

Towards a new understanding of how local action can effectively address health inequalities

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The Report

1 Introduction

This is a report on the results of a study funded by the National Institute for Health Research Service Delivery and Organisation Programme to investigate variations between local authority areas in England with high deprivation and health needs in the extent to which their health inequalities have narrowed. The study explores the reasons for this local variation. It focuses on three outcomes: premature mortality from cancers, premature mortality from cardiovascular disease, and teenage conceptions. The project was carried out by a Durham University team comprising Professor Tim Blackman, Professor Dave Byrne and Dr Jonathan Wistow, with assistance from Katie Dunstan (appendix 7 gives details of the role and contribution of team members). The report is an account of how the study was conducted, presents the findings and considers their implications.

The study is based on a method that is novel in public health research, Qualitative Comparative Analysis (QCA). QCA is a methodological response to how the societies in which we live are increasingly complex. Social science theory has sought to take account of this increased complexity, with policy-oriented work particularly concerned with how interventions work across heterogeneous contexts (Byrne, 1998; Pawson and Tilley, 1997; Cilliers, 1998; Wright, 2001). Policy makers have similarly struggled to find solutions to complex problems such as health inequalities that will work predictably in different settings (Griffin, 2006; Kamarck, 2007; Seddon, 2008). However, many of the methods used in social science are not well-suited to analysing the complex causal patterns that characterise highly differentiated contexts (e.g. Abbott, 2001; Lieberman, 1985; Meehl, 1970; Turner, 1948).

Conventionally, quantitative approaches to causality in social science have in common a focus on the relation between supposedly independent (predictive and/or causal) variables and a dependent outcome variable. Attempts are made to locate the independent average net effect of one variable on another, while controlling for the effects of other independent variables. Causal homogeneity – the idea that causes act in the same way across all cases – is often assumed, and it is usually only in particular specialist fields that the possibility of causal heterogeneity is addressed (e.g. Goldstein, 2010; Clark et al. 2006; Morgan and Winship, 2007). Crucially, however, the central idea is still one of isolating the independent effect of one variable on an outcome while controlling for others.

Our research is based on a very different premise: that causes act in combination. We use QCA to capture this causal complexity, described in

detail in later sections (for a glossary of terms see Appendix 10). QCA is an innovative approach in public health research but is more established in other fields, including organisational research (Cooper, 2005; Fiss, 2009; Glaesser et al., 2009a, 2009b; Grofman and Schneider, 2009; Longest and Vaisey, 2008; Olsen and Nomura, 2009; Ragin, 1987, 2000, 2006a, 2006b, 2008; Rihoux and Ragin, 2008). It uses an approach to elucidating causality that investigates an outcome as the product of how conditions combine together rather than have independent effects. While variable-based methods such as regression techniques seek to estimate the average effect of particular independent variables, which may not be reflected in any individual case, QCA seeks to explain why specific cases have particular outcomes.

QCA is fundamentally a qualitative method. Ragin (1987, 2000, 2008) has built the method on insights from the qualitative case study, especially how conditions depend on the state of other conditions characterising the case. However it has a mathematical foundation, using Boolean algebra to make what are known as set-theoretic logical arguments. QCA allocates cases to sets, which are shared configurations of conditions. By including causal conditions with an outcome condition, possible causal pathways can be identified. The method does not involve specifying a single causal model that best fits the data, but instead involves determining the number and character of the different causal models that exist among the cases (Berg-Schlosser et al., 2009; Byrne, 2009). To quote Ragin (2008, p. 23):

‘An especially useful feature of QCA is its capacity for analyzing complex causation, defined as a situation in which an outcome may follow from several different combinations of causal conditions, that is, from different causal “recipes” ... By examining the fate of cases with different configurations of causally relevant conditions, it is possible, using QCA, to identify the decisive recipes and thereby unravel causal complexity.’

QCA enables causal arguments to be made by creating a very close correspondence between theory and data analysis, analysing evidence in ways that directly address theoretical arguments about what matters to achieve some outcome: how it happens. This makes QCA especially appropriate for policy research; the process of defining conditions is then also a process of identifying either manipulable or contextual conditions necessary for producing a policy outcome.

In 2001, the UK Government adopted targets for narrowing health inequalities in England (Department of Health, 2001). For life expectancy, the target was that over the period 1996 to 2010 the gap in male and female life expectancy between the England average and 70 ‘Spearhead’ areas should reduce by 10%. Supporting targets were introduced for premature mortality from circulatory diseases and cancers. Spearhead areas were fixed as those local authorities in the bottom fifth nationally in 1995-97 for three or more of the following five factors: male life expectancy at birth; female life expectancy at birth; the cancer mortality rate in under 75s; the cardiovascular disease mortality rate in under 75s; and the Index

of Multiple Deprivation (IMD) average score (Department of Health, 2004a). The areas accounted for 28% of the population in England.

Spearhead areas can be regarded as local systems. They are networks of agents that come together and are interconnected to fulfil the shared purpose of making interventions in the local system to achieve outcomes (Plsek, 2001). At this level, there are three main players involved in each Spearhead area: the NHS Primary Care Trust (PCT), which at the time of the research were the local bodies responsible for planning and commissioning services for the NHS locally; one or more local councils; and one or more multi-agency local strategic partnerships (LSPs).

These local systems were tasked with meeting the life expectancy targets and, as discussed in the next section, were also often faced with challenging targets for reducing teenage conceptions. These targets are unlikely to be met in all but a minority of areas, although it will be 2012 before data will be available to assess this in detail (DCSF/DH, 2010; National Audit Office, 2010). There is, however, substantial variation across Spearhead areas in the extent to which they have been closing these gaps, and it is this variation in outcomes which is the issue for our study and one from which we seek to learn about what are the most effective pathways to narrowing the gaps.

1.1 Background, aims and objectives

The Spearhead areas map onto 62 PCTs, which had prime responsibility for the life expectancy targets but were expected to work with local authorities and LSPs to deliver them. The extent to which the targets are met will not be known for sure until 2012, given that the data are based on three year rolling averages for 1995-97 and 2009-11. However, according to 2006-08 data, only 12 of the 70 Spearhead areas were on track to meet both the male and female life expectancy targets (Department of Health, 2010). The number of Spearhead areas that were off track for both male and female life expectancy increased from 25 in 2002-2004 to 30 in 2003-05 and 41 in 2004-06, but fell to 37 in 2005-07 where it remained in 2006-08.

The Department of Health's 2007 status report argued that the 2010 target would be achievable if local action was focused and evidence based, with effective accountability and performance management (Department of Health, 2007a). However, a great deal of local variation in progress within, and between, Spearheads was identified. The Department's 2007 *Commissioning framework for health and well-being* emphasised tackling circulatory diseases and cancers as the two biggest contributors to the gap in life expectancy faced by the Spearhead areas (Department of Health, 2007b). Guidance emphasised adopting 'high impact' interventions, especially increasing smoking cessation services and proactive case-finding and treatment of high blood pressure and cholesterol among at-risk groups. Partnership working was also strongly advocated. All the Spearheads were issued with the trajectories for all-age all-cause mortality necessary for them to achieve the 2010 life expectancy target, with the expectation that they plan their interventions to meet these trajectories. In 2006, the

Department of Health established a National Support Team for health inequalities to assist the Spearhead areas with adopting the 'right' interventions to meet the target.

In addition, tackling teenage conceptions was central to the Government's policies for action on health inequalities, child poverty and social exclusion (Department for Education and Skills, 2007). The national target, adopted in 2004, was to reduce the under-18 pregnancy rate by 50% by 2010 compared with 1998, with 'faster progress' in the most deprived wards (Neighbourhood Renewal Unit, 2005). The teenage conceptions target will be substantially under-achieved but there is also considerable variation across local authority areas. A National Support Team was established in 2007 to help areas with the highest rates or facing increasing rates, based on using 'good practice', 'expert advice' on policy implementation, and promoting support and engagement from a wide range of partners.

Studies by Tunstall *et al.* (2007) and Walsh *et al.* (2007) have identified variations in progress with narrowing health inequalities among areas with similar economic deprivation. Tunstall *et al.* (2007, p. 342) argue that, 'if some areas can resist the translation of economic adversity into higher mortality, other areas can learn from their policies and approaches.' The main objective of the study reported here is to identify how such learning can occur on the basis of understanding the features of local areas associated with health inequality gaps that have been narrowing.

There is currently little evidence about what might be behind the differential performance of local areas because no systematic comparison has been undertaken that compares each area as a 'case'. It is not clear, for example, whether Spearheads missing their targets have been slow to build capacity in smoking cessation clinics, whether their primary care organisations have been reactive rather than proactive with secondary prevention, or whether others factors to do with ways of working, leadership or local context are behind the differences. We address the issue of systematic comparison by using the technique of QCA described in the next section.

In summary, the aim of the study was to establish what conditions in Spearhead areas are associated singly or in combination with better or worse outcomes regarding progress with narrowing health inequalities. There were originally seven objectives:

1. To establish the recent trend in the relative gap between each Spearhead area and the national trends for premature mortality from circulatory diseases and cancers and for teenage conceptions;
2. To derive a theoretically, empirically and practically informed list of conditions and descriptors regarded as likely to be associated with these outcomes;
3. To survey every Spearhead PCT to gather data on these conditions;
4. To analyse these data using QCA to identify patterns of association between conditions and outcomes;

5. To undertake a longitudinal analysis using existing QCA data for North West England to explore causal attribution in more depth;
6. To explore causation further by engaging practitioners in workshops to discuss results from the analysis.
7. To enable PCTs and their partners to use the results to identify how they might improve and from which PCTs they might learn in order to make more progress with tackling health inequalities.

Objective 5, the longitudinal analysis, sought to capitalise on an earlier, smaller-scale piece of work undertaken by Blackman in his capacity as a Neighbourhood Renewal Advisor with the Department for Communities and Local Government. This was a commission by Government Office North West (GONW) with the aim of identifying reasons for differential progress with reducing health inequalities across local authority areas in North West England. Our use of QCA to analyse data from Spearhead areas nationally builds on this earlier project, which is reported in Blackman and Dunstan (2010). It suggested that QCA could be used to discern associations between distinct configurations of local conditions and outcomes as measured by changes in gaps in premature mortality.

The GONW project was carried out in 2006 using local condition data for 2003. The project involved the development of questionnaires to gather data on local ways of working and types of interventions in the participating areas. In addition, secondary data was collected for six contextual conditions: Index of Multiple Deprivation (IMD) score for 2004; a liveability index (Collinge, Duffy and Page, 2005); 16-19 year olds as a proportion of the total local population (2001 census); 65 plus year-olds as a proportion of the total local population (2001 census); proportion of the local population in black and ethnic minority groups (2001 census); and persons who moved address in the previous year (2001 census).

However, this was a small consultancy project based on one region of England and with very limited time to develop the main primary data collection instrument - self-assessment questionnaires - or draw together the extensive secondary data available for Spearhead areas. In the present study, significant time was devoted to these tasks, resulting in substantially developed questionnaires and a much larger body of secondary data (as required for objective 2 above). So while the original intention was to update the GONW questionnaires, our further analysis of the literature, feedback from informed stakeholders about recent developments in policy and practice such as the World Class Commissioning initiative, and advice from the Health Inequalities Support Team about matters such as relative levels of performance used for the questionnaire scales that was based on their experience of visiting many Spearhead areas, meant that the questionnaires evolved significantly. The drawback was that objective 5 (the regional longitudinal analysis using the GONW data) became compromised because like-with-like matching of many variables over time was not possible, although some comparisons can be made and are discussed later in the report. We could, of course, have retained the original questions but the revisions reflected new evidence and developments in policy and

practice that could not be ignored. We intend in due course, subject to funding, to undertake and report on longitudinal analyses by re-running the analysis with updated outcomes data, enabling the effect of 'baseline' conditions (assessed in this study for both 2005 and 2008) on outcomes at different time points to be explored. The data we have collected is therefore an important resource for future analyses.

As described further in the next section, the extent to which the questionnaires were developed with the additional time and resources of this study is regarded as an important supplementary outcome of the research, since we believe that these are now useful free-standing self-assessment tools in themselves (and have made them publicly available through the internet at <http://www.dur.ac.uk/spearheads.health/questionnaires.htm>).

Finally, objectives 6 and 7 were, in practice, merged since it was more practical to discuss the results and share experiences and learning in each of the regional workshops that were held with practitioners after initial data analysis than to organise learning partnerships and a further wave of meetings.

1.2 Methodology

1.2.1 Complexity and Qualitative Comparative Analysis

Health inequalities are often considered to be 'wicked issues' (Blackman *et al.*, 2006; Petticrew *et al.*, 2009). These are issues that are complex in terms of causal pathways, difficult to define and with no immediate solution, with one wicked issue often a symptom of another. Rittel and Webber (1973) argued that there is a whole realm of social planning problems that cannot be successfully tackled with traditional linear, analytical approaches. In calling these issues 'wicked' – although we prefer the term 'complex' – they contrasted them with 'tame' problems. Tame problems are not necessarily simple since they can be very technically *complicated*, but the problem can be tightly defined and a solution fairly readily identified or worked through. This is not the case with health inequalities, which should be conceptualised as complex, both with regard to their nature and the actions needed to tackle them (Blackman, 2006). In respect of the latter, the targets relating to reducing health inequalities in England promoted cross-cutting and joined up action through collaboration between the NHS and local government, usually managed through the health partnerships of LSPs, the effectiveness of which is not a reflection of discrete practices but the quality of relationships across them (Hunter, Marks and Smith, 2007).

It is possible in this respect to consider the targets as addressed by a local system: the network of local agents who come together and are interconnected to fulfil a purpose (Plsek, 2001). Outcomes from this system are a reflection of the purposeful design of services, the nature of interactions between agents, and contextual conditions (Wrede *et al.*, 2006). For example, services may be reactive or proactive, interactions

between agents may be more or less aligned to common goals, and contextual conditions such as organisational leadership, aspirations and demographic, ethnic and socioeconomic factors may have a wide range of states. The need to take a whole system perspective follows.

In March 2009 the House of Commons Health Select Committee reported on its inquiry into health inequalities, arguing that 'one of the major difficulties which has beset this inquiry, and indeed is holding back all those involved in trying to tackle health inequalities, is that it is nearly impossible to know what to do given the scarcity of good evidence and good evaluation of current policy' (House of Commons Health Committee, 2009, p. 5).

However, the Health Committee's specification of what should constitute the evidence-base for health inequalities reflected a particular view of what comprises good evidence, and specifically was based on the application of experimental methods to complex social settings. As such, it reflects an evidence hierarchy that has been historically accepted in the NHS, although increasingly challenged in recent years, with Randomized Controlled Trials (RCTs) at the top. This has influenced how evidence is filtered by literature reviews, with Dixon-Woods et al. (2006, p. 29) commenting that the:

'Cochrane movement has promoted a hugely influential methodology that might be termed the "rationalist" model of systematic review. This focuses exclusively on questions concerned with effectiveness, and almost exclusively on RCTs as means of answering the question of whether something "works".'

They write that the advantage of systematic reviews is seen to lie in their rigour and transparency of process, but that they have been increasingly criticised for excluding non-experimental forms of evidence. Petticrew and Roberts (2003, p. 528) similarly argue against the use of a hierarchy of evidence in systematic reviews because this disregards the issue of methodological aptness: different types of research question are best answered by different types of study. Petticrew et al. (2009) add that the ability of systematic reviews to inform broader policy and planning needs has not yet been fully realised, in part because it may be difficult to apply their findings given missing contextual information (a major problem with many RCTs). They argue for an approach based on logic models of causal pathways between intervention and outcome, seeking to understand the process and context of interventions. Above all, this is an argument for explanations that do not focus on simple causation alone (Byrne et al., 2009).

The challenge for understanding the performance of local systems is to avoid reductionism to single causes while recognising that local decision-makers need to know about specific 'best practices'. We apply Ragin's (2000) method of QCA to resolve this by viewing cases (in this instance Spearhead areas) as patterns of association between local attributes or conditions and outcomes. QCA does not attempt to compare single variables but configurations of case attributes. To quote Bujis et al. (2009, p. 45):

‘... this allows for the specification of complex and contingent causes (because it does not centre on isolating variables), which are however not unique, but may in fact be shared across a number of cases. This allows the researcher to develop knowledge beyond the detailed ideographic description of unique instances.’

Case studies can provide inferential leverage on complex causation by utilising within-case analysis or cross-case comparison (Bennett and Elman, 2006). Fiss (2009) argues that case study approaches benefit from employing set-theoretic methods such as QCA that fit with the assumptions of complex causal interdependencies. Outcomes can be treated as the consequences of interactions between multiple conditions and there is recognition that the same outcome may be generated by different configurations of conditions. Adopting a holistic perspective, each individual case is considered as a combination of properties, a specific ‘whole’ that should not be lost or obscured in the analysis (Berg-Schlosser, *et al* 2009). Consequently, complex cases – such as Spearhead areas - can be compared systematically by transforming the cases into configurations of conditions and analysing how these combine with a given outcome of interest (Rihoux and Ragin, 2009). Software such as fsQCA and Tosmana is available to analyse data constructed as a series of conditions and their states for each case, together with a value for an outcome for each case.

QCA has been developed with policy applications in mind, based on the systematic comparison of cases (Berg-Schlosser *et al.*, 2009). In Ragin’s (2000, p. 120) words, QCA provides ‘analytic tools for comparing cases as configurations of set memberships and for elucidating their patterned similarities and differences.’ It enables necessary conditions to be identified from logical statements describing the different combinations of conditions that are sufficient for a given outcome.

1.2.2 Selecting attributes and data gathering

The selection of case conditions for a QCA study must be guided by theoretical and empirical knowledge about the topic. For example, in tackling health inequalities locally, services may be reactive or proactive, interactions between agents may be more or less aligned to common goals, and contextual conditions such as organisational leadership, aspirations and demographic, ethnic and socioeconomic factors may have a wide range of states that have effects on outcomes. The initial selection of conditions was necessarily broad to account for the characteristics of the local systems we were exploring.

The principal method for collecting primary data about conditions was the completion of questionnaires by local practitioners in each Spearhead area. Initially based on the questionnaires that had been designed for the earlier GONW exercise, they were revised and significantly developed by consulting a range of literature on tackling health inequalities (Asthana and Halliday, 2006; Blackman, 2006; Department of Health 2000a, 2004a, 2005a, 2006a, 2006b, 2007a, 2007b, 2007c, 2008a; Gattrell, 2005; Graham, 2004; Hunter and Killoran, 2004; Hunter *et al.*, 2007; Fotaki, 2007; Jeffries *et al.*,

2004; Marmot, 2004; NICE, 2006, 2007, 2008; Sassi, 2005). A mini-Delphi process was then used with three groups of expert stakeholders: the Department of Health's National Support Team (NSTs) for Health Inequalities and Teenage Pregnancies and three regional workshops with local practitioners from Spearhead areas, representing a variety of role types. With the NSTs this took the form of taking the questionnaires through a series of drafting iterations with the teams, sharing the reasoning for each set of changes until final drafts were agreed. With the workshops that followed, it took the form of a structured discussion about content, design and phrasing, with these finalised by consolidating agreement around preferred options.

The research involved innovation both in data construction and in data analysis. These were not entirely separate processes in that we constructed our data and undertook the analyses in dialogue with informed stakeholders (both in the workshops and through dedicated meetings). Effective policy – its design, implementation and evaluation – depends on several evidentiary bases. These are all involved directly or indirectly in the development and assessment of 'good programmes' and help us to understand 'effectiveness' in a more practical and contextual way. Our approach was to see what different data sources might tell us (Tukey, 1977). We did this through the three lenses described by Head (2008): scientific research based knowledge, which derives from systematic analysis of conditions, trends and inter-relationships; practical implementation knowledge, which is a combination of the day to day experiential knowledge of practitioners and the management or organisational knowledge of those involved in policy and programme implementation; and political knowledge, which is the sum of the knowledge held in all its forms by political actors. We did not access political knowledge for the data gathering phase of the study since our focus was on local strategic and management actors, but we consider its influence in interpreting some of our findings. For example, the results on bureaucratic practices reported later are considered through the political lens and the influence of 'audit culture' on local practice. The emphasis at the time of our research on measures that could have a short term effect on health inequalities reflected the political imperative behind meeting 2010 targets (Blackman et al., 2009).

The questionnaires were divided into two sections. The first focused on approaches to policy and practice. These were included in the questionnaires as statements with accompanying detailed descriptions of levels of achievement provided on a six point scale between 'less than basic' and 'exemplary'. Participants were asked to assess their areas against these descriptions and to provide examples to evidence how they were meeting the level of achievement they regarded as applying to their area. The questions covered the following topics:

1. Identifying, understanding and targeting the inequalities gap in the Spearhead area (all questionnaires). The Department of Health (2007b) and Hunter and Killoran (2004) highlight the significance of developing an effective process for identifying, understanding and targeting the health inequalities gap as a first step for reducing health inequalities.

Consequently, a question was designed with descriptions of basic to exemplary practice and considered in the first round of mini-Delphi consultations. It was agreed that the question should be included in the questionnaire, subject to revision. Taking the example of the cancers questionnaire, the following phrasing was suggested initially for the descriptor of 'basic' practice and was unamended:

Recent and trend data on cancer incidence, the pattern of cancers, mortality and survival rates are readily available and used to identify priorities and plan interventions aimed at narrowing the area's cancer gap.

The following was suggested initially as the descriptor of 'good' practice:

All of 'basic' plus data about premature mortality are complemented by local data on disease prevalence, risk factors, lifestyles and accessibility of services from QOF, surveys or other local studies. Data are as up-to-date as possible and trends are analysed. National targets are translated into local targets with planned trajectories for meeting them. Data is monitored to track progress over time towards meeting targets to 2010 and beyond. This monitoring is used to plan and review services, with resulting changes to policies and service specifications where more impact is needed to meet targets. Efforts are made to collect data by social class and ethnic group.

Following the mini-Delphi process, the descriptor was amended mainly to place more emphasis on 'joined up' practice, and became:

All of 'basic' plus cancer data are analysed and compared at district and small area/practice levels. Recent and trend data are available on risk factors associated with the cancers contributing most to the cancers gap (from surveys and/or QOF). Efforts are made to collect and analyse data by social class, ethnic group, gender and other indicators of inequality and diversity. There is a clear relationship between data analysis and types and scales of intervention, including how cancer contributes to the Spearhead area's life expectancy gap. There are reporting mechanisms that identify progress against milestones to meet targets. Reporting mechanisms of different systems/ partners are compatible.

The following suggestion was made initially for the 'exemplary' descriptor:

All of 'good' plus this is leading to demonstrable changes in the way services are delivered, with evidence from evaluations that this is driving progress against health inequality targets. Data are available for small neighbourhoods and target groups. Service providers are trained and skilled in understanding how what they do can widen or narrow health inequalities and are using this knowledge to change the way they deliver services.

This was revised to place more emphasis on some specifics of evidence-based practice and targeting, and became:

All of 'good' plus the cancers gap, its causes and its contribution to the life expectancy gap are sufficiently understood to know what interventions are needed, where and on what scale. These interventions are implemented, monitored and reviewed, considering where more impact is needed to narrow the gap. Problems of late presentation and low screening uptake are investigated and initiatives targeted on hard to reach groups. Service providers are trained and skilled in understanding how and what they do can either widen or narrow inequalities, and are using this knowledge to change the way they deliver services. Data analysis leads to demonstrable changes in service delivery.

2. The role of commissioning (all questionnaires). A question about commissioning was not included in the initial questionnaire drafts and was added and developed during the process. It took into account the evolution of policy to promote commissioning and especially the introduction of the World Class Commissioning (WCC) initiative (DH, 2007d). WCC and its associated assurance process reflected attempts to clarify and strengthen the role of commissioners in the NHS and separate commissioning from provider functions (DH, 2008b, 2009). Ovretveit (1995, p. 15) defines the purpose of commissioning as, 'to maximise the health of the population and minimize illness, by purchasing health services and influencing other organizations to create conditions which enhance people's health.' Similarly, Baggott (2004, p. 245) writes that, 'primary care organisations and professionals have a crucial gate-keeper function, regulating access to other services. They play an important role in assessing the health needs of patients and populations, and ensuring that services are available to meet these, either through direct provision or by commissioning from other parts of the health care system.' The introduction of WCC by the Department of Health was intended to raise ambitions for a new form of commissioning through the development of specific competencies. The DH emphasised that WCC is not an end in itself and that, 'commissioners will need to demonstrate better outcomes (in terms of) adding life to years and years to life ... PCTs should state what their vision for world class commissioning is locally, and what they will achieve through continually commissioning better services and delivering better outcomes based on local priorities' (2007d, p. 4). Taking the CVD questionnaire as our example, the initial phrasing of the 'basic' practice descriptor was amended during the process to include: *Services accommodate national referral-to-treatment targets and the impact of new targets on capacity is accommodated in developmental plans.* The following addition was made to the 'exemplary' descriptor: *There are joint plans, planning processes, contracts, management and information systems across all relevant stakeholders. Service standards are explicitly detailed in SLAs.* Some changes to phrasing were also made to remove ambiguity and align better with practice vocabularies.

3. Partnership working across sectors at a strategic level in the Spearhead area (all questionnaires). The significance of strategic partnership working in reducing health inequalities is identified by the DH (2007b), Exworthy and Powell (2004), and Hunter et al. (2007), amongst

others. A question was designed with descriptions of basic to exemplary practice and taken through the mini-Delphi process. Taking the example of the teenage conceptions questionnaire, the initial 'basic' descriptor was amended to include: *Progress reports are received from a Teenage Pregnancy Partnership Board/equivalent body with senior PCT, Children's Services, Integrated Youth Services/Connexions and third sector representation.* The 'good' descriptor was amended to include: *A coordinator ensures actions are carried out. There is a coordinated approach to identifying those at risk.* The 'exemplary' descriptor was amended to include: *Trusting relationships between the key agencies lead to shared resources and joint planning/contracting across health services, children's services and worklessness.* Phrasing was also improved in places.

4. Local services working together on the ground in the Spearhead area (all questionnaires).

Partnership working 'on the ground' (or between frontline services) is identified as being important for reducing health inequalities by Brigden (2006), Hunter et al. (2007) and Sassi (2005). Using the example of the cancers questionnaire, the first draft 'basic' practice descriptor was amended to include: *Frontline relationships work well between primary and secondary care and local authority staff, with established cross-referral practices and a common agenda prioritising greatest needs.* The following addition was made to the 'exemplary' descriptor: *Residents and users are often involved with frontline staff in decision-making, with special measures to reach and raise aspirations for better services among the most disadvantaged.*

5. Community engagement in the Spearhead area (cancer and CVD questionnaires).

A question about community engagement was included to explore the impact that this might be having on health outcomes and to respond to the growing significance of community engagement in both the academic and policy literature. For example, the Department of Health (2007b, p. 17) identified empowering disadvantaged communities to aspire to good health as a high impact change for both the NHS and local government to narrow health inequalities. Brigden (2005), Cropper (2002), and Hunter and Killoran (2004) suggest that community engagement can play an important role in narrowing health inequality gaps. Consequently, a question was designed with descriptions of basic to exemplary practice. Taking the example of the CVD questionnaire, the 'basic' practice descriptor was amended to include: *One-off consultation (such as a workshop) is more common than longer-term community engagement.* The 'exemplary' descriptor was amended to include: *There are demonstrable impacts on health-seeking behaviours likely to narrow the CVD gap. Mechanisms are in place to evaluate and learn from community engagement.* Other minor drafting changes were also made.

6. The public health workforce in this Spearhead area (children and young people's workforce for the teenage conceptions questionnaire).

This question was not included in the first draft. Following a suggestion during the mini-Delphi process it was included, supported by the literature where the development of public health workforce planning and capacity have been identified by Berridge (2007), Fotaki, (2007),

Department of Health (2007b) and Hunter et al. (2007) as potentially an important factor in narrowing health inequality gaps. In particular, it is argued that requisite skills are needed both to implement change and to deliver the core public health functions. Fotaki writes that adequate skills and capacity are a prerequisite for bringing about changes that will enable PCTs to focus proactively (rather than reactively) on reducing inequalities. A question was designed with descriptions of basic to exemplary practice. Using the example of the cancers questionnaire, the 'good' practice descriptor was amended during the mini-Delphi process to include *There is clear leadership of public health workforce planning* and the 'exemplary' descriptor was amended to include *There are long term plans to develop the right skills mix and capacity for prevention and engagement*.

7. Contraception and sexual health services in the local authority area (teenage conceptions questionnaire). The importance of contraception and sexual health services in reducing teenage conception rates are highlighted in many policy and practice documents, such as Department of Health (2007b), Department for Communities and Local Government (2007) and Department for Education and Skills (2006a and 2006b). A question was designed with descriptions of basic to exemplary practice and taken through the mini-Delphi process. The descriptor of 'good' practice was amended to include: *Access is convenient and prompt in a range of settings, including multi-agency drop in services, consistent quality and choice, out of hours and young people friendly*. The 'exemplary' descriptor was amended to include *Contraceptive and sexual health services are highly visible and meet 'You're Welcome' criteria*.

8. Smoking cessation services in the Spearhead area (cancer questionnaire but also used in the CVD analysis). The Department of Health (2007b) and NICE (2008) both highlight the importance of smoking cessation for narrowing health inequality gaps. A question was designed with descriptions of basic to exemplary practice. The following amendment to the phrasing of the 'good' descriptor was made: *Smoking cessation support is available in a range of community, primary and secondary care settings for everyone who smokes*. The 'exemplary' descriptor was amended to include: *Monitoring systems ensure health professionals have access to information on the smoking status of their patients, advice offered and the response to that advice*.

Part 2 of the questionnaires contained questions focusing on ways of working, types of intervention and the local context. The questions in this section were also informed by academic and policy literature as well as practitioner and NST feedback. They included:

- *Approaches to tackling the cancers/CVD gap or reducing teenage conception rates:* a few major programmes, many smaller projects, or an integrated systematic approach (Asthana and Halliday, 2006; DH 2007b);

- The frequency of progress reviews by the appropriate partnership board: monthly, quarterly, six monthly, annually or not yet done (Smith 2005);
- *Nature of the area's working culture*: initiatives rely on individual commitment and champions; on a widely shared 'team player' spirit; or on good plans and systems largely independently of who is involved (Blackman and Dunstan, 2010);
- *Approach to prioritising health inequality interventions*: the question focused on whether closing the gap between the locality and the national average or reducing inequalities within the locality is the main priority, or whether they are equal priorities (DH, 2005a; Graham, 2004; Walsh *et al.*, 2007);
- *Prioritisation of the cancers/CVD gap or of reducing teenage conceptions*: whether the outcome is the top priority; one of a small number of top priorities; one of a larger number of priorities; or not a priority (DH, 2005a, 2007b);
- *Nature of joint meetings*: whether about funding for projects; working with shared goals and budgets; finding 'win wins'; clarity about what needs to be done and who will do it; and whether questions are asked about those not meeting targets (DH, 2005a, 2007b; Exworthy and Powell, 2004);
- *Use of available evidence*: the balance between use of national evidence and guidance, and the use of local research (Graham 2004);
- Relative priority between primary care and reaching individuals who need early treatment on the one hand and environmental and community-wide measures on the other (cancers and CVD). Relative priority between contraceptive and sexual health services reaching individuals at risk on the one hand and intervening in the wider determinants at a community level on the other (teenage conceptions) (DH, 2000a, 2007b; DCLG 2007; DfES, 2006a, 2006b);
- *Balance between intervening in community or workplace settings* (cancers and CVD), and balance between intervening in community or school and college settings (teenage conceptions) (DH, 2007b; DCLG, 2007; DfES, 2006a, 2006b);
- *Leadership in the Spearhead area*: excellent, good, fair, poor, or a mixed picture (DH, 2005a; Hunter *et al.*, 2007);

- *Organisational culture*: very aspirational, quite aspirational, comfortable with the current situation, or complacent and inward-looking (Berridge, 2007; Fotaki 2007; Hunter and Killoran, 2004; Hunter *et al.*, 2007);
- *The Local Strategic Partnership or Health Partnership* sets clear direction, is a useful forum but not especially directive, is largely passive, or presents a mixed picture (DH, 2005a; Hunter *et al.*, 2007).

Examples of how the questions were developed through the mini-Delphi process are as follows:

Question 1: Which of the following statements best characterises the approach in this Spearhead area to tackling the cancers gap? Asthana and Halliday (2006) and the Department of Health (2007b) argue that the scale and extent of approaches are important to reducing health inequalities. A question was designed and taken through the process to capture this aspect. This was initially phrased as 'A few major interventions and projects' and 'Many smaller initiatives', and became amended to 'A few major programmes' and 'Many smaller projects'. In addition, a third category of 'An integrated systematic approach' was added.

Question 8: Which of the following best describes the relative priority in this Spearhead area between: (a) a focus on tackling the cancers gap using primary care and reaching individuals who need early treatment, and (b) environmental and community-wide measures such as tobacco control, improving access to healthy foods and better housing and neighbourhoods?

The importance of both primary care and community measures in tackling health inequalities is identified by the Department of Health (2000a, 2007b). Separate questions were initially developed to include in section 2 of the questionnaire but the mini-Delphi process resulted in agreement on a single question to ask about the relative balance between two approaches in the Spearhead area.

In addition to the three questionnaires for each outcome, a fourth short questionnaire focusing on contextual information 'About your PCT' was also designed. This questionnaire was introduced following discussions with practitioners at the regional workshops and was subsequently developed in collaboration with the National Support Team for Health Inequalities. The following questions were included:

- Date the PCT came into existence;
- Date the current Chief Executive came into post;
- Whether the PCT had been through a major reorganisation within the last three years;

- Whether the PCT had been in major financial deficit or 'turnaround' within the last three years;
- Whether there is a jointly appointed Director of Public Health between the PCT and the local authority;
- Whether adult health and social care services in the Spearhead area are integrated in a single trust;
- The average turnover on GP practice lists;
- The accuracy of GP practice lists.

All Spearhead PCTs in England and their partner organisations represented on local health partnerships were invited to participate in the study. Meetings were held with regional Directors of Public Health in Strategic Health Authorities/Government Offices to brief them on the project and engage them in helping to encourage local participation. Each PCT area was approached to provide a designated person leading on tackling circulatory diseases, cancers and teenage conceptions respectively, and these key contacts were our starting points with recruiting participants. Participants' main roles were to complete the questionnaires and to attend workshops held before and after primary data collection. Questionnaires were required to be completed as collaborative assessments in teams of at least three people. For cancers and CVD, it was requested that these should consist of a public health professional, a person with a clinical responsibility for the outcome area and a local authority officer who could provide a wider determinants perspective. For the teenage conceptions questionnaire it was requested that the team comprised the teenage pregnancy coordinator, a public health professional or local authority officer with responsibility in this area, and a sexual health lead. Anonymised details of who completed the questionnaires can be found in appendix 6.

Participants were asked to provide responses for the current situation (2008) as well as for three years ago (2005). To take account of health trend data being published with a delay of a year or so and the time it can take for interventions to have an impact on these trends, the assessments for three years ago are used for the analysis reported here. In completing the questionnaires, teams were asked to adopt a whole systems view across preventative and treatment services and NHS, local authority and voluntary services in the Spearhead area, and to justify their answers with examples and supporting documentation.

Out of a total of 70 Spearhead areas, 34 completed at least one of the questionnaires. For cancers, 29 areas returned the questionnaire with complete returns for 27 areas; for CVD, 33 areas returned the questionnaire with complete returns from 27 areas; and for teenage conceptions, 31 areas returned the questionnaires with complete returns from 27 areas. A Mann-Whitney statistical test was conducted to establish whether there was any difference between the areas participating in the study and the non-responding Spearhead areas. The five factors used for determining Spearhead status (as outlined above) were employed for this test. For four

of these (male life expectancy at birth; cancer mortality rate in under 75s; cardiovascular disease mortality rate in under 75s; and average score for the Index of Multiple Deprivation 2004) no significant difference was found between the participating group and the other Spearhead areas. For female life expectancy a marginally significant difference between participating and non-participating areas was found. Appendix 5 describes the recruitment process and issues encountered, and presents the results of the Mann-Whitney test.

A wide variety of secondary data was considered alongside the questionnaire responses. This included:

- *Performance assessment ratings:* PCT rating and local authority CPA star rating and direction of travel;
- *Local area information:* IMD 2007 score, concentration and extent; overall crime rate; liveability score calculated by MORI for every local authority area in England and based on a combination of resident survey responses about the visual quality of their neighbourhood and the proportion of housing stock that is terraced or high rise (Collinge, Duffy and Page, 2005); local authority migration estimates for inflow and outflow; and percentage of the working age population without a level 2 qualification. Most of these indicators relate to 2005 and were sourced from the Department for Communities and Local Government at <http://www.communities.gov.uk/communities/neighbourhoodrenewal/deprivation/deprivation07/>;
- *Health services information:* accident and emergency hospital admissions for 2005/06; Quality and Outcomes Framework (QOF) data on the proportion of primary care practices classified as outliers on performance measures; the proportion of single handed practices in areas; and the number of general practitioners (GPs) in areas (excluding retainers and registrars) per 100,000 population;
- *Spend:* percentage over or under PCT target budget allocation and the spend per head on cancers and CVD in 2005/06;
- *Education data* (for the teenage conceptions outcome): percentage achieving level 4+ at key stage 2 (English, Maths and Science); percentage achieving level 5+ at key stage 3 (English, Maths and Science); percentage achieving 5+ GCSEs at grades A*-C including maths and English; percentage achieving any GCSE passes; half days

missed in secondary schools (overall); and the percentage of 16-17 year olds participating in education and work based learning;

- *2001 Census demographic data:* percentage of the population that are not white; percentage of the population that are under 18; and percentage of the population over 65.

Data from the questionnaires and the secondary data sources were coded for analysis using SPSS (the Statistical Package for the Social Sciences) and fsQCA. The fsQCA package works out combinations of conditions associated with given outcomes: in this case whether or not health inequalities had been narrowing.

1.2.3 Necessary and sufficient causes in fuzzy and crisp sets

A central concern of QCA is to explore whether conditions, or combinations of conditions, are necessary or sufficient to produce an outcome. There are two principles to follow in this respect. Firstly, when a condition or particular configuration of conditions is *necessary* for an outcome, all instances of the outcome should exhibit the same condition or configuration. Secondly, when a condition or configuration is *sufficient* for an outcome, all instances of the condition or configuration should be associated with the outcome. Individual conditions are unlikely on their own to be either necessary or sufficient, and causation is likely to involve sufficient combinations of conditions.

Contrary to many conventional applications of multivariate analysis, QCA does not regard the impact of a causal condition on an outcome to be the same regardless of the state or level of other causal conditions, a simplifying assumption unlikely to reflect the realities of how outcomes from policy programmes are produced (Blackman and Dunstan, 2010). Berg-Schlosser *et al.* (2009, p. 8) emphasise that, 'by using QCA, the researcher is urged not to specify a single causal model that best fits the data, as one usually does with statistical techniques, but instead to determine the number and character of the different causal models that exist among comparable cases.' Applying this approach to the current study means that our results are presented as different configurations of conditions shared by particular cases that are associated with either 'narrowing' or 'not narrowing' health inequality measures of outcome. These configurations can be viewed as different pathways to outcomes.

The specific QCA technique employed in the study has its roots in the earliest and most widely used application of the method, developed by Ragin and now known as 'crisp set' QCA. This is based on Boolean algebra, which uses binary data based on a condition being either present or absent (variables with values of 1 or 0, such as 'yes' or 'no'). It therefore relies on the dichotomisation of variables, which is discussed further below. Thus, an area could be coded 'crisp' as having an exemplary or good understanding and targeting of health inequalities or not having this condition, despite the condition having a six-point scale in the questionnaire. A further

development of the method that we considered for the study is Ragin's 'fuzzy-set' technique, which involves coding each case (the local authority area) by the varying degree to which it belongs to sets. Potentially, the fuzzy-set method makes maximum use of the information available and we originally thought that in the process of data construction we would be able to establish attribute measurements that would enable us to assign partial set membership based either on single attributes or membership of cases in categories created by cluster analysis of attributes. However, the dataset did not yield attributes or clusters of attributes that were sufficiently focused for fuzzy membership allocation. In practical terms we had to dichotomise following the established principles for this in QCA in order to generate a manageable set of binary attributes for the construction of dichotomised data tables to which we could apply set-theoretic logic (Lam and Ostrom, 2010). We in fact found that binarisation worked well and that the results were more interpretable, especially for practitioners, whose interest was in whether or not a condition matters.

The dichotomisation of the data reflects a fundamental characteristic of QCA in its original form. It is both easier to handle dichotomous variation in processing and it is easier to see and interpret patterns in the form of multiple configurations of causes in output tables (known in QCA as 'truth tables') and truth table reductions when we are dealing with simple presence or absence rather than degree of presence. Ragin's (2000) proposal for a 'Fuzzy Set Social Science' was intended to address exactly this issue. However, our work has also been informed by a synthesis of the focus on cases and set-theoretic approaches which derive from Ragin's emphasis on comparison and casing with complexity theory's understanding of the nature of complex systems. This is discussed more fully in Byrne (2009) but in summary we are concerned primarily – regarding local practices and contexts - with differences of kind, with qualitative change: in complexity theory terminology, with phase shifts. Put bluntly, what matters in policy is that things are different in form rather than that we see incremental changes of degree which may be nothing more than noise oscillations with systems maintaining a constant state. For all the problems which we review below, the dichotomisation of data in an informed and explicit fashion is one way in which we can try to address this fundamental reality about change in real social systems.

Dichotomisation can lead to a loss of fine grained data but QCA requires a practical approach in this respect to limit the number of conditions. As discussed above, we adopted a 'whole systems' approach to defining conditions that could be considered likely to have an impact on health inequality outcomes at a local system level. This approach was deliberately broad. Nevertheless, the number of conditions selected by the mini-Delphi process (approximately 60 for each outcome area) led to a number of possible logical combinations of conditions that far exceeded the number of cases, meaning that the empirically observed cases would occupy only a tiny proportion of the potential logical space of a QCA. For example, a QCA with six conditions has 64 possible combinations, whereas one with nine conditions has 512 possible combinations. Berg-Schlosser and De Meur

(2009, p. 27) identify this as the *limited diversity* problem: 'The observed data are far less rich than the potential property space delineated by the conditions.' Therefore, it is better to select a limited number of conditions because the danger is that otherwise only a *description* will be obtained rather than establishing core elements of possible causal mechanisms leading to the outcome of interest.

We decided to account for the complexities of the local systems as fully as possible by devoting considerable resources to developing the questionnaire and collating the secondary data. However, in doing so we created a very detailed and extensive dataset that required a reduction in the number of conditions and further simplification prior to conducting the analysis. In doing this, we followed Berg-Schlusser and De Meur's (2009) good practice points for the selection of conditions in small and intermediate-N research designs, as follows:

- Conditions must vary across the cases;
- The number of conditions should be kept relatively low (approximately 6-7 for 10-40 cases) so as not to individualise cases;
- A good balance between the number of cases and conditions will most often be found through trial and error;
- Formulate a clear hypothesis for each condition regarding its connection to the outcome.

King *et al.* (1994, p. 42) argue that all research in the social sciences necessarily implies simplification in relation to the infinite complexity of the world. De Meur *et al.* (2009, p. 149) add that, 'simplification is what allows us to make progress in our understanding of complexity.' We agree, and would add that reducing the number of conditions created models that were easily engaged with by practitioners. We decided that presenting the results in terms of differences of *kind* rather than differences of *degree* would have more practical use for local decision-makers (as dichotomisation reflects the 'qualitative' in QCA; a decision is made as to whether the case has the quality or not). Operationalising this requires a decision based on theoretical considerations and familiarity with the cases in an iterative 'dialogue between ideas and evidence' (De Meur *et al.*, 2009, p. 149).

Dichotomization forces choices that are often difficult but this is as much an advantage as a limitation. It allows the researcher to move beyond a gradualist perspective, so that the importance of differences in kind are not masked by viewing them as differences in degree, and it limits the number of conditions, producing a clearer analysis. As De Meur *et al.* (2009, p. 149) explain, 'In short, dichotomisation allows us, through simplification ... to conduct a rigorous comparison of a limited number of cases that present combinations of internally complex characteristics.'

We did not (generally) collect binary data. The majority of the questions in the questionnaire used scales and the remainder had categories with some

yes/no answers. The secondary data were comprised of continuous or categorical conditions. All of the conditions were explored using cross-tabulations to establish the strength of relationship with the outcome measures and to set the thresholds for binarisation. These conditions were then narrowed down and further examined for their configurational relationships with the outcomes. We need, though, to recognise that judgement is involved in setting thresholds, informed by inspecting strengths of association and often numerous iterations around threshold setting, since some conditions displayed more than one skew or association in the cross-tabulations, and in these instances the condition was dichotomised two or three times (depending on the number of skews) and explored alongside other conditions in QCA data tables. Where relationships were evident, thresholds for dichotomisation were based on where a change in relationship occurred (for example, the 'narrowing' outcome was clustered in the lower range of IMD scores, which provided the basis for binarising the scores). Robustness checks were undertaken to determine how binarisation thresholds affected the findings, and the thresholds used were found to be robust.

Included below are three examples to show how the number of conditions was reduced. Table 1 is the SPSS output for the cross tabulation of the public health workforce condition in the cancers questionnaire. This condition is identified in section 2 as a condition that is clearly associated with gaps that were not narrowing and is one of the counter-intuitive findings of the study. The responses to this question were dichotomised into narrowing and not narrowing cases, and the distribution of the public health workforce ordinal variable was reviewed in a cross-tabulation with this binary outcome to establish whether there was a skew towards one or other outcome. For this condition, two potential thresholds were considered. There appears to be an association between less than basic practice and a narrowing gap, but there is a clearer and stronger association between good practice or better and a not narrowing gap. Both of the thresholds have the same relationship with the outcome, i.e. narrowing to less good practice and not narrowing to better practice. This is an example of a condition that was included in table A1 in appendix 1 due to the strength of association and the configurational relationships it displayed with other conditions.

Table 2 is an example of a condition that was weakly associated with a not narrowing gap for CVD. The condition was dichotomised according to whether or not the following statement applied: 'the local priority is closing the overall gap between the locality as a whole and the national average rather than inequalities within the area'. This condition was explored in raw data tables alongside the other conditions demonstrating associations with the outcome measure. However, due to the relative weakness of the association and, more importantly, the condition's relationship with the other conditions in the configurations for the CVD results, it was not included in the final results tables. There was also missing data from three cases for this question.

Table 1. Public health workforce by narrowing or not narrowing: cancers crosstabulation

		Narrowing or Not Narrowing Cancers		Total
		Narrowing	Not Narrowing	
Public health workforce 3 years ago	Less than basic	4	1	5
	Basic	3	6	9
	Basic/Good	4	2	6
	Good	1	5	6
	Good/Exemplary	0	1	1
Total		12	15	27

Table 2. Approach to prioritising health inequality interventions for CVD by narrowing or not narrowing

		Narrowing or Not Narrowing CVD		Total
		Narrowing	Not Narrowing	
Approach to prioritising health inequality interventions for CVD 3 years ago	Closing overall gap between the locality as a whole and the national average is the main priority	2	6	8
	Reducing HI within the locality is the main priority	3	2	5
	Equal priorities	5	6	11
Total		10	14	24

Table 3 is an example of a condition that had no strong association with either narrowing or not narrowing outcomes. The distribution of cases between the category descriptors is evenly spread across both outcomes. Consequently, this was not included in the configurational analysis because a criterion for inclusion was the strength of association between dichotomised conditions and the outcomes.

We found that only a relatively small number of conditions had any patterned relationships with the outcome indicators. These were imported into fsQCA to explore their effects in combination. The provisional results

from this analysis were circulated to all participating PCTs and subsequently discussed with participants at a series of workshops.

Table 3. Primary and secondary prevention of CVD by narrowing or not narrowing

		Narrowing or Not Narrowing CVD		Total
		Narrowing	Not Narrowing	
Primary and secondary prevention of CVD 3 years ago	Less than basic	5	5	10
	Basic	5	6	11
	Basic/Good	1	0	1
	Good	2	1	3
	Good/Exemplary	0	1	1
Total		13	13	26

We did not always generate truth tables but instead worked with 'dichotomised data tables'. This enabled us to deal with the reality that most of our outcomes were related to 'contradictory' configurations in truth tables (i.e. there were cases that contradicted general patterns). The exploratory use of QCA employs such contradictory configurations as a guide to further exploration of the data, and that is precisely what we did through re-visiting the dataset and our dialogues with practitioners in the workshops. We identified a number of plausible configurations of conditions across the dichotomised data tables and produced commentaries around these. Our study was partly intended to be a tool (a 'tin-opener') for practitioners to use to consider patterns in ways of working and local contextual conditions, but in our discussions we found we could go beyond this and consider accounts of causality.

This is illustrated very well in relation to the exploration of teenage conceptions. We found that, contrary to much good practice guidance, those areas where there was *not* a school based approach to interventions were doing better at reducing rates. In discussion with practitioners attending our workshops we found that areas without a school based approach did not choose this as a strategy. It happened when there was an inability to get into schools. Faced with this resistance, practitioners turned to other intervention settings in the community, such as working with youth and community groups, who were in fact often engaging hard-to-reach young people. The initially unintended consequence that interventions targeted groups where the risk of teenage conception was relatively high meant that local areas with this scenario were on the whole making better progress

with narrowing their teenage conceptions gap than areas with a school-based approach. The evidence from our QCA models acted as a key to unlocking learning from the exchange of experiences in these discussions.

1.2.4 Binarising the outcome measures

The national health inequality targets as outcome measures provide what Berg-Schlosser and De Meur (2009, p. 21) describe as a shared outcome of interest. The outcome measures we use are the local trends in premature mortality (deaths under 75 years of age) from cancers and circulatory diseases and teenage conception rates for each Spearhead area, all compared to the national trend (England average).

To explore associations between the conditions in the Spearhead areas and the trajectory of change for health inequalities in each area, the outcome trends use 2005 as their baseline and 2007 as the final data point, with the assessments of local conditions made for 2005. The outcome measures we use are the local trends in premature mortality (deaths under 75 years of age) from cancers and circulatory diseases and teenage conception rates for each Spearhead area, all compared to the national trend (England average). We are therefore looking at short trends and assuming that these will either continue into the future and/or are affected by the state of causal conditions in 2005. Conditions that have even a small effect on important risk factors such as average cholesterol levels, blood pressure and smoking may impact on mortality rates within 12-24 months, although the impact becomes more noticeable after 5-10 years (Care Quality Commission, 2009; Wilcox and de Gruchy, 2006). In this respect, we might note here that we found an effect of smoking cessation services on the CVD mortality gap but not on the cancer gap, which is what would be expected from looking at a short period of time given that quitting smoking can reduce CVD mortality relatively quickly compared to a more delayed effect on cancer mortality (Honjo et al., 2010; Parsons et al., 2010). However, the short time period is a limitation of the study because we cannot yet explore longer term effects that may reveal different patterns. It also makes sense in this situation to use as our outcome any narrowing, since dramatic improvements are very unlikely. As noted above, in future years we should be able to update our outcome indicators and re-run the analyses to explore longer term effects.

Measurements of the outcome trends for each local authority area were based on a combination of approaches to judge the trend, including visualisation of projections and a calculation of the absolute and relative differences between 2005 and 2007 (the Spearhead area compared to the England average). We used two outcome measures, narrowing or not narrowing and widening or not widening. The visualisation of the trend was the primary method used and was based on comparisons of each Spearhead area against the national trend for single year data for 2005, 2006 and 2007. Three year rolling average data was also inspected for 2003-05, 2004-06 and 2005-07. For teenage conceptions visualisation of the trend between 2004-06 and 2005-07 was used due to data for local authority districts only being available in this format.

For the purposes of this report we are focusing on the narrowing/not narrowing outcome largely because the conditions associated with a narrowing gap are likely to be of more interest to practitioners.

The outcome measures are based on data collected by the Department of Health. These are directly age-standardised rates for deaths under 75 years of age for cancer and CVD per 100,000 population, and the teenage conception rates for conceptions per 1,000 female population aged 15-17. The baseline year for the outcome measures is 2005, which corresponds to the questionnaire responses for 'three years ago' and the secondary data. Thus, 2005 was effectively the start point from which the types of intervention and ways of working entered in the questionnaires could be considered to be having an effect on the outcomes. We would like to have used an earlier baseline to take into account longer term trends in outcome measures but it was concluded that there might not be sufficient organisational knowledge in most PCTs to respond for five years ago or more. This judgement has apparently been supported by the inability of some PCTs to provide data even for 2005 because current staff members were not then in post. Consequently, it was only possible to review the trend in outcome measures over a relatively short period (2005 to 2007, the latest available data at the time of the study).

A number of approaches were considered for establishing the outcome results including viewing three-year rolling averages. The main approach settled on was using the single year trend data because we could visualise fluctuations in the trend between 2005 and 2007 and make an assessment of whether there was clear evidence of a narrowing gap with the national average. We employed inter-rater comparisons to check the consistency of the outcome measure judgements.

The graphs below are intended to illustrate both relatively straightforward decisions about whether the gap was narrowing or not in a Spearhead area and those that required more careful consideration. The approach here reflects the qualitative nature of QCA and allowed us to consider fluctuations in the trend alongside the relative difference between the 2005 baseline and 2007. The graphs include data from 2001 to 2007, but it is important to note that the judgements about the outcome measures were based on the period between 2005 and 2007. Appendix 2 provides details of the relative differences between the Spearhead areas and national averages, and these data were used to support the visualisation of the trend.

Figure 1 below shows a case where the decision was that there is a clear narrowing of the cancers gap from the 2005 baseline as measured by directly age-standardised rates between area A and the English average.

Figure 2 illustrates a more difficult decision, judged to be not narrowing. Here the single year trend points to a gap that, despite fluctuating from 2005 to 2007, has not narrowed. This is also supported by a relative difference between the rate for the area and the national average having a ratio of 1.19 in 2005 and increasing to 1.25 in 2007.

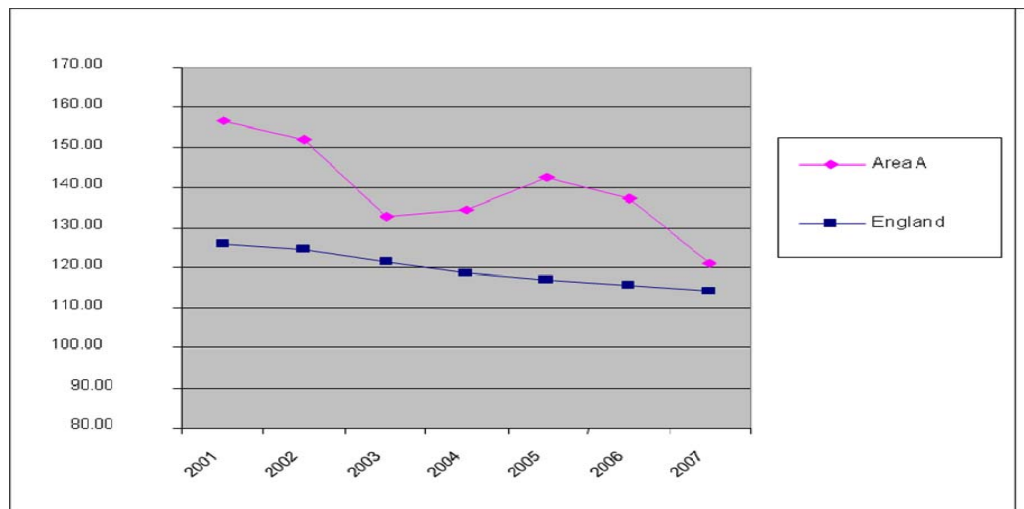
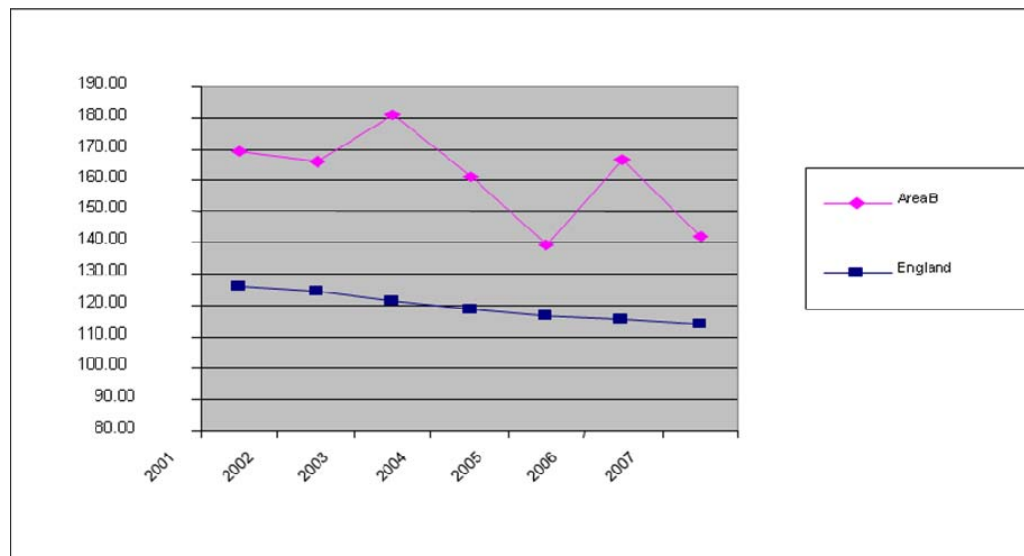
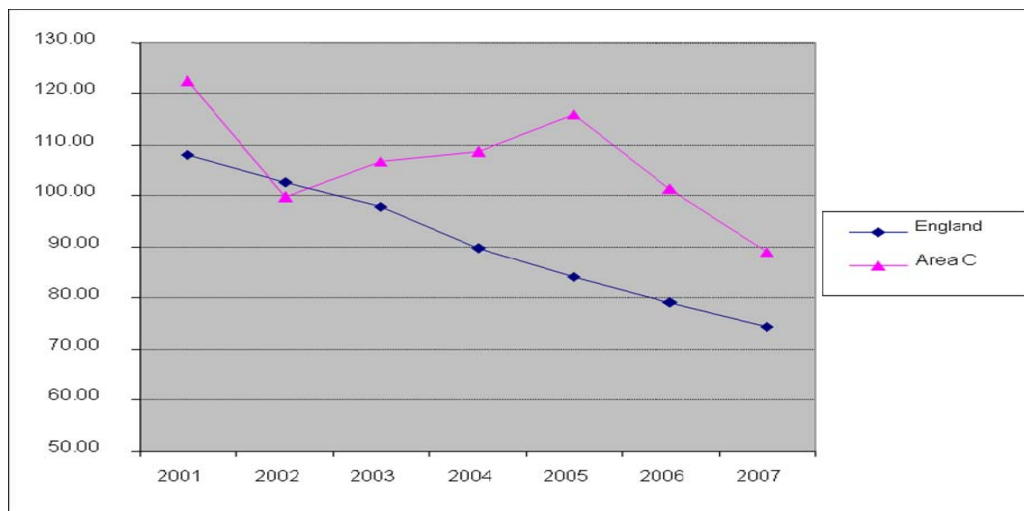
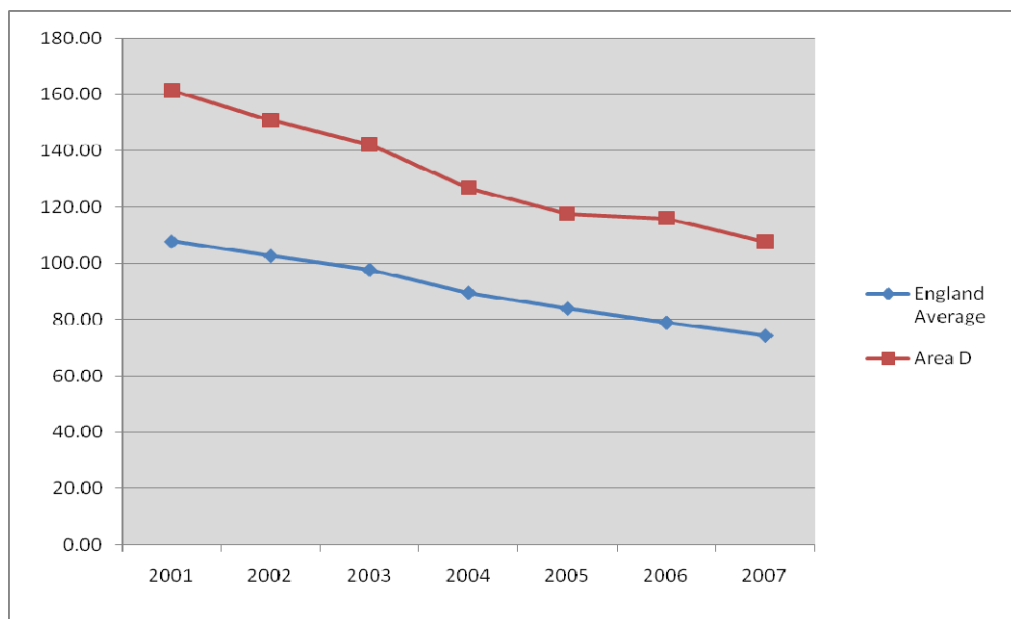
Figure 1. Cancers 'clearly narrowing'**Figure 2. Cancers 'not narrowing'**

Figure 3 provides an example of an area clearing narrowing its gap with the national average for premature mortality from CVD from the 2005 baseline.

Figure 4 shows an area that has been narrowing its gap in the premature mortality rate from CVD since 2001 but, for the period from our 2005 baseline, the gap has not narrowed.

Figure 3. CVD 'clearly narrowing'**Figure 4. CVD 'not narrowing'**

The process for producing the configurations from the questionnaire and secondary data was based on Ragin (2000) and Rihoux and Ragin (2009), as adapted by Blackman and Dunstan (2010). This comprised the following series of steps:

1. Establish which Spearhead areas were narrowing or not narrowing their health inequalities gaps with the national average for cancers, CVD and teenage conceptions.

2. Produce crosstabulations for each 'condition' against each of the three outcome measures to clarify which conditions were associated with narrowing or not narrowing gaps.
3. Categorise the conditions (through a process of dichotomisation) as present or absent in relation to each of the three outcome measures.
4. Draw up a shortlist of those conditions associated with either narrowing or not narrowing outcomes. Conditions were included on the initial shortlists according to the criteria outlined above. Those conditions with no strong association were not included in the shortlist.
5. Tabulate the shortlisted conditions associated with narrowing or not narrowing gaps for each of the Spearhead areas.
6. Explore the tabulated data for patterned similarities (within) and differences (between) the narrowing and not narrowing groups.
7. Identify configurations of conditions associated with the outcomes.
8. Remove those conditions which were not associated in combinations with the outcome measures.
9. Add and remove conditions to explore and develop the most parsimonious configurations associated with outcomes.

It is important to mention again that because there were a number of overlapping and contradictory configurations in the results it was only possible to develop dichotomised data tables and not truth tables (see Rihoux and Ragin, 2009). However, given the intrinsic complexity of our subject matter it is not surprising that we had some anomalous results. We were, however, able to use the data we collected to produce systematic comparisons of conditions with clear skews or associations with the outcome measures, using the set-theoretic and configurational approach of QCA.

The provisional results of the study were circulated to all participating PCTs and subsequently discussed with participants at a series of workshops in September and October 2009. This ensured that the results were more firmly grounded in, and coloured by, practitioners' experiences and knowledge. The additional learning and insights from the workshops have been incorporated into the commentary on the study results below. Appendix 3 presents details about the types of participant, dates and locations of these workshops.

A final report was prepared and circulated to all participating PCTs with the results and a profile of their Spearhead area/s' configuration for each outcome compared with 'narrowing' configurations, enabling those PCTs without sufficient configurations to identify missing conditions. We invited PCTs to contact us for further information or advice, and several requests for more detailed reports and meetings were and continue to be met, with the most recent being a meeting with public health practitioners from one of the northern PCTs in July 2010 and a further report for a public health

group in the midlands in August 2010. Appendix 4 describes the range of other engagement activities undertaken during the life time of the project.

The report also attracted the attention of the Audit Commission and the National Audit Office. A meeting was held with the former to discuss the results, and Professor Blackman was invited to join the NAO's Expert Panel for its investigation into tackling inequalities in life expectancy published in July 2010 (National Audit Office, 2010).

2 Cancers

Sixteen conditions had a relationship with this outcome. Some of these are counter-intuitive and are discussed further below. In the text that follows, 'associated' is used to describe a clear skew in the data towards either the narrowing or not narrowing group of cases. 'Weakly associated' is used to describe conditions that were less strongly skewed.

The following conditions were associated - as single factors - with narrowing gaps:

- A general working culture in the Spearhead area of initiatives relying on individual commitment and champions;
- A higher NHS spend per head on cancers;
- A lower crime rate;
- A three star PCT rating.

The following conditions were weakly associated with narrowing gaps:

- A very or quite aspirational organisational culture with challenging or stretching aspirations;
- Lower deprivation;
- Higher accident and emergency admissions;
- A higher PCT budget allocation (a higher budget allocation refers to those Spearhead PCTs that were either above target budget allocation as determined by the Department of Health or less than -0.82% under their target budget allocation; this was the most obvious value at which to dichotomise the variable).

The following conditions were associated with gaps that were not narrowing, and all these findings are counter-intuitive given that they are the opposite of what might be expected:

- The role of commissioning assessed as better than basic;
- Strategic partnership working assessed as good or exemplary;
- Public health workforce planning assessed highly;
- More frequent (quarterly or monthly) reviewing of progress.

In addition, the following conditions were weakly associated with gaps that were not narrowing:

- Cancers a top priority or one of a small number priorities (another counter-intuitive finding);
- Health inequalities tackled with a few major projects rather than many smaller projects or an integrated systematic approach;
- The Chief Executive left recently;
- The PCT had recently been in major deficit.

These conditions were then explored for their effects on the outcome in combination. Table 4 lists the conditions found to have strong relationships in configurations that are clearly associated with whether or not the cancers gap was narrowing. An upper case letter equates to a condition that is generally associated with narrowing being present and a lower case equates to this condition being absent.

Table 4. Cancers: conditions and descriptors

Condition	Descriptor
Commissioning	'C' represents a 'basic' role. 'c' represents a good or exemplary role.
Strategic partnership working	'SP' represents basic or basic/good practice. 'sp' represents good or exemplary practice.
Public health workforce planning	'P' represents basic or basic/good practice. 'p' represents good or exemplary practice.
Health Partnership reviews of progress	'H' represents reviews every 6 months, annually or not yet done. 'h' represents monthly or quarterly reviews.
General working culture	'G' represents individual commitment and champions. 'g' represents either a widely shared 'team player' spirit or good plans and systems.
Organisational culture	'OC' represents very or quite aspirational. 'oc' represents comfortable or complacent.
IMD score	'I' represents an IMD score of less than 31.15. 'i' represents an IMD score of 31.15 or higher.
Spend per head on cancer	'S' represents £86 per head or higher. 's' represents less than £86 per head (calculations based on raw populations and net expenditure for 2005/06).
Crime rate	'CR' represents less than 64.5 offences per 1,000 population (2005/06 data). 'cr' represents 64.5 offences or higher per 1,000 population.
PCT Trust rating 2004/05	'R' represents 3 star rating. 'r' represents 1 and 2 star ratings.

2.1 Configurations associated with a narrowing gap for cancers

Three different configurations of conditions in the narrowing group of cases have been identified, each of which is described below.

2.1.1 Areas with champions and high spending

This is configuration 1 in table A1 in appendix 1. It consists of two conditions:

- A general working culture in the area of initiatives relying on individual commitment and champions (condition G);

- A higher level of spend per head on cancers (condition S).

Workshop participants interpreted condition 'G' as relating to a general culture of championing running across PCTs from Directors of Public Health through to key individuals working on the ground.

Nine of the twelve narrowing cases and none of the fifteen not narrowing cases share this configuration. Consequently, it appears to be sufficient for a narrowing of the cancers gap, given the absence of contradictory configurations in the 'not narrowing' group.

Three cases in the narrowing group do not fall within this configuration, and eight of the conditions that were identified above as having a strong relationship with a narrowing gap are not included in the configuration. Consequently, we should also consider some larger configurations. A more detailed iteration can be developed with the introduction of conditions H and OC: frequency of reviews and organisational culture. The configuration H*G*S is a narrowing configuration for eight cases and the configuration H*G*OC*S is a narrowing configuration for five cases. This suggests that whilst the combination of initiatives relying on individual commitment and champions and a higher level of spend per head on cancers appear to be sufficient for a narrowing cancers gap, there is also an association with less frequent health partnership monitoring of the cancers gap (condition H) and a very or quite aspirational organisational culture (condition OC).

2.1.2 Areas with champions and a receptive local context

This is configuration 2 in table A1. It consists of four conditions:

- A general working culture of initiatives relying on individual commitment and champions (G);
- A lower deprivation score (I);
- Less good public health workforce planning (P);
- Less frequent monitoring by the Health Partnership (H).

Seven of the narrowing cases and two of the not narrowing cases share this configuration. Conditions P and H are counter-intuitive, since it might be expected that good public health workforce planning and frequent monitoring would be associated with narrowing the gap. The opposite is the case. We can only speculate on the reasons for this but in our workshops with practitioners it was regarded as plausible that these activities are bureaucratic tasks that may have limited practical value for work on the ground, possibly distracting time and effort from activities that do have an impact on the cancers gap. We return to this issue in considering the role of commissioning below.

This configuration draws attention to a pathway for narrowing the cancers gap that involves individual championing and less effort going into

bureaucracy but with a receptive context of lower deprivation compared to other Spearhead areas. It is also worth noting that, with the exception of case 8, all the cases in this configuration have at least two of the three other conditions that are likely to be receptive contexts for tackling health inequalities (higher spend on cancers, lower crime and higher PCT star rating).

Case 15, which is not narrowing, is an anomaly given that it has both championing and lower deprivation. However, the absence of the other receptive conditions of higher spend per head on cancer, a lower crime rate and a higher PCT rating (s, cr and r) points to a potential explanation for this case not narrowing its cancers gap. Case 14, also not narrowing, shares the receptive context of both a lower crime rate and a three star PCT rating with cases 7 and 8 in the narrowing group. This case requires further explanation and is discussed with the not narrowing group of cases below.

2.1.3 Areas with champions in an adverse context with an aspirational culture

This is configuration 3 in table A1. It consists of six conditions:

- A general working culture of initiatives relying on individual commitment and champions (G);
- An aspirational organisational culture (OC);
- Less than good public health workforce planning (P);
- Less frequent monitoring by the Health Partnership (H);
- Higher deprivation (I);
- A higher crime rate (cr).

Three of the narrowing cases and none of the not narrowing cases share this configuration. As a result this can be considered to be a sufficient configuration for a narrowing cancers gap, suggesting that even in an adverse context with higher deprivation and related problems there is progress that can be made with a combination of championing, high aspirations, and less work devoted to monitoring and workforce planning (if our speculation about these last two conditions distracting from actual impact when carried out beyond basic achievement is correct).

2.2 Configurations associated with a cancers gap that was not narrowing

There were three different configurations of conditions among the not narrowing group of cases.

2.2.1 Areas with an aspirational but bureaucratic culture

This is configuration 4 in table A1. It consists of four conditions:

- A more aspirational organisational culture (OC);
- A commissioning role better than basic (c);
- Good or exemplary strategic partnership working (sp);
- Good or exemplary public health workforce planning (p).

Significantly, championing is missing in all but one of the cases included in this configuration, reinforcing the importance of this condition. Six not narrowing cases and none of the narrowing cases share the configuration, which is sufficient for not narrowing. It is a pattern that is consistent with the general absence of the 'bureaucracy' conditions in the narrowing group of cases (C, SP and P).

The presence of condition OC (a more aspirational organisational culture) is generally associated with configurations in the narrowing group of cases but here forms part of the not narrowing configuration. Its effect may be negated by the c*sp*p combination (which may signal an over-emphasis on bureaucratic work) and the absence of championing.

Four of the six cases in this configuration have at least three of the four receptive contextual conditions absent (I, s, cr and r). This suggests that an unreceptive context may contribute to gaps not narrowing for most cases in this configuration.

2.2.2 Areas with a low aspiration culture in an adverse context

This is configuration 5 in table A1. It consists of four conditions:

- A comfortable or complacent organisational culture (oc);
- Basic public health workforce planning (P);
- Less frequent monitoring by the Health Partnership (H);
- A higher crime rate (cr).

Four of the not narrowing cases and one of the narrowing cases share this configuration. Given that basic public health workforce planning and less frequent health partnership monitoring have both been identified as important conditions for narrowing the cancers gap, this apparent contradictory finding needs to be considered. The comfortable or complacent organisational culture appears to be significant in this respect, although also significant may be the absence of championing and the higher crime rate. The latter may reflect underlying issues regarding lower social capital in these areas.

2.2.3 Areas with a low aspiration culture and low spend and performance

This is configuration 6 in table A1. It consists of five conditions:

- A comfortable or complacent organisational culture (oc);
- A lower spend per head on cancers (s);
- A lower PCT star rating (r);
- A lower deprivation score (i);
- A higher crime rate (cr).

Two cases in the not narrowing group and no cases in the narrowing group share this configuration. Consequently, it can be described as a sufficient configuration for not narrowing. Lower deprivation is generally a receptive contextual condition for narrowing inequality gaps. However, it appears that lower deprivation alone will not overcome the negative effect of the oc*s*r*cr combination of low aspirations, a lower spend on cancer, a lower PCT rating and higher crime rates.

2.3 Unexplained cases with a 'not narrowing' gap

Cases 13, 14 and 27 remain unexplained by the not narrowing configurations outlined above. Case 13 shares a lot of the same conditions with case 11 in the narrowing group. Both of the cases have higher deprivation. On closer examination of the data, case 13 has an appreciably higher level of deprivation (an IMD score of 37.03 compared with 32.61 for case 11). Looking back at other variables not selected for the QCA exercise, case 13 also has a much higher migration inflow, 10.5% compared with 3.1% for case 11. In addition, case 13 was 5.42% under its PCT target budget allocation for 2005/06, whereas case 11 was only 1.34% under its target budget allocation. Finally, case 13 had a non-white population of 20.3% at the time of the 2001 census and case 11 only had 1.2%. Consequently, despite the similarities between these cases across the conditions in the QCA model, there are some marked differences between them in the broader dataset.

Case 14 shares the same profile as case 7 in the narrowing group. The main distinguishing feature between these two cases is a higher non-white population of 15% in case 14, compared with 3.8% in case 7.

Case 27 remains an anomaly. Nevertheless, there appears to be a relationship between generally more bureaucracy, low aspirations, absence of championing, high crime, low PCT rating and a not narrowing gap.

2.4 'Less than basic' practice

The questionnaire responses were also analysed for their relationship with 'less than basic' answers across the full range of questions in the questionnaire. This is because it might be argued that we are suggesting that even very poor practice regarding these other conditions does not matter, given our focus on the smaller number of conditions selected for the QCA exercise. However, the occurrence of 'less than basic' responses was very rare. Consequently, most areas were achieving at least basic levels of practice for most of the conditions. The exception was community engagement, where about a quarter of the respondents assessed their area as having 'less than basic' practice. This question did not have a strong association with either narrowing or not narrowing gaps, suggesting that the condition has little impact on cancer inequalities even if practice is less than basic.

2.5 Longitudinal comparisons

There were four conditions in the GONW study with strong associations with narrowing cancers gaps. These were:

- Individual commitment and championing;
- Lower deprivation;
- Lower population mobility; and
- Lower BME groups percentage in the population.

The first two of these also emerged as conditions with similar associations with the outcome measure in the present study, i.e. they are associated with narrowing outcomes. In terms of the configurations that appeared in the GONW study, individual commitment and championing, lower deprivation and lower population mobility combined in five of the nine narrowing cases and in none of the six not narrowing cases. There are similarities with the present study as the individual commitment and championing condition combined with lower deprivation in seven out of twelve cases in the narrowing group. However, these two conditions also combined in four out of the fifteen not narrowing cases. The lower population mobility condition was not considered in the later stages of analysis for the present project due to the relatively weak relationship it had with the outcome measure.

The importance of championing is a similar finding to the pilot study, while data on spending was not available for that study. In this national sample, deprivation appears in some of the configurations, while population mobility and ethnicity were not important in the configurations but did appear to be important in explaining some of the exceptional cases. Overall, some similar conditions were at play in both studies, and the significance of championing is corroborated.

2.6 Conclusions for cancers

Narrowing the cancers gap was associated with a general working culture in the Spearhead area of initiatives relying on individual commitment and champions and a higher level of spend per head on cancers.

In discussions with practitioners, the emergence of championing as such a prominent factor chimed with their perspectives and experiences regarding cancer. The importance among deprived communities in particular of early detection and treatment was emphasised, and the role of cancer networks was particularly significant. Publication of *The NHS Cancer Plan* in 2000 placed local cancer networks at the heart of a commitment to tackle cancer and called for these to be strongly led and to target resources where most needed (Department of Health, 2000b). This strong national policy steer will have strengthened the hand of local champions determined to concentrate spending on much higher rates of early detection and treatment, with this likely to be very effective in reducing premature mortality.

Some of the conditions displaying strong relationships with the cancers outcome appear to have counter-intuitive relationships with this outcome. In particular, the role of commissioning being better than basic, strategic partnership working being good or exemplary, and public health workforce planning being good or exemplary are conditions that are largely absent from the group of cases with narrowing cancer gaps. It is possible that process improvements are taking place but that this study has been too early for these to have had an impact on the cancers outcome. However, the common nature of these attributes as 'bureaucratic conditions' that entail considerable effort being devoted to meetings, plans and paperwork *especially if done to excess* lead us to an argument that work of this kind may distract effort from a focus on those actions that do make a difference for cancers. This was an explanation that many of the practitioners in our workshops found plausible. We speculate as well that the public sector audit culture, which is such a strong feature of the NHS in England, may incentivise a burgeoning of bureaucratic practices that become dysfunctional (Seddon, 2008; Travers, 2007). Indeed, Amann (2003, p. 469) makes a comparison between the growing managerial pressures in the public sector in Britain and the Soviet central planning system, where 'the volume of transactions was so huge and the interdependent relationships were so complex that real control was quite impossible. However, for a variety of political and psychological reasons it was necessary to pretend that it was possible.' He continues that, '... since audit in many contexts measures systems and processes rather than conducting a detailed inspection of performance, audit reports can turn out to be little more than highly formalised "comfort certificates", legitimating what the organisation does but having little to do with the real quality of its core business.'

It is important here to note that the 'basic' descriptors for commissioning, partnership working and workforce planning were not undemanding, and no area assessed these as less than basic. The idea, though, that being better than basic could be dysfunctional found support among many of the practitioners in our workshops. Interestingly, we also found in our data an

inverse relationship between individual commitment and championing on the one hand and these 'bureaucratic' conditions being present on the other.

3 Cardiovascular disease

Eighteen conditions had relationships with this outcome. The following conditions were associated, as single factors, with a narrowing gap:

- Smoking cessation services better than basic;
- Primary care services better than basic;
- Tackling inequalities with a few major projects;
- Good or excellent leadership;
- A higher PCT budget allocation relative to target;
- Lower levels of internal migration.

The following conditions were weakly associated with a narrowing gap:

A commissioning role better than basic;

- Higher spending on CVD;
- The PCT had not been in major deficit recently;
- A jointly appointed Director of Public Health, with regular access to the local authority executive;
- More frequent (6 monthly or quarterly) reviews of progress;
- Lower deprivation;
- The PCT Chief Executive left recently;
- Reducing health inequalities within the locality was the main priority;
- Initiatives rely on individual commitment and champions.

The following conditions were weakly associated with not narrowing the gap:

- Initiatives rely on a widely shared team player spirit (rather than championing or systematic planning);
- The local priority was closing the overall gap between the locality as a whole and the national average rather than inequalities within the area;

- Interventions were partly based on primary care and partly on environmental measures (rather than focusing on either one or the other);
- A higher number of GPs per head of population;
- A lower number of Accident and Emergency admissions per head of population.

These conditions were then explored for their effects on the outcome in combination. Full results are presented in table A2 in appendix 1. Table 5 below lists the conditions that have strong relationships in configurations that are clearly associated with whether or not the CVD gap was narrowing.

Table 5. CVD: conditions and descriptors

Condition	Descriptor
Smoking cessation services	'S' represents basic/good practice and above ¹ . 's' represents basic practice.
Primary care services	'P' represents basic/good practice and above ² . 'p' represents basic practice.
Approaches to tackling the CVD gap	'A' represents a few major programmes. 'a' represents many smaller projects or integrated systematic approach.
Leadership in the Spearhead area	'L' represents good or excellent. 'l' represents fair, poor or a mixed picture .
PCT target budget allocation	'B' represents PCTs receiving no less than 4.3% under their 2005/06 target budget. 'b' represents PCTs more than 4.3% under their 2005/06 PCT target budget.
Internal migration ³	'M' represents lower levels of internal migration 'm' represents higher levels of internal migration.

¹ The areas with better practice assessed themselves as meeting a description of smoking cessation services in which provision has been mapped across the area and is available in a wide range of settings; prevalence data are collected and used to target services; and there is effective targeting of 'seldom seen, seldom heard' groups.

² The areas with better practice assessed themselves as meeting a description of primary care services in which the PCT actively manages QOF exception reporting; primary care works with other services to reach vulnerable groups and to actively seek out people with (or at risk of) diseases; and the quantity of primary care in local areas meets local needs.

For CVD, there are twelve Spearhead areas that were narrowing their gap and fifteen not narrowing. Whilst the main focus of this study is concerned with identifying combinations of conditions associated with narrowing, it should be noted that none of the single conditions associated with narrowing are present in all of the narrowing cases or absent in all of the not narrowing cases. No single condition is either necessary or sufficient for the CVD gap to be narrowing.

3.1 Configurations associated with a narrowing gap for CVD

There were three different configurations of conditions among the group of cases with narrowing gaps for CVD.

3.1.1 Areas with better practice smoking cessation and primary care services

This is configuration 1 in table A2. It consists of two conditions:

- Smoking cessation services better than basic (S);
- Primary care services better than basic (P).

Seven of the thirteen narrowing cases and one of the fourteen not narrowing cases share this configuration. All of the narrowing cases with this configuration also have at least two, and often three, of the four other conditions in table A2 present in their profiles. This suggests that the configuration may be associated with a narrowing gap only when other conditions are present; in particular, the presence of good or excellent leadership and a higher PCT budget allocation relative to target may be contributing to the better outcomes.

Case 14 is an anomaly among the not narrowing group as it shares configuration 1 together with three of the other four conditions in table A2. This case is discussed in more detail below.

³ This condition is derived from estimates of internal migration within the UK. The estimates are based on levels of both population inflow and outflow for each local authority in 2005/06. When dichotomised, the local authorities falling within the higher and lower *inflow* migration thresholds were exactly the same as those within the higher and lower *outflow* migration thresholds. Therefore, a single 'internal migration' condition is used. The migration threshold corresponds to 3.6% for population inflow and 4% for population outflow. The statistics are available from:
<http://www.statistics.gov.uk/statbase/ssdataset.asp?vlnk=9674&More=Y>.

3.1.2 Areas with better practice primary care services and a higher PCT budget allocation relative to target

This is configuration 2 in table A2. It consists of two conditions:

- Primary care services better than basic (P);
- Higher PCT budget allocation relative to target (B).

Eight of the narrowing cases and two of the not narrowing cases share this configuration. Case 15 in the not narrowing group shares this configuration with one other condition present, better than basic smoking cessation services (S), which is the same as case 12 in the narrowing group, making this an ambiguous result. Each of the remaining narrowing cases with P*B have at least two of the other four conditions present, mostly good or excellent leadership and better than basic smoking cessation services.

As with configuration 1, a narrowing CVD gap appears to be associated with a specific configuration of conditions, reinforced by additional but not necessarily identical conditions. This is to be expected given the overlapping cases in configurations 1 and 2, and is discussed further below.

3.1.3 Areas with better practice smoking cessation services and a lower PCT budget allocation relative to target

This is configuration 3 in table A2. It consists of six conditions:

Smoking cessation services better than basic (P);

- Good or excellent leadership (L);
- Lower internal migration (M);
- An approach to tackling health inequalities that does not involve a few major programmes and is best characterised as either many smaller projects or an integrated systematic approach (a);
- Lower PCT budget allocation relative to target (b);
- Basic primary care services (p).

Three narrowing cases and one not narrowing case share this configuration. Three conditions are absent that are generally associated with narrowing gaps (P, A and B). However, it appears that the combination of better practice smoking cessation services, good leadership and lower migration can overcome the absence of these conditions.

Since case 25 in the not narrowing group has an identical profile to the three narrowing cases in this configuration, it was necessary to look at this

case more closely. The complete dataset was re-examined to explore whether there were any other conditions that distinguished between the narrowing and not narrowing cases. The condition that demonstrated the most obvious relationship was the census data for the percentage of the population that was not white. The three narrowing cases had higher levels of non-white population (over 6%) while for the not narrowing case this was below 6%. This factor may be influential with regard to whether configuration 3 determines narrowing or not narrowing outcomes.

3.2 Unexplained 'narrowing' case

Case 13 remains unexplained by the narrowing configurations outlined above. It has only one of the conditions associated with a narrowing gap: a higher PCT budget allocation relative to target. Closer examination of the full dataset draws attention to a lower IMD score (a receptive contextual condition). There are also missing data for this case.

3.3 Configurations associated with a 'not narrowing' CVD gap

There were two different configurations of conditions among the not narrowing group of cases.

3.3.1 Areas with an absence of a few major programmes, a lower PCT budget compared to target and higher migration

This is configuration 4 in table A2. It consists of three conditions:

- An approach to tackling health inequalities that does not involve a few major programmes and is best characterised as either many smaller projects or an integrated systematic approach (a);
- A lower PCT budget allocation relative to target (b);
- Higher internal migration (m).

Seven cases in the not narrowing group and none in the narrowing group share this configuration. Consequently, this appears to be a sufficient configuration for not narrowing the CVD gap, given the absence of cases in the narrowing group. It is worth noting that six of the seven cases with this a*b*m configuration also have condition p (basic primary care services). Case 16 is the exception but, despite having better practice primary care services, this area has basic smoking cessation services.

3.3.2 Areas with less good primary care and an absence of a few major programmes

This is configuration 5 in table A2. It consists of two conditions:

- Basic primary care services (p);
- An approach to tackling health inequalities that does not involve a few major programmes and is best characterised as either many smaller projects or an integrated systematic approach (a).

Eleven cases in the not narrowing group share this configuration. Three in the narrowing group also do so, but in addition share configuration 3, which is associated with a narrowing gap.

3.4 Unexplained 'not narrowing' cases

There are two 'unexplained' cases in the not narrowing group (14 and 15). Case 15 has a configuration comprising basic smoking cessation services, poor leadership, and higher levels of internal migration that is shared with case 13 in the narrowing group. Case 13 has been discussed above and is one of the 'unexplained' cases in the narrowing group. Looking back at the variables not selected for the QCA exercise, a possible distinguishing factor is the higher level of deprivation that occurs in case 15 compared with case 13. Case 14, with a gap that has not been narrowing, has five of the six conditions associated with a narrowing gap and, once again, a higher level of deprivation provides a possible explanation.

3.5 'Less than basic' practice

The questionnaire responses were also analysed for their relationship with 'less than basic' answers across the full range of questions in the questionnaire. The occurrence of 'less than basic' responses was very rare and most areas were achieving at least basic levels of practice for most of the conditions.

3.6 Longitudinal comparisons

There were five conditions in the GONW study with strong associations with the CVD outcome measure. These were:

- Best practice smoking cessation services;
- Relatively older population;
- Lower deprivation;
- Acute services focus; and

- Best practice secondary prevention services.

The last two conditions were associated with not narrowing gaps, whereas the first three were associated with narrowing gaps. Better practice smoking cessation services also emerged in the present study as a condition with a strong association with the outcome. In the pilot study this combined with an older population structure and lower deprivation, which was not found in the present project but may have underpinned the smoking cessation effect. Blackman and Dunstan (2010) suggest that an older demography is a receptive context for higher smoking cessation rates, given that prevalence declines sharply as people enter their 60s, probably because it aggravates age-related conditions and there is more likelihood of encountering advice and support about quitting. Two conditions in the pilot study configured with not narrowing the CVD gap: having a focus on acute services and on best practice secondary prevention services. The former was interpreted as indicating a less effective treatment model rather than a prevention model locally. The latter was principally based on a descriptor about the targeted prescribing of statins to those most at risk, which was also interpreted by Blackman and Dunstan as indicating a treatment approach, although secondary prevention. The nearest equivalent question in the present study was about secondary prevention and did not show any relationship with the CVD outcome. This suggests that although good primary care services were important in two configurations, this does not seem to be about statin prescribing and is only the case in combination with other conditions, notably a high PCT budget or good smoking cessation services. Configuration 3 suggests that primary care services may need only to be basic - in the right combination - for the CVD gap to be narrowing.

3.7 Conclusions for CVD

The three narrowing configurations described above provide the most parsimonious explanation of a narrowing CVD gap and account for twelve of the thirteen narrowing cases. None of these configurations can be described as sufficient for the gap to have been narrowing because each includes at least one case in the not narrowing group. However, a key finding is that four conditions are present in the majority of narrowing cases: better than basic smoking cessation services, better than basic primary care services, good or excellent leadership, and higher PCT budget allocations relative to targets. This chimes with an evidence review by the Care Quality Commission (2009) which emphasises the importance of primary care in delivering interventions likely to have an effect on CVD inequalities over quite a short timescale by reducing mortality from heart attacks and strokes – statin prescribing and stop smoking services – but finds significant variations and inconsistencies across primary care services. Our findings indicate that with good leadership, primary care services and smoking cessation services working together with a PCT budget that is at or close to its target budget, the CVD gap will narrow. Population churn as measured by higher migration was identified as a barrier, but not in those areas with higher budget allocations relative to target.

Two configurations account for twelve of the fourteen not narrowing cases. Configuration 4 consists of three conditions, two of which are derived from the secondary dataset (lower PCT budget allocation relative to target and higher levels of internal migration). These two conditions are contextual and appear to be unreceptive for narrowing inequalities. Configuration 5, which overlaps considerably with configuration 4, is linked to the absence of effective services in eleven of the not narrowing cases (better than basic primary care services and a few major programmes).

It is also worth noting that, among the narrowing group of cases, all have one or other of the 'receptive context' conditions of lower internal migration or higher PCT budget allocations relative to target. Those with higher migration among these narrowing cases also have higher PCT budget allocations, suggesting that areas where services are coping with the population churn caused by higher internal migration may need these higher budget allocations if they are to be in a position to narrow their CVD gap.

4 Teenage conceptions

Sixteen conditions had relationships with this outcome. Some of these are also counter-intuitive and are discussed further below.

The following conditions were associated, as single factors, with a narrowing gap:

- Interventions all or mostly in community settings;
- An approach of pursuing a few major programmes;
- A higher percentage of GCSE passes;
- A higher percentage of under 18 year olds;
- Lower proportions of people receiving drug treatment;
- Lower deprivation.

The following conditions were weakly associated, as single factors, with a narrowing gap:

- A higher percentage of non white populations;
- Less good practice regarding sex, relationship and health education (a counter-intuitive finding);
- Areas with PCT Chief Executives appointed after May 2002.

The following conditions were associated with not narrowing the gap:

- Less good children and young people's workforce planning;
- A strong role for commissioning (a counter-intuitive finding);
- Excellent or good leadership (also counter-intuitive);
- Better contraception and sexual health services (also counter-intuitive).

The following conditions were weakly associated with not narrowing the gap. These might all be regarded as counter-intuitive:

- Less frequent reviewing of progress;
- Joint meetings about working with shared goals and budgets;
- Joint meetings having clarity about what needs to be done and who will do it.

These conditions were then explored for their effects on the outcome in combination. Full results are presented in table A3 in appendix 1. Table 6 below lists the conditions that have strong relationships in configurations that are clearly associated with whether or not the teenage pregnancies gap was narrowing. An upper case letter equates to a condition associated with narrowing being present and a lower case letter equates to this condition being absent.

Table 6. Teenage conceptions: conditions and descriptors

<i>Condition</i>	<i>Descriptor</i>
Commissioning	'C' represents a basic role for commissioning ⁴ . 'c' represents a basic/good, good or exemplary role.
Approaches to reducing teenage conceptions	'A' represents a few major programmes. 'a' represents many smaller projects or an integrated systematic approach.
Balance between intervention settings	'B' represents all or mostly in community settings. 'b' represents all or mostly in school and college settings.
Leadership	'L' represents fair, poor or a mixed picture. 'l' represents good or excellent.
Any GCSEs	'G' represents more than 96.65% of pupils in the area achieving at least one GCSE. 'g' represents 96.65% or less of pupils achieving at least one GCSE.
Percentage under 18	'U' represents more than 24% of the population under 18 ⁵ . 'u' represents 24% or less of the population under 18.
Drug treatment	'D' represents less than 570 individuals per 100,000 population. 'd' represents 570 or more per 100,000 population.
IMD Score	'I' represents an IMD score of less than 30.9. 'i' represents an IMD score of 30.9 or higher.

⁴ The areas with better practice assessed themselves as meeting a description which included the following: services are commissioned on the basis of a sexual health needs assessment, with resources directed at 'hotspots' and prevention; there is some budget pooling and joint contracting; resources are adequately scaled up to reduce the teenage conceptions rate based on analysis of target trajectories, knowledge of effective interventions and adequate service volumes and locations, including seven days a week in hotspots; and there are joint plans, budgets and planning processes across commissioners and service providers.

⁵ 2001 census.

There are thirteen narrowing and fourteen not narrowing cases among the Spearhead areas. Whilst the main focus of this study is concerned with identifying combinations of conditions associated with narrowing, it should be noted that none of the single conditions associated with narrowing are present in all of the narrowing cases or absent in all of the not narrowing cases. No single condition is either necessary or sufficient for the teenage pregnancy gap to be narrowing.

4.1 Configurations associated with a narrowing gap in teenage conceptions

There were three different configurations of conditions among the narrowing group of cases.

4.1.1 Areas with a few major programmes delivered in community settings

This is configuration 1 in table A3. It consists of two conditions:

- The approach to reducing teenage conceptions in the area is best characterised as a few major programmes (A);
- Interventions take place all or mostly in community settings (B).

Five cases in the narrowing group and one in the not narrowing group share this configuration. Further examination shows that all of the narrowing cases, apart from case 2, have lower numbers of people in contact with drug treatment services. This might be regarded as a receptive contextual condition linked to a lower prevalence of substance misuse problems in an area. Other receptive contextual conditions appear to be lower deprivation, a higher proportion of under 18s and a higher rate of GCSE passes. Case 2 shares all of these three conditions. Thus, the presence of contextual conditions, in particular lower numbers of people receiving drug treatment, appears to provide a receptive context for narrowing their gaps for areas with the A*B configuration. This is corroborated if we look at case 13 in the not narrowing group, where there is the A*B configuration but these four contextual conditions are absent.

4.1.2 Areas delivering interventions all or mainly in community settings

This is configuration 2 in table A3. It consists of six conditions:

- Interventions are all or mostly in community settings (B);
- Higher percentage of GCSE passes (G);
- A lower deprivation score (I);

- An approach to reducing teenage conception rates best characterised as either many smaller projects or an integrated systematic approach (a);
- Leadership for reducing teenage conceptions is a fair, poor or a mixed picture (L);
- A basic role for commissioning (C).

Three cases in the narrowing group and no cases in the not narrowing group share this configuration. Consequently, it can be viewed as sufficient for a narrowing gap. Interventions focusing on community contexts are important again, and lower deprivation and higher GCSE passes appear as receptive contexts. The association of basic commissioning and worse leadership with a narrowing gap is a counter-intuitive finding given that the opposite relationships might be expected. The commissioning finding, however, is consistent with our speculation above regarding cancer outcomes and the possible negative impact of spending too much time on bureaucratic activity. The leadership finding is difficult to interpret; it may also be picking up certain advantages from not having strong bureaucratic or management drivers in the area that distract from effective ground level working and getting on with the task at hand. This explanation was regarded as plausible by participants in the practitioner workshops and was linked with the approach in these areas of many smaller projects or an integrated approach rather than a few major programmes.

4.1.3 Areas with a receptive context

This is configuration 3 in table A3. It consists of four conditions:

- Higher percentage of any GCSE passes (G);
- Higher percentage of under 18 year olds (U);
- Lower numbers of people receiving drug treatment services (D);
- Lower deprivation (I).

Two cases in the narrowing group and no cases in the not narrowing group share this configuration. Consequently, it can be viewed as sufficient for a narrowing gap. It comprises conditions that can be regarded as forming a receptive context for teenage conception gaps to narrow regardless of any particular interventions or ways of working.

4.2 Unexplained 'narrowing' cases

Cases 10, 11 and 12 remain unexplained by the narrowing configurations described above. Case 10 has a configuration of a basic role for commissioning; an approach to reducing teenage conceptions best characterised as a few major programmes; leadership as fair, poor or a

mixed picture; a higher percentage of any GCSE passes; and lower numbers of people receiving drug treatment services. Case 11 is in the 'not narrowing' configurations 5 and 6 described in the next section; it shares a lot of the same conditions as the 'narrowing' cases 18 and 19. The main factor that distinguishes it from case 18 is lower numbers of people in contact with drug treatment services and, from case 19, lower numbers of people in contact with drug treatment services and a lower percentage of under 18 year olds. Case 12 shares a lot of the same conditions with case 24 in the not narrowing group. This case, however, has a higher assessment of community engagement and a three star PCT rating. In a practitioner workshop, case 12 was also identified as an area where there had been a large amount of work to delay second pregnancies.

4.3 Configurations where the gap was not narrowing

There were three configurations among the cases where the teenage conceptions gap had not been narrowing.

4.3.1 Areas with an unreceptive context

This is configuration 4 in table A3. It consists of four conditions:

- Lower percentage of any GCSE passes (g);
- Lower percentage of under 18 year olds (u);
- Higher numbers of people receiving drug treatment services (d);
- Higher deprivation (i).

Two cases in the not narrowing group and none in the narrowing group share this configuration. It is thus a sufficient configuration for the gap not to be narrowing, and comprises conditions that can be regarded as an unreceptive context regardless of any particular interventions or ways of working.

4.3.2 Areas with an absence of major programmes and an unreceptive context

This is configuration 5 in table A3. It consists of three conditions:

- An approach to reducing teenage conception rates in which there is an absence of a few major programmes and which is best characterised as either many smaller projects or an integrated systematic approach (a);
- Lower percentage of any GCSE passes (g);

- Higher deprivation (i).

There are seven not narrowing cases and one narrowing case (case 11) sharing this configuration. With the exception of case 11, the other cases in the narrowing group with lower numbers of GCSE passes and higher deprivation (cases 4 and 5) both have an approach to tackling health inequalities that focuses on a few major programmes delivered all or mostly in community settings. This approach to interventions appears to be important in overcoming the unreceptive context locally.

4.3.3 Areas with an absence of major programmes and where interventions are in school settings

This is configuration 6 in table A3. It consists of two conditions:

- An approach to reducing teenage conception rates best characterised as either many smaller projects or an integrated systematic approach (a);
- Interventions take place all or mostly in school and college settings (b).

Nine not narrowing cases and two narrowing cases share this configuration. It is the direct opposite of configuration 1. Although cases 11 and 12 are narrowing cases with this configuration, they have other distinguishing factors discussed above in the section on unexplained 'narrowing' cases.

4.4 Unexplained 'not narrowing' cases

Cases 14, 26 and 27, with gaps that were not narrowing, remain unexplained by the 'not narrowing' configurations described above. Cases 14 and 26 share a configuration of interventions taking place all or mostly in school settings, good or excellent leadership, and a lower proportion of under 18 year olds, but case 12 shares this as well and has a narrowing gap (although this case has been discussed above as an anomaly). Case 27 has its own configuration of better than basic commissioning, an approach to tackling health inequalities best characterised as either many smaller projects or an integrated systematic approach, good or excellent leadership, a lower proportion of under 18 year olds, and higher numbers of individuals in contact with drug treatment services.

4.5 'Less than basic' practice

The questionnaire responses were analysed for their relationship with less than basic answers across the full range of questions in the questionnaire. As with cancers and CVD, the occurrence of less than basic responses was very rare and most areas were achieving at least basic levels of practice for most of the conditions. The questions about children's and young people's

workforce planning and 'other' interventions (mostly sex, relationship and health education) are exceptions, and we conclude that these appear to have little impact on the teenage conceptions gap even if practice is less than basic according to the definitions we used in the questionnaires.

4.6 Longitudinal comparisons

Due to the extent to which the questionnaire was developed compared to the GONW study it was not possible to make valid comparisons between the two surveys.

4.7 Conclusions for teenage conceptions

Configuration 3 (sufficient for narrowing) and configuration 4 (sufficient for not narrowing) consist of relatively few cases but point to the importance of contextual conditions (deprivation, low educational attainment, substance misuse) for narrowing the teenage conceptions gap. This suggests that interventions are unlikely to have significant impact when these contexts are particularly unreceptive. However, this is not to say that local action cannot have an impact on these contextual conditions, and the finding points to the importance of interventions that improve them.

Configurations 1 and 6 point to the importance for narrowing the teenage conceptions gap of an approach that focuses on a few major programmes and interventions that are all or mostly in community settings. Contradictory cases, however, mean that this approach cannot be regarded as sufficient for the teenage conceptions gap to narrow, especially without a receptive context regarding the conditions noted above. One possible explanation for the significance of delivering teenage conception services in community settings rather than school settings is that community interventions may be more targeted towards 'hard to reach' and high risk groups than school settings.

5 Concluding comments

QCA is a useful type of analysis for policy makers and practitioners because it points to conditions and important combinations of conditions in ways that can be acted upon. This contrasts with both qualitative narrative and statistical measures such as odds ratios, which can leave a great amount of ambiguity about the actions that should follow. A theme in a qualitative narrative or an odds ratio of a certain value may give little insight into what actually needs to be done in a particular place or organisation because these approaches rarely point to how conditions combine to form causes for different types of outcome. QCA offers a possible strategy for isolating the key drivers of change in their combinations, capturing the importance of both interventions and context case by case, rather than estimating the effects of individual variables averaged across all cases.

The results from this study can be regarded as either a basis for further investigation or for action. For instance, taking the example of the CVD inequality gap, good smoking cessation services, good primary care services, good leadership and a PCT budget allocation close to target were identified as associated with this gap narrowing over a time horizon of a few years. This can either be used by areas without these attributes as justification for prioritising improvement and investment in these factors, or as a basis for visiting areas that have assessed their situation as better in these respects to learn from them. It is important to note, however, that these are associations rather than clear demonstrations of causation (albeit based on substantive and theoretical reasoning) so follow-up evaluation needs to be part of the learning process.

By looking at how conditions combined, the study points to the importance of local contexts for tackling health inequalities. The PCT being close or at its target budget allocation was an important contextual condition for narrowing the cancer and CVD gaps. Higher internal migration was associated with not narrowing the CVD gap. For narrowing the teenage conceptions gap, higher deprivation, lower educational attainment and higher substance misuse were associated with not narrowing the gap. This suggests that interventions are unlikely to have significant impact when local contexts are particularly unreceptive. This should be taken into account in assessing local 'performance', although this is not to say that local action cannot have an impact on these contextual conditions.

The counter-intuitive findings were initially puzzling but the way that the conditions involved all related to bureaucratic work suggested an explanation connected with distracting from operational work on the ground. It was interesting in this respect that for cancers we found that there was an inverse relationship between individual commitment and championing on the one hand and these 'bureaucratic' conditions on the other. This is not to suggest that practices such as partnership working, workforce planning and monitoring are not important, but that too much

focus on these activities may be counter-productive. It was fascinating to find from our practitioner workshops that this explanation often chimed with local experience, and examples were recounted of how overweening management and planning processes distracted from what practitioners felt really mattered. The way our results questioned received wisdom such as devoting substantial resources to partnership working or focusing teenage pregnancy interventions in school rather than community settings was often validated by practitioners' experiential knowledge, although not without dissent. The benefit of QCA was to recognise the complexity of these practitioners' experiences while also establishing a focus on clearly defined conditions and their relationships with outcomes. Too often either complexity is recognised in narrative 'good practice' case studies but without systematic comparison of these practices in combination with other factors, or systematic comparison is undertaken using quantitative techniques that generalise from relationships between variables rather than the conditions that apply in real world cases.

Finally, it is interesting that the cancer and CVD configurations in particular are so different. For cancer, tackling inequalities is recognised as needing 'clear commitment across the patient pathway at every level of NHS cancer services' (National Cancer Inequality Initiative, 2010, p. 27). The National Cancer Plan, published in 2000, inherited a situation where 'Patients often waited unacceptably long periods for diagnosis and treatment, coordination of care between all the healthcare professionals involved in cancer was often lacking and standards of care varied widely across the country' (Richards, 2007, p. 1). The plan represented a determination to improve cancer services and invest in ending inequalities of access to cancer care due to a failure to detect and treat early and quickly (DH, 2000b). While deprivation and lifestyle factors are acknowledged, the emphasis on earlier detection by expanding screening and awareness programmes and timely and more effective treatment is very strong, creating a context that would legitimise the arguments of determined clinical champions for focusing the increased flow of resources into reshaping services, finding cancers in areas of high prevalence, and channelling cases into treatment. The substantial increase in the number of cancers diagnosed and rising survival rates means that these medical interventions must be credited with saving many potential premature deaths (Richards, 2007). Bureaucratic practices taken beyond what is necessary appear to hinder this, whether by diverting time and effort or by inhibiting championing itself. A recent review notes the progress made with tackling cancer but also draws attention to the continuing inequalities in cancer outcomes (National Cancer Inequality Initiative, 2010). Our analysis suggests what some of the reasons for this may be.

Tackling cancer inequalities across the whole care pathway was an established agenda at the time of our data collection, championed by a National Cancer Director and, we suggest, also depending on local championing across local health systems. There was no equivalent call to reshape services across the pathway for CVD. The National Service Framework for cardiovascular disease, published in 2000, required primary

care organisations to establish preventative services based on identifying and treating people with established disease or risk factors (Department of Health, 2000a). Given free primary care coverage in England and the availability of drugs such as statins and anti-hypertensives that can successfully manage CVD risk factors, as well as the availability of free smoking cessation services either directly or through referral, this comprehensive approach to detection and treatment in primary care was a sensible strategy. However, the response from primary care – run in the UK largely by self-employed general practitioners – was variable. Subsequent research identified the importance of the quality of primary care services across an area in achieving a reduction in CVD inequalities, and called on PCTs to ensure that the quality and quantity of primary care in deprived areas meets need and is well organised, including challenging GP practices causing concern (Ali, Wright and Rae, 2008; Bentley, 2008; Care Quality Commission, 2009).

It is, therefore, not surprising that we see good or exemplary primary care services in two of the three configurations with a narrowing outcome for CVD. The good or exemplary smoking cessation services condition is also in two configurations. While these services might be thought to associate with the cancer outcome as well, the effect of smoking cessation on cancer mortality is likely to be more long term than for CVD, and smoking cessation services are regarded as critically important to achieving a reduction in CVD mortality in deprived areas (Marmot, 2010). However, as with primary care services, there is geographical variation in the effectiveness of services (National Audit Office, 2010).

6 Recommendations

Our results point to a number of pathways to narrowing or not narrowing health inequality outcomes. This reflects the notion that complex systems have path dependencies and that the same outcome can be reached in different ways. The different paths that we identify in our results relate, in particular, to the cases that participated in the study. All of the participating Spearhead areas were sent a report on the general findings together with a section individual to each area that identified the area in the results and provided a summary of the findings in relation to that particular area. This section included guidance about how the configurations identified in the report related to their area and, if the area was not narrowing its gap/s, what conditions were associated with this and in what combination.

The second round of regional workshops provided an opportunity for participating areas to discuss the results further in collaboration with the research team and practitioners from other areas. Furthermore, learning exchanges unpacking particular conditions that were absent in some areas and present in others were facilitated through the workshops (although following these up is beyond the scope of the current study). As part of the dissemination process, we informed areas unable to attend workshops that they should get in touch with the research team so that they could try to identify learning exchanges and to discuss the findings in general. As a result, additional visits were made to PCTs as detailed in appendix 4.

During the dissemination of the findings, the research team has been careful to stress that the results, and the configurations identified through these in particular, have a practical application as 'tin-openers' for local decision-makers to use alongside local knowledge and expertise. We have recommended that the results are used in this way and have offered assistance with interpretation.

The findings are most relevant to participating areas and can be used by them to inform where to focus improvements. We have provided them with the tools to do this. Having made this important qualification, however, it is possible to make wider recommendations based on the associations identified in the report. Given that the areas participating in the study provide a broadly representative sample of the Spearhead group, we can offer these as reasonable generalisations for both PCTs and local authorities.

6.1 Cancers

6.1.1 Improvements to management and practice

Recommendations for PCTs and local authorities are:

- Action to tackle cancer mortality inequalities needs the individual commitment of cancer champions. Although this is not sufficient on its own, among our group of Spearhead PCTs, it was necessary in all the configurations with a narrowing cancer gap and absent in all the configurations where the cancer gap is not narrowing. Stocking's (1985) study of innovation in the UK's NHS found that champions often had a key role in getting new approaches to problems taken up and, crucially, diffused across the system. Many subsequent studies have identified the role of champions in developing and disseminating process improvements and best practices across networks, including preventive care (Ballard et al., 2007), integrated service delivery (Kathol et al., 2010) and pharmacy-based interventions (Westrick and Breland, 2009). Zöllner's (2002) review of national policies for reducing social inequalities in health in Europe argues for championing as necessary for overcoming obstacles to action at national and local levels, as does Marmot's (2010) review of progress with narrowing health inequalities in England. In the workshops with practitioners that we held to discuss the questionnaire design and discuss the results, championing of early detection and treatment was said to be key. This was linked with the role of cancer networks. The NHS Cancer Plan put local cancer networks at the heart of a commitment to tackle cancer and called for them to be strongly led and to target resources where most needed (DH, 2000b). Local champions are likely to have a key influence concentrating spending on higher rates of early detection and treatment, with this likely to be effective in reducing premature mortality.
- Spending on tackling these inequalities should be high enough. We found the key threshold to be at least £86 per head based on net expenditure in 2005/06. This spending, though, needs to be championed (we cannot say whether higher spending is because of championing or whether higher spending is a pre-condition for successful championing, only that the two go together). Championing combined with higher spending on cancer programmes (above our binarisation threshold) appeared to be a very focused and effective combination.
- It appears that localities should avoid developing processes to excess, such as the bureaucracy of partnership meetings, writing (rather than delivering) plans and frequent monitoring. Process is not unimportant

but too much focus on plans and strategies may detract from focusing on actions that have a direct impact on the cancer gap. The first evidence for a bureaucratic effect was in the narrowing configurations where the public health workforce and monitoring were basic rather than the good or exemplary assessments that might be expected. In one of the not narrowing configurations we saw what we suggest are two similar bureaucratic conditions combining with a good or exemplary public health workforce: good or exemplary commissioning and good or exemplary strategic partnership working. We suggest that these attributes are 'bureaucratic conditions' because they entail considerable effort devoted to meetings, plans and paperwork especially if done to excess. This leads us to a recommendation that intensive work of this kind should be avoided as it may distract effort from a focus on the cancer gap. It is important here to note that the 'basic' descriptors for commissioning, partnership working and the public health workforce are not undemanding, and no area assessed these as less than basic. The idea that being better than basic could be dysfunctional found support among many of the practitioners in our workshops. It is echoed in Travers' (2007) study of 'the new bureaucracy'. Audit culture is a prime example of this, including taking time from 'normal work' without adding anything (Clarke, 2006). Appendix 8 shows the descriptors used to assess our 'bureaucratic conditions'. They were drafted on the assumption that good is better than basic, and so on. Looking at these descriptors through the lens of the above discussion, we might indeed interpret 'basic' as having the tools for the job in place, while the good and exemplary descriptors have a strong emphasis on plans, strategies, contracts, targets and progress reviews. Our results suggest that not only does this bureaucratic work not matter but it actually worsens outcomes. Seddon (2005; 2008) has explored this issue, arguing that audit culture focuses systems on compliance with targets and prescribed processes rather than learning how to match capability to outcomes. Achieving good or exemplary performance with processes of commissioning, workforce planning, strategic partnership working and reviewing is likely to entail an opportunity cost of time and resources that could otherwise be focused on 'normal work' to tackle the cancer gap: work that is in fact described by a 'basic' descriptor in Appendix 8.

- Wider determinants of inequalities in cancer mortality are important and make a difference locally. Local partners should work together to tackle high deprivation and crime rates in particular. We found thresholds at a 2007 IMD score of 31.5 or higher and a crime rate of 64.5 offences per 1,000 population or higher, suggesting it is – in relative terms – very high deprivation and crime rates that present the most important challenges.

6.1.3 Policy implications

National policy was not the focus of our study but some issues should be noted. The role of local cancer *inequality* champions could be formalised and supported. PCTs with large gaps in cancers inequalities could be encouraged, and supported, to increase their spending per head on cancer. Our evidence also suggests that there should be a sharper focus in national policy on enabling localities to reduce *very* high deprivation and *very* high crime rates. Finally, given the strength of the counter-intuitive findings in this report, national governments may need to be cautious about performance management encouraging excessive process work locally.

6.2 CVD

6.2.1 Improvements to management and practice

Recommendations for PCTs and local authorities include:

- Our results suggest that smoking cessation services should be up to the standard of our descriptor for at least good services: provision is mapped across the area and is available in a wide range of settings; prevalence data are collected and used to target services; and there is effective targeting of 'seldom seen, seldom heard' groups. Particular attention should be paid to good leadership of this work. Appendix 9 gives more details of the descriptors involved.
- Primary care services should be up to the standard of our descriptor for at least good services: active management of QOF exception reporting by the PCT; primary care works with other services to reach vulnerable groups and actively seek out people with (or at risk of) disease; and the quantity of primary care in local areas meets local needs. Particular attention should be paid to good leadership of this work. Appendix 9 also gives more details of the descriptors involved.

- Areas with higher levels of population churn (we found 3.6% inflow and 4% outflow to be important thresholds) and total PCT budget allocations still below target (we found more than 4.3% below target to be an important threshold) should be aware that these are may be significant barriers to narrowing their CVD gaps. Measures to improve population stability or more effectively reach mobile sections of the population should be considered.

6.2.2 Policy implications

National policy implications include supporting bringing smoking cessation and primary care services up to the standard of the 'good' and preferably 'exemplary' descriptor, and supporting leadership development to make this happen. Our evidence also suggests that all Spearhead areas need their PCT budgets to be at or very close to their target budget allocations. This may be particularly important for areas with relatively high population mobility.

6.3 Teenage conceptions

6.3.1 Improvements to management and practice

Recommendations for PCTs and local authorities are:

- Our evidence suggests that there should be a focus on delivery of interventions in community rather than school settings. These may be more targeted towards 'hard to reach' and high risk groups than school settings. We found that, contrary to some good practice guidance (for example, DfES 2006b), those areas where there was not a school based approach to interventions were doing better at reducing rates. In discussion with practitioners attending our workshops we found that areas without a school based approach did not specifically choose to adopt this strategy. Rather, it was adopted as the consequence of an inability to get into schools. Faced with this resistance, practitioners turned to other intervention settings in the community, such as working with youth and community groups, who were in fact often engaging hard-to-reach young people. The initially unintended consequence that interventions targeted groups where the risk of teenage conception was relatively high appeared to mean that local areas with this scenario were on the whole making better progress with narrowing their teenage conceptions gap than areas with a school-based approach. A further example of shared learning

taking place at these workshops was around the types of interventions in community settings. Participants discussed how they had focused on teenage conception hotspots through health visitors, nurse interventions and multi-agency teams.

- There is similar evidence as with cancers that too much work on commissioning may be counter-productive.
- Education appeared to be an important contextual condition; we suggest that an appropriate response would be to target all young people failing to achieve at least one GCSE pass, recognising that this means reaching a small group of under-achieving young people.
- Local partners should work together to address the wider determinants of high teenage conception rates, particularly very high deprivation, drug (and probably alcohol) misuse, as well as under-achievement at school.

6.3.2 Policy implications

National policy implications that follow from our discussion include encouraging the delivery of intervention in community settings, supporting every young person in achieving at school or college, and a sharper focus on supporting localities with very high deprivation and substance misuse.

6.4 Overall learning and common threads

QCA is an exploratory method based on logical arguments that are made explicit in relation to real cases and their complexity. Our analysis has demonstrated complex causality instanced by conditions found in one configuration being absent or acting differently in other configurations, and different paths to the same outcome. In recognising these different paths as sets of the same type of cases, practitioners can make use of the results to consider strategies that best make sense for their area (Fiss, 2007).

Synergistic effects appear to arise from only certain configurations and many conditions appear to be irrelevant to the outcomes. For a narrowing cancer gap, we found that championing was a necessary but not sufficient condition. Two of the three configurations, however, were sufficient for narrowing. For a narrowing CVD gap, we found either good or exemplary primary care services or good or exemplary smoking cessation services were necessary conditions, with the two together being almost sufficient (7 out of 8 cases). For teenage conceptions, we found that a conducive set of contextual conditions was sufficient for a narrowing gap in rates, pointing to the importance of national economic and social conditions, while locally there was evidence of the effectiveness of a few major programmes and interventions that are all or mostly all in community settings, but contextual conditions still mattered to the outcome.

Ragin (2000) argues that necessary conditions have significant policy implications. Necessary conditions may both constrain and enable outcomes, but it is much more difficult to enable an outcome because all the necessary conditions must be in place. It only takes one of these to be absent for achieving the outcome to be frustrated. It is perhaps surprising that in our analysis we identify a relatively small number of necessary conditions and configurations, although these conditions are themselves quite complex, none is sufficient on its own, and there are alternative pathways to the same outcome, which adds further complexity. However, the state of many conditions often did not appear to matter to the outcome. In some cases this may be because what matters is that a level of achievement for a practice is at least basic and instances of Spearhead areas assessing any practices as that poor were very rare. So our analysis reflects practices being on the whole at least basic; it then picks out practices and other conditions where their qualitatively different states matter to the outcome. QCA, to quote Ragin (2000, p. 260) again, is 'a tool of discovery' rather than a hypothesis-testing technique. The causal arguments are based on association but supported by substantive and theoretical arguments about necessity and sufficiency that apply to real cases and connect with actual practice.

6.5 Further research

This study has pioneered the use of QCA in exploring the key public health issue of health inequalities and how they can be narrowed. The results and recommendations should be read with suitable caution. We intend to develop our results in future by undertaking further longitudinal analysis as further outcome data becomes available, exploring in particular possible lag effects of the 2005 assessments on subsequent outcomes. Given the extent to which we rely on self-assessment in a relatively small group of localities, corroboration from other research will be important. This is particularly the case with regard to our intriguing counter-intuitive results and our theory that too much partnership working, planning and monitoring may be counter-productive for the dedicated and focused work needed to tackle health inequalities at a local level.

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Appendix 1 QCA configuration tables

Table A1. Conditions associated with a narrowing gap in cancers mortality (1=present;0=absent)

	Area	Basic commissioning	Less than good strategic partnership working	Less than good public health workforce planning	Less frequent progress reviews	Champions	Aspirational	Lower IMD	Higher spend on cancers	Lower crime	3 star PCT
GAP NARROWING	1	1	No data	1	0	1	0	0	1	0	0
	2	1	1	1	1	1	1	1	1	0	1
	3	No data	1	1	1	1	1	1	1	1	1
	4	1	1	1	1	1	1	1	0	1	1
	5	0	1	1	1	1	1	1	1	1	0
	6	1	1	1	1	1	0	1	1	1	1
	7	1	1	1	1	1	0	1	0	1	1
	8	1	0	1	1	1	0	1	1	0	0
	9	1	1	1	1	1	1	0	1	0	0
	10	0	0	1	1	1	1	0	1	0	1
	11	1	0	1	1	1	1	0	0	0	0
	12	1	1	0	1	1	0	0	1	0	0
GAP NOT NARROWING	13	0	1	1	1	1	1	0	0	1	0
	14	1	1	1	1	1	0	1	0	1	1
	15	0	1	1	1	1	0	1	0	0	0
	16	0	0	0	0	0	1	0	1	0	0
	17	0	0	0	1	0	1	0	0	0	0
	18	0	0	0	0	0	1	1	1	0	1
	19	0	0	0	1	0	1	0	0	0	1
	20	0	0	0	1	1	1	1	0	0	0
	21	0	0	0	0	0	1	1	1	1	0
	22	0	0	1	1	0	0	0	0	0	0
	23	0	1	1	1	0	0	0	0	0	0
	24	0	1	1	1	0	0	1	1	0	1
	25	1	1	1	1	1	0	0	0	0	1
	26	1	1	1	No data	1	0	1	0	0	0
	27	0	0	1	0	0	1	1	1	0	0

Key:



Config 1		Config 2		Config 3		Config 4		Config 5		Config 6	
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Table A2. Conditions associated with a narrowing gap in CVD mortality (1=present; 0=absent)

	Area	Better than basic smoking cessation services	Better than basic primary care services	A few major programmes	Good or excellent leadership	Higher budget allocation relative to target	Lower internal migration
GAP NARROWING	1	1	1	0	1	0	1
	2	1	1	1	1	1	0
	3	1	1	0	1	1	0
	4	1	1	0	1	1	0
	5	1	1	1	1	1	0
	6	1	1	1	0	1	1
	7	1	1	0	1	1	1
	8	0	1	1	1	1	0
	9	1	0	0	1	0	1
	10	1	0	0	1	0	1
	11	1	0	0	1	0	1
	12	No data	1	1	0	1	0
	13	0	0	No data	0	1	0
GAP NOT NARROWING	14	1	1	0	1	1	1
	15	0	1	1	0	1	0
	16	0	1	0	1	0	0
	17	1	0	0	1	0	0
	18	1	0	0	1	0	0
	19	1	0	0	1	0	0
	20	1	0	0	0	0	0
	21	0	0	0	0	0	0
	22	No data	0	0	1	0	0
	23	1	0	0	1	1	1
	24	1	0	0	1	1	0
	25	1	0	0	1	0	1
	26	0	0	0	0	1	0
	27	1	0	0	0	1	0

Key:

Config1		Config2		Config3		Config4		Config5	
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Table A3. Conditions associated with a narrowing gap in teenage conceptions (1=present; 0=absent)

	Area	Basic commissioning	A few major programmes	Interventions all or mostly in community settings	Fair or poor leadership	Higher GCSE achievement	Higher % under 18	Lower numbers in drug treatment	Lower IMD
GAP NARROWING	1	1	1	1	1	0	1	1	1
	2	0	1	1	0	1	1	0	1
	3	1	1	1	1	1	1	1	1
	4	0	1	1	1	0	0	1	0
	5	1	1	1	1	0	1	1	0
	6	1	0	1	1	1	0	1	1
	7	1	0	1	1	1	0	0	1
	8	1	0	1	1	1	1	0	1
	9	1	No data	0	1	1	1	1	1
	10	1	1	0	1	1	0	1	0
	11	1	0	0	1	0	0	1	0
	12	1	0	0	0	1	0	0	0
GAP NOT NARROWING	13	0	1	1	0	0	0	0	0
	14	1	1	0	0	1	0	1	1
	15	1	0	1	1	0	0	1	0
	16	0	0	1	0	0	1	1	0
	17	1	0	0	1	0	1	0	0
	18	0	0	0	0	0	1	0	0
	19	1	0	0	1	0	0	0	0
	20	1	0	0	1	0	1	0	0
	21	0	0	0	0	0	0	1	1
	22	0	0	0	0	0	0	1	0
	23	0	0	0	0	1	0	1	1
	24	1	0	0	0	1	0	0	1
	25	0	0	0	0	1	0	1	0
	26	0	1	0	1	0	0	1	1
	27	0	0	1	0	1	0	0	1

Key:

Config1		Config2		Config3		Config4		Config5		Config6	
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Appendix 2 Change in relative gaps between Spearhead areas and the England average

This appendix provides details of the changes in the relative differences between the Spearhead areas and national averages. A value of '1' in the columns for 2005, 2006 and 2007 for cancers and CVD and for 2004-06 and 2005-07 for teenage conceptions indicates no difference compared to the English average. The higher the number, the greater the gap. The shaded cells in tables A2.1 to A2.6 indicate a narrowing gap. The source for the cancer and CVD tables is NCHOD (www.nchod.nhs.uk) and for teenage conceptions the sources were the Office for National Statistics and Teenage Pregnancy Unit.

Please note that the order of the cases in the tables bears no relationship to the order of the cases in tables A1-A3 in Appendix 1. This is to preserve the anonymity of the cases in the study. 'Northern' refers to Spearhead areas covered by the Government Offices for the North East, North West, and Yorkshire and the Humber. 'Midlands' refers to areas covered by Government Offices for the East Midlands and West Midlands. 'London' refers to areas covered by Government Office for London.

Table A2.1: Change in the relative gap between Spearhead areas and the England average for cancers –participating areas

Spearhead Area	2005	2006	2007	Relative Change 2005 to 2007
Spearhead Average	1.15	1.16	1.15	0.00
London Borough 1	1.25	1.15	1.13	-0.13
London Borough 2	1.17	1.10	1.10	-0.07
Northern Unitary 1	1.14	1.18	1.00	-0.14
Northern District 1	1.12	0.92	0.97	-0.15
Northern District 2	1.16	1.08	1.08	-0.08
Northern Metropolitan Borough 1	1.50	1.39	1.37	-0.13
Northern Metropolitan Borough 2	1.32	1.29	1.27	-0.04
Northern Unitary 2	1.51	1.30	1.16	-0.35
Northern Unitary 3	1.21	1.04	1.15	-0.06
Northern District 3	1.30	1.10	1.07	-0.23
Northern District 4	1.35	1.35	1.25	-0.10
Northern Metropolitan Borough 3	1.22	1.19	1.06	-0.16
Midlands Metropolitan Borough 1	1.08	1.23	1.13	0.05
London Borough 3	0.93	1.03	1.14	0.21
Midlands District 1	1.01	1.10	1.08	0.07
Midlands District 2	1.03	1.35	1.12	0.09
Northern Metropolitan Borough 4	1.13	1.16	1.20	0.07
Northern Unitary 4	1.17	1.30	1.28	0.11
Northern Metropolitan Borough 5	1.11	1.14	1.12	0.01
Northern Metropolitan Borough 6	0.98	1.11	1.20	0.22
Northern District 5	1.04	1.12	1.25	0.21
Northern District 6	1.03	1.06	1.13	0.09
Northern Metropolitan Borough 7	1.19	1.44	1.25	0.06
Northern Metropolitan Borough 8	1.15	1.15	1.21	0.06
Northern District 7	0.97	1.26	1.05	0.08
Northern District 8	1.10	1.16	1.34	0.23
Northern District 9	0.90	1.06	1.22	0.33
London Borough 4*	1.12	1.23	1.13	0.01
Northern Metropolitan Borough 9*	1.04	1.02	1.05	0.02

*indicates an area that participated in the study but was not included in the results due to missing data.

Table A2.2: Change in the relative gap between Spearhead areas and the England average for cancers – non-participating areas

Area	2005	2006	2007	Relative Change 2005 to 2007
Spearhead Average	1.15	1.16	1.15	0.00
London Borough 5	1.22	1.23	1.11	-0.10
London Borough 6	1.05	1.18	0.90	-0.14
London Borough 7	1.00	0.92	0.97	-0.03
London Borough 8	1.24	1.08	1.11	-0.12
London Borough 9	1.01	1.16	1.02	0.01
London Borough 10	1.04	1.09	1.04	0.00
London Borough 11	1.12	1.30	1.27	0.15
Midlands Metropolitan Borough 2	1.12	1.08	1.09	-0.04
Midlands Metropolitan Borough 3	1.17	1.06	1.08	-0.09
Midlands District 3	1.08	1.09	1.11	0.03
Midlands Metropolitan Borough 4	1.13	1.16	1.09	-0.05
Midlands Unitary1	1.18	1.19	1.33	0.15
Midlands Metropolitan Borough 5	1.11	1.21	1.05	-0.06
Midlands District 4	1.17	1.09	1.03	-0.14
Midlands Unitary2	1.02	0.96	1.02	0.00
Midlands District 5	1.41	1.39	1.16	-0.25
Midlands Unitary 3	1.15	1.23	1.20	0.04
Northern Metropolitan Borough 10	1.27	1.18	1.33	0.06
Northern Metropolitan Borough 11	1.18	1.20	1.18	0.00
Northern Metropolitan Borough 12	1.41	1.45	1.36	-0.05
Northern Metropolitan Borough 13	1.12	1.11	1.07	-0.04
Northern Unitary 5	1.12	1.12	1.19	0.07
Northern Metropolitan Borough 14	1.15	1.05	1.22	0.07
Northern Unitary 6	1.26	1.22	1.22	-0.05
Northern District 10	1.28	1.03	1.12	-0.16
Northern Metropolitan Borough 15	1.10	1.13	1.01	-0.08

Table A2.2 (continued): Change in the relative gap between Spearhead areas and the England average for cancers – non-participating areas

Spearhead Area	2005	2006	2007	Relative Change 2005 to 2007
Northern District 11	1.12	1.21	1.11	-0.01
Northern District 12	1.09	1.17	1.07	-0.02
Northern Metropolitan Borough 16	1.24	1.03	1.16	-0.08
Northern Metropolitan Borough 17	1.20	1.20	1.33	0.14
Northern Unitary 7	0.98	1.03	1.01	0.03
Northern Metropolitan Borough 18	1.01	1.09	1.13	0.12
Northern Metropolitan Borough 19	1.07	1.18	1.18	0.11
Northern Unitary 8	1.26	1.36	1.47	0.21
Northern Unitary 9	1.22	1.33	1.35	0.13
Northern Metropolitan Borough 20	1.29	1.25	1.23	-0.06
Northern District 13	1.21	1.20	1.23	0.01
Northern District 14	1.03	1.15	0.97	-0.06
Northern Metropolitan Borough 21	1.06	1.15	1.34	0.28
Northern Unitary 10	1.23	1.15	1.13	-0.10
Northern Unitary 11	1.10	1.22	1.08	-0.06

Table A2.3: Change in the relative gap between Spearhead areas and the England average for CVD –participating areas

Spearhead Area	2005	2006	2007	Relative Change 2005 to 2007
Spearhead Average	1.30	1.30	1.31	0.01
London Borough 1	1.30	1.38	1.24	-0.05
Midlands District 1	1.38	1.28	1.20	-0.18
Northern Unitary 1	1.36	1.40	1.31	-0.05
Northern Metropolitan Borough 1	1.27	1.15	1.12	-0.15
Northern Metropolitan Borough 2	1.08	1.03	1.07	-0.01
Northern District 1	1.50	1.55	1.32	-0.18
Northern District 2	1.36	1.38	1.17	-0.19
Northern District 3	1.23	1.24	1.13	-0.10
Northern Metropolitan Borough 3	1.56	1.41	1.33	-0.23
Northern District 3	1.16	0.90	0.84	-0.32
Northern District 4	1.39	1.42	0.95	-0.44
Northern District 5	1.41	1.04	1.41	-0.01
Northern Metropolitan Borough 4	1.27	1.27	1.15	-0.12
London Borough 2	1.23	1.26	1.26	0.03
London Borough 3	1.07	1.16	1.34	0.27
Midlands Metropolitan Borough 1	1.60	1.38	1.61	0.01
Northern Metropolitan Borough 5	1.27	1.47	1.34	0.07
Northern Unitary 2	1.11	1.28	1.26	0.15
Northern Unitary 3	1.24	1.61	1.54	0.31
Northern Metropolitan Borough 6	1.30	1.34	1.45	0.15
Northern District 6	1.07	1.27	1.43	0.36
Northern Metropolitan Borough 7	1.50	1.51	1.60	0.10

Table A2.3 (continued): Change in the relative gap between Spearhead areas and the England average for CVD –participating areas

Spearhead Area	2005	2006	2007	Relative Change 2005 to 2007
Northern Metropolitan Borough 8	1.40	1.47	1.45	0.05
Northern Metropolitan Borough 9	1.49	1.63	1.60	0.12
Northern District 7	1.18	1.18	1.27	0.09
Northern District 8	1.35	1.32	1.46	0.11
Northern Metropolitan Borough 10	1.19	1.21	1.26	0.06
London Borough 4 *	1.33	1.53	1.71	0.38
Midlands District 2 *	1.02	1.23	1.01	-0.01
Northern Metropolitan Borough 11 *	1.13	1.18	1.28	0.15
Northern Metropolitan Borough 12 *	1.33	1.20	1.26	-0.07
Northern Unitary 4 *	1.27	1.42	1.53	0.26
Northern Unitary 5 *	1.17	1.35	1.27	0.09

*indicates an area that participated in the study but was not included in the results due to missing data.

Table A2.4: Change in the relative gap between Spearhead areas and the England average for CVD– non-participating areas

Area	2005	2006	2007	Relative Change 2005 to 2007
Spearhead Average	1.30	1.30	1.31	0.01
London Borough 5	1.29	1.40	1.40	0.11
London Borough 6	1.24	1.55	1.49	0.25
London Borough 7	1.03	1.08	1.38	0.35
London Borough 8	1.30	1.30	1.27	-0.03
London Borough 9	1.87	1.50	1.50	-0.37
London Borough 10	1.17	1.15	1.26	0.09
London Borough 11	1.48	1.60	1.46	-0.02
Midlands Metropolitan Borough 2	1.32	1.32	1.31	-0.01
Midlands Metropolitan Borough 3	1.25	1.14	1.06	-0.18
Midlands District 3	1.33	1.23	1.07	-0.26
Midlands Metropolitan Borough 4	1.15	1.33	1.28	0.14
Midlands Unitary1	1.32	1.24	1.31	-0.01
Midlands Metropolitan Borough 5	1.30	1.27	1.21	-0.09
Midlands District 4	1.09	1.16	1.22	0.13
Midlands Unitary2	1.41	1.50	1.48	0.08
Midlands District 5	1.46	1.31	1.36	-0.11
Midlands Unitary 3	1.43	1.33	1.33	-0.10
Northern Metropolitan Borough 13	1.08	1.10	0.99	-0.08
Northern Unitary 6	1.42	1.48	1.38	-0.03
Northern Metropolitan Borough 14	1.17	1.23	1.14	-0.02
Northern District 9	1.27	1.00	1.10	-0.17
Northern District 10	1.19	1.03	1.03	-0.16

Table A2.4 (continued): Change in the relative gap between Spearhead areas and the England average for CVD– non-participating areas

Area	2005	2006	2007	Relative Change 2005 to 2007
Northern Metropolitan Borough 15	1.66	1.75	1.53	-0.13
Northern District 11	1.29	1.16	1.16	-0.13
Northern Metropolitan Borough 16	1.52	1.33	1.50	-0.02
Northern Metropolitan Borough 17	1.49	1.35	1.60	0.10
Northern Unitary 7	1.25	1.30	1.27	0.02
Northern Metropolitan Borough 18	1.35	1.41	1.48	0.13
Northern Metropolitan Borough 19	1.09	0.95	1.15	0.05
Northern Unitary 8	1.36	1.49	1.22	-0.14
Northern Unitary 9	1.31	1.28	1.47	0.16
Northern Metropolitan Borough 20	1.08	1.24	1.25	0.17
Northern District 13	0.97	1.23	1.11	0.13
Northern District 14	1.35	1.26	1.32	-0.04
Northern Metropolitan Borough 21	0.97	1.12	1.25	0.28
Northern Unitary 10	1.21	1.14	1.22	0.01
Northern Unitary 11	1.22	1.17	1.11	-0.11

Table A2.5: Change in the relative gap between Spearhead areas and the England average for teenage conceptions –participating areas

Spearhead Area	2004-06	2005-07	Relative Change 2004-06 to 2005-07
Spearhead Average	1.34	1.34	0.00
London Borough 1	2.02	1.92	-0.10
London Borough 2	1.60	1.59	0.00
London Borough 3	1.36	1.32	-0.04
Northern Metropolitan Borough 1	1.26	1.25	-0.01
Northern Unitary 1	1.79	1.71	-0.07
Northern Unitary 2	1.59	1.58	-0.01
Northern Metropolitan Borough 2	1.26	1.21	-0.05
Northern District 1	1.07	1.05	-0.02
Northern Metropolitan Borough 3	1.25	1.13	-0.11
Northern District 2	0.95	0.93	-0.01
Northern District 3	1.41	1.36	-0.05
Midlands District 1	1.22	1.19	-0.02
Northern Metropolitan Borough 4	1.14	1.17	0.02
Midlands Metropolitan Borough 1	1.47	1.48	0.01
Midlands District 2	1.41	1.53	0.13
Northern Metropolitan Borough 5	1.13	1.16	0.02
Northern Metropolitan Borough 6	1.26	1.29	0.03
Northern Metropolitan Borough 7	1.25	1.25	0.00
Northern Metropolitan Borough 8	1.09	1.11	0.02
Northern Metropolitan Borough 9	1.08	1.14	0.06
Northern Metropolitan Borough 10	1.67	1.70	0.03
Northern Metropolitan Borough 11	1.43	1.48	0.04
Northern Unitary 3	1.20	1.41	0.22
Northern District 6	1.27	1.39	0.12
Northern District 7	1.20	1.26	0.06

Table A2.5 (continued): Change in the relative gap between Spearhead areas and the England average for teenage conceptions –participating areas

Spearhead Area	2004-06	2005-07	Relative Change 2004-06 to 2005-07
Northern District 8	1.27	1.31	0.04
Northern Metropolitan Borough 12	1.12	1.15	0.04
Northern Unitary 4*	1.15	1.08	-0.06
Northern District 9*	1.34	1.32	-0.02
Northern District 10*	1.32	1.33	0.01
Northern District 11*	1.23	1.14	-0.08

*indicates an area that participated in the study but was not included in the results due to missing data.

Table A2.6: Change in the relative gap between Spearhead areas and the England average for teenage conceptions– non-participating areas

Spearhead Area	2004-06	2005-07	Relative Change 2004-06 to 2005-07
Spearhead Average	1.34	1.34	0.00
London Borough 4	1.59	1.49	-0.10
London Borough 5	1.50	1.38	-0.12
London Borough 6	1.07	1.09	0.02
London Borough 7	1.53	1.52	-0.01
London Borough 8	1.70	1.70	0.00
London Borough 9	1.17	1.14	-0.04
London Borough 10	1.89	1.80	-0.09
London Borough 11	1.08	1.09	0.01
Midlands Metropolitan Borough 2	1.26	1.27	0.01
Midlands Metropolitan Borough 3	1.33	1.37	0.05
Midlands District 3	1.26	1.22	-0.05
Midlands Metropolitan Borough 4	1.29	1.34	0.05
Midlands Unitary 1	1.63	1.66	0.03
Midlands Metropolitan Borough 5	1.50	1.53	0.03
Midlands District 4	1.33	1.25	-0.09
Midlands Unitary 2	1.34	1.34	0.01
Midlands District 5	1.49	1.31	-0.18
Midlands Unitary 3	1.77	1.74	-0.03
Northern Metropolitan Borough 13	1.45	1.43	-0.02
Northern Unitary 5	1.66	1.56	-0.09
Northern Metropolitan Borough 14	1.20	1.16	-0.04
Northern District 6	1.09	1.13	0.04
Northern District 7	1.17	1.16	-0.01
Northern District 8	1.19	1.20	0.01

Table A2.6 (continued): Change in the relative gap between Spearhead areas and the England average for teenage conceptions– non-participating areas

Spearhead Area	2004-06	2005-07	Relative Change 2004-06 to 2005-07
Northern Metropolitan Borough 15	1.25	1.20	-0.04
Northern Unitary 6	1.11	1.12	0.01
Northern Metropolitan Borough 16	1.36	1.37	0.01
Northern Unitary 7	1.01	0.94	-0.07
Northern Metropolitan Borough 17	1.32	1.34	0.02
Northern Metropolitan Borough 18	1.11	1.14	0.02
Northern Unitary 8	1.67	1.69	0.02
Northern Unitary 9	1.38	1.42	0.04
Northern Metropolitan Borough 19	1.35	1.34	-0.01
Northern District 9	1.26	1.17	-0.09
Northern District 10	1.31	1.31	0.00
Northern Metropolitan Borough 20	1.19	1.21	0.01
Northern Unitary 10	1.28	1.21	-0.07
Northern Unitary 11	1.19	1.23	0.03
Northern Metropolitan Borough 21	1.32	1.38	0.06

Appendix 3 Workshops

Over the course of the project two rounds of workshops were held with participants in the study. The first round of workshops had a dual purpose to inform participants about the project and to seek their assistance in the questionnaire design using a mini-Delphi process. The second round of workshops focused on disseminating and interpreting the results of the study.

First round of workshops

Table A3.1 First round of workshops: participants, dates and locations

Workshop	Participants
East Midlands and West Midlands – 2 June 2008 in Birmingham	Two participants from two PCTs attended the workshop. Their job titles were: <ul style="list-style-type: none"> • Director of Public Health • Health Inequalities Programme Officer
London 3 June 2008	Eight participants from five PCTs attended the workshop. Their job titles were: <ul style="list-style-type: none"> • Teenage Pregnancy Co-ordinator (two participants from two PCTs) • Specialist Registrar in Public Health • Public Health Consultant (three participants from three PCTs) • Public Health Specialist and Health Inequalities Lead • Healthy 'London Borough' Manager
North East and Yorkshire & Humber – 9 June 2008 in York	Fourteen participants from seven PCTs attended the workshop. Their job titles were: <ul style="list-style-type: none"> • Consultant in Public Health (two participants from two PCTs) • Teenage Pregnancy Co-ordinator (two participants from two PCTs) • Public Health Specialist (two participants from one PCT) • Public Health Specialist - Sexual Health • Epidemiologist • Senior Nurse Manager Public Health and CVD lead

	<ul style="list-style-type: none"> • CHD facilitator • Community Development Health Officer • Director of Development Services and corporate lead for health • Health Development Manager • Chief Environmental Health Officer
North West – 11 June 2008 in Manchester	<p>Seven participants from five PCTs attended the workshop. Their job titles were:</p> <ul style="list-style-type: none"> • Senior Health Improvement Manager • Public Health Development Manager • Public Health Development Specialist • Teenage Pregnancy Strategy Co-ordinator • Head of Health Improvement • Head of Commissioning, Women & Children's Services • Public Health Specialist

Following the workshops the questionnaires were revised. Comments from participants were incorporated into the questionnaires together with some additional feedback from email and telephone correspondence with participating areas that were unable to attend the workshop. These included practical revisions such as:

- There should be clearer guidance indicating that many of the questions are the same in each of the three questionnaires but that they should be considered separately for each topic and that the answers may vary depending on the topic.
- There needs to be a clear indication, probably with each question, that the questions refer to the questionnaire topics and that they should be answered as they apply to the topic.
- There needs to be clear guidance that respondents can write on the questionnaire to elaborate or qualify their answers.

In addition, changes were made to the substantive content of the questionnaires. These included (but were not limited to):

- A new question on commissioning was added to the questionnaires.
- A new question about preventative interventions was added to the questionnaires.

- It was suggested that we develop a fourth short questionnaire that would provide contextual information about PCTs covering Spearhead areas. It was felt that this should attempt to gather information about (amongst other things) population churn, whether the PCT had been through a major reorganisation in the last 3 years and whether the Director of Public Health was a joint appointment with the local authority. A fourth questionnaire was developed following this suggestion.
- Numerous comments about the interpretability of the questionnaire descriptors and phrasing were made and incorporated into the redrafted questionnaires.

Consequently, the 'whole systems' approach to determining the conditions that could be considered to have an impact on health inequality outcomes was furthered through the co-production of the questionnaire by the research team and local practitioners. In addition, Department of Health staff from the National Support Teams for Health Inequalities and Teenage Pregnancy contributed to the questionnaire design and content of the secondary dataset. As a result the study design was enhanced through:

- More accurately accounting for the conditions constituting health inequalities systems.
- Ensuring that the language and content of the questionnaire were interpretable and capable of being acted on by local practitioners.
- Engaging participants in the study from the outset and developing stakeholding in the research.

Second round of workshops

Table A3.2 Second round of workshops: participants, dates and locations

Workshop	Participants
Cancers and CVD results workshop – 29 September 2009 in Birmingham	<p>Three participants from three PCTs attended the workshop. Their job titles were:</p> <ul style="list-style-type: none"> • Consultant in Public Health • Commissioning Lead • District Public Health Lead
Teenage Conceptions results workshop – 1 October 2009 Birmingham	<p>Nine participants from seven PCTs attended the workshop. Their job titles were:</p> <ul style="list-style-type: none"> • Teenage Pregnancy Co-ordinator (two participants from two PCTs) • Teenage Pregnancy Lead – Public Health • Consultant in Public Health – Childcare and Maternity Services • Specialist Registrar Teenage Pregnancies • Public Health Lead • Teenage Pregnancy Operations Manager • Teenage Pregnancy and Sexual Health Lead • Public Health Commissioning Specialist (Children & Maternity)
Cancers and CVD results workshop – 9 October 2009 in Leeds	<p>Four participants from four PCTs attended the workshop. Their job titles were:</p> <ul style="list-style-type: none"> • Consultant in Public Health (two participants from two PCTs) • Public Health Network Manager • Tobacco Control and Smoking Cessation Coordinator • Public Health Intelligence Analyst

The dissemination workshops provided an opportunity for participants to discuss the provisional results of the study with colleagues from other PCTs and in conjunction with academics. Not only did this provide a valuable learning opportunity for practitioners, it also enabled the researchers to incorporate additional learning and insights about the results into the final report. Once again the workshops were divided into two components. The first part took the form of a presentation that focused on:

- Research aim and method;
- Health inequalities as a 'wicked issue';
- QCA and health inequalities;
- Condition selection;
- Data analysis;
- Outcome measures;
- Results.

The presentations were followed by questions and answers and a general discussion about the overall results of the study. The second part of the workshops was concerned with exploring the results in more detail. Participants also engaged in learning sets (on the basis of participants agreeing to share identifiable information with each other). An example of a learning set that took place was between areas that had narrowing CVD gaps and had basic/good practice and better smoking cessation services comparing their local ways of working with areas that were not narrowing their gap and had basic practice smoking cessation services. The questionnaire descriptors for this condition were used as the basis to start the discussion and practical examples of how the self-assessments were met were shared with areas not narrowing their gaps. A further example of shared learning taking place at the teenage conceptions workshops was around the types of interventions taking place in community settings. Participants discussed how they had focused on teenage conception hotspots through health visitors, nurse interventions and multi-agency teams.

In addition, to the dissemination and interpretation of the study results at the workshops, the research team also attended further meetings with PCTs unable to attend the workshops to discuss the results with them. These visits and presentations are listed in appendix 4.

Summary of the dissemination workshop discussions

Included below is a summary of the comments and questions raised by participants at the dissemination workshops. These are divided into: general comments; comments on the cancers results; comments on the CVD results; and comments on the teenage conceptions results. In addition to the summary provided in this appendix further notes from the workshops have been incorporated into the commentary about the results in the main report.

General comments

- **Counter-intuitive findings**

During the presentations of the results at the workshops we suggested two possible explanations for the counter-intuitive findings that were in general accepted as plausible:

1. It is too early for process improvement to impact on outcomes.
2. There may have been too much focus on 'bureaucratic' practice distracting effort from focusing on cancers inequalities.

The idea that areas may be 'doing enough' around certain practices and processes and that more work and effort around these could potentially have a negative impact on outcomes was broadly accepted as a plausible finding.

It was also felt that the counter-intuitive nature of the findings for the cancer outcome, in comparison to the CVD outcome, was plausible as this was considered to be a more intractable issue. This may be particularly significant in terms of the time it could take for process improvement to impact on outcomes.

Some participants highlighted the complexity of governance arrangements in local systems and the need to report to different management groups within PCTs and across partner bodies, e.g. the smoking cessation strategy goes to many different bodies. In this respect writing and adapting reports for different audiences could take away from delivering programmes. In addition, it was highlighted that practitioners received recognition and esteem for writing reports and presenting these to a variety of audiences. However, another participant argued that this was not the case in their area because the Director of Public Health ensured that duplication of effort was minimised.

- **Public health status**

Public health outcomes have been accorded higher status following the introduction of World Class Commissioning. Participants argued that the 'top team' in PCTs *have* to focus on health inequalities now. In addition, public health indicators were considered to be more important than they used to be. It was argued that in the past strategies used to 'talk' about health inequalities whereas now strategies do this but talk about them more clearly and, critically, money backs up delivery. This was felt to have taken place after the 2005 baseline and consequently may impact on outcomes over the coming years. There was, however, concern about funding for tackling health inequalities in the future.

- **'Under-doctored' areas**

There was some discussion about under-doctored areas, i.e. this may be contributing to inequalities but was not in our results. The study did explore this, at least in part, through analysing the number of GPs per head of population and the number of single handed practices. These were not strongly associated with the outcomes. All of our conditions necessarily relate to the characteristics of the whole area and as a result characteristics of the practice population and variations in levels of GP services have not been picked up. This explanation was accepted by participants and it was suggested that the study could usefully act as a 'tin-opener' for areas to explore variations in local practice alongside the results.

- **Prioritisation between cancers and CVD**

In general feedback from the workshops considered that cancers had not been prioritised as early as CVD. Some people attributed this to CVD targets being seen as more achievable. In addition, participants also agreed that the 'bureaucratic toil' model fits with the perceived difficulty of tackling cancers, i.e. where is the evidence base for interventions across sectors? Without this, PCTs' partners could be reluctant to prioritise the topic locally.

- **2005 baseline and outcome measures**

In the workshops participants questioned the use of a 2005 baseline as it covered only a relatively short period for changes in the outcomes to be measured. However, the explanation that we had to start somewhere and that there was a trade-off between getting accurate information from respondents (given the limitations of retrospective organisational knowledge in PCTs) whilst taking into account the impact of interventions over a number years was accepted by workshop participants.

Cancers

- **Individual commitment and championing**

At the workshops participants were asked to expand on how they had interpreted this condition. In summary it was considered to include more than just the Director of Public Health taking an interest in health inequalities from cancers. Commitment was considered as having to run across the organisation and key decision makers in the PCT, and should include key individuals who are not too high up in the organisation. It was felt that this commitment and championing would have its roots in the PCT but that this would extend across partnerships. Strong-minded individuals or actors were also considered to be important. It was also suggested that it would be potentially easier to have this attribute in smaller organisations.

- **Is there an inverse relationship between championing and bureaucratic toil?**

Broadly there is, especially in areas with narrowing outcomes, i.e. areas with championing and commitment overwhelmingly have less good practice for the 'bureaucratic conditions'. The not narrowing areas with individual commitment and championing also generally have less good practice for these conditions.

It was also suggested that it is possible that 'ticking' process boxes can be done with or without individual commitment and championing, and the introduction of championing could be a decisive factor. However, the results actually point to championing being more likely to take place in areas not 'ticking the process boxes'.

- **Time lag**

Time lag was generally felt to be a bigger issue with cancers than CVD. The impact of smoking cessation services on premature mortality was often cited as an example of the longer time it would take to have an impact. Whilst this is probably generally right, improvements in early diagnosis of cancers should lead to earlier treatment and improved survival rates (there is possibly some relationship with individual commitment and championing here). Also, a connection was made at the workshops between the apparently longer time needed to see improvements in cancers outcomes and the counter-intuitive associations with the conditions that centred on processes and joint working.

- **Commissioning**

A participant suggested that practice around commissioning had improved a lot over the last 3 years.

CVD

- **More intuitive results**

There was less discussion about the CVD results due to apparently more intuitive results with this outcome. The prominence of better practice smoking cessation and primary care services in the results was viewed as plausible by participants. It was noted that time lag was less likely to be an issue and that improvements in CVD relied less on joint working and processes in contrast to the cancers result.

Teenage Conceptions

- **Focus on 2nd pregnancies**

One of the 'unexplained' narrowing cases that had an absence of good practice in our model and a generally unreceptive context was discussed in the workshop. It was said that a large amount of money and work on second pregnancies had been undertaken in the area and this was having an effect. The focus was on planning a space between children. The questionnaire had not captured this dimension.

- **Intervention settings**

An explanation for the skew towards better outcomes for interventions in community rather than school settings was considered to be due to it being very difficult to successfully integrate teenage conception reduction policies and programmes in school settings. One view was that it may take time for good practice to lead to meaningful access in schools and, therefore, have an effect on outcomes. Another view was that school and community interventions take place at different levels. School interventions are generally a higher level (having larger numbers of young people from different backgrounds) and less targeted on 'hard to reach' groups than community interventions. Consequently, better practice may have been achieved almost by accident. High risk groups may have been targeted by default because it is difficult to get into schools. Consequently focusing on hotspot areas in communities was associated with a narrowing gap. Health visitors, nurse interventions and multi-agency teams were all considered to be important in community settings.

- **Family Nurse Partnership (FNP)**

The FNP project was discussed at the workshop. It is a nurse-led preventive programme offered to vulnerable young mothers aged 19 years or under having their first baby. It is a well evaluated, evidence based joint DH/DCSF pilot programme. It is designed to improve pregnancy outcomes, child health and development outcomes, children's future readiness for school and achievement, and parents' economic self-sufficiency. Evidence from three RCTs in the USA also identified a reduction of children's accidental and non-accidental injuries, abuse and neglect. They share similarities with traditional health visiting. Participants said that these projects use a whole range of tools that they cannot share with other areas because they are under copyright.

- **Geographical boundaries**

In the teenage conceptions workshop it was suggested that areas with a clear centre and a 'proper community' (i.e. not solely administrative units) were more likely to be narrowing their gaps because people would access services within the area more readily.

- **Leadership**

One area that was narrowing its teenage conceptions gap had assessed leadership as less good due to a number of PCTs merging into one at the time that the questionnaire responses for '3 years ago' related to. They suggested that at this time there was very little leadership for work on teenage conceptions and practitioners were left to 'get on with their jobs'. It was suggested that this may have contributed to the narrowing gap.

- **Is the target appropriate?**

Participants thought not. There was overwhelming agreement that areas should be focusing more on the lives of those becoming pregnant rather than on preventing the conceptions taking place. They argued that the Teenage Pregnancy Strategy had two aims: to halve under 18s conceptions and to reduce the risk of social exclusion among young mothers. It was felt that the first part of the target was given disproportionate attention nationally.

- **Knowledge about lifestyles**

Practitioners at the workshops identified a potential research gap around knowledge of young people's lifestyles. This was considered to be an important factor in understanding teenage conceptions. Dialogue with young people was identified as being key to understanding what teenage conceptions mean to them.

Appendix 4 Additional visits and presentations

Over the course of the project a number of visits and presentations were undertaken by the research team.

Regional Directors of Public Health were contacted in December 2008 to brief them on the project and to engage their assistance with approaching the PCTs covering Spearhead areas. Meetings were arranged with Regional Directors of Public Health and/or their colleagues, the dates of which are listed below:

- 4 January 2008 West Midlands
- 8 January 2008 North East
- 9 January 2008 East Midlands
- 10 January 2008 London
- 28 January 2008 North West
- 8 February Yorkshire and Humber

Following the regional workshops in June 2008 a couple of PCTs, which were unable to attend these dates, requested meeting with the research team to discuss what the research would entail. These took place on:

- 18 July 2008. Meeting with Acting Director of Public Health and Public Health consultant at a north east PCT.
- 24 July 2008. Meeting with a Public Health consultant at a north east PCT.

In addition to these meetings, and the workshops, the Research Fellow working on the project was in regular contact with practitioners in Spearhead areas via email and telephone to respond to any queries arising about the project and encourage participation in the study.

During the analysis stage of the project the provisional results of the study were discussed at the following meetings:

- 14 May 2009. Meeting with representatives of the National Cancer Network and the National Support Team for Health Inequalities to discuss the provisional results for the cancers outcome.
- 5 June 2009. A meeting with representatives of the National Support Team for Health Inequalities to discuss the provisional results for CVD and cancers.
- 9 June 2009. A meeting with representatives of the National Audit Office to discuss the provisional results of the study.

In each of these cases the co-production described in the report was continued through iterative discussions about the plausibility and interpretability of the results.

In addition, to the dissemination of the results of the study at the second round of regional workshops (see appendix 3) we sought to engage more fully with areas unable to attend the workshops. Additional dissemination, and interpretation, of the results took place on:

- 2 October 2009. Meeting with representatives of a north eastern Health and Wellbeing partnership.
- 3 November 2009. Attendance at a meeting with the Acting Director of Public Health for a 'northern PCT'.
- 25 November 2009. Attendance at a Public Health Directorate meeting at a London PCT to disseminate the results of the study for their area.
- 7 December 2009. Attendance at a Public Health Group meeting at a PCT in the Midlands to disseminate the results of the study for their area.
- 25 February 2010. Attendance at a Public Health Teenage Pregnancy Steering Group meeting in the north east of England.

Appendix 5 Participation rate

The recruitment strategy for the study was as outlined in the project proposal. Consequently, members of the research team met with representatives of the six regional public health groups covering Spearhead areas in England (see Appendix 4 for dates of the meetings). The purpose of these meetings was to make the regions aware of the project and to engage their assistance to approach the PCTs covering Spearhead areas.

Following these meetings five of the six regions agreed to send letters to Directors of Public Health and Chief Executives of Spearhead PCTs encouraging participation. The letters included a brief outline of the aims of the project and indicated that a researcher from Durham University would be in contact shortly to seek their participation in the study. One region did not wish to send a letter but agreed to encourage participation at a regional public health meeting.

The research team wrote to Directors of Public Health in all 62 PCTs covering the 70 Spearhead areas in March 2008. An overview of the project aims and a timeline for the project were included in the letter. In addition, the letter stated that the research team would contact the Director of Public Health to provide further clarification about the study and ask if the areas were willing to participate.

However, when the team followed up this letter, considerable difficulty was encountered in establishing productive contacts with Directors of Public Health in some of the sites. It took much longer than anticipated to establish which PCTs were willing to participate. Although a number of PCTs readily agreed to take part, in other cases it took as many as five or six phone calls together with a similar number of emails to get a clear decision. Ultimately 40 of the 70 Spearhead areas agreed to participate and these areas were sent detailed project descriptions and participant information sheets.

However, at this stage a number of PCTs were unable or unwilling to participate in the study. Reasons for non-participation included:

- Participating in another study and did not think they had the capacity to participate in ours as well.
- The PCT covers eight Districts – only one of which is a Spearhead area. As a result the study was not judged to be a sufficient priority for PCT staff.
- ‘Pressures of work’.

- Cannot commit to participate due to workload and choosing to prioritise preparation for the National Support Team (NST) for Health Inequalities visit.
- NST visiting in June and do not have the capacity to fully support both pieces of work.
- Do not have capacity to do the study – the PCT has one Spearhead amongst a large number of Districts.
- Did not consider spending time on the study would produce any tangible benefit for the PCT or for the population which it serves.
- ‘Variety of circumstances make it difficult in the timeframe you are proposing’
- Public Health Steering Group discussed it and with regret decided that they did not have the time or commitment across all potential participants to participate in the study.
- Preferred to prioritise the NST visit.
- A large number of PCTs indicated that the pressures of Joint Strategic Needs Assessments and World Class Commissioning was intense and required much additional work that effectively prevented them from participating.
- In general visits from the DH’s National Support Teams were considered to be beneficial but also very time-consuming and the project found that it was overlapping with these and competing with the NST for the scarce time of PCT staff.

In September 2008 questionnaires were sent to named contacts for 40 Spearhead areas. The questionnaire response period ran throughout September and October. During the questionnaire response period we provided a telephone helpline that respondents could call to seek clarification about the project and the questions in the questionnaire in particular. Follow-up calls were made to participating areas to enquire about their progress in completing the questionnaire and to offer any necessary assistance.

Despite extending the questionnaire deadlines on a number of occasions and repeated telephone and email contact it proved impossible to secure a response from six areas that had agreed to participate in the study. Long-term staff illness was a factor in three of these cases. Nevertheless, recruitment took place in 34 of the 70 Spearhead authority areas. This is below the project target of 40 Spearhead areas but provides enough

responses for QCA to be used. The 34 cases also appear to be representative of the wider Spearhead group.

Recruitment to the project has been affected by the range of work currently being undertaken with Spearhead PCTs on health inequalities by the Department of Health (in particular the National Support Team), regulatory and development agencies (such as the Audit Commission and IDeA), as well as other academic research. Recruitment to the study may have been affected by these more general demands on time. It also took longer than expected for some PCTs to complete their responses largely due to work commitments of participants and, in particular, World Class Commissioning led to delays in responses from some PCTs. We identified the unexpectedly low response rates from the first progress report to the funder onwards.

Finally, the rigour that was encouraged/built into the study design by requesting collaborative self-assessments across suggested role types placed quite significant demands on organisations and may have led to non-responses from some participants.

Statistical difference between participating and non-participating areas

As outlined in section 1.2.2 of the report a Mann-Whitney statistical test was conducted to establish whether there was any difference between the areas participating in the study and the non-responding Spearhead areas. The five factors used for determining Spearhead status were employed for this test and the results were as follows:

- Male life expectancy: mean latencies in participating Spearhead areas and non-participating Spearhead areas were 33.13 and 37.74; the distributions in the two groups did not differ significantly (Mann–Whitney $U = 549$, $n_1 = 34$ $n_2 = 36$, $P > 0.05$ two-tailed).
- Female life expectancy: mean latencies in participating Spearhead areas and non-participating Spearhead areas were 28.81 and 41.87; the distributions in the two groups differed marginally significantly (Mann–Whitney $U = 402$, $n_1 = 34$ $n_2 = 36$, $P < 0.05$ two-tailed).
- IMD score: mean latencies in participating Spearhead areas and non-participating Spearhead areas were 38.16 and 32.99; the distributions in the two groups did not differ significantly (Mann–Whitney $U = 522.5$, $n_1 = 34$ $n_2 = 36$, $P > 0.05$ two-tailed).
- Premature mortality from circulatory diseases: mean latencies in participating Spearhead areas and non-participating

Spearhead areas were 36.81 and 34.26; the distributions in the two groups did not differ significantly (Mann–Whitney $U = 598.5$, $n_1 = 34$ $n_2 = 36$, $P > 0.05$ two-tailed).

- Premature mortality from cancers: mean latencies in participating Spearhead areas and non-participating Spearhead areas were 36.62 and 34.44; the distributions in the two groups did not differ significantly (Mann–Whitney $U = 566$, $n_1 = 34$ $n_2 = 36$, $P > 0.05$ two-tailed).

Table 5.1 and 5.2 below provide the SPSS output from the Mann-Whitney test.

Table A5.1: Mann-Whitney ranks

	In or out of study set	N	Mean Rank	Sum of Ranks
2003-05 Male Life expectancy	In	34	33.13	1126.50
	Out	36	37.74	1358.50
	Total	70		
2003-05 Female Life Expectancy	In	34	28.81	979.50
	Out	36	41.82	1505.50
	Total	70		
IMD Score 2004	In	34	38.16	1297.50
	Out	36	32.99	1187.50
	Total	70		
2004 Premature mortality from CD	In	34	36.81	1251.50
	Out	36	34.26	1233.50
	Total	70		
2004 Premature mortality from Can	In	34	36.62	1245.00
	Out	36	34.44	1240.00
	Total	70		

Table A5.2: Mann-Whitney Test Statistics

	2003-05 Male Life expectancy	2003-05 Female Life Expectancy	IMD Score 2004	2004 Premature mortality from CD (DSR)	2004 Premature mortality from Can (DSR)
Mann-Whitney U	549.000	402.000	522.500	598.500	566.000
Wilcoxon W	1179.000	1032.000	1152.500	1228.500	1196.000
Z	-.747	-2.475	-1.057	-.164	-.546
Asymp. Sig. (2-tailed)	.455	.013	.290	.869	.585
Exact Sig. (2-tailed)	.459	.013	.294	.873	.589
Exact Sig. (1-tailed)	.230	.006	.147	.436	.295
Point Probability	.002	.000	.001	.002	.002

a Grouping Variable: in or out of study set

The Southwestern Medical Center at the University of Texas provides an online tool for establishing the significance of Mann-Whitney test statistics output that can be found at:

<http://elegans.swmed.edu/~leon/stats/utest.html>. Tables A9.3 to A9.7 below show the significance of the Mann-Whitney test for each of the five factors used for determining Spearhead status.

Table A5.3: Mann-Whitney test significance, male life expectancy 2003-05

n ₁	n ₂	U	P (two-tailed)	P (one-tailed)
34	36	549	0.46533*	0.232665*
normal approx z = -0.740306			0.459114*	0.229557*

*These values are approximate. The two samples are not significantly different ($P \geq 0.05$, two-tailed test).

**Table: A5.4: Mann-Whitney test significance,
female life expectancy 2003-05**

n_1	n_2	U	P (two-tailed)	P (one-tailed)
34	36	402	0.012706*	0.006353*
normal approx z = -2.46769			0.01359892*	0.00679946*

*These values are approximate. The difference between the two samples is marginally significant ($P < 0.05$, two-tailed test).

**Table: A5.5: Mann-Whitney test significance,
IMD Score 2004**

n_1	n_2	U	P (two-tailed)	P (one-tailed)
34	36	522.5	0.293324*	0.146662*
normal approx z = -1.0517			0.292936*	0.146468*

*These values are approximate. The two samples are not significantly different ($P \geq 0.05$, two-tailed test).

**Table: A5.6: Mann-Whitney test significance,
premature mortality from circulatory disease
2004**

n_1	n_2	U	P (two-tailed)	P (one-tailed)
34	36	598.5	0.875356*	0.437678*
normal approx z = -0.158637			0.873954*	0.436977*

*These values are approximate. The two samples are not significantly different ($P \geq 0.05$, two-tailed test).

**Table: A5.7: Mann-Whitney test significance,
premature mortality from cancers
2004**

n_1	n_2	U	P (two-tailed)	P (one-tailed)
34	36	566	0.596028*	0.298014*
normal approx z = -0.540541			0.588824*	0.294412*

*These values are approximate. The two samples are not significantly different ($P \geq 0.05$, two-tailed test).

Appendix 6 Questionnaire respondents by role

This appendix includes details of the questionnaire respondents by job type. The Spearhead areas are numbered according to the numbering in the results tables in Appendix 1.

Cancers

Area 1

Seven respondents completed the questionnaire. Their job types were:

- Health Intelligence Officer
- Macmillan GP Adviser
- Assistant Director of Public Health (DPH)
- Assistant DPH
- Cancer Network Assistant Director
- Tobacco Control Co-ordinator
- Local Authority Officer (no more specific role types was provided for this respondent).

Area 2

Three respondents completed the questionnaire. Their job types were:

- Consultant in Public Health
- Environmental Health Manager (LA)
- Medical Director.

(LA) refers to a local authority employee.

Area 3

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance Manager
- Community Development and Health Worker (LA)
- Consultant in Public Health.

Area 4

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance Manager

- Regeneration Policy Officer (LA)
- Consultant in Public Health.

Area 5

Four respondents completed the questionnaire. Their job types were:

- Director of Public Health
- Medical Director
- Environmental Health and Trading Standards Manager

Area 6

Two respondents completed the questionnaire. Their job types were:

- Public Health Consultant
- Head of Public Health Development.

Area 7

Two respondents completed the questionnaire. Their job types were:

- Public Health Consultant
- Head of Public Health Development
- Public Health Consultant.

Area 8

Three respondents completed the questionnaire. Their job types were:

- Public Health Consultant
- Assistant Director of Public Health
- Health Inequalities Manager (Local Authority).

Area 9

Three respondents completed the questionnaire. Their job types were:

- Senior Public Health Practitioner
- Lead Commissioner for Public Health
- Population Health Policy and Strategy Manager.

Area 10

Three respondents completed the questionnaire. Their job types were:

- Assistant Director of Nursing (Cancer Lead for Nursing)
- Public Health Consultant
- Commissioning Manager.

Area 11

Three respondents completed the questionnaire. Their job types were:

- Public Health Consultant
- Assistant Director of Public Health
- Health Inequalities Manager (Local Authority).

Area 12

Seven respondents completed the questionnaire. Their job types were:

- Deputy DPH
- Primary Care Information and Outreach Worker
- Health Development Manager
- Programme Director
- Environment Health Manager (LA)
- Consultant in Public Health
- Deputy Head of Health Development.

Area 13

One respondent completed the questionnaire. Their job type was:

- Director of Public Health.

Area 14

Two respondents completed the questionnaire. Their job types were:

- Public Health Consultant
- Head of Public Health Development.

Area 15

Seven respondents completed the questionnaire. Their job types were:

- Principal Specialist in Public Health
- Assistant Director of Commissioning
- Locum Consultant in Public Health
- GP/Clinical Champion.

Area 16

Three respondents completed the questionnaire. Their job types were:

- Assistant DPH
- Commissioning Manager
- Epidemiologist.

Area 17

Seven respondents completed the questionnaire. Their job types were:

- Head of Public Health Strategy and Development

- Public Health Development Manager
- Director of Finance and Commissioning (Cancer Lead in the PCT)
- Public Health Commissioning Manager.

Area 18

Three respondents completed the questionnaire. Their job types were:

- Consultant in Public Health
- Environmental Health Manager (LA)
- GP and Primary Care Cancer Lead.

Area 19

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance manager
- LSP Co-ordinator (LA)
- Consultant in Public Health.

Area 20

Seven respondents completed the questionnaire. Their job types were:

- Senior Commissioning Manager
- Head of Planned Care (Commissioning)
- Consultant in Public Health
- GP Cancer Lead
- Service Manager Joint PH Unit.

Area 21

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance manager
- Partnership Manager(LA)
- Consultant in Public Health.

Area 22

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance manager
- LSP Manager (LA)
- Consultant in Public Health.

Area 23

Two respondents completed the questionnaire. Their job types were:

- Associate DPH

- Environmental Health Manager (LA).

Area 24

Two respondents completed the questionnaire. Their job types were:

- NHS Cancer Lead
- Health Improvement Principal
- Head of Environmental Sustainability (LA).

Area 25

Two respondents completed the questionnaire. Their job types were:

- Public Health Consultant
- Head of Public Health Development

Area 26

Three respondents completed the questionnaire. Their job types were:

- DPH
- Health Inequalities Programme officer
- Cancer Strategy Manager.

Area 27

One respondent completed the questionnaire. Their job type was:

- DPH

CVD

Area 1

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance manager
- LSP Manager (LA)
- Choosing Health Manager.

Area 2

Three respondents completed the questionnaire. Their job types were:

- Health Improvement Principal
- Service Development Manager
- Healthy Lifestyles Team Leader (LA)

Area 3

Three respondents completed the questionnaire. Their job types were:

- Assistant DPH

- CVD Commissioner
- Public Health Manager.

Area 4

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance Manager
- Community Development and Health Worker (LA)
- Sexual Health Strategic Lead.

Area 5

Two respondents completed the questionnaire. Their job types were:

- Head of Public Health
- CHD Programme Manager.

Area 6

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance Manager
- Community Development and Health Worker (LA)
- Choosing Health Manager.

Area 7

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance manager
- Partnership Manager(LA)
- Choosing Health Manager.

Area 8

Three respondents completed the questionnaire. Their job types were:

- Prescribing Adviser
- CHD Service Development Manager
- Public Health Specialist.

Area 9

Three respondents completed the questionnaire. Their job types were:

- Consultant in Public Health
- CVD Commissioner
- Primary Care Commissioning Manager.

Area 10

Three respondents completed the questionnaire. Their job types were:

- Consultant in Public Health
- CVD Commissioner
- Primary Care Commissioning Manager.

Area 11

Three respondents completed the questionnaire. Their job types were:

- Consultant in Public Health
- CVD Commissioner
- Primary Care Commissioning Manager.

Area 12

Three respondents completed the questionnaire. Their job types were:

- Assistant Director Health, Community and Cultural Services (LA)
- GP – Practice Based Commissioning
- Lead Public Health Specialist.

Area 13

Five respondents completed the questionnaire. Their job types were:

- Head of Health and Social Care Partnership (LA)
- Consultant in Public Health Medicine
- Professional Executive Committee member
- Public Health Specialist
- Assistant Director - Primary Care

Area 14

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance manager
- LSP Co-ordinator (LA)
- Choosing Health Manager.

Area 15

Three respondents completed the questionnaire. Their job types were:

- Deputy DPH
- Medical Director Teenage
- Environmental Health Manager (LA).

Area 16

One respondent completed the questionnaire. Their job type was:

- Choosing Health Manager

Area 17

Four respondents completed the questionnaire. Their job types were:

- Consultant in Public Health
- GP and PEC chair
- Health Improvement Specialist
- Commissioning Manager.

Area 18

Three respondents completed the questionnaire. Their job types were:

- DPH
- CVD Programme Manager
- GP Public Health Practitioner.

Area 19

One respondent completed the questionnaire. Their job type was:

- Commissioning Lead.

Area 20

Three respondents completed the questionnaire. Their job types were:

- CHD Clinical Champion
- DPH
- Service Director for Community Well-Being (LA).

Area 21

Three respondents completed the questionnaire. Their job types were:

- Consultant in Public Health
- Co-ordinator of Health Partnership (LSP)
- Clinical Champion for CVD.

Area 22

Three respondents completed the questionnaire. Their job types were:

- Consultant in Public Health
- Senior Commissioning Manager
- PH Business Manager.

Area 23

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance Manager
- Community Development and Health Worker (LA)

- Choosing Health Manager.

Area 24

Three respondents completed the questionnaire. Their job types were:

- Consultant in Public Health Medicine
- Health Development Manager (LA)
- Public Health Specialist.

Area 25

Four respondents completed the questionnaire. Their job types were:

- Consultant in Public Health
- CVD Commissioner
- Primary Care Commissioning Manager
- Consultant in Public Health.

Area 26

Three respondents completed the questionnaire. Their job types were:

- Associate DPH
- Associate Director of Adult, Culture and Community Services (LA)
- Public Health Strategist.

Area 27

Four respondents completed the questionnaire. Their job types were:

- Deputy Head of Health Development
- GP and PEC Lead for CVD
- Prevention Programme Director
- Head of Healthier Communities (LA).

Teenage Conceptions

Area 1

Three respondents completed the questionnaire. Their job types were:

- Deputy DPH (joint PCT/LA role)
- Teenage Pregnancy Co-ordinator (joint PCT/LA role)
- Senior Commissioning Manager.

Area 2

Three respondents completed the questionnaire. Their job types were:

- Associate DPH and PCT Sexual Health Lead
- Teenage Pregnancy Co-ordinator (LA)
- Consultant in Sexual Health.

Area 3

Two respondents completed the questionnaire. Their job types were:

- DPH (joint PCT/LA role)
- Lead for Teenage Pregnancy and Sexual Health (joint PCT/LA role).

Area 4

Three respondents completed the questionnaire. Their job types were:

- DPH
- Teenage Pregnancy Co-ordinator (LA)
- Consultant in Genitourinary Medicine.

Area 5

Six respondents completed the questionnaire. Their job types were:

- Assistant DPH
- Assistant DPH
- Public Health Manager
- Locality Director
- Gynaecologist/Clinical Director Sexual Health Services
- Service Development Manager for Teenage Pregnancy and Sexual Health (LA).

Area 6

One respondent completed the questionnaire. Their job type was:

- Teenage Pregnancy and Sexual Health Co-ordinator.

Area 7

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance Manager
- Community Development and Health Worker (LA)
- Sexual Health Strategic Lead.

Area 8

Two respondents completed the questionnaire. Their job types were:

- District Public Health Lead (joint PCT/LA role)
- Teenage Pregnancy Implementation Officer (LA).

Area 9

Two respondents completed the questionnaire. Their job types were:

- Young People's Sexual Health Delivery Manager (LA)
- Consultant in Public Health.

Area 10

Three respondents completed the questionnaire. Their job types were:

- Lead Public Health Consultant
- Information and Monitoring and Evaluation Officer
- Teenage Pregnancy Team Manager (joint PCT/LA role).

Area 11

One respondent completed the questionnaire. Their job type was:

- Teenage Pregnancy Co-ordinator (joint PCT/LA role).

Area 12

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance manager
- LSP Manager (LA)
- Sexual Health Strategic Lead.

Area 13

Four respondents completed the questionnaire. Their job types were:

- Teenage Pregnancy Strategy Co-ordinator
- Assistant Executive Director Children's Services (LA)
- Children's Commissioner
- Assistant Executive Director Children's Services (LA).

Area 14

Three respondents completed the questionnaire. Their job types were:

- Public Health Specialist
- Teenage Pregnancy Programme Manager (LA)
- Nurse Consultant Contraceptive Health.

Area 15

Three respondents completed the questionnaire. Their job types were:

- Public Health Manager
- Public Health Manager
- Teenage Pregnancy Co-ordinator (joint PCT/LA role).

Area 16

Three respondents completed the questionnaire. Their job types were:

- Service Director – Targeted Services (LA)
- Senior Public Health Commissioning Manager
- Teenage Pregnancy Co-ordinator (LA).

Area 17

Four respondents completed the questionnaire. Their job types were:

- Consultant in Public Health
- Head of Planned Care Development
- Young People's Sexual Health and Teenage Pregnancy Strategic Manager (LA)
- Public Health Training Fellow.

Area 18

Five respondents completed the questionnaire. Their job types were:

- Senior Joint Commissioning Manager (joint PCT/LA role)
- Sexual Health Commissioning Manager
- Joint Director of Commissioning and Partnerships (joint PCT/LA role)
- Public Health Specialist
- DPH.

Area 19

Two respondents completed the questionnaire. Their job types were:

- Teenage Pregnancy Operations Manager (LA)
- Deputy DPH.

Area 20

Three respondents completed the questionnaire. Their job types were:

- Director Public Health Intelligence Unit.
- Divisional Manager Youth Support Service (LA)
- Teenage Pregnancy Co-ordinator (LA).

Area 21

Three respondents completed the questionnaire. Their job types were:

- Children's Lead for Commissioning
- GP
- Teenage Pregnancy Co-ordinator (LA).

Area 22

Two respondents completed the questionnaire. Their job types were:

- Sexual Health Lead/Public Health Commissioner
- Health Improvement Practitioner Young People.

Area 23

Three respondents completed the questionnaire. Their job types were:

- Consultant in Public Health Medicine
- Teenage Pregnancy Co-ordinator (current post holder)
- Teenage Pregnancy Co-ordinator (Previous post holder providing historical perspectives).

Area 24

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance Manager
- Regeneration Policy Officer (LA)
- Sexual Health Strategic Lead.

Area 25

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance manager
- LSP Co-ordinator (LA)
- Sexual Health Strategic Lead.

Area 26

Three respondents completed the questionnaire. Their job types were:

- Teenage Pregnancy Co-ordinator
- Advice and Information Co-ordinator (LA)
- Sexual Health Lead.

Area 27

Three respondents completed the questionnaire. Their job types were:

- Partnership and Performance manager
- Partnership Manager(LA)
- Sexual Health Strategic Lead.

Appendix 7 Role and contribution of individual team members

The research was directed by Professor Tim Blackman (Principal Investigator), who conceived the project and wrote the application with advice from Professor Dave Byrne (Co-investigator) on methodological aspects regarding QCA. Dr Jonathan Wistow was hired to work on the project full time as a Research Fellow. Blackman and Wistow worked together on developing the questionnaires. Wistow prepared the NHS ethics application, obtained local NHS research governance approvals, and organised the meetings with Strategic Health Authorities and Primary Care Trusts to consult on the project, questionnaires and preliminary findings, which were attended by Blackman, Wistow and Byrne. Wistow was responsible for liaison with PCTs and key local contacts throughout the project. He also searched for and collated secondary data, with advice from Blackman and Byrne, and with assistance from Katie Dunstan, a research student who undertook a three month placement with the project to assist with data collation and analysis. Wistow checked and entered the data for analysis, and under Blackman and Byrne's supervision conducted the data analysis and prepared results for presentation. The results have been prepared as a booklet for dissemination to SHAs and PCTs, with Wistow writing the first draft and Blackman revising and editing with comments from Byrne. The present report is co-authored by Blackman (45%), Wistow (40%) and Byrne (15%). Administrative assistance for the project was provided by Linda Crowe. Journal publications are in preparation co-authored by the three members of the team, with Blackman currently leading an output on cancers and CVD, and Wistow on teenage conceptions.

Appendix 8 Bureaucratic conditions in the cancer configurations

	<i>Public health workforce</i>	<i>Partnership working at strategic level</i>	<i>The role of commissioning</i>	<i>Frequency of progress reviews</i>
Less than basic				Not yet done
Basic	Well skilled, staffed and resourced public health workforce to tackle the cancers gap.	Established Local Strategic Partnership with appropriate representation that receives progress reports from a health partnership/sub-group. Established cancer network.	Existing plans and contracts address inequalities. Who manages what is identified, services accommodate referral-to-treatment targets and the impact on capacity is accommodated.	Annually
Good	As 'basic' plus clear link between local plans and capacity and skill levels. Clear leadership of workforce planning. New types of worker introduced to reach high risk groups.	As 'basic' plus there is strong leadership of the agenda and mainstreaming through a local area agreement, and an evidence-based health strategy with an action plan, targets, timelines, identified roles and data sharing. Plans are aligned and delivery coordinated across agencies.	All of 'basic' plus services are commissioned and networked with cancer inequalities prioritised. Delays in patient pathways are addressed. Contracts are aligned and there is some budget pooling and joint contracting. There are lead project managers for specific tasks. User involvement, community campaigns and staff training are resourced to support appropriate use of services.	Quarterly

	<i>Public health workforce</i>	<i>Partnership working at strategic level</i>	<i>The role of commissioning</i>	<i>Frequency of progress reviews</i>
Exemplary	As 'good' plus there is effective pooled capacity across agencies, workforce plans embrace all sectors and long term plans develop the right skills mix and capacity. Implementation is performance managed. There is a shared intelligence function for service planning and performance monitoring.	As 'good' plus there are shared/pooled resources and joint planning and contracting. Partners account for progress. Health inequality impact assessment is used. The cancer network has developed all aspects of cancer services.	All of 'good' plus resources are clearly scaled up to narrow the cancer gap based on targets, modelling and commissioning at scale. There are joint plans, processes, contracts, and management and information systems across all stakeholders. Service standards are explicitly detailed in service level agreements.	Monthly

Appendix 9 Key conditions for narrowing the CVD gap

	<i>Primary care services</i>	<i>Smoking cessation services</i>
Less than basic		
Basic	Achievements against standards are audited and satisfactory. There are mechanisms for identifying poor performance and recovery plans.	There is a multi-agency tobacco control alliance meeting regularly. GPs and nurses routinely advise smokers to quit and offer cessation support in at least 50% of practices/community pharmacies.
Good	As 'basic' plus primary care in deprived areas meets local needs and is well organised. There is proactive development support. The PCT actively manages issues. Primary care works with other services to reach vulnerable groups.	As 'basic' plus there is an evidence-based strategy with a coordinator ensuring actions are carried out. Smoking cessation support is available in a range of care settings. Smoking prevalence data are used to target services. A wide range of practitioners have been trained in brief interventions.
Exemplary	As 'good' plus there is strong engagement from primary care with tackling the CVD gap, including actively seeking out people with disease or at risk. A variety of local data is used with prevalence models and risk scoring. There is no major variation across practices that causes concern.	All of 'good' plus a health equity audit of stop smoking services has been done and recommendations implemented. Capacity is sufficient and known to be effective. Monitoring systems ensure health professionals know the smoking status of their patients, advice offered and the response to that advice.

Appendix 10 Glossary of QCA key terms

Boolean algebra. Boolean algebra (or Boolean logic) is a logical calculus of 'truth values', using logical operations of conjunction such as 'A' *or* 'B' and 'C' *and* 'D'. Qualitative Comparative Analysis uses Boolean algebra to state conjunctions of necessary and sufficient conditions for some outcome to occur, i.e. the outcome is a logical consequence of the conjunction of conditions.

Causal complexity. The notion that there is more than one causal pathway to an outcome and that causes can operate in different ways depending on how they combine with other causes.

Causal condition. An aspect of a case that is relevant in some way to the researcher's account or explanation of an outcome.

Condition. In QCA, a condition is equivalent to a variable in conventional multivariate analysis but is more accurately regarded as an aspect of the 'state' of a case (with a case being a configuration of such conditions, applying to whatever are 'cased' for the purpose of the study). Conditions are 'qualities' described in binary terms (with or without the condition, as in this study) or as scores (degree of with or without-ness).

Configuration. In QCA, a configuration is a set of conditions associated with an outcome.

Crisp set. Sets made up of binary attributes (see 'condition') so that it is clear that a case is either in or out of a set.

Fuzzy set. Sets made up of attribute scores showing the degree of case membership of a set.

QCA or Qualitative Comparative Analysis is a method for exploring how conditions (attributes of cases) combine with outcomes of interest, using this to develop explanations based on Boolean logic of how outcomes occur.

Set. In QCA, this is configuration actually or potentially shared by a number of cases.

Set-theoretic. This is a type of analysis used in QCA that constructs causal arguments based on how conditions (attributes of cases) are associated with some outcome.

Truth table. A table showing configurations of all the conditions in a QCA and their logical consequences regarding some outcome.

Addendum:

This document is an output from a research project that was commissioned by the Service Delivery and Organisation (SDO) programme whilst it was managed by the National Coordinating Centre for the Service Delivery and Organisation (NCCSDO) at the London School of Hygiene & Tropical Medicine. The NIHR SDO programme is now managed by the National Institute for Health Research Evaluations, Trials and Studies Coordinating Centre (NETSCC) based at the University of Southampton.

Although NETSCC, SDO has managed the project and conducted the editorial review of this document, we had no involvement in the commissioning, and therefore may not be able to comment on the background of this document. Should you have any queries please contact sdo@southampton.ac.uk.