by gang members, although workers were concerned about it and provided some service with regard to the problem. Overall, gang members with more drug crime arrests prior to the project decreased their arrests during the project.</p> <p>Gang members with fewer drug crime arrests prior to the project increased their drug crime arrests during the project period. However, the subgroup of youth with highest number of drug arrests in the past showed an increase rather than a decrease in arrests during the project period. Overall, the programme sample showed a decrease in total drug arrests, while the quasi-programme group and, in particular, the age 17-18 programme group, showed the most significant decreases. Evaluators were unable to fully explain from a programme perspective why the project seemed to have an effect on the reduction of gang-related drug crime during the evaluation period. It was likely that the combination of project police and youth outreach attention was effective with those drug-dealing programme youths who were only partially committed to drug dealing and were in the process of transitioning out of the gang and criminal behaviour generally. In other words, if violence was reduced, drug crime was also reduced. However, those who were heavily into selling drugs increased their involvement.</p> <p>Other arrests</p> <p>Gang members who had high arrests for other crimes prior to the project time period experienced sharp reductions in arrests for such crimes during the project time period. There was also an increase in arrests for other crimes, particularly minor crimes, by those 16 and under during the project period, while gang members in the older age categories experienced a reduction in such offences. There was little difference in arrest levels across sample groups or when analysed across age and sample group.</p> <p>Special police activity crimes</p> <p>Evaluators found that participants with the least number of arrests for typical police suppression types of activity at Time I had the most increase in such arrests at Time II. Conversely, participants who had the most arrests for crimes of this type at Time I had the most decrease in crimes of this type at Time II. When comparing across age categories, the 16 years and under group showed an increase in arrest levels for these types of crimes, while the 17- and 18-year-olds, and the 19 years and older groups, showed a decrease. Across sample groups, the programme sample showed a greater decrease in these arrests at Time II compared with Time I, followed by a lesser decrease by the quasi-programme and comparison samples. There were no statistically significant differences for the 16 and under group across the three samples, although there was an increase in arrests for this age group in the three samples. Surprisingly, there appeared to be no evidence of an increase in suppression type activities by police at Time II compared with Time I for all the samples. Evidence indicated that there was a decrease, and the decrease was significantly greater for the programme sample in relation to the comparison samples. Thus the police were not targeting programme gang youth for arrest more often at Time I than they were at Time II, at least for minor crimes.</p> <p>Overall success and failure</p> <p>The evaluators also focused on whether the programme reduced the number of serious gang crime offenders, especially gang violent offenders in Little Village, not just the level of offending. Evaluators found that youth in the programme sample generally reduced and/or lowered their level of arrests for violence and drug crime in relation to youth in the comparison sample in the program period. Programme youth also showed greater reduction in arrests than typically characterise police tactics for dealing with young gang members. Serious offenders in the programme sample experienced a greater reduction in crime levels than serious offenders in the comparison groups.</p>		

Study and intervention description	Aims of the study	Summary of the study methods	Summary of the results of the study
<p>Tita et al. (2003)</p> <p>This project is a replication of Boston's 'Operation Ceasefire' in the Hollenbeck area of the Los Angeles Police Department. Although the Hollenbeck project was expected to use the basic procedures of Operation Ceasefire, it also predicted that the type of problem addressed and the nature of the intervention might differ from those in Boston. The intervention was focused in the southern part of Hollenbeck, known as Boyle Heights.</p> <p>A working group was formed and spent several months designing a plan to quell gang violence, based on the notion of 'collective accountability', seeking to hold all members of a gang accountable for the act of any individual member. The strategy included:</p> <ul style="list-style-type: none"> • increased Los Angeles Police Department patrols in the area of a triggering event • deployment of officers from specialised police units • additional police patrols in public parks • more stringent enforcement of housing codes for properties used by gang members and use of public housing eligibility rules prohibiting possession of drugs, firearms and contraband • more stringent enforcement of parole and probation conditions and serving outstanding warrants on gang members • referral of gun law violations to federal prosecutors • installation of traffic barriers and other physical features to improve quality of life • collection of support payments for gang members with children and enforcement of truancy laws for those gang members who were under age • rapid application of these interventions after each violent incident to ensure that perpetrators and victims understood there were consequences for violent behaviour <p>The intervention was to be implemented in the wake of a triggering event.</p>	<p>Researchers sought to answer whether the interventions helped to reduce:</p> <ul style="list-style-type: none"> • violent crime (homicides, attempted homicides, robberies, assaults and kidnappings) • gang crime (violent crime, terrorist threats, firearm discharge, vandalism and graffiti committed by gang members) 	<p>The analysis compared changes in crime for three periods across the following three geographic comparisons areas:</p> <ul style="list-style-type: none"> • Boyle Heights, including some areas where only part of the intervention was implemented, compared with the remainder of Hollenbeck • five targeted reporting districts, where all the intervention was implemented, compared with the remainder of Boyle Heights, where only selected parts of intervention implemented • specific census blocks within the targeted reporting districts, compared with matched census blocks elsewhere in Boyle Heights <p>The time periods were as follows:</p> <ul style="list-style-type: none"> • the pre-intervention period - the period six months prior to the triggering event • the suppression period - the four months in which all parts of the intervention were applied • the deterrence period - the two months in which only selected parts of the intervention were applied 	<p>The broadest parts of the initiative (e.g. 'retailing the message') appeared to have no discernible effect on crime in the immediate aftermath of implementation, or during the suppression period.</p> <p>In contrast, the law enforcement components showed more promising effects. In four of the six comparisons in the analyses of violent crime and gang crime, there were reductions of crime in the targeted areas during the suppression period that were significantly greater than in the comparison areas.</p> <p>In Boyle Heights, gang crime decreased significantly compared with other regions of Hollenbeck during the suppression period of the intervention. Violent crime, gang crime and gun crime all decreased significantly in the deterrence period. The data suggests that the significant reduction in gang crime may have begun in the suppression period. Violent crime, however, did not decrease significantly in the suppression period.</p> <p>In the five targeted reporting districts, violent crime decreased significantly, compared with the rest of Boyle Heights in the suppression and the deterrence periods. Gang crime decreased significantly in the suppression period. Neither gang crime in the deterrence or suppression periods decreased significantly, although the generally low number of gun crimes in the targeted reporting districts makes it difficult to detect significant changes.</p> <p>The results generally suggest that the intervention was most effective when the most resources were applied, or during the suppression period. There is less evidence that the intervention succeeded in bringing about long-term changes in behaviour through deterrence.</p>

Appendix 5: Calculation of effect sizes for synthesis

The outcome measures used to derive effect sizes are listed in Table 4.12, and a discussion of how these particular measures were selected is provided at the beginning of Chapter 4.

The measure of effect size (d) - corrected Hedges' g - and of heterogeneity was calculated by the following method, using the software EPPI-Reviewer; see Deeks JS, Altman DG, Bradburn MJ (2001) Statistical methods for examining heterogeneity and combining results from several studies in meta-analysis. In: Egger M, Davey Smith G, Altman DG (eds) Systematic Reviews in Health Care. London: BMJ Publishing Group.

First, d is calculated from the means, standard deviations and sample sizes entered into outcome records

$$d = \frac{\bar{X}_1 - \bar{X}_2}{s}$$

where:

\bar{X}_1 = mean of intervention group

\bar{X}_2 = mean of comparison or control group

$$s = \sqrt{\frac{(n_1 - 1) SD_1^2 + (n_2 - 1) SD_2^2}{n_1 + n_2 - 2}}$$

where:

n_1 = sample size for group 1

n_2 = sample size for group 2

SD_1 = standard deviation group 1

SD_2 = standard deviation group 2

d is then corrected for sample size using the formula

$$g = d \left(1 - \frac{3}{4N - 9} \right)$$

and its standard error is calculated:

$$SE = \sqrt{\frac{n_1 + n_2}{n_1 n_2} + \frac{(g_c)^2}{2(n_1 + n_2)}}$$

Where n_1 = sample size of group 1 and

n_2 = sample size of group 2

Formulae for combining studies using the inverse variance method

Each study is weighted according to the formula:

$$w = \frac{1}{SE(\theta)^2}$$

where θ is the effect size of the study and SE is its standard error

Exceptions to this approach were taken with two studies in the effect size synthesis: Spergel (1986) and Kennedy et al. (2001). The standard error used in the calculation of effect size for these studies is the average for all the other ten studies in the in-depth review, rather than based on a sample size presented in the original papers. This approach was adopted because the only outcome measures presented in these studies that could be converted into a common metric to enable comparison with the other studies were ones with a large denominator, across a wide population.

Initially, a denominator for Kennedy et al. (2001) was established using population statistics from the US census in 2006 on the under-24 population of Boston (American Community Survey Demographic and Housing Estimates: 2006 Data Set). Using census data from 2006 rather than that from the 1990s when the intervention was put into place is one limitation with this approach, although the total population in 2006 in Boston was not very different from that in 1990.

However, there is a more fundamental limitation with such an approach. Such a denominator may be the wrong one if (to use the example of the outcome measure taken from Kennedy et al., as shown in Table 5.1) all the homicides are in fact among a much smaller subsection of the under-24 population in whom the risk of homicide is much higher than average, which is very likely to be the case.

In other words, the supposed greater precision of these studies (reflecting a very large sample size) is illusory - an artefact that reflects the way the crime rate has been calculated: that is, using a denominator that is city-wide, as opposed to a more targeted population comparison using a specific control area. This applied equally well to Spergel (1986) despite the fact population data for the areas considered were presented in that paper, as the populations of the 'target' and control 'non-target' areas were very large. As the Review Group was concerned that the denominators were inappropriate, they took the view that using an average standard error (and therefore also average weighting) for these two studies was more appropriate.

One other aspect to effect size derivation should be considered here, pertaining specifically to Kennedy et al. (2001). Another paper identified on the Boston Operation Ceasefire study (Braga, et al., 2001) provides risk ratio outcomes (which control for rival causal factors, and trend and seasonal effects) that unfortunately could not be converted into a common metric with the data from the other studies in the in-depth review synthesis: the risk ratios are dichotomous statistics, while the Hedges' g derived from our other studies are continuous statistics).

However, these risk ratios provide stronger evidence of the effectiveness of this intervention - considering youth homicides, the incidence risk ratio is 0.28, a large and significant ($p < .01$) reduction post intervention - and much greater than the estimate derived using Hedges' g . The Review Group would argue that Hedges' g (corrected) offers a better indicator of effect than these risk ratios where a large effect can be generated from a small number. However, the Group appreciates the concern that they may be viewed as underestimating the size of the effect in what is a pivotal study in this field because, as recognised above, any one gang crime event would be comparatively rare across the whole under-24 population; had the original data used to calculate the risk ratios been available - or if it were possible to compare risk ratios to corrected Hedges' g using the synthesis software we employed - then they would have run analyses to compare the pooled effect sizes produced using these different results for Operation Ceasefire.

Appendix 6: Calculation of heterogeneity for synthesis

This section is designed to provide consistent and explicit assessment of which studies are too heterogeneous to be included in the overall and theory of change meta-analyses reported in Chapter 4, and also to report how including and excluding these ‘outlier’ studies would affect the results as reported to maximise transparency.

Discussion of outlier studies

Initially, it is useful to consider the effect sizes of all 12 studies together, as shown in Figure A6.1. The forest plot shows that of the effect sizes listed, ten were positive and two negative. However, only two of the studies provided statistically significant positive results: Klein (1971) and Goldstein et al. (1994). One study (Klein, 1969) produced statistically significant negative results. Immediately, it is noteworthy that, while the majority of studies have effect sizes near zero, these three studies have significant positive or negative effects that make them appear initially distinct from the other studies.

Largely due to those three studies, the heterogeneity ‘Q’ statistic was high and the proportion of total variability attributed to between-study heterogeneity (I^2) was 79.8%. This shows that there was strong statistical evidence for the studies being heterogeneous, which means there should be some caution about pooling these studies into a meta-analysis. The ‘high’ (following Higgins et al., 2003) heterogeneity found here means this should not be considered as no evidence of effect for comprehensive interventions, because it may be that, within the pool of studies, is a subgroup that gives a positive result.

The pooled effect size (corrected Hedges’ g) was 0.10 (C.I. -0.12 to 0.33), so the result is similar to that reported in the main section of the report (0.09) but the confidence intervals are clearly wider than in Figure 4.2 (a forest plot which excludes Klein, 1969; Klein, 1971; and Goldstein et al., 1994).

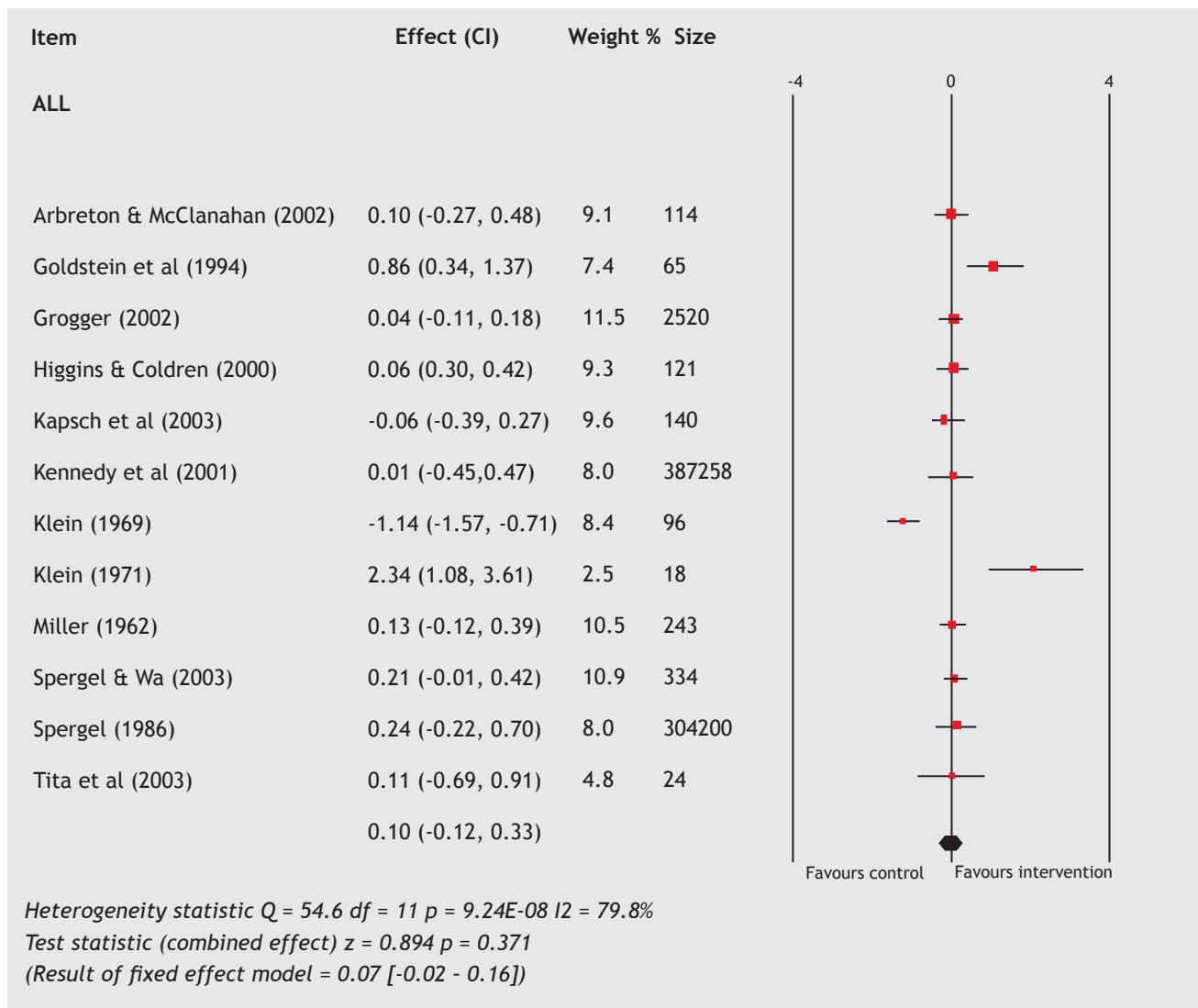
A plot including Goldstein et al. but excluding the Klein (1969) and Klein (1971) studies, is shown in Figure A6.2).

It is worth considering the three potentially outlier studies in more depth to consider why the pattern appears so different in their cases. Unsurprisingly, removing these three studies from the analysis (Figure 4.2) removes heterogeneity (it drops to 0%) but has limited effect on the overall pooled effect size (as their weighting in Figure A6.1 is relatively small). The effect size excluding these outliers is 0.09 (0.00 - 0.18), a pooled effect which narrowly fails to reach statistical significance.

Figure A6.2 below shows that, when Goldstein et al. (1994) is included, the pooled effect size is not only positive, but statistically significantly positive.

It is more interesting to consider why the findings from these three studies are so distinctive. None of these studies was rated highly for quality of evidence, and there may be some concern over the findings from Goldstein et al. (1994), as the study uses a small sample size.

In the case of the Klein studies, however, the contribution to heterogeneity reflects that one study had a result that strongly favoured the control group, while the other study’s result favoured the intervention group. In fact, the author clearly argues the earlier attempt published in 1969 failed to the extent it did because the initiative actually increased gang cohesiveness, while the subsequent study in 1971 had a positive effect because those involved were consciously working to disrupt gang cohesiveness. (Indeed, what was done for the study published in 1971 was a deliberate response to what happened for the one published in 1969.) Therefore it would be no surprise to Klein that the effect of these two studies was so different and, rather than simply taking this as evidence of heterogeneity, he would consider this clear backing for his mechanism of change for the 1971 study.

Figure A6.1: Forest plot of effectiveness of interventions (random effect model)

Following this line of thought, it could be argued that it is preferable to remove Klein (1969) from the synthesis altogether, on the grounds that it could be seen as a first stage or a pilot before the author's completed work. The pooled results of excluding Klein (1969) alone are 0.18 (0.01 - 0.34), but there is still substantial heterogeneity ($I^2 = 56.9\%$).

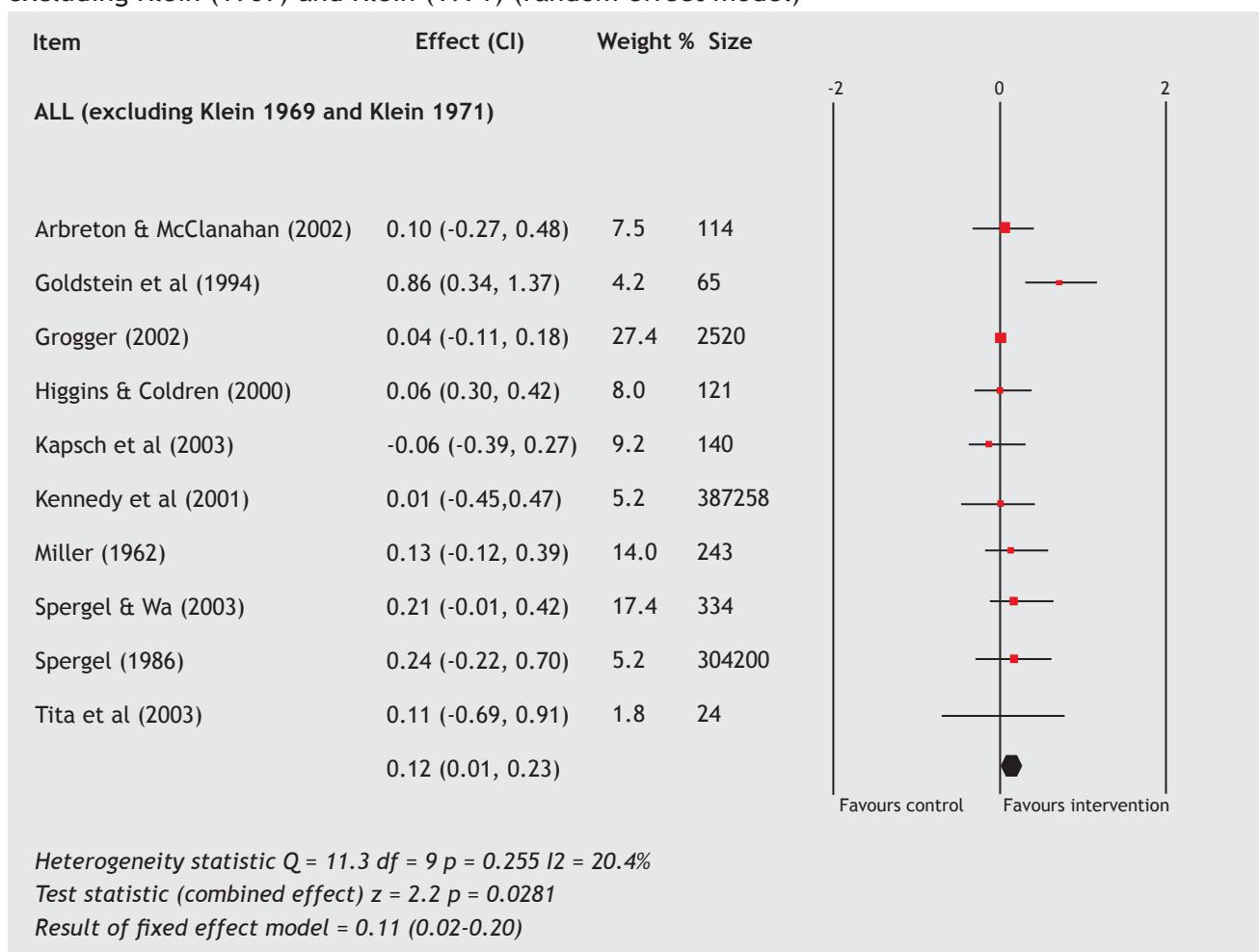
It should also be observed that the effect sizes generated from the Klein papers are not only different from one another, but different in the extent of the respective positive and negative impacts of the interventions analysed in them, compared with those from the other studies (see Figure A6.2).

In other words, one remaining issue is why the positive result for Klein (1971) was so positive, and, conversely, why the negative result for Klein (1969) was so negative. This is probably an artefact of the way the effect size had to be calculated for these papers. This serves to re-emphasise again the need to consider what is being assessed (Table 4.12). In the case of the Klein studies, the only way in which effect sizes could be generated was by

comparing the number of months the data favours the intervention with the control (rather than by using the frequencies themselves); this could easily lead to an overweighing of the amount of difference between intervention and control if there was, for example, a small but consistent difference over a period of time. However, this must necessarily remain speculation, and it must be accepted that there is a substantial quantity of statistical heterogeneity remaining between the studies, when all 12 are considered - including those with medium and low weight of evidence - and therefore that substantial caution must be exercised when interpreting those results.

As a way of testing the validity of the effect size generated from Klein (1971), exactly the same data but a different means of calculating an effect size was used, namely a t-test of the difference in average sightings per month, treating the sightings pre and post the intervention as events and non-events in a categorical analysis. However, this then resulted in a different effect size, causing the Review Group to doubt the validity of their approach to generating an effect size from this paper.

Figure A6.2: Forest plot of effectiveness of interventions (random effect model), excluding Klein (1969) and Klein (1971) (random effect model)



Furthermore, the denominator they were using (in both ways of generating an effect size) was number of months, rather than what would be more valid - i.e. total number of gang members (which the paper provided no information on) - as was also true for Klein (1969).

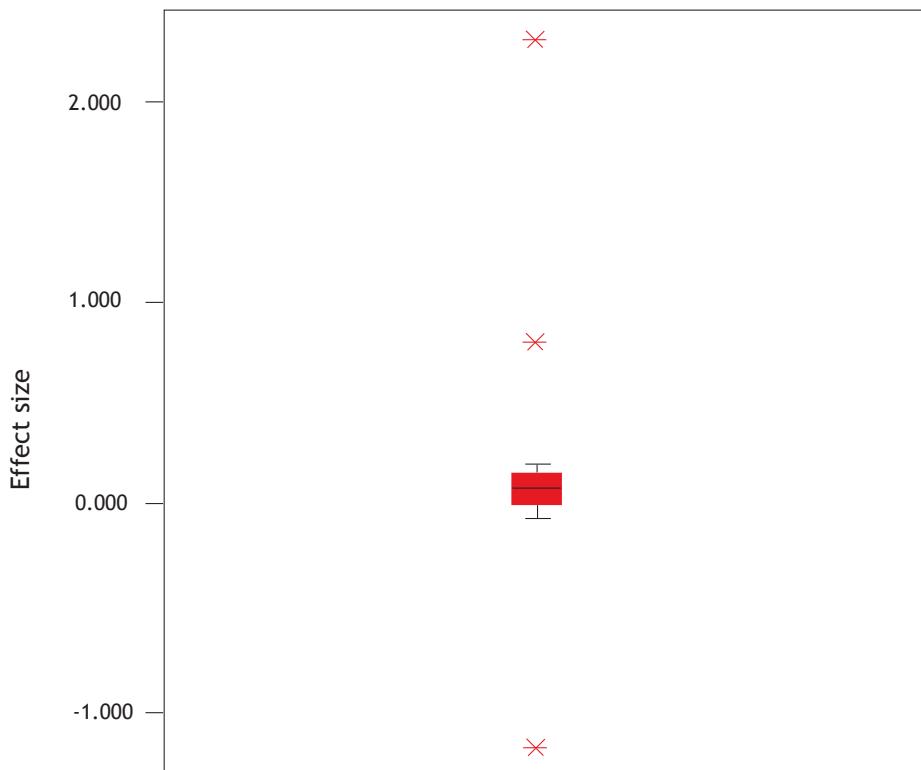
This has led the Review Group to the conclusion that it is preferable to exclude the two Klein studies as they are methodologically weak (rated as low in terms of weight of evidence A on methodological quality), provide a result heterogeneous to that generated by the other studies in the meta-analysis, and while Klein (1969) may be considered as only a flawed pilot intervention, the Review Group does not think the effect sizes calculated from Klein (1971) are valid.

Thus, in effect, only ten studies remain eligible in the in-depth review for meta-analysis. However, as previously noted, Goldstein et al. (1994) also appears as a potential outlier in the results it generates.

The Review Group has already alluded to its small sample size and low weight of evidence. A very distinct issue is whether the intervention this study considers is a true 'comprehensive' intervention. The decision was to include this as a comprehensive

intervention as it impacts in two clearly distinct ways on those receiving the programme - both psychologically and educationally. A specific criticism of this approach has been that the decision to count this as both psychological and educational may neglect that many psychological interventions today would be classified as educational, if their cognitive-behavioural dimension were accounted for. In fact, interventions that featured a CBT element and nothing more would have been classified by the Review Group as psychological only, and hence single-stranded and not comprehensive, so this critique is not wholly fair.

Nevertheless, the Review Group had a considerable discussion about this study and whether it met the criteria of comprehensiveness - and, as for all studies where there was any initial disagreement over coding, a collective decision was made after debate within the Review Group. Ultimately, at this stage of the review process, it would be inconsistent to exclude this study according to an argument that it was not as 'comprehensive' as other included studies, when the Review Group had previously agreed that it meets the particular criteria transparently used (having refined them through debate and advice). However, as they are considering if this study is a heterogeneous outlier, they are obliged to record this as a possible issue.

Figure A6.3: Distribution of effect sizes for all studies

Framework to assess study heterogeneity

To ensure decisions about study heterogeneity were made according to a consistent and explicit framework, the Review Group ascertained the distribution of effect sizes using the formal check of box and whisker plots (for each meta-analysis including all the different theory of change analyses) to provide a clear assessment of what constitutes an ‘outlier’ study.

All three studies under consideration are extreme outliers in that they are three times the inter-quartile range from the end of the box (the first quartile or third quartile).

As the Review Group has demonstrated why the effect sizes they were able to calculate from the Klein studies are invalid, these plots will from now on only consider the ten remaining study effects sizes for the overall forest plot and the relevant studies from within those ten for each of the theory of change analyses. Figure A6.4 suggests without the Klein studies, the Goldstein et al. study appears as a clear extreme outlier with no parallels amongst the other included studies. For this reason, the Review Group has chosen to exclude Goldstein et al. from the forest plot results as detailed in section 4.4.5.

However, although Goldstein et al. is an outlier using inter-quartile ranges and 2*standard deviation, it is not if one tests for outlier status using the 3*standard deviation cut-off. (Lipsey and Wilson [2001] discuss this process - Windzorising - in terms of removing or adjusting outliers beyond 2/3 standard deviations rather than inter-quartile ranges). Furthermore, if Goldstein et al. is included, heterogeneity is only 20% and not statistically significant. As deciding what constitutes an outlier is essentially an arbitrary process in which arguably a consistent and transparent approach is key (using the inter-quartile range method here), the view of the Review Group is that it remains important to present the overall findings including Goldstein et al. in this appendix (Figure A6.2).

The box and whisker plots for each theory of change are presented in turn.

There is no statistical heterogeneity for this group of interventions, so it is unsurprising there are also no outliers among the six studies. This is also true for those five interventions with an information-sharing element (Figure A6.6), or the three in which resources were pooled across agencies (Figure A6.7).

Figure A6.4: Distribution of effect sizes for all studies (excluding Klein 1969 and Klein 1971)

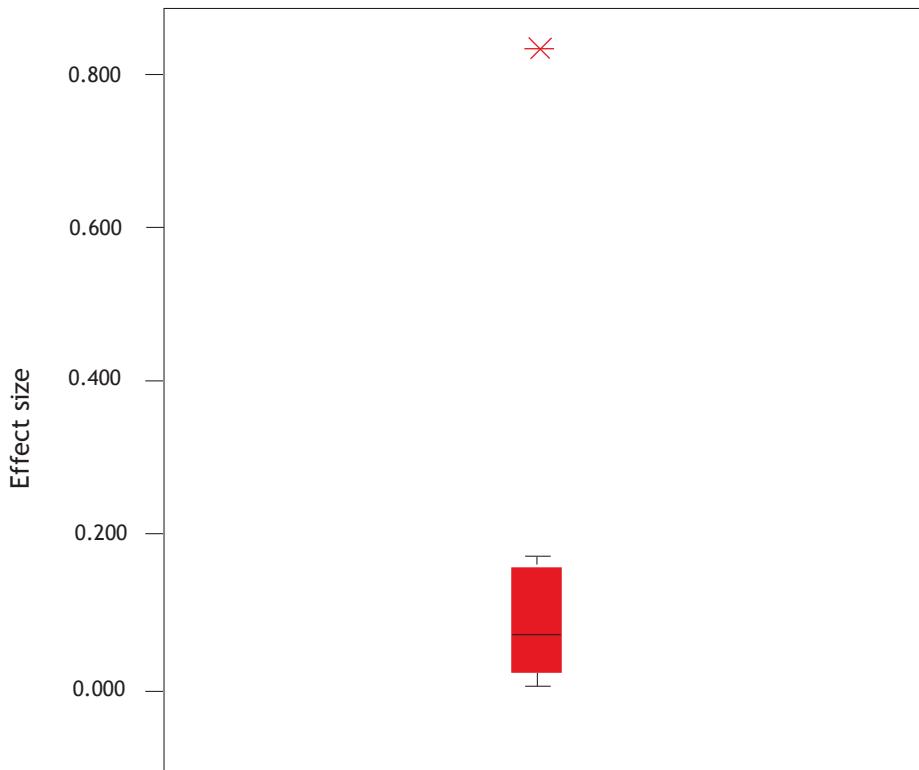


Figure A6.5: Distribution of effect sizes for interventions incorporating multi-agency working: shared decision-making

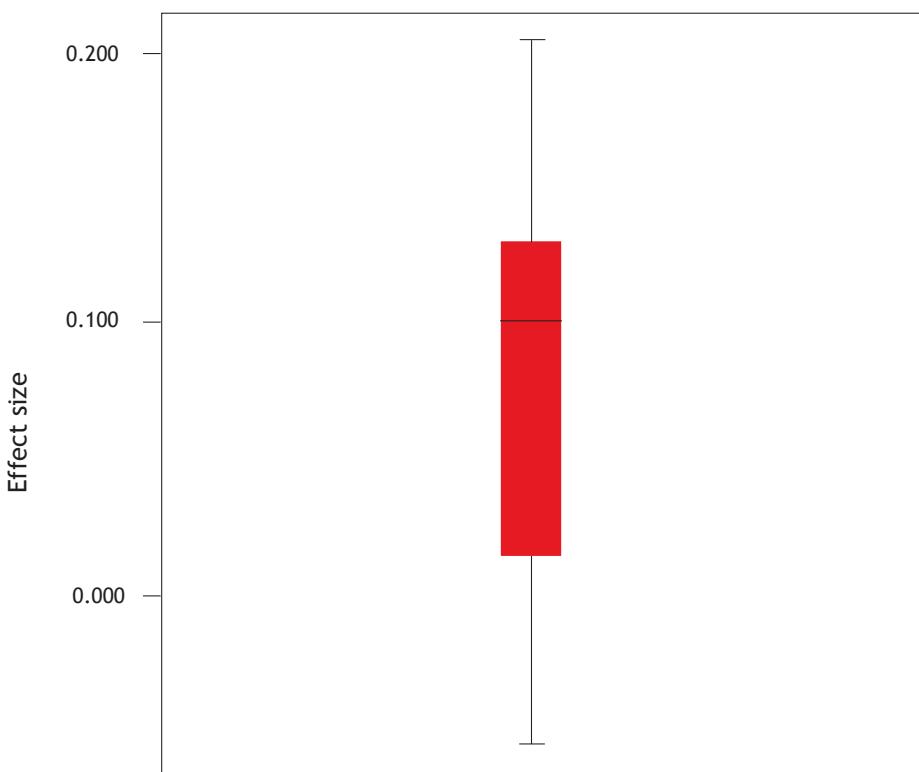


Figure A6.6: Distribution of effect sizes for interventions incorporating multi-agency working: information sharing

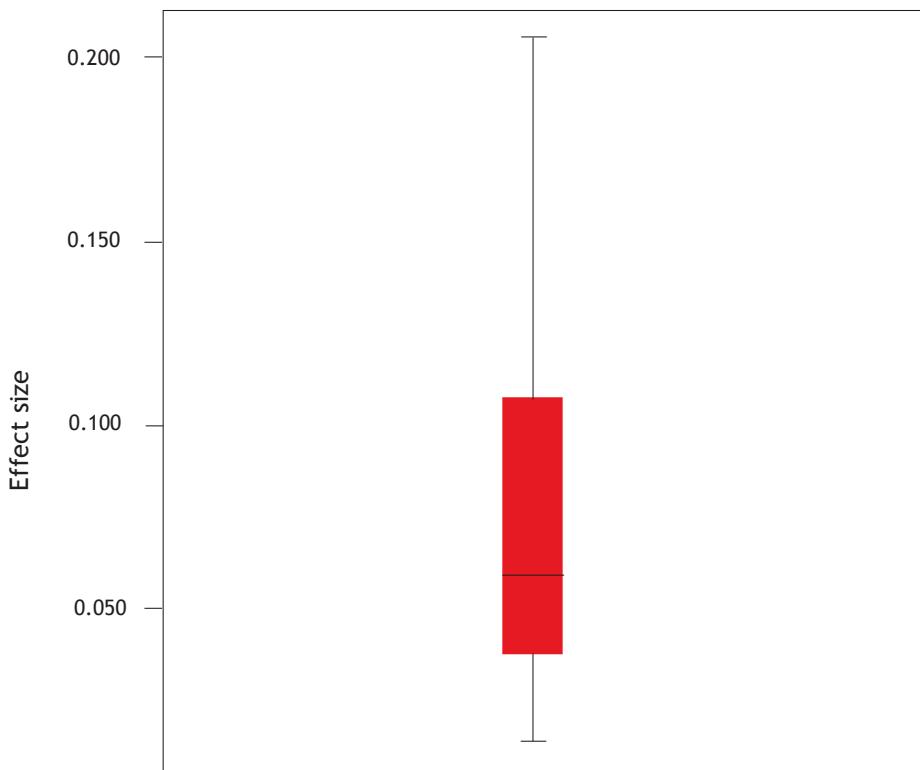
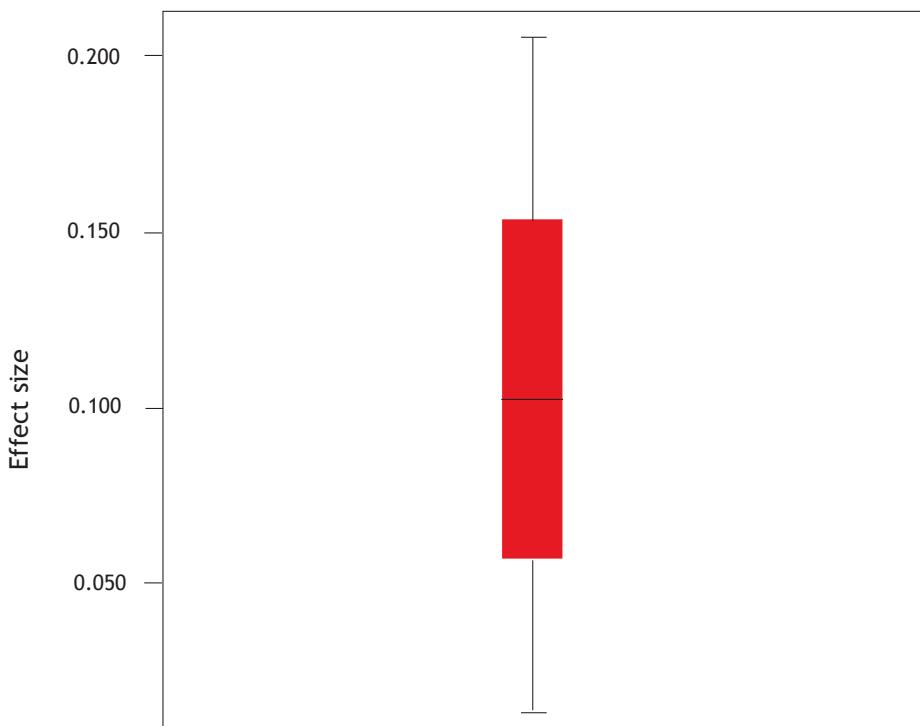


Figure A6.7: Distribution of effect sizes for interventions incorporating multi-agency working: pooling of resources



Klein (1971) is one of the studies incorporating sharing of expertise across agencies. Figure 4.7 in Chapter 4 shows the result for this theory of change excluding Klein (1971) but Figure A6.8 shows the effect when this study is included. Counter-intuitively, removing the study with the most positive effect size renders the meta-analysis no longer statistically significant; this appears to be the result of a relatively reduced weighting for Spergel et al. (2003).

Figure A6.8: Effectiveness of interventions incorporating multi-agency working: shared expertise, including Klein (1971) (random effect model)

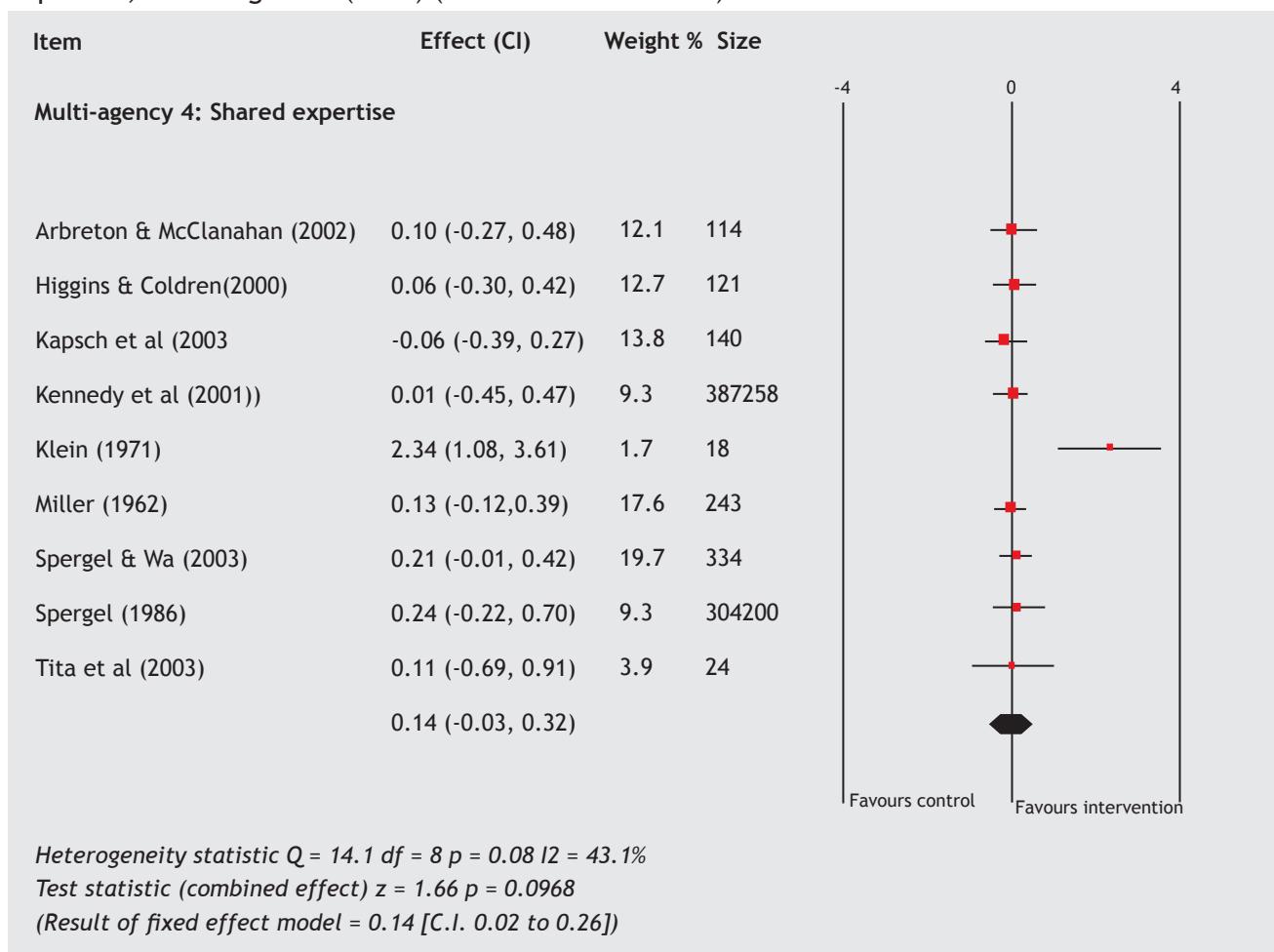
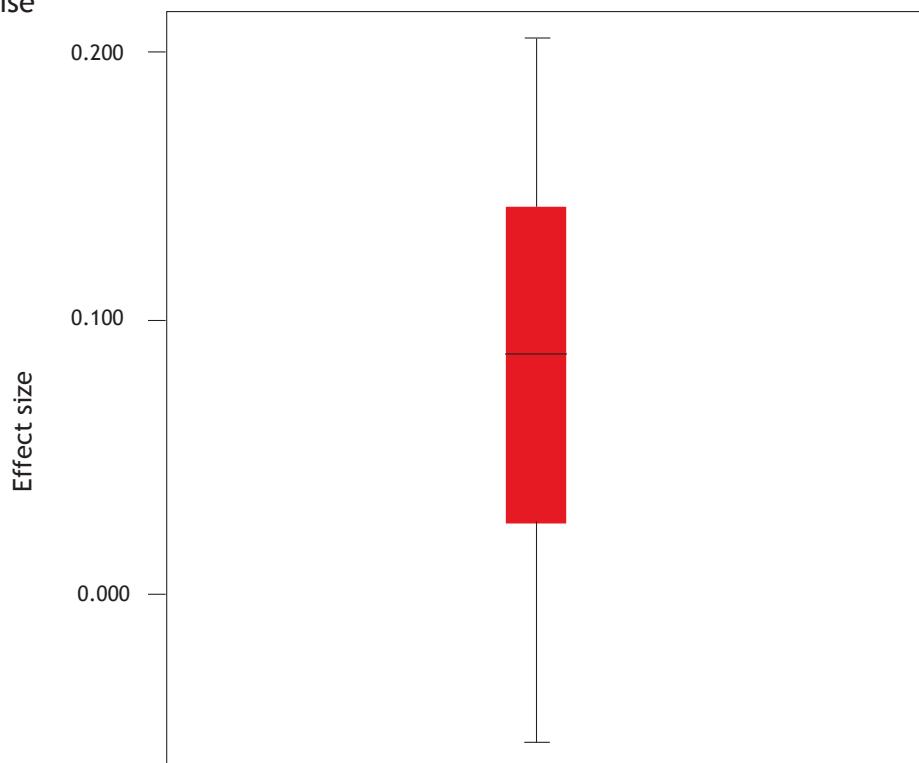
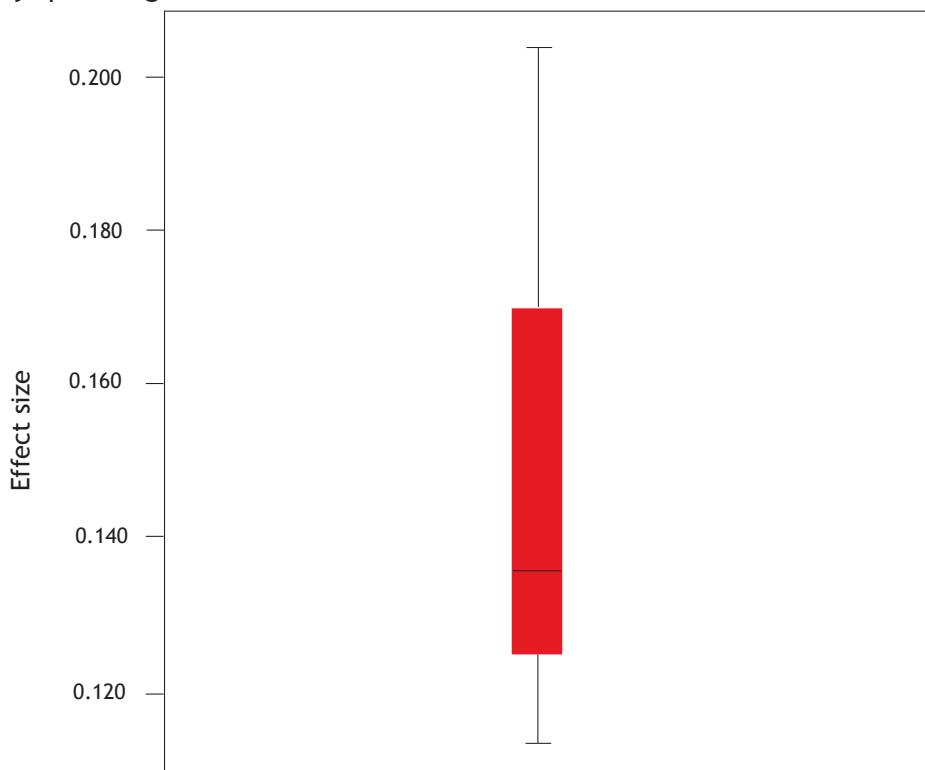


Figure A6.9: Distribution of effect sizes for interventions incorporating multi-agency working: shared expertise



Excluding Klein (1971), the distribution of effect sizes (Fig. A6.9) again reveals there are no outlier studies.

Figure A6.10: Distribution of effect sizes for interventions incorporating involvement of community: planning



Both Klein studies involved community involvement in the delivery of the interventions, and the result of the meta-analysis for this theory of change including those two studies is shown in Figure A6.11. Here the relationship is much weaker compared with Figure 4.10 in Chapter 4 and not significant. The amount of heterogeneity is also very high.

Removing the Klein studies, the distribution of effect sizes (Figure A6.12) confirms there are no other outlier studies.

Figure A6.11: Effectiveness of interventions incorporating involvement of community: delivery, including Klein (1969) and Klein (1971) (random effect model)

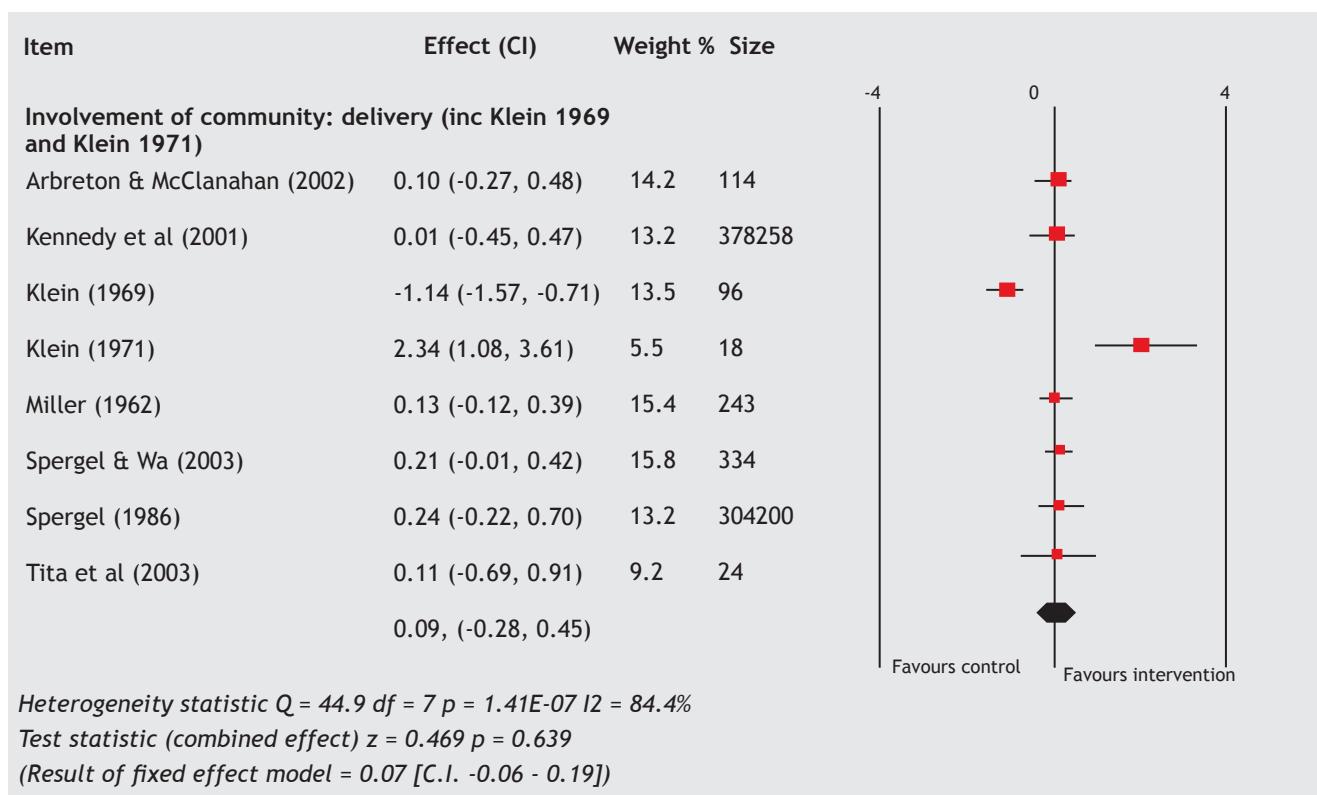
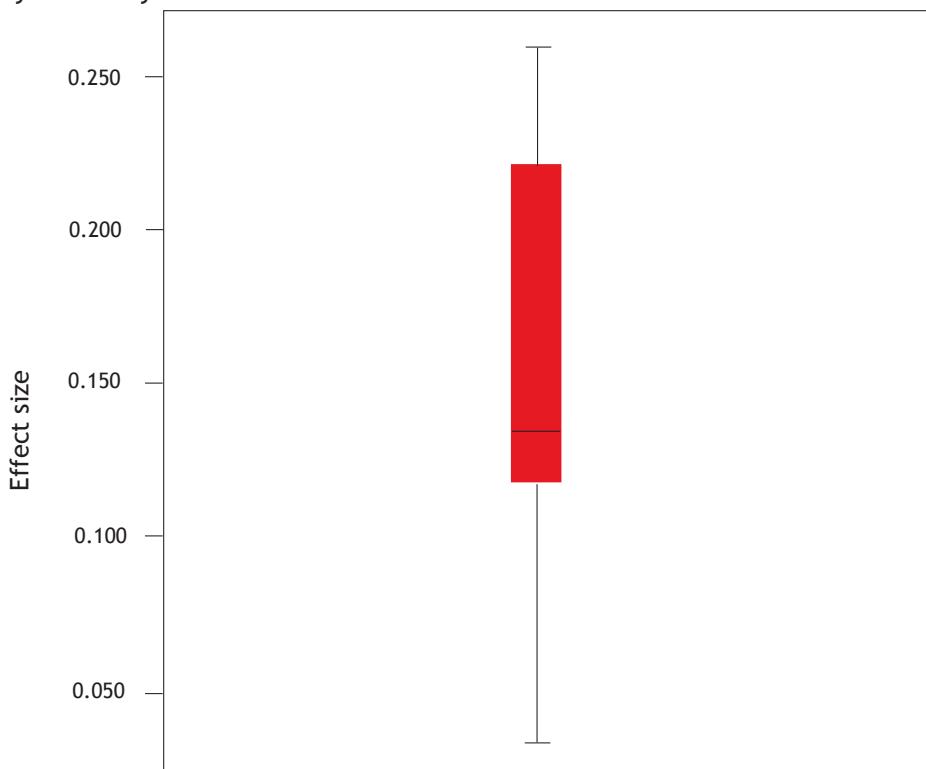


Figure A6.12: Distribution of effect sizes for interventions incorporating involvement of community: delivery



Considering the 'carrot and stick' theory of change, as noted in section 4.6.3, it is firstly useful to consider the effectiveness of carrots and sticks in their own right among the sub-sample of comprehensive interventions. The result of the 'carrot' meta-analysis is shown in Figure A6.13, excluding the Klein papers; this is a significant positive effect as discussed in the main report (including both Klein studies the result is 0.09 (-0.28 - 0.45), with heterogeneity of 84.4%).

Figure A6.13: Effectiveness of interventions providing a carrot (incentives) to change behaviour, excluding Klein (1969) and Klein (1971) (random effect model)

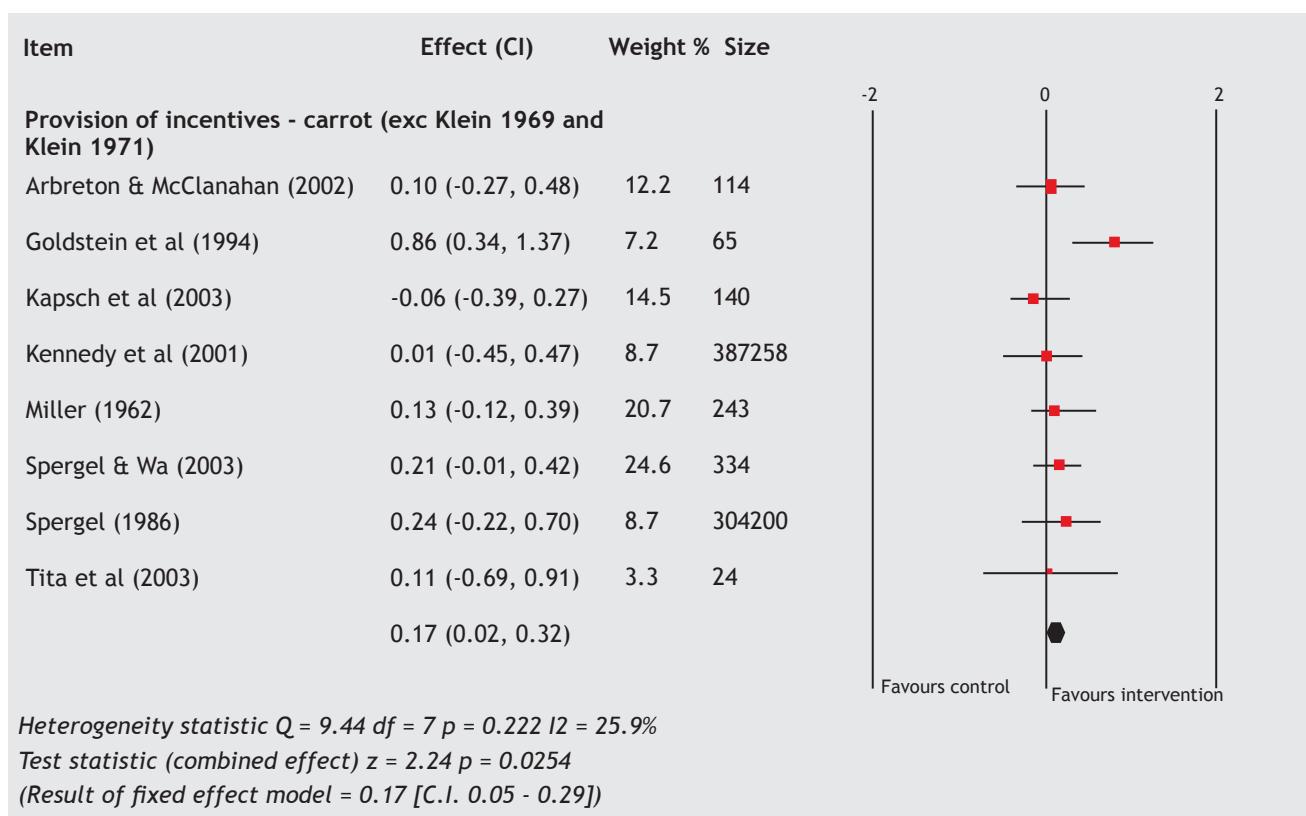
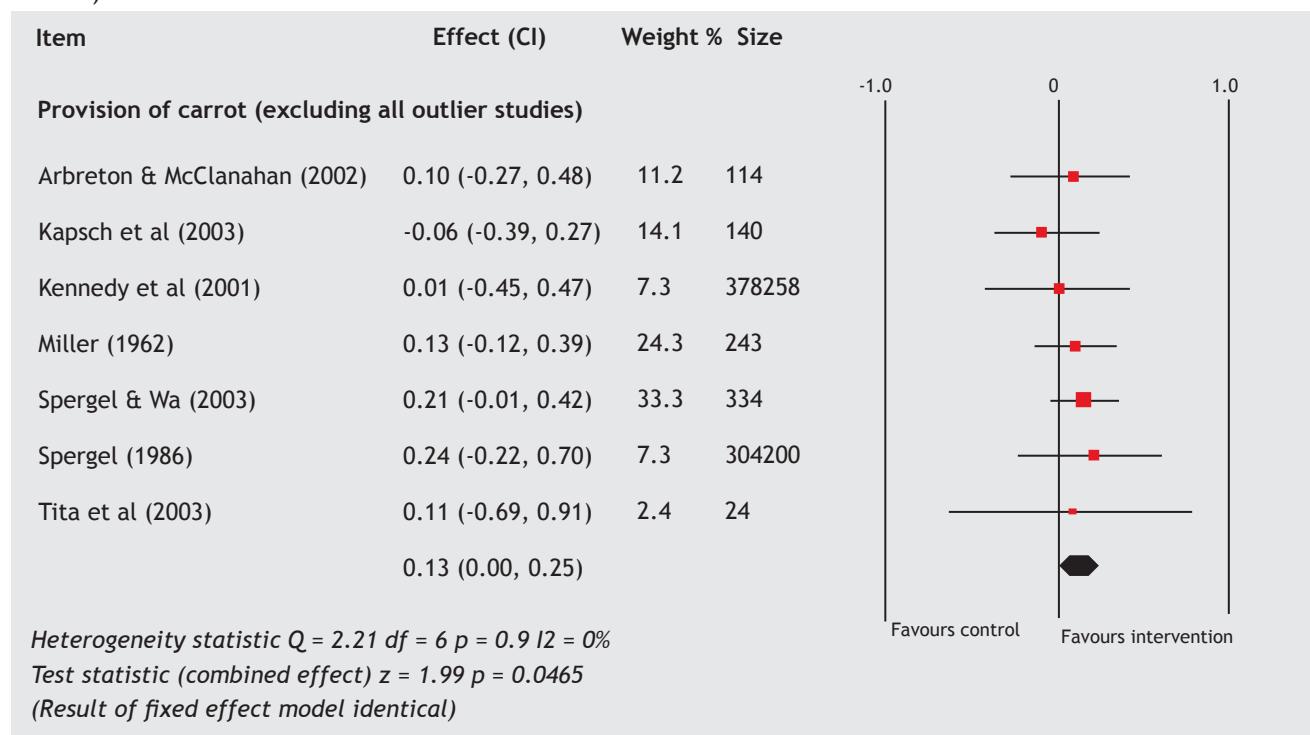


Figure A6.14: Effectiveness of interventions providing a carrot (incentives) to change behaviour, excluding Goldstein et al. (1994) (in addition to Klein (1969) and Klein (1971)) (random effect model)



Excluding Goldstein et al. (1994) as the other outlier has the effect of removing all statistical heterogeneity, but the effect remains (just) significant (Figure A6.14). The result of the 'stick' group is unaffected by the outlier studies and is presented in Figure A6.15. The effect is very weak and not statistically significant. Focusing only on those interventions which specifically excluded any incentive element does not change this result (Figure A6.17).

Figure A6.15: Effectiveness of interventions providing a stick (sanctions) to change behaviour (random effect model)

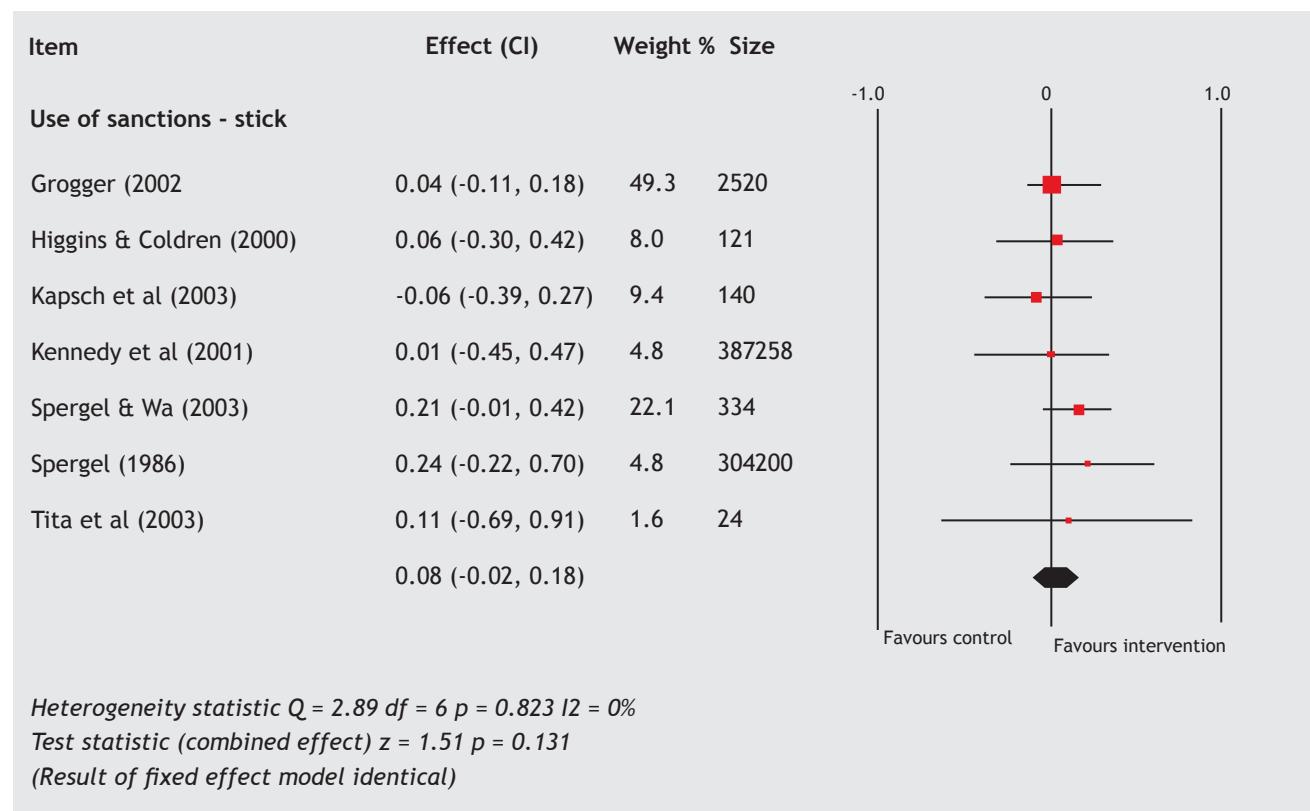
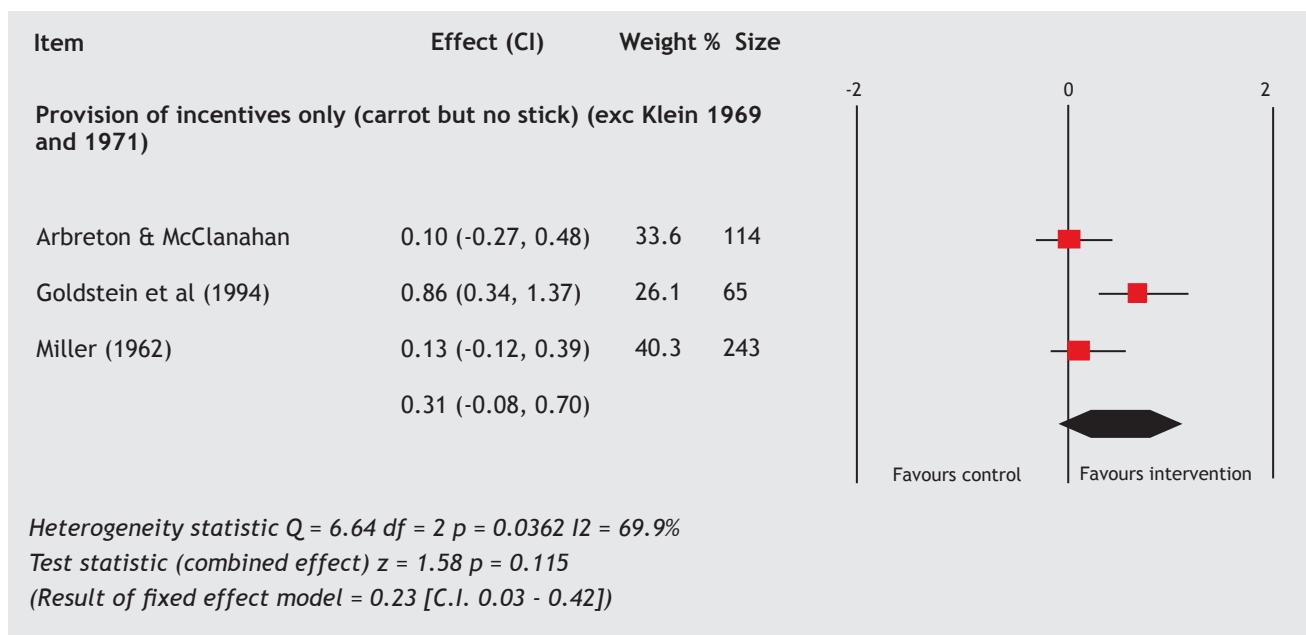


Figure A6.16: Effectiveness of interventions providing a carrot but no stick to change behaviour (random effect model)



As discussed in the main section, the result of the carrot but no stick group (Figure A6.16) cannot be trusted as there is high heterogeneity, the confidence intervals cross zero, it is heavily dependent for what positive effect there is on the outlier Goldstein et al., and there is only one study which provides high/medium weight of evidence (Miller, 1962). If the result incorporated the two Klein studies, the random effect model result would be 0.30 (-0.41-1.00) but, with heterogeneity of 92.2%, arguably this is meaningless.

Figure A6.17: Effectiveness of interventions providing a stick but no carrot to change behaviour (random effect model)

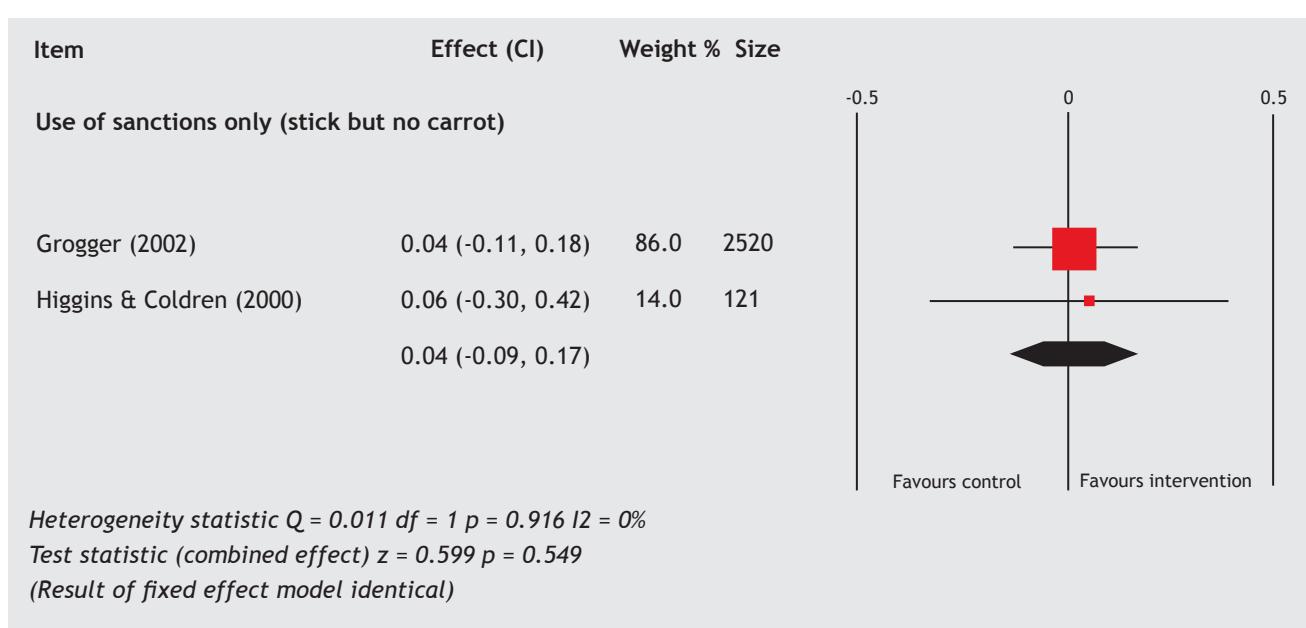
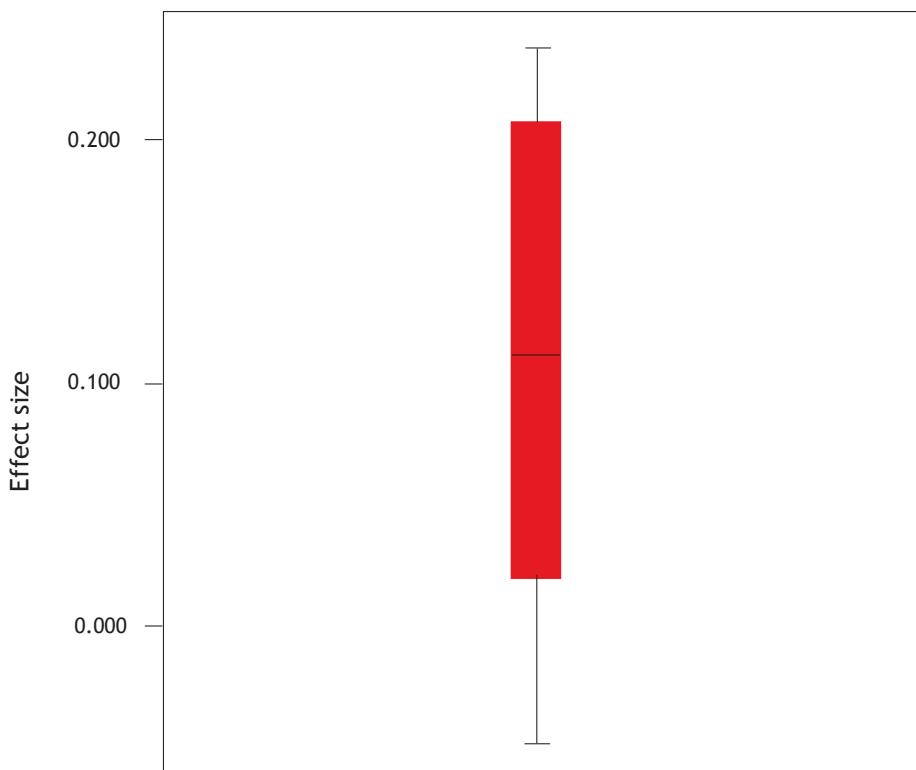


Figure A6.18: Distribution of effect sizes for interventions incorporating both sticks and carrots (sanctions and incentives)



The result for those interventions that combined a carrot and stick approach provides a genuine test of the effectiveness of ‘comprehensive’ so it is important to test for heterogeneity in this group. There are no outliers, as Figure A6.18 confirms.

The distribution of effect sizes for the group of interventions with publicity and/or marketing and those involving problem-solving highlight they are free from outliers.

Figure A6.19: Distribution of effect sizes for interventions featuring problem-solving (sanctions and incentives)

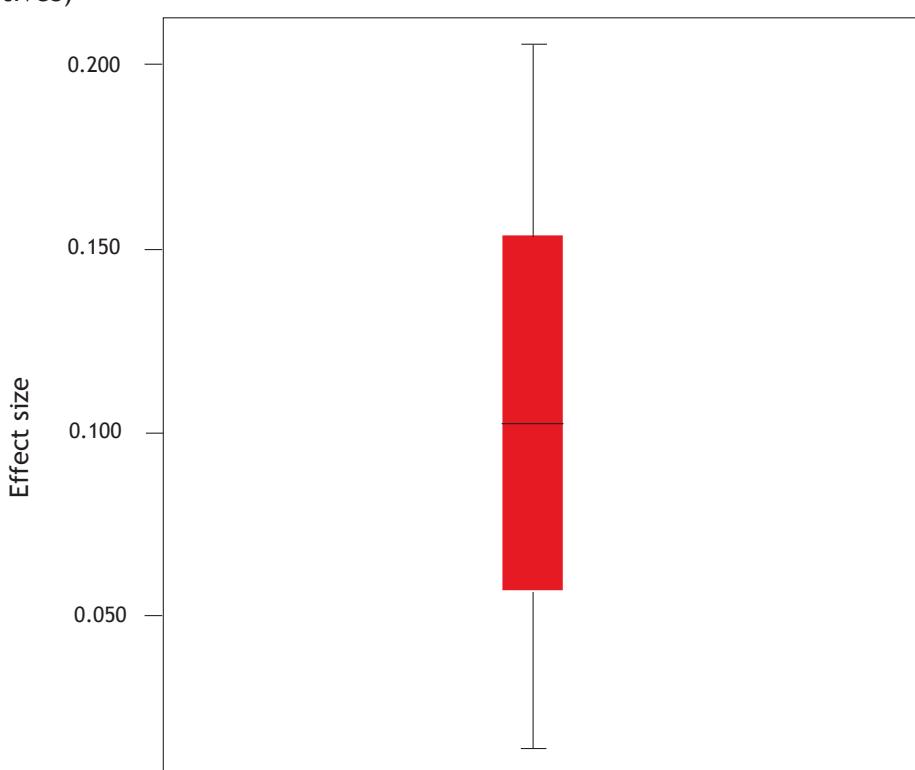


Figure A6.20: Effectiveness of interventions providing a personalised or holistic service - random effect model

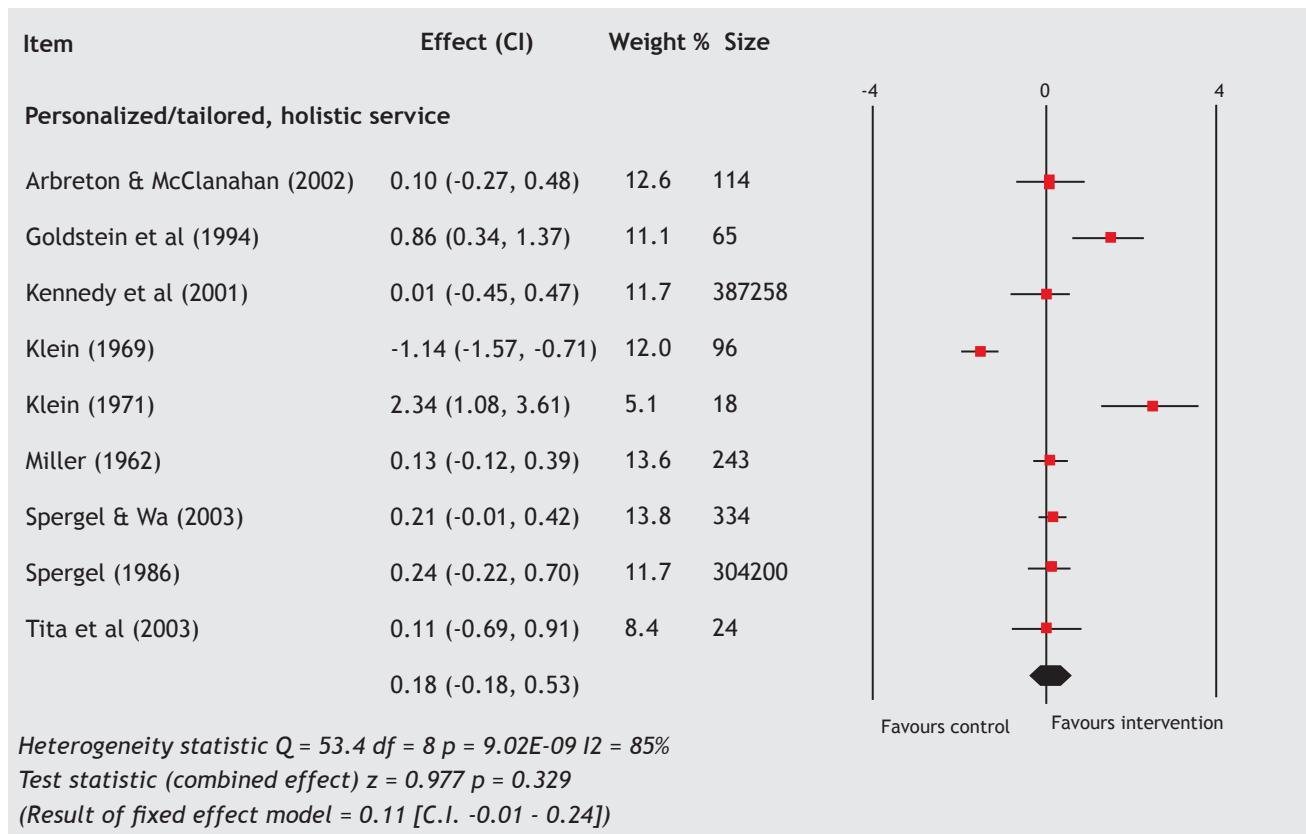


Figure A6.21 shows the results excluding both Klein studies, but including Goldstein et al. (1994). The result is now significantly positive and heterogeneity has been reduced considerably.

Figure A6.21: Effectiveness of interventions providing a personalised or holistic service, excluding Klein (1969) and Klein (1971) - random effect model

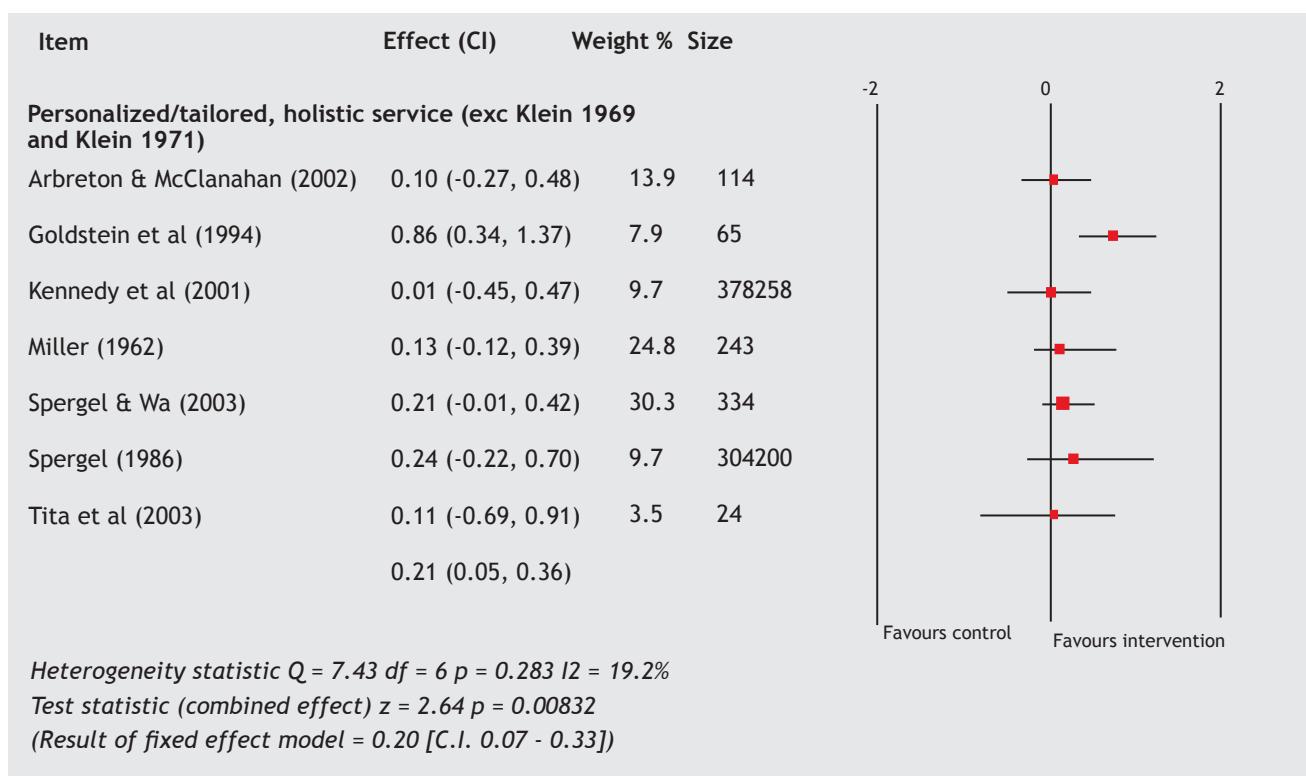
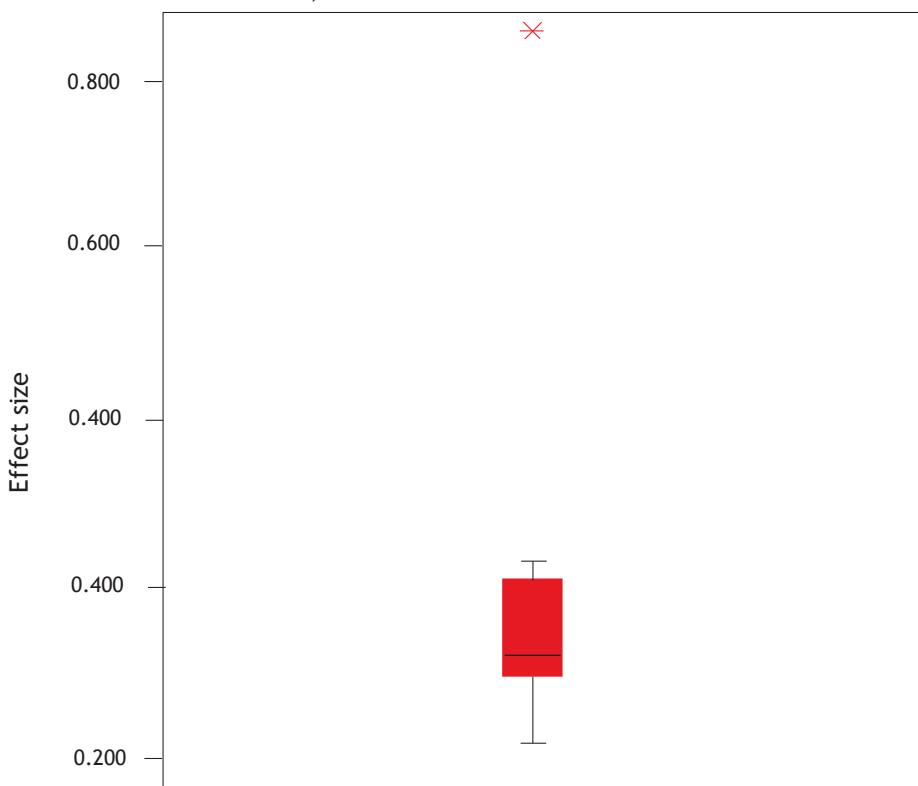


Figure A6.22: Distribution of effect sizes for interventions providing a personalised or holistic service (sanctions and incentives)



However, the question still remains over whether the Goldstein study is an outlier or not. The distribution of effect sizes for this group (not including the Klein studies) shows clearly that it is (Figure A6.22). Therefore, Goldstein et al. has been removed from the forest plot in the main section of the report (Figure 4.14).

Figure A6.23 demonstrates that the interventions in the ‘most comprehensive’ group are not heterogeneous.

Figure A6.23: Distribution of effect sizes for the ‘most comprehensive’ interventions

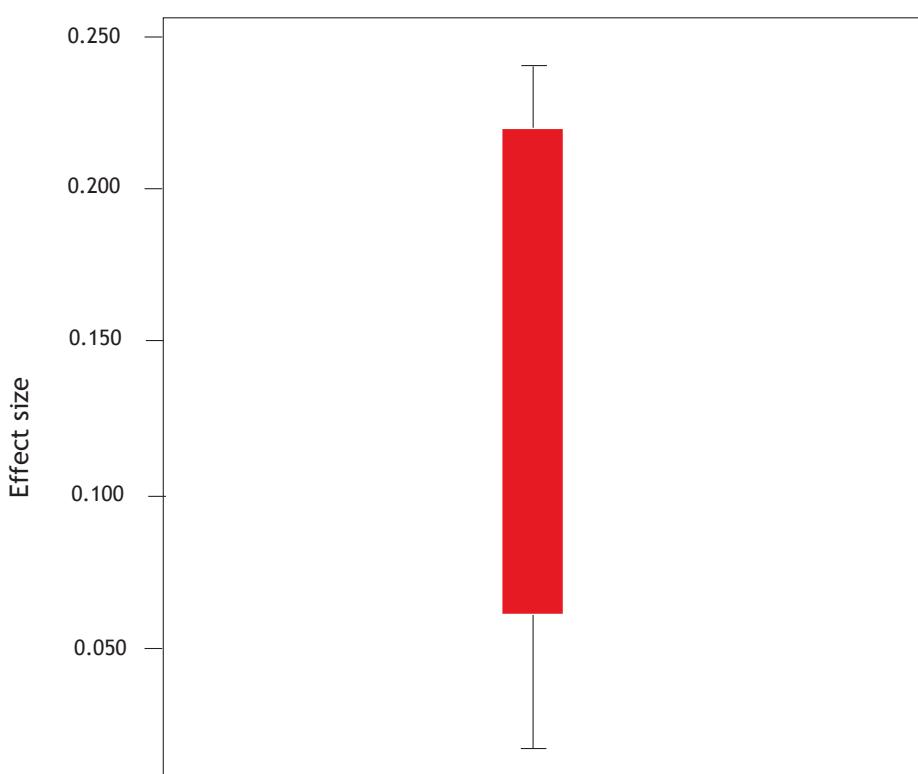
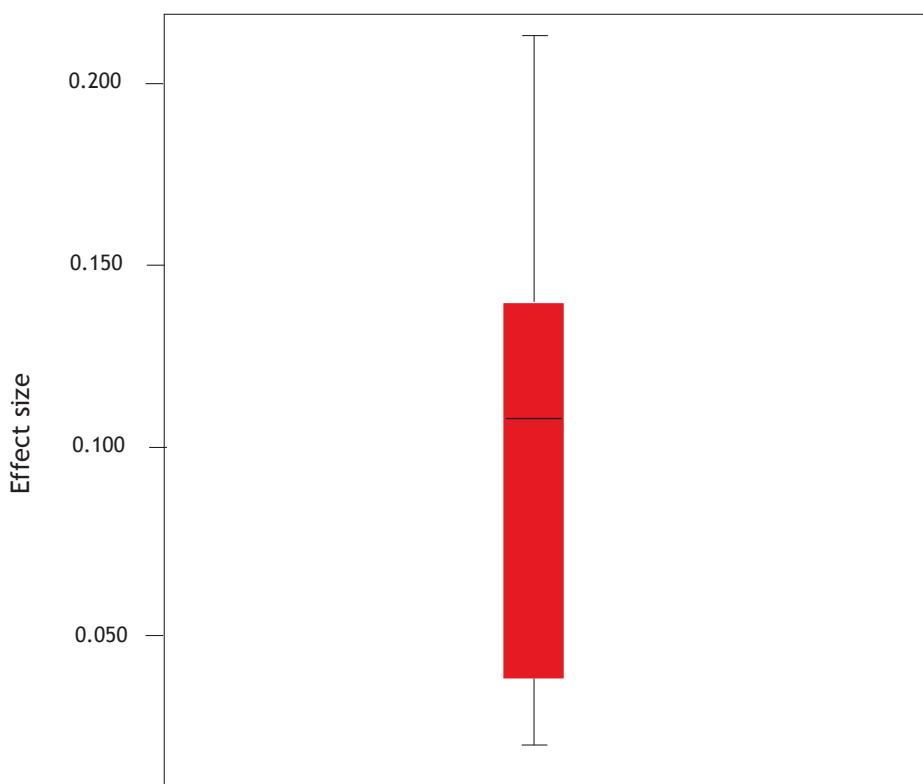


Figure A6.24: Distribution of effect sizes for interventions with high/medium weight of evidence



Finally, one must assess whether the interventions with high/medium weight of evidence are homogeneous.

As these studies as a whole are not heterogeneous, any subgroup of them will not be either, so one can trust the results in Table 4.17.

Appendix 7: Effectiveness interpretation framework (Newman 2008)

Positive effects consistent evidence

Any intervention in this category will have at least one study that:

- scores level 4-5 on the SMS scale
- scores medium or high quality scores on the weight of evidence framework

and

The result (weighted mean or single effect size) will show a positive effect size (favouring the intervention) that is statistically significant for those studies which score at least medium/high in the weight of evidence framework

Negative effects consistent evidence

Any intervention in this category will have at least one study (see note 1 below) that:

- scores level 4-5 on the SMS scale
- scores medium or high quality scores on the Weight of Evidence framework

and

The result (weighted mean (see note 2 below) or single effect size) shows a negative effect size (favouring the comparison group) that is statistically significant for those studies which score at least medium/high in the weight of evidence framework

Potential effects (positive or negative) limited evidence

Any intervention in this category will have:

one or more study (see note 1 below) that scores level 4-5 on the SMS scale ,and medium or high quality on the weight of evidence framework

and

The effect size (pooled summary) for those studies which score at least medium on methodological quality in the weight of evidence framework does not exclude ‘no difference’, although the effect is statistically significant across all studies (i.e. including those that score 3 on the SMS scale)

Insufficient evidence

Any intervention in this category will have no studies that are level 4/5 on the SMS scale, and medium or high quality on the weight of evidence framework

or

The effect size (pooled summary) does not exclude ‘no difference’ when all studies (including those that score 3 on the SMS scale) are included.

Notes

1. If there is only one study, it should be a multi-centre randomised controlled experiment.
2. Where a weighted mean summary effect size is used, studies must meet the requirements for statistical homogeneity.

Adapted from:

Lipsey MW, Wilson DB, Cothorn L (2000) Effective interventions for serious juvenile offenders, Washington: Office of Juvenile Justice and Delinquency Prevention

Farrington D, Gottfredson D, Sherman L, Welsh B (2002) The Maryland Scientific Methods Scale. In: Farrington D, MacKenzie D, Sherman L, Welsh L (eds) Evidence based crime prevention, London: Routledge, pages 13-21.

The results of this systematic review are available in three formats:

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TECHNICAL REPORT

Includes the background, main findings, and full technical details of the review

DATABASES

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