Comparative analysis of how local system factors affect progress tackling health inequalities – Jonathan Wistow, Tim Blackman, and Katie Dunstan.

Introduction

This paper concentrates on the preliminary findings of a research project exploring the impact of local system factors on progress tackling health inequalities in England. The research is concerned with why there is variation amongst areas in making progress towards the 2010 national health inequality targets. Consequently, the particular focus of the paper is on the Spearhead Group of local authority areas (those areas with the worst health and deprivation indicators), the progress they are making in narrowing their gap with the national average for premature mortality resulting from circulatory diseases (one of the 'big killers' in England) and what factors appear to be associated with this. In doing so, Charles Ragin's method of Qualitative Comparative Analysis (QCA) has been applied to the study by treating health inequality outcomes as the product of causal combinations of attributes. Data has been collected through both questionnaires and secondary sources that are regarded as possible causal conditions for the health inequality outcomes.

The paper will provide brief introductions to both QCA and to the English health inequalities agenda (in particular focusing on Spearhead areas). A more detailed application of the method to case and variable selection follows. Finally the provisional results of the research will be outlined in a 'dichotomised data table' and discussed in terms of the implications for narrowing health inequality gaps from circulatory diseases.

Qualitative Comparative Analysis (QCA)

QCA is a case-oriented method that employs techniques to allow the systematic comparison of cases (Berg-Schlosser et al, 2009). QCA is summarised by Ragin (2000:120) as providing, "analytic tools for comparing cases as configurations of set memberships and for elucidating their patterned similarities and differences." Contrary to many conventional approaches to 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). According to Rihoux and Ragin (2009:xviii) the major ambition of QCA methods and techniques is to, "allow systematic cross-case comparisons, while at the same time giving justice to within-case complexity, particularly in small- and intermediate-N research designs." Adopting a holistic perspective each individual case is considered as a complex combination of properties, a specific "whole" that should not be lost or obscured in the analysis (Berg-Schlosser et al 2009:6). Consequently, complex cases can be compared systematically by transforming cases into *configurations* of combinations of factors (or stimuli, causal variables, determinants etc.) that are referred to as *conditions* that produce a given *outcome* of interest (Rihoux and Ragin, 2009).

A central concern of QCA, identified by Rihoux and Ragin (2009), is to explore whether conditions (or combinations of these) are necessary or sufficient to produce an outcome (the outcome in this case study is whether the circulatory disease gap between a Spearhead area and the national average is *narrowing* or *not narrowing*). According to Ragin (2000), when a condition or causal configuration is *necessary* for an outcome all instances of the outcome should exhibit the same condition or combinations of causal configurations (although a

different outcome may also occur). When a condition or causal configuration is *sufficient* for an outcome, all instances of the condition or causal configuration should be followed by the outcome in question, although the outcome could also occur from other conditions.

The specific QCA technique being employed by this study has its roots in the earliest, and most widely used, application of the method, which was developed in the late 1980s by the American sociologist Charles Ragin and is now known as csQCA or 'crisp set' QCA. csQCA is based on Boolean algebra, which uses binary data (variables with values of 1 or 0, i.e. 'yes' or 'no') and, therefore, relies on useful and meaningful dichotomisation of variables (Rihoux and De Meur, 2009). The dichotomisation of variables for this study is discussed further below.

Health Inequalities

In England, health inequality targets were introduced in 2000 to 'close the gap' by 10% by the year 2010 in life expectancy and infant mortality (HM Treasury, 2000). These gaps are measured between the bottom 10% of local authority areas and the national average for life expectancy, and between manual groups and the population as a whole for infant mortality. The 2010 target, has the objective of reducing by at least 10 per cent the gap in life expectancy between the fifth of areas with the worst health and deprivation indicators (the Spearhead Group) and the population as a whole.

The Department of Health's (2007a) *Commissioning framework for health and well-being* identified reducing health inequalities as 'an overarching goal' and emphasises tackling circulatory diseases and cancers as the two biggest contributors to the gap in life expectancy between the national average and the Spearhead areas. Whilst life expectancy is continuing to improve and death rates from CVD and cancer have fallen rapidly for all parts of the population in the last ten years the overall health gap remains (DH, 2008). Indeed, for life expectancy, only eight areas were on track to meet both the male and female targets of a 10% narrowing of the gap with England by 2010 according to the 2004-06 data (Department of Health, 2007b). The number of Spearhead authority areas that are 'off track' for both male and female life expectancy increased from 25 in 2002-2004 to 30 in 2003-05 and to 41 in 2004-06 (DH, 2007b).

Nevertheless, the last of a series of status reports (DH, 2007b) about the *Tackling Health Inequalities: Programme for Action* states that the 2010 target is achievable if local action is focused and evidence based, with effective accountability and performance management. However, a great deal of local variation in progress within, and between, Spearheads is also indentified in this report. Even so, it is argued that if the trend for life expectancy increasing faster in some Spearhead areas was replicated in all, the target would be more than met (DH, 2007b:9).

Furthermore, studies by Tunstall et al (2007) and Walsh et al. (2007) have both identified variations in progress amongst areas with economic deprivation. Indeed Tunstall et al (2007:342) argue that, "if some areas can resist the translation of economic adversity into higher mortality, other areas can learn from their policies and approaches."

This research project intends to address issues such as this by focussing on Spearhead areas as local systems and by identifying a series of factors or 'conditions' to establish the extent to

which these are present or absent in these localities, and to assess how they combine in relation to health inequality outcomes.

Blackman and Dunstan's (2010) discussion of variations in health outcomes and whole systems develops the argument that the causes of health inequality are complex and associated with combinations of material disadvantage, health-related behaviours and access to services that interact together. Indeed Exworthy and Powell's (2004:276) case study evidence has highlighted the difficulty of reaching a consensus about equity objectives when there are multiple agencies each with different priorities, which is described as, "the conundrum of governance in the congested state and for issues such as health inequalities that necessarily demand inter-agency action." This is reflected in this study by viewing each Spearhead area as a local system with outcomes reflecting the design of services, the nature of interactions between local agents, and features of the local context. Blackman and Dunstan (2010) identify a strategy for using QCA (that is employed here) to seek to capture relevant attributes of the whole local system, and then explore possible causal combinations using structured questionnaires and secondary data to make systematic comparisons with population-level outcomes.

Case Selection

The Spearhead Group consists of the 70 local authority areas, which map onto 62 PCTs (following the latest NHS reconfiguration) that are in the bottom fifth nationally for three or more of the following five factors:

- Male life expectancy at birth;
- Female life expectancy at birth;
- Cancer mortality rate in under 75s;
- Cardiovascular disease mortality rate in under 75s; and
- Index of Multiple Deprivation 2004 (Local Authority Summary) average score (DH, 2004b).

As a result all of the cases share sufficiently similar characteristics to permit comparisons in a QCA study. In addition, the national target to close the gap between Spearhead areas and the national average provides what Berg-Schlosser and De Meur (2009:21) describe as an *outcome* of interest that they regard as indispensible for the selection of cases.

All PCTs with Spearhead were approached to participate in the study. Out of 70 Spearhead areas, 29 responded to the questionnaire on circulatory diseases. However, four participating areas were unable to make a complete assessment for what was happening in their area three years ago (see below for further details) and as a result the analysis in this paper relates to the 25 cases providing sufficiently complete data to be considered in the QCA.

The outcome measures used in the study focus on the trend in premature (less than 75 years of age) mortality from circulatory diseases for each Spearhead area against the national trend (England average). These have been developed using a combination of approaches and techniques to effectively triangulate the outcomes that include visualisation of the trend, projections of the trend, and a calculation of the absolute difference between 2004-06 and 2005-07 to produce two outcome measures, *narrowing or not narrowing* and *widening or not widening.* The visualisation of the trend was the primary tool used in the development of the

outcome measure and was based on comparisons of each Spearhead area against the national trend (England average) for both single year and three year rolling average data.

The idea behind having measures for both widening and narrowing gaps reflects some of the 'fuzziness' in the health outcomes (especially in interpreting areas with fluctuations in their trend) by having *not* categories for each of these rather than concluding an outcome is either strictly narrowing or widening. For the purposes of this paper we are focusing on the narrowing/not narrowing outcome largely because the conditions associated with narrowing outcomes are likely to be of more interest to practitioners than those associated with not widening gaps. Nevertheless a similar QCA exercise can be performed against this outcome measure in the future.

Condition Selection

Berg-Schlosser and De Meur (2009:25) argue that the selection of conditions for a QCA study must be guided by theoretical criteria. A topic of such as health inequalities fits within Plsek's (2001) view of an issue being addressed by a local system comprised of a network of local agents that come together and are interconnected to fulfil a common purpose. In addition, Wrede et al (2006) regard outcomes as a reflection of the purposeful design of services, the nature of interactions between agents, and contextual attributes. Consequently, the selection of conditions for this study is necessarily broad at the early stages of QCA, so as to account for the characteristics of the local systems we are exploring.

The principal method for collecting primary data about the conditions present or absent in local health inequality systems was through the completion of questionnaires by local practitioners. Variable selection was initially based on questionnaires that had been designed for an earlier exercise commissioned by the Government Office for the North West (see Blackman and Dunstan, 2010). Following an initial update of the questionnaire design based on a literature search of health inequalities academic literature (e.g. see Asthana and Halliday 2006, Graham 2004, Hunter et al 2007, Sassi 2006 etc.), government policy and guidance (e.g. Department of Health 2004a, 2005, 2006a, 2006b, 2007a, and 2007b) and good practice guides (e.g NICE 2006, 2007, 2008 and DH 2007c), a number of questions were added, including the role of commissioning and the public health workforce in tackling health inequalities and whether health inequalities were prioritised within the area or against the national average.

The research team subsequently consulted public health practitioners at a series of regional workshops about the structure, content and phrasing of the questionnaire and received much helpful feedback and guidance that led to a further redrafting of the questionnaire. Following this, the Department of Health's National Support Team for health inequalities also provided detailed feedback around the questionnaire design, phrasing and content. Questionnaires were subsequently revised to more accurately account for the conditions that could be considered to have an impact on health inequality outcome measures.

The questionnaires were divided into two sections. The first of these focused on approaches to policy and practice in the Spearhead areas towards tackling circulatory disease health inequalities and included nine statements that participants were asked to self-assess their area against. These included the following topics: the identification, understanding and targeting of the circulatory disease gap; the role of commissioning; strategic partnership working; partnership working on the ground; community engagement; the public health workforce;

smoking cessation services; primary and secondary prevention of circulatory diseases; and primary care services. These statements acted as best practice exemplars with detailed descriptions of levels of achievement between less than basic and exemplary (on a 6 point scale) being provided for participants to assess themselves against. The second part of the questionnaire focused on prioritisation of initiatives, health target progress monitoring, the use of evidence, different ways of working, types of interventions and questions about local leadership and organisational culture.

Participants were requested to complete the questionnaires as 'collaborative self-assessments' in teams of three people comprising a public health representative, a person with a clinical responsibility for the outcome area and a local authority representative who could provide a wider determinants perspective. Participants were asked to provide responses for the time of completion as well as for three years ago. Given the lag in the health trend data and the time it takes for interventions to have an impact the assessments for three years ago are used for the analysis here. In completing the questionnaires these teams were asked to adopt a 'whole systems view' across preventative and treatment services, NHS, local authority and voluntary services in the Spearhead area and to justify their answers with examples and/or supporting documentation. Consequently, a range of views across the local system were sought in agreeing areas' levels of achievement in tackling health inequalities from circulatory diseases through self-assessments about the Spearhead area.

In addition, a wide variety of contextual secondary data was considered alongside the questionnaire responses. The secondary data considered included performance assessment ratings (NHS Trust rating, CPA star category and direction of travel); local area information (IMD Score, Concentration and Extent; overall crime rate; MORI liveability score; local authority migration estimates – inflow and outflow; and % of the working age population without a level 2 qualification); health services information (A&E admissions for 2005/06, QOF data on the number of practices classified as outliers, the number of single handed practices in areas, and the number of general practitioners in areas excluding retainers and registrars per 100,000 population); spend (% over or under target budget allocation and the spend per head on CVD 2005/06); and Census data from 2001 (% of the population that are not white; % of the population that are under 18; and % of the population that are over 65).

Data analysis

Given the number of conditions selected for the study (outlined in the previous section) the number of possible 'logical combinations of conditions' far exceeds 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 6 conditions has 64 possible combinations, whereas one with 9 conditions has 512 possible combinations (Berg-Schlosser and De Meur 2009). Berg-Schlosser and De Meur (2009) identify this as the "*limited diversity* problem: The observed data are far less rich than the potential property space delineated by the conditions." Consequently, it is better to select a limited number of conditions because the danger is that only a *description* will be obtained rather than establishing core elements of possible causal mechanisms leading to the outcome of interest. In this regard Berg-Schlosser and De Meur (2009:28) identify a number of good practices for the selection of conditions in small and intermediate-N research designs that include:

- conditions must vary across the cases otherwise they are constants;
- keep the number of conditions 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; and
- formulate a clear hypothesis for each condition regarding its connection to the outcome.

Consequently, it is clear that the number of conditions need to be reduced for this study. In this respect the dichotomisation of the data can provide a strategy for limiting the number of conditions. Dichotomisation reflects the 'qualitative' in QCA; a decision is made as to whether the case has the quality or not. The majority of the questions in the questionnaire used scales and the remainder had categories or yes/no answer. All were explored using crosstabulations to establish the strength of relationship with the outcome and to set the thresholds for the dichotomisation of the data. Once the data had been dichotomised in this way twelve conditions displayed relatively strong relationships with the outcome measure. These conditions were entered into 'raw data' tables and through QCA techniques, trial, error and iterations, they have been further reduced to the six conditions in Table 1that have the strongest configurational relationships with the outcome measure. Descriptions of these conditions are outlined below:

Condition A – Smoking Cessation Services: 1 represents better practice and 0 an absence of better practice. The areas with better practice self-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 is collected and used to target services; and there is effective targeting of 'seldom seen, seldom heard' groups. Ten of the twelve narrowing cases responding to this question had better practice services present and seven of the eleven not narrowing cases also had this condition present.

Condition B – Primary Care Services: 1 represents better practice and 0 an absence of better practice. The areas with better practice self-assessed as meeting a description of primary care services in which the PCT actively manages Quality Outcomes Framework (QOF) exception reporting; primary care works with other services to reach vulnerable groups and to actively seeking out people with (or at risk of) diseases; and the quantity of primary care in local areas meets local needs. Nine of the narrowing cases have the best practice condition present and three of the not narrowing cases.

Condition C – Approaches to tackling the circulatory diseases gap (a few major projects): 1 represents an approach best characterised as 'a few major projects' and 0 equates to either 'many smaller projects' or 'an integrated systematic approach'. Five of the twelve narrowing cases (one case did not provide a response for three years ago) have this condition and only one out of the twelve not narrowing cases has this condition present.

Condition D - Leadership: The presence [1] of this condition equates to assessments of leadership as being either *good* or *excellent* and the absence [0] equates to *fair, poor* or *mixed picture* assessments of leadership. Ten of the narrowing cases and eight of the not narrowing cases have this condition present. Despite the relatively even split of this condition across the outcome measures it has been retained throughout different stages of the analysis because of the effect it has in combination with the other conditions, which will be discussed further below.

Condition E – PCT Target Budget Allocation: 1 represents higher PCT target budget allocation and equates to areas that have above target budget allocation through to those receiving no less than 4.3% under their PCT target budget allocation; and 0 represents lower

PCT target budget allocation and equates to areas with 4.3% under target budget allocation and less. Nine of the narrowing cases have this condition present and five of the not narrowing cases.

Condition F – Internal Migration: 1 represents lower levels of migration and 0 higher levels of migration. This condition is based on estimates of internal migration within the United Kingdom and relates to both local authority inflow and outflow migration[1]. Those cases with higher and lower inflow migration present were exactly the same as those with higher and lower outflow migration present based on the crosstabulations for dichotomising the conditions. Consequently, these conditions have been combined and classified as 'internal migration'. Five of the narrowing cases and four of the not narrowing cases had this condition present.

Table 1 (below) demonstrates that no one condition is present or absent in either all of the narrowing or all of the not narrowing cases. Consequently, the presence or absence of none of the individual conditions is *necessary* to lead to either a narrowing or not narrowing outcome. In addition, there are no instances of either outcome always occurring when a single condition is either present or absent and as a result no conditions are *sufficient* for an outcome. Given the complexity of local systems responding to health inequalities this is an unsurprising finding. Ragin (2000:88) has argued that, "one important way to address social diversity is to pay close attention to the variety of ways a common outcome is reached – that is, to attend to causal complexity." Consequently, Ragin's (2000:89) main argument is that researchers should avoid, as much as possible, making simplifying assumptions about the nature of causation. They should avoid assuming that individual conditions are either necessary or sufficient for the outcomes they study and study causes (as [potentially] sufficient only) in combinations.

Indeed, Berg-Schlosser et al (2009) argue that QCA develops a conception of causality that leaves room for complexity, referred to as 'multiple conjunctural causation'. Essentially the argument is that there are a number of paths that consist of combinations of conditions that can lead to the same outcome. Berg-Schlosser et al (2009:8) consider 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."

Before moving on to a more detailed discussion of the causal models identified through the research it is necessary to provide an introduction to Boolean algebra. Rihoux and De Meur (2009) apply the main conventions of Boolean algebra to QCA so that long and elaborate expressions and complex sets of operations can be summarised. Consequently, an *uppercase* letter represents the [1] present value and a *lowercase* letter represents [0] the absent value. In addition, a few basic *operators* need explaining: logical "AND" is represented by [*]; logical "OR" is represented by [+]; and the connection between conditions and the outcome is represented by [→].

[1] The statistics are available from: http://www.statistics.gov.uk/statbase/ssdataset.asp?vlnk=9674&More=Y

Table 1: Conditions associated with a narrowing gap in premature mortality from circulatory diseases (1=present; 0=absent)

Boolean ID:		A	B	C	D	E	F
Trend in the Gap	Case ID	Smoking Cessation	Primary Care Services	Approaches to tackling health inequalities (A few minor projects)	Leadership	PCT Target Budget Allocation	Internal Migration
NARROWING	1	0	0	-	0	1	0
	2	1	1	1	1	1	0
	3	1	1	0	1	1	0
	4	1	1	0	1	1	0
	5	0	1	1	1	1	0
	6	1	0	0	1	0	1
	7	1	0	0	1	0	1
	8	1	0	0	1	0	1
	9	1	1	1	1	1	0
	10	1	1	1	0	1	1
	11	1	1	0	1	1	1
	12	1	1	0	1	0	1
	13	-	1	1	0	1	0
NOT NARROWING	14	0	0	0	0	1	0
	15	0	1	0	1	0	0
	16	0	0	0	0	0	0
	17	0	1	1	0	1	0
	18	-	0	0	1	0	0
	19	1	0	0	1	0	1
	20	1	0	0	1	0	0
	21	1	0	0	1	0	0
	22	1	0	0	0	0	0
	23	1	0	0	1	1	1
	24	1	1	0	1	1	1
	25	1	0	0	1	1	0

Returning to Table 1 we can see that a couple of plausible causal models emerge from the analysis of this study. The causal pathways for the narrowing cases are:

1. The first configuration (or causal pathway) consists of seven cases (2, 3, 4, 9, 10, 11, & 12) and can be summarised using Boolean algebra as: A*B→ Narrowing Gap. This pathway could be described as areas with better practice smoking cessation services and better practice primary care services. Case 24 represents a 'contradictory configuration'[2] in the not narrowing group.

2. The second configuration consists of nine cases (2, 3, 4, 9, 10, 11 & 13) and can be summarised using Boolean algebra as: B*E→ Narrowing Gap. This causal pathway includes areas with better practice primary care services and higher PCT target budget allocation. There are two cases (17 and 24) with contradictory configurations.

The first potential causal pathway emerged through examining the table and identifying the presence of better practice smoking cessation services ('A') in the vast majority of the narrowing cases. However, there are also large numbers of not narrowing cases that also have this condition present. Consequently, other conditions need to be identified to provide a potential causal explanation. The presence of better practice primary care services in seven of the ten narrowing cases with condition 'A' present provides a configuration (A*B) that is repeated only once in the not narrowing cases. A tentative argument can, therefore, be made for developing better practice smoking cessation and primary care services to narrow the circulatory disease gap in Spearhead areas.

The second causal pathway once again highlights the importance of good practice primary care services (condition 'B') and supports the emphasis given to this in the CHD National Service Framework (DH, 2000) and in particular the emphasis on identifying those people with, or at risk of, circulatory diseases through primary care services. In addition, Spearhead areas have generally been given higher increases in funding to implement the *Choosing Health* White Paper than other areas through the weighted capitation formula, which rewards areas with higher deprivation with more funding. Even so, Spearhead PCTs tend to receive less than their weighted capitation targets as the Department of Health has gradually moved towards these targets. Consequently, the presence of condition 'E' (those areas with higher PCT target budget allocation) in these configurations draws attention to the need to bring Spearhead areas closer to their target allocation.

However, there are 2 contradictory cases (17 and 24) in the not narrowing group. Case 17 only had one more condition present, 'C', a characteristic it shares with case 13 alone in the narrowing group, each of the remaining narrowing cases with B*E have at least four of the six conditions present. Case 24 appears to be an 'odd case' within the not narrowing group as it has five out of the six conditions present. This case will require further investigation and more knowledge about it before it can be fully explained. It is, nevertheless, worth noting that it has higher levels of IMD concentration (a condition that was considered in the iterations around what should be included in the dichotomised data table but was left out of the final analysis due to the lack of a relationship with potential configurations). However, this is also the case with about half of the narrowing cases, nearly all of which had lower totals of conditions present. One characteristic it does share with eleven of the twelve not narrowing cases is the absence of condition 'c'. Consequently, the causal pathway that may

[2] Cases that are identical in causal conditions, but different in outcomes (Berg-Schlosser et al, 2009).

produce a narrowing health outcome in this area could be B*C*E. It would certainly be worth this Spearhead area considering the approach it takes to tackling health inequalities from circulatory diseases particularly in terms of adopting 'a few major projects' to reduce the circulatory diseases gap.

There is a degree of overlap between these two causal pathways. A number of cases (2, 3, 4, 9, 10 & 11) have both sets of configurations present. These cases are obvious candidates for further investigation as the research term goes back to the cases to disseminate the results and gain more in-depth interpretations of the findings. At this stage it is important to note that there are two potential causal explanations that overlap in a number of cases.

A number of cases (1, 6, 7, & 8) remain unexplained by these two causal pathways. Provisional iterations around the data have drawn attention to the following pathway A*F (better practice smoking cessation services and lower internal migration). Whilst this accounts for three of the narrowing cases (6, 7, & 8) it also accounts for three of the not narrowing cases (19, 23, & 24). Somewhat surprisingly cases 23 and 24 also have higher target budget allocation ('E') in contrast to the three narrowing cases. Consequently, a potential iteration around these cases might be A*e*F→ Narrowing Gap. As this is a somewhat counter-intuitive explanation for this potential configuration the researchers returned to the long list of secondary data (outlined above) to explore whether there were any particularly strong relationships across the three narrowing and three not narrowing cases in the A*F configuration. The condition that demonstrated the most obvious relationship was the census data for the percentage of the population that was not white. For each of the three narrowing cases the non-white population was over 6% of the overall population and for the not narrowing cases it was below 6%. This configuration needs further investigation but is worth noting during the provisional analysis.

Only one of the narrowing cases (case 1) does not fit with any of the causal pathways described above. This appears to be a contradictory case and would require the researchers to return to the case to derive further knowledge about its characteristics. For the time being it is perhaps worthwhile noting that it has lower levels of IMD (a seemingly receptive context) although it shares this with four of the not narrowing cases too.

Nevertheless, through the causal pathways identified above it is possible to identify a number of routes to narrowing the circulatory diseases gap that covers twelve of the thirteen narrowing cases. Because there are contradictory configurations in the not narrowing cases these configurations cannot be considered necessary or sufficient for circulatory disease gap to narrow with the national average. However, they do point to a number ways of working combined with contextual factors that are worth considering in further detail as localities seek to narrow their gaps in premature mortality resulting from circulatory diseases with the national average.

Conclusion

Given that QCA is a case-oriented technique the formal data analysis is not an end in itself. Rather, it is a tool to enhance our comparative knowledge about cases and this requires the researcher not only to interpret the formulas but also requires them to 'return to the cases' (Rihoux and De Meur, 2009). The discussion of the dichotomised data table in the previous section has drawn attention to a number of interpretations of the data and in particular some configurations for narrowing circulatory disease gaps. The next stage of the research project

is to disseminate the results to participants in the study and facilitate learning partnerships with these so that we (and they) can return to the findings and test the narratives behind the interpretation of the results, gaining further 'configurational knowledge' about the conditions discussed here.

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