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1 **Creating and implementing local health and wellbeing policy: networks, interactions and**
2 **collective knowledge creation amongst public sector managers**
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7 **Background:** In the UK managers from multiple organisations are commonly tasked with
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9 collectively devising and implementing local health and wellbeing policies as a way of addressing
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11 increasing demand for healthcare. This requires them to create knowledge together but relatively little
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13 is known about how this occurs. This paper reports the results of research into how managers
14
15 collectively create knowledge in order to address local health and wellbeing challenges.
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18 **Methods:** We undertook a case study in three sites in England. Using statistical network modelling
19
20 we identified clusters of actors and interviewed managers from heterogeneous clusters about their
21
22 collective activities. We used interview and documentary data to construct accounts of collective
23
24 knowledge creation.
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27 **Findings:** Managers simultaneously work across stable bureaucratic networks and temporary
28
29 taskforces in order to create and implement local health and wellbeing policy. They collectively create
30
31 knowledge by enacting networks of relationships which enable them to share and build on routines
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33 and discourses and to reach out for new evidence, perspectives and skills. When creating knowledge,
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35 managers' ability to draw on and harmonize alternative programmes of action and their willingness to
36
37 collectively negotiate is more important than their managerial status or position.
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40 **Conclusions:** Managers should be encouraged to examine and discuss their alternative programmes
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42 of action and to see these as a catalyst for rather than barrier to collectively creating and implementing
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44 local health and wellbeing policies and should be supported and valued for their ability to harmonize
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46 conflicting programmes of action.
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49 **Keywords:** Knowledge creation, health and wellbeing, local policymaking, knowledge mobilisation
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58 **Context**
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1 Policymaking in the 21st century is increasingly characterised by an emphasis on so-called
2 ‘wicked’ policy problems which transcend any one professional or organisational remit. One such
3 example is in the broadly-constituted area of health and wellbeing which in the UK (and elsewhere) is
4 replete with ‘national ambitions’ and policy solutions aimed at tackling unhealthy behaviour and
5 slowing the rapidly increasing demand for healthcare (Department of Health 2008, Department of
6 Health 2013). These interlinked policies include a high purchase tax and ban on smoking in public
7 places, the use of health promotion messages (e.g. <http://www.change4life.co.uk>) and specific advice
8 and treatment (e.g. weight loss classes, nicotine replacement therapy).
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18 Although national health and wellbeing policies are growing in scope and pace, they are often
19 poorly defined and short on detail, leaving local health and wellbeing practitioners and managers with
20 the task of devising and implementing local policies and solutions. This process, however, comes with
21 a number of practical problems and uncertainties. These include identifying appropriate local
22 objectives and stakeholders, working out which local populations to focus upon and working out the
23 practicalities of coordinating, organising and delivering health and wellbeing interventions across
24 multiple organisations. These are further compounded by a high degree of uncertainty about ‘what
25 works’ to achieve broad policy objectives such as a healthier population (Klijn & Koppenjan 2004).
26 Such uncertainty demands creativity and innovation on the part of those tasked with developing and
27 implementing local health and wellbeing policies (Mantoura et al. 2007), meaning that collective
28 knowledge creation (the process of interacting with others to work out what to do in uncertain
29 situations) is also a key aspect of this landscape.
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45 There is a wealth of literature which focuses on how private sector companies create knowledge
46 (Brown & Duguid 2001, Byosiere & Luethge 2008, Nonaka & Takeuchi 1995) but much of the
47 literature tends to focus on knowledge creation within rather than between organisations and there is
48 limited work on how knowledge is created within the public sector (Hartley & Benington 2006,
49 Rashman et al. 2009). There is, however, a large body of literature which focuses on how public
50 sector managers import, exchange and implement knowledge generated elsewhere either individually
51 or collectively (Birken et al. 2012, Contandriopoulos et al. 2010, Ferlie et al. 2012). This typically
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1 focuses on the use of research-based knowledge and evidence within tightly-bounded situations and
2 does not adequately account for the complex interrelationships between different forms of knowledge
3 within local policymaking (Riley et al. 2012, Mulgan 2005), the ambiguous and pragmatic nature of
4 the process itself (Ramsdal & Hansen 2017) or the multiplicity of divisions between those involved
5 (Smith & Joyce). As a result a number of questions remain about whether and how health and
6 wellbeing (and other public sector) managers collectively create knowledge to address local
7 challenges.
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10 This paper reports the results of research designed to increase our understanding of how public
11 sector managers collectively create knowledge across organisational boundaries. We focus
12 particularly on those managers with a role to play in designing and implementing local health and
13 wellbeing policies, who are typically spread across a range of different public sector organisations
14 including community healthcare organisations and local government organisations. We aimed to
15 answer two key questions: what do the relationships between these managers look like and how do
16 they create knowledge together? We addressed these questions by mapping the relationships between
17 health and wellbeing managers in a local area and constructing descriptive narratives of collective
18 knowledge creation between these managers using interview and observational data. In this paper we
19 primarily focus on the latter (narrative accounts of collective knowledge creation). We begin by
20 outlining the theoretical background to the study before describing our study design and methods. We
21 then present narrative accounts of how health and wellbeing managers collectively create knowledge.
22 These accounts are accompanied by network diagrams illustrating the patterns of relationships
23 between those managers. We conclude by comparing these accounts with theoretical assumptions
24 about knowledge creation and discussing the implications for those who seek to support collective
25 knowledge creation at the interface between policy and practice.
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54 **Theoretical background: organisational knowledge creation**

55 Theories about how organisations create knowledge have grown in scope and pace since the mid-
56 1990s with the publication of Nonaka and Takeuchi's *The Knowledge Creating Company* (Nonaka &
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Takeuchi 1995). They, and the authors who followed them, focused on the way in which knowledge is made available and amplified in order to create solutions to shared problems. Their initial concepts have been drawn on across a broad range of disciplines and settings with these ideas eventually coalescing under the term ‘organisational knowledge creation theory’ (Nonaka et al. 2006). One of the most striking contributions of this new theoretical perspective was a shift in emphasis from studying how organisations process given or external information and knowledge to studying organisations as embodied ways of knowing. Knowledge, in this landscape, is a process (more than an object or resource) and is embedded and revealed through what people do (social practices) and what they say (narrative practices, reflexive practices) and therefore cannot be separated from people (Nonaka et al. 2006). Knowledge creation involves tapping the tacit, and often highly subjective, insights, informal skills and practices (or ‘know-how’) of employees in ways that can be acted on.

These broad observations about organisational knowledge creation have led to the establishment of three main areas of enquiry within the field. The first concerns the patterns of relationships within and between groups of people. These are seen as acting as a frame for the social interaction through which knowledge develops and emerging problems are solved (Lindblom & Cohen 1979, Nonaka & Takeuchi 1995) and as a mechanism for the aggregation of knowledge from different network actors (Kooiman 1993). Key debates in this area of enquiry concern the relative importance of heterogeneity, stability and self-organisation within and across networks for knowledge creation (Argote & Miron-Spektor 2011, Rodan & Galunic 2004, Rutten 2004, von Krogh 2009). The second area of enquiry concerns the ways in which individuals and groups of people interact. This stems from the understanding that organisational knowledge creation is embedded in specific locales and social practices and increasingly occurs through temporary and episodic collaboration in projects which involve relatively small groups of people interacting in order to solve a common problem (Cohendet et al. 1999, Grabher 2002, Grabher 2004, Nonaka & Takeuchi 1995). The third area of enquiry concerns the constraints and enablers to knowledge creation, with these ranging from network stability (Collinson & Wilson 2006) and performance management arrangements (Hartley &

1 Benington 2006) to uncertainty and other socio-cognitive conflict which are understood to stimulate
2 learning and knowledge combination (Alin et al. 2011, Nonaka & Takeuchi 1995).
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5 Whilst networks and interactions are understood to be a key feature of the organisational
6 knowledge creation landscape, most of the literature pursues narrative descriptions of these networks
7 (Lewis et al. 2008). Such work, which uses networks as organising ideas or metaphors for describing
8 and explaining the relationships which enable actors to create knowledge and solve problems, has
9 tended to place less emphasis on using empirical methods for studying relationships (Lewis 2011).
10 One reason for this is that empirical network analysis is often used within an analytically rational
11 framework whereby the configuration of a network is treated as a concrete phenomenon which
12 produces a particular behaviour (Crossley 2012). In contrast, within the organisational knowledge
13 creation literature, social and organizational phenomena are seen as irreducibly complex and networks
14 viewed as a descriptive representation of underlying patterns of relationships which make a certain set
15 of actions possible. In other words, patterns of relationships merely represent the potential routes for
16 knowledge creation and different connections will be enacted according to the particular problem
17 being addressed (Considine & Lewis 2009, Nonaka & Takeuchi 1995).
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34 These insights about organisational knowledge creation provided us with a useful theoretical
35 framework for our study and provided us with an important methodological steer for how to go about
36 studying knowledge creation amongst public sector managers. We outline our approach in the
37 following section.
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45 **Methods**

46 **Sample and setting**

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48 We used a case study design where our phenomenon of interest was how managers collectively
49 created knowledge in order to address local health and wellbeing challenges (Hammersley et al.
50 2000). The managers in question were those with a role to play in designing and/or implementing
51 local health and wellbeing policies. We undertook our study in three sites in the North of England,
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each of which was defined by the geographical area covered by the local government authority.

Ethical approval for our study was given by Leeds West NHS research ethics committee.

Recognising that collective knowledge creation occurs where groups of people attempt to solve common problems, we began by identifying the most pressing health and wellbeing priorities being faced by each local area. We identified these via discussions with local Directors of Public Health and 1-2 other senior managers who had a good overview of the priorities across their local area and of the organisations likely to be involved in tackling that priority. These are shown in table 1 below.

[Table 1 here]

Table 1: Priority areas for each study site and the organisations involved

Next, we undertook a series of short ‘network interviews’ to identify managers who were directly involved in creating or implementing policies relevant to the local priority and shed light on their underlying patterns of relationships. We conducted 12 network interviews at each site. We selected the first 4 interviewees from our discussions with senior managers, a further 4 by modelling the patterns of relationships between the actors who they named, and a final 4 by modelling the patterns of relationships between the actors named by the first 8 interviewees. Using the question ‘who do you go to in order to get things done about [the local priority]?’ (which we chose as a way of focusing on joint action) we generated lists of between 58 and 123 actors at each site. We modelled the relationships between these actors using the concepts of latent position network models (Hoff et al. 2002) and latent position cluster models (Handcock et al. 2007), where clusters represent sites of ‘collective action’. In the resulting visual representation (see figure 1 below for an example) individuals are placed close together when they were more likely to be connected and are grouped together when they are common to the same cluster. Individuals placed closer to the centre of each cluster (i.e. in the darker coloured rings) are more likely to have strong connections to each other and the cluster. For a more detailed description of our network modelling and sampling methods please see (Authors 2014).

Data collection

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2 Having identified the local health and wellbeing priority and the managers involved in tackling it at
3
4 each site, we adopted narrative process tracing methods to construct accounts which could shed light
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6 on how these patterns of relationships were being enacted, the collective action that these clusters of
7
8 managers were involved in and whether/how they were collectively creating knowledge (George &
9
10 Bennett 2005). We constructed our accounts from two types of data. Our primary data source was
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12 interviews with managers whom we identified as belonging to a single heterogeneous cluster
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14 (comprising managers from different organisations, backgrounds and roles) via our modelling
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16 methods. We chose heterogenous clusters to investigate whether these relationships were being
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18 enacted for the purpose of knowledge creation across organisational boundaries. Since we were
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20 interested in examining how managers were interacting (rather than what happens when people don't
21
22 have the opportunity to interact), we selected interviewees who were close to the centre and had a
23
24 high degree of connection within a heterogeneous cluster, and those who connected the cluster to
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26 other clusters within the model.
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31 We interviewed between 9 and 11 managers at each study site in the early summer of 2012,
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33 approximately 1 month after modelling their relationships. Each interview lasted between 60 and 90
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35 minutes. Interviewees were provided with participant information prior to the interviews and
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37 completed a consent form before the interviews commenced. We adopted a realist interview approach
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39 (Pawson & Tilley 1997), where our theory about collective knowledge creation was represented in our
40
41 models of the relationships between groups of managers. We showed each interviewee versions of the
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43 diagrams which revealed the names of other managers known to them and asked them to tell us about
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45 any collective activities which those actors had recently been involved in.
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49 Our secondary source of data was documents from a range of meetings at each study site (e.g.
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51 agendas, minutes). We selected meetings on the basis that they involved heterogeneous groups of
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53 actors (including our interviewees), they were related to the priority topic for that study site and they
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55 took place on a regular basis. We were unable to directly observe all relevant meetings so meeting
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57 documents provided the most consistent data.
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Analysis

Our analysis involved using our data to identify and construct coherent narrative accounts of collective knowledge creation. We reasoned that people often employ narrative reasoning and accounting in situations that demand inventiveness and actors need to acquire skills or mobilise ‘helpers’ with relevant skills.

Our starting point was our interview data which we examined using Greimas’s narrative model of transformation (Greimas 1966). The approach is based on the premise that the language we use provides important pointers towards episodes of transformational action (i.e. solving problems or undertaking new activities) and clues about how this is undertaken and accomplished. The approach has previously been used in studies of technology implementation (Groleau & Cooren 1999) and organisational routines (Cooren & Fairhurst 2004). Since organisational knowledge creation theory suggests that collective knowledge creation is closely tied to joint problem solving, we judged that this approach would also enable us to identify episodes of collective knowledge creation. According to Greimas, transformational action involves two key stages and five corresponding speech acts. In the first stage actors are stimulated and enabled to undertake a new task (this stage is narrativised through the speech acts of manipulation, commitment and competence) whilst the second stage focuses on the performance of the task and its evaluation (speech acts: performance, sanction). Greimas also recognized that stories can be told from different perspectives corresponding to the positions, interests and programmes of action of the participating actors or subjects, which makes his model particularly useful for studying inter-organizational knowledge creation.

Three members of the research team were involved in carrying out the analysis, and met regularly to review and refine the analytical procedure. The outputs of each analytical step were also shared and discussed amongst the team. Our analysis consisted of the following steps:

- 1) Using QDA Miner (v2.0), a qualitative data mining and visualisation tool (Lewis & Maas 2007), we performed keyword searches to identify passages of text where our interviewees used phrases which corresponded to Greimas’s speech acts and were likely to point towards episodes of knowledge creation (Cooren 2001, Cooren & Fairhurst 2004). These phrases were “have to/want to”

1 (which correspond to manipulation and commitment speech acts) and “able to/know how to” (which
2 correspond to competence speech acts) (Greimas 1966).
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4 2) We read and grouped the identified passages within each site according to the object of the
5 activity (e.g. planning a health promotion event). Some activities included data from multiple
6 interviewees.
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10 3) Using the framework function in NVivo 9.2, we summarised the material into narrative
11 fragments (Pentland & Feldman 2007). We followed a series of conventions to ensure consistency
12 between coders and reversibility including retaining phrases such as ‘have to’, ‘want to’ and ‘able to’,
13 indicating the actors involved and capturing expressions of subjectivity (e.g. I, we).
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16 4) We returned to our interview data and meeting documents to identify, code and summarise
17 any additional material which related to each activity. This enabled us to fill out some of the
18 background details necessary to contextualise the activity and to identify data corresponding to
19 performance and sanction speech acts which we were not able to identify using keyword searches.
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22 5) The final stage of our analysis involved reordering the narrative fragments into a tellable
23 sequence of events, because it was sometimes necessary to relax the structural rules based on
24 Greimas’s narrative model in order to create a story that ‘made sense’ and could shed light on whether
25 and how managers were collectively creating knowledge.
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29 Once we had completed our narrative analysis, we compared the narratives with our latent cluster
30 models in order to identify the network position of those who were involved in the narrative accounts.
31 This enabled us to add further descriptive detail about the patterns of relationships between the actors
32 involved in the narrative accounts and to consider the role of organisational and professional divisions
33 in collective knowledge creation.
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36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 **Results**

52 We were able to identify a total of twenty six accounts of collective knowledge creation across
53 our three study sites. Each account included data from multiple interviewees and included all five
54 speech acts associated with transformational action. This showed that the patterns of relationships
55 between groups of managers were indeed being enacted for the purpose of collective knowledge
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1 creation. Project-based organising was a prominent feature of each account, this being represented by
2 the involvement of a relatively well-defined cast of actors interacting in order to solve a common
3 problem within a ‘project ecology’ of more enduring ties and institutions (Grabher 2004). In line with
4 our theoretical focus on knowledge as a process which is revealed through social and narrative
5 practices, it was these ‘common problems’ which constituted the focus of knowledge creation and the
6 (often tentative) ‘solutions’ which constituted the knowledge which was being created. Table 2 gives
7 an idea of the object of knowledge creation in each account and shows that whilst the majority were
8 accounts of practical time-bound activities, some were accounts of a group of actors’ general
9 approach towards ongoing priorities.
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22 [Table 2 here]

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24 Table 2: Overview of accounts of collective knowledge creation
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29 Below we present three of our accounts of collective knowledge creation (one from each site).
30 These accounts (italicised in Table 2) have been selected on the basis that they were discussed by
31 several interviewees, referred to in meeting documents and illustrate the main analytical and
32 theoretical insights arising from our data set. For brevity we present the accounts in a diagrammatic
33 overview (flow chart) and narrative description which is interwoven with our observations about how
34 these relate to the key aspects of organisational knowledge creation theory outlined earlier
35 (interactions, patterns of relationships and constraints/enablers). Each account is also accompanied by
36 a visual representation of the patterns of relationships at that study site.
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49 Developing a smoking cessation referral system
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51 We begin with an account from study site 1, where the overall priority was reducing the
52 prevalence of smoking. In this account a large cast of actors come together to develop and implement
53 a new policy and system for referring a specific group of people into the local smoking cessation
54 service. The cast of actors involved in collectively creating this knowledge includes Local
55 Government Authority environmental health managers and enforcement staff, NHS smoking cessation
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1 service managers and practitioners, primary care commissioning managers, other members of a local
2 strategic tobacco control alliance and local taxi drivers (as the intended beneficiaries). Figure 1 below
3 shows the patterns of relationships at the study site. To recap, individuals are placed close together
4 when they were more likely to be connected to each other and are grouped together when they are
5 most likely to be playing a role in some kind of collective action. Whilst the majority of actors
6 involved in this account are members of Cluster E, which is both the largest and most heterogenous
7 grouping of actors, enforcement staff are members of Cluster F, which represents a group of actors
8 holding largely legislative roles.
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22 [Figure 1 here]

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24 Figure 1: patterns of relationships at study site 1
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28 Figure 2 below provides an overview of the account, told from the perspective of the actors
29 involved. This is presented as a flow chart which shows the key narrative fragments in sequence.
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35 [Figure 2 here]

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37 Figure 2 Developing a Smoking Cessation Referral System flow chart
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42 This account started with an imaginative leap, made by one of the managers during a local
43 Tobacco Alliance meeting:
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45 “Mrs J**** has been on a speed awareness course. She’s actually been on a few speed
46 awareness courses, and as you probably know if you get caught speeding up to a certain level,
47 instead of taking your penalty points and getting the fixed penalty notice, you can pay a lower
48 fee and go on a half day awareness course.”
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56 The insight was that a similar scheme could be introduced to educate people about smoking in
57 public places. Legislation enabling Local Government Authorities to issue fixed penalty fines had
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1 recently been introduced and through discussion at a series of Tobacco Alliance meetings a scheme
2 was devised to offer those caught smoking a referral to smoking cessation services for education and
3 advice. As long as the offer was taken up within a certain period of time, the fixed penalty notice
4 would be waived. The group agreed that the scheme would focus, in the first instance, on local taxi
5 drivers, who were deemed to be at high risk of poor health and to pose a risk to their passengers'
6 health through secondary smoke.
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13 Pre-existing relationships and networks (both within and between clusters) appear to be the
14 biggest influence on how these actors collectively created knowledge about reducing the prevalence
15 of smoking. The generation of the initial idea was influenced by actors' familiarity with practice in
16 traffic policing, relationships with enforcement staff, exploratory conversations taking place in and
17 around a regularised Tobacco Alliance group and the inclusion of taxi drivers as a priority target
18 group in the networks of several local public services. The crediting of the idea to the Tobacco
19 Alliance group rather than any one individual also highlights the importance of these relationships and
20 networks.
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31 While there was enthusiasm for the scheme, problems had to be confronted. For example,
32 concerns about data protection caused some headaches since the details of those caught smoking
33 would have to be passed from the Local Government Authority to the NHS smoking cessation service
34 and the details of those who had attended the service would then need to be passed back to the Local
35 Government Authority so the fine could be waived. This problem was resolved through group and 1:1
36 discussion both within and outside the Tobacco Alliance meetings leading to the invention of a system
37 for logging referrals and attendances without the need to share personal information. Similarly, there
38 was concern about the possible loss of income streams from waiving the fines. Although the loss of
39 income would only be in the order of hundreds of pounds, this led to a lot of internal discussion and
40 negotiation between senior managers and middle managers within the Local Government Authority.
41 Resistance was overcome by reminding senior managers that the less tangible long term cost of
42 smoking was likely to be higher than any immediate lost revenue.
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58 As the knowledge creation activity gained momentum, it became apparent that the changing
59 relationships and networks (i.e. the inclusion of taxi drivers within the network of a health service)
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necessitated the creation of further processes and procedures, and that actors did not always find it easy to work together. Difficulties were overcome through learning about the outcomes and processes which were important to different interested parties and working out how to mesh these together (as in the case of the data protection issues) or appeal to those that were less tangible (as in the case of the lost revenue issue). In each case this involved work to align actors' distinct, sometimes conflicting programmes of action, either by negotiation or by mobilising an integrating narrative common to services with a commitment to public health goals (i.e. risky behaviours like smoking acting as time-bombs for public budgets). The connections and relationships between those involved in health promotion and preventative services (including environmental health) and those involved in legislation (enforcement officers) were key to overcoming these potential barriers and issues.

Creating, shaping and meeting a weight loss target

Our second account is from study site 2, where the priority was planning appropriate healthy lifestyle interventions. It also involves a large cast of actors coming together – this time to create and implement a local weight loss target. The cast of actors involved in collectively creating this knowledge includes public health commissioning managers, members of a local strategic partnership (including actors from the Local Government Authority and a range of NHS and community organisations) and weight management service managers and practitioners from public, private and voluntary sector organisations. Figure 3 below shows the patterns of relationships at the study site. Whilst the majority of actors involved in this account are members of Cluster E, which contains a tightly-clustered group of actors from NHS and local authority organisations who are involved in commissioning and providing health and wellbeing services, two of those involved in the account are from cluster G, which includes voluntary and community groups and local government employees involved in providing weight management and physical activity services. Note that the two clusters are particularly well connected.

[Figure 3 here]

Figure 3: Patterns of relationships at study site 2

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2 Figure 4 below provides an overview of the account.
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8 Figure 4 Creating, Shaping and Meeting a Weight Loss Target flow chart
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13 This account started with the Local Strategic Partnership setting a weight loss target, to be
14 implemented across the locality. It specified that a number of people who were seriously overweight
15 had to lose 5% of their body weight, and maintain their new weight for 12 weeks. Services would
16 receive outcome-based payments for hitting the targets. The target was applicable to organisations
17 running weight loss services across the locality, which at the time included services in both the Local
18 Government Authority and NHS community health services. In order to achieve the target, it was
19 necessary for these services to work together and form reciprocal relationships. This included NHS
20 managers contacting and negotiating with managers from Local Government Authority leisure
21 facilities for free access to help people maintain their weight loss.
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33 In this account a discrete external disturbance (the weight loss target) prompted the knowledge
34 creation activity and encouraged joint problem-solving and coordination across a range of interested
35 parties and organisations. Attempts to achieve the initial target led to the actors identifying and
36 interacting in new ways with those perceived to have a role to play in weight loss services, including
37 those they had not worked with previously.
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44 Despite working hard together to achieve the target, both organisations found that the original
45 target could not be achieved and, since this had big financial implications, it quickly became the only
46 thing that managers and staff talked about, both during meetings and more informally, which
47 damaged morale. The local strategic partnership eventually agreed to change the target, and once it
48 had been changed the organisations were able to meet it. They were partly able to do this through
49 involving a broader range of private and voluntary sector organisations. Much of this was viewed
50 positively, but there were occasional problems caused by differing payment 'rules'.
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“... working with the gyms, Weight Watchers and Slimming World worked really well. The voluntary sector was more difficult because there seemed to be different rules around what payments they would get for their activity ...”

The first set of interactions enabled the actors to collectively deem the initial target ‘unmanageable’ and work out ways of adjusting it. The revised target led to an expansion of the group of actors contributing to the knowledge creation effort and introduced know-how from other sectors (e.g. the private sector). Although relationships with voluntary sector organisations were in evidence, these were more difficult to enact and did not seem to help overcome the barriers to joint working.

The locality-wide target was later dropped and instead service providers were invited to propose targets which then provided the basis for contract negotiation. This introduced a significant element of competition and militated against the more integrated approach that had prevailed previously.

As the account progresses, it becomes clear that the new mode of interaction was too onerous to sustain for long and was seen to have an unfair impact on the voluntary sector. The solution was to retreat from cross-sector knowledge creation and revert to separately managed and monitored service contracts. Whilst the initial aim of encouraging collective knowledge creation through a shared weight loss target succeeded, the work required to sustain this activity across a large network of weight loss services with variable relationships and connections exceeded the perceived benefits.

At study site 2, the key problem narrativized by interviewees was the nature of the activity they were tasked with. The difficulty of harmonising their respective programmes of action was compounded by the lack of an integrating narrative to legitimise the one-size-fits-all target. Narrative analysis revealed that although the target did induce network extension in an effort to mobilise new ‘helpers’, this extension also allowed actors to resist the target as an unworkable rule by enabling them to identify and re-examine their own and others’ programmes of action.

Coordinating neighbourhood health and wellbeing projects

Our final account is from study site 3, where the priority was preventing vascular disease. The account is from the perspective of interviewees based in the same public health team in the Local Government Authority, but involves a large cast of actors who come together to develop and

coordinate a series of local health and wellbeing projects in response to a national policy directive.

These include managers from a range of departments across the Local Government Authority, locally elected councillors, members of a joint strategic health and wellbeing commissioning board, data analysts from a primary care organisation and community and voluntary organisations working in deprived local areas. Figure 5 below shows the patterns of relationships at the study site. All actors involved in this account are members of Cluster G, which contains a tightly-clustered group actors from a range of organisations (including general practitioners) all of whom had an identifiable focus or interest in public health and community-based primary prevention services.

[Figure 5 here]

Figure 5: Patterns of relationships at study site 3

Figure 6 below provides an overview of the account.

[Figure 6 here]

Figure 6 Coordinating neighbourhood health and wellbeing projects flow chart

This account begins when money became available for a programme of physical activity projects tied to a national policy imperative around lifestyle change. The local joint strategic commissioning board recognised that this programme needed a ‘home’ and tasked the public health team in the Local Government Authority with implementing the policy at a local level by allocating funding and coordinating the projects. These managers, in turn, drew on the expertise of data analysts from the primary care commissioning organisation to construct profiles for different neighbourhoods in the locality which they could use to decide which neighbourhoods to include in the programme. They reasoned that

1 “We wanted to base it on evidence, look at the information around physical activity and
2 nutrition, prevalence of heart disease, diabetes, deaths from those conditions, and ... look at
3 which areas seem to appear to be the worst...”
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6 Similarly to the account from study site 2, the knowledge creation activity was also prompted by a
7 discrete external disturbance - the availability of funding and a national policy directive. This came
8 with several pre-determined expectations about how and with whom actors would interact in order to
9 work out how to prioritise and allocate funding along with expectations about accountability
10 structures and timeframes. These led to the public health team using their networks of relationships to
11 enrol data analysts from another organisation to help them with the process of selecting
12 neighbourhoods.
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22 Once their selection was approved and the programme began to develop, managers began to
23 develop new relationships with community groups and organisations in the selected neighbourhoods.
24 They started by inviting representatives of these groups to planning days in order to identify local
25 priorities then issued a call for proposals to groups and organisations which provided physical activity
26 services. At times they used a targeted approach, based on further consultation within the community.
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33 “We were asked to go away and do some further consultation ... about who would be best
34 placed to deliver the physical activity elements ... so we went back into the communities and
35 asked some people who were already doing physical activity ...”
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40 Initial expectations about accountability and timeframes also led to actors choosing to interact
41 with members of the community (via planning days with trusted ‘opinion leaders’) in a relatively
42 controlled way. This subsequently influenced the relationships that they were able to develop since
43 these opinion leaders were responsible for enrolling others in the collective knowledge creation effort
44 by ‘spreading the word’. In effect, the urgency to get projects started constrained the possibilities for
45 developing and enacting a wider network of relationships to support collective knowledge creation.
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53 As the programme developed, managers were able to develop new relationships in the
54 neighbourhoods, and then use a more formal commissioning mechanism (outcomes-based contracts)
55 to ensure that the activities they wanted were delivered. In the end, however, managers recognised
56 that they were powerless to ensure the sustainability of projects beyond the initial funding period.
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1 Standardised forms of interaction (service level agreements) which were designed to enable
2 greater operational control constrained many of the possibilities for enacting relationships for the
3 purpose of collective knowledge creation further down the line. In the end, this led to managers
4 recognising that they were unable to influence whether the results of the collective knowledge
5 creation activities would be retained, although they may have been able to enact other relationships to
6 enter into new knowledge creation activities in other neighbourhoods.
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13 The two key obstacles recounted by our interviewees both relate to coordinating a network of
14 relationships: early in the account there were complaints about a lack of time for exploratory network
15 search, inducing a preference for existing ties and trusted partners, while at the end we heard worries
16 about loss of accreditation (due to the termination of project funding), experienced by public health
17 managers as having to abandon the position of obligatory passage point in the network. Following this
18 narrative trajectory shows how important are resources (of time, money or discursive power) in order
19 to command the loyalty of ‘helpers’ in collective knowledge creation activities.
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31 **Discussion**

32 In this section we consider our key insights about how health and wellbeing managers collectively
33 create knowledge and how these compare to current theories about organisational knowledge creation.
34 We also comment on the utility of our narrative method as a means of exploring data about networks
35 of relationships.
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42 First, much of the theorising and empirical work on organisational knowledge creation has
43 focused on the private sector, resulting in scepticism about its relevance to public sector organisations.
44 Questions have been raised about the extent to which knowledge creation is possible against a
45 backdrop of multiple and conflicting accountability regimes, strategic objectives and professional sub-
46 cultures which act as knowledge silos (Hartley & Benington 2006, Rashman et al. 2009). In contrast,
47 the networks of health and wellbeing managers we studied (which comprised actors from multiple
48 organisations and sectors) did appear to create knowledge together. They were able to use their
49 networks of relationships to identify and harmonize (where possible) conflicting programmes of
50 action, enabling them to overcome many of the perceived barriers to knowledge creation. Even when
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1 such harmonization was not possible (as in the weight loss target account), managers were still able to
2 devise ways of collectively achieving their respective programmes of action (i.e. by resisting the
3 unworkable target). Knowledge creation was prompted by the need to address local priorities which
4 were often broad in scope and/or came with little detail about how they were to be met. Again, it was
5 when such details needed to be filled in that we saw inventiveness, which sometimes included
6 extending a network to mobilise new knowledge resources. This supports theoretical claims about the
7 role of uncertainty as a catalyst for and key component of knowledge creation (Amin & Roberts 2008,
8 Bogenrieder 2002, Erden et al. 2008, Macpherson 2005) and suggests that the ambiguity and
9 pragmatism inherent within local policymaking may support rather than constrain organisational
10 knowledge creation (Ramsdal & Hansen 2017).

21
22 Second, one of the most prevalent theoretical stances is that organisational knowledge creation
23 typically occurs when relatively small groups of people interact in order to solve a common problem.
24 Projects are understood to provide a space where tacit and explicit knowledge interact and are
25 converted into new knowledge forms (Nonaka & Takeuchi 1995) and for local knowledge to be
26 integrated into common knowledge bases (Cohendet et al. 1999). Whilst managers at all three of our
27 sites did interact in projects, many of these were set against a backdrop of relatively stable networks
28 of relationships. The smoking cessation referral project, for instance, took place in the context of a
29 large and relatively stable ‘tobacco alliance’ network, whilst the neighbourhood health and wellbeing
30 account involved a bureaucratic network accrediting an internal task force to mobilise and organise a
31 project. Previous work has raised doubts about both the sufficiency of stable networks of relationships
32 for knowledge creation (Araujo 1998, Collinson & Wilson 2006, Rodan & Galunic 2004) and the
33 risks of ephemeral projects for knowledge retention (Grabher 2002). Our observations suggest that
34 managers are able to successfully operate in such a way as to combine elements of stable networks
35 and temporary projects, alternately switching between learning and remembering (Grabher 2004).
36 Specifically, they use institutionalised relationships and resources to share and build on collective
37 programmes of action whilst creating new project-centred relationships to reach out for perspectives
38 and technical skills from other individuals and organisations when needed.

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Third, organisational knowledge creation theory places middle managers at the centre of knowledge creation, with Nonaka and Takeuchi describing them as ‘knowledge engineers’ who translate the grand theories of senior managers into the day-to-day realities of frontline practitioners and vice versa (Nonaka & Takeuchi 1995). Although, as with other aspects of knowledge creation theory, questions have been raised about whether managers’ organisational position is more or less important than their ability to create and propagate discourses (Swan & Scarbrough 2005), they are nonetheless seen as the drivers of organisational knowledge creation. In contrast, our accounts suggest that actors’ ability to identify and harmonize alternative programmes of action (by drawing on routines, official discourses, shared vision and targets) was more important than their managerial status or position in their respective organisations. In the smoking cessation referral account, for instance, the local authority’s need to know clients’ details and the health service’s need to respect strict privacy regulations was recognised by frontline staff in both organisations, authorising them to shape the innovation in important ways (by developing a system which did not depend on sharing personal information). This also calls into question observations about the multiplicity of divisions within knowledge creation and mobilisation, specifically those that place those divisions along professional and/or political lines (Smith & Joyce).

Fourth, organisational knowledge creation theory suggests that the interactions between those involved in creating knowledge are frequently characterised by negotiation. Such negotiation is understood to perform two important functions. It spreads the practices in which knowledge is embedded (Brown & Duguid 2001) and can help to overcome professional, organisational, relational or procedural differences between parties (Hartley & Benington 2006, Rashman et al. 2009). The role played by individual managers in the negotiation process is also thought to be particularly important (Nonaka & Takeuchi 1995). Negotiation was a key aspect of our knowledge creation accounts, but this appeared to depend less on individual managers and more on a collective willingness to negotiate. Collective negotiation was a key aspect of the short period in which services were working within the initial weight loss target, for instance, where differences between groups of professionals from different sectors had to be negotiated. In the neighbourhood health and wellbeing account the position of a team, rather than individual managers, appeared to be important for the local knowledge

1 creation effort. In each case it appeared to be groups of actors who assumed responsibility for
2 synthesising knowledge conversions between individuals, groups and organisations, simultaneously
3 using local strategic priorities to drive on the ground activities and local practices to challenge and
4 adapt strategic priorities. Negotiation therefore appears to be as much about negotiating between
5 strategic priorities and frontline realities as between the interests and perspectives of different groups
6 of actors.
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13 Finally, our narrative method (both as an interview approach and a guide for data analysis) helped
14 elicit how networks of relationships were enacted for collective knowledge creation, particularly when
15 actors encountered barriers in the pursuit of non-routine tasks. Our narratives showed that underlying
16 networks of relationships served to increase the visibility of alternative programmes of action and
17 allowed actors to identify and negotiate the commensurability of these distinct programmes and the
18 viability of their collective mission. They were also used to identify knowledge and other resources
19 which could be drawn upon in pursuit of a collective task, but only if sufficient time was available for
20 network search. Whilst our network approach enabled us to visualise and describe the patterns of
21 relationships between actors, it was our narrative approach which enabled us to understand how these
22 networks were enacted and to open the black box of collective knowledge creation.
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38 **Conclusion**

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40 In this article we have explored how health and wellbeing managers collectively create knowledge
41 in order to devise and implement local policy solutions. We have demonstrated that they do this by
42 enacting networks of relationships which enable them to share and build on collective routines and
43 official discourses and to harmonize alternative programmes of action. These networks also allow
44 them to reach out for new knowledge, perspectives and skills where necessary, which can enable both
45 inventiveness and resistance to the mission with which actors have been tasked. We have also shown
46 that enacting these networks is not always easy, especially when the need to act reduces the time
47 available to search the network. These insights serve to add to the limited policy-related literature on
48 how networks of relations are enacted for knowledge and knowing. We close by suggesting some
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1 implications for those who seek to support collective knowledge creation at the interface between
2 policy and practice.
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4 First, although there was some evidence of significant differences and conflicting programmes of
5 action between the actors and organisations we studied, these did not always hamper collective
6 knowledge creation. Instead, they provided actors with resources for collective negotiation which
7 strengthened their knowledge creation efforts. The implications are that managers should be
8 encouraged to examine and discuss their alternative programmes of action and to see these as a
9 catalyst for rather than barrier to collectively creating and implementing local health and wellbeing
10 policies.
11

12 Second, health and wellbeing managers create knowledge in simultaneously fluid and stable
13 networks of relationships. Temporary taskforces were evident in each of our accounts, but these were
14 often situated in the context of relatively stable networks of relationships (e.g. bureaucracies). To
15 support the creation and implementation of local health and wellbeing policies organisations
16 (individually and collectively) should foster and support both stable bureaucratic networks and
17 temporary taskforces and – crucially – support managers to work simultaneously in both these
18 settings.
19

20 Finally, health and wellbeing managers’ ability to create knowledge relies less on their power and
21 position than on their individual and collective ability to exploit the power of routines, targets and
22 discourses and to harmonize conflicting programmes of action. Managers should be supported and
23 valued for these activities, particularly when faced with the challenges of creating and implementing
24 local health and wellbeing policies.
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49 **Research highlights**

- 50
- 51 • Health and wellbeing managers use fluid and stable networks of relationships to
52 create local policy
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- 54 • These networks enable managers to build on pre-existing discourses and reach out
55 for new knowledge
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- Creating knowledge relies on managers' ability to harmonize conflicting programmes of action
- Narrative methods show how networks are enacted to overcome barriers to collective knowledge creation

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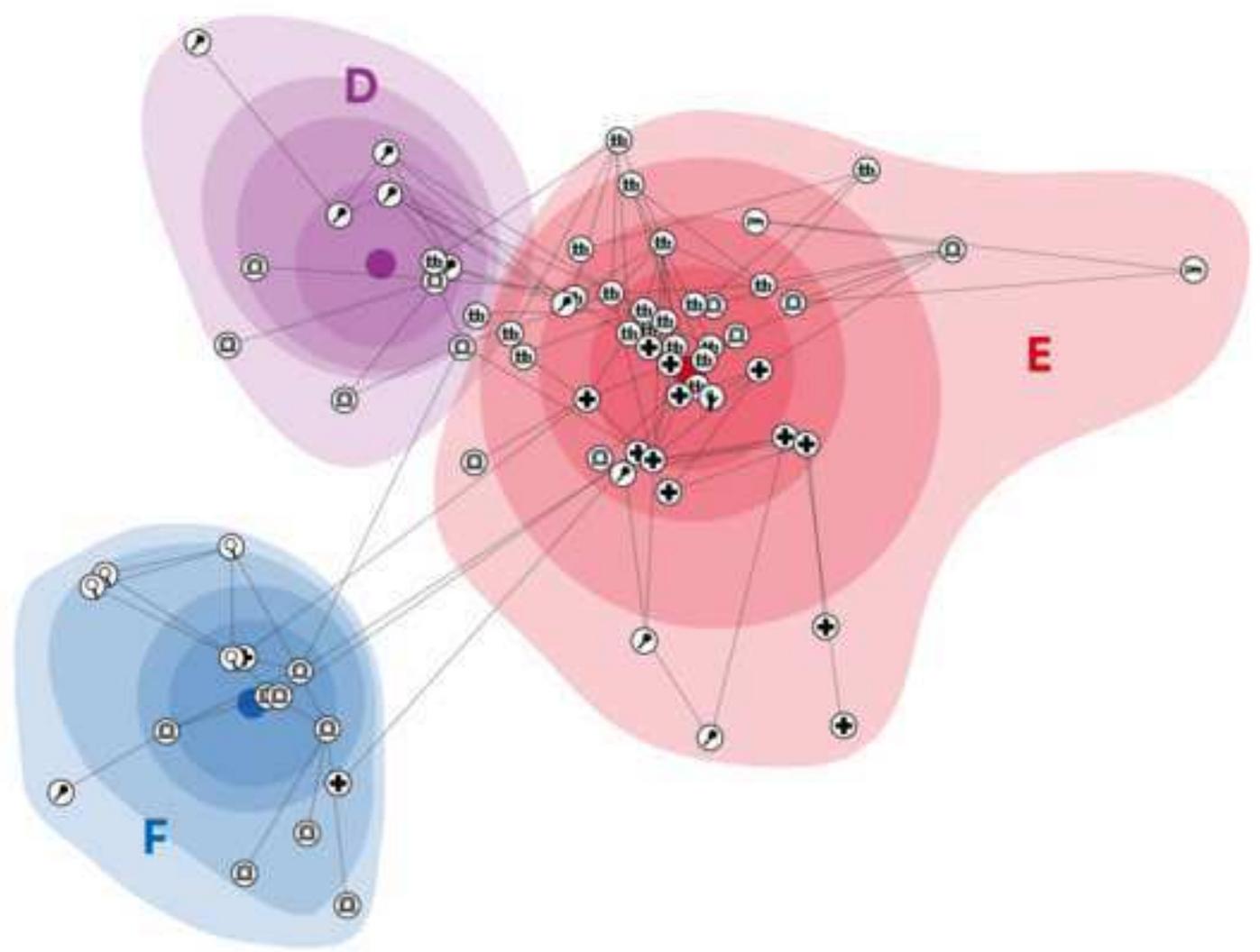
Figure 1

Site 1 GOES TO

3 clusters

KEY:

-  Community Safety Organisation
-  NHS Primary Care Trust
-  Local Authority
-  NHS Hospital Trust
-  NHS Community Service Provider
-  Regional Trading Standards
-  Voluntary & Community Groups



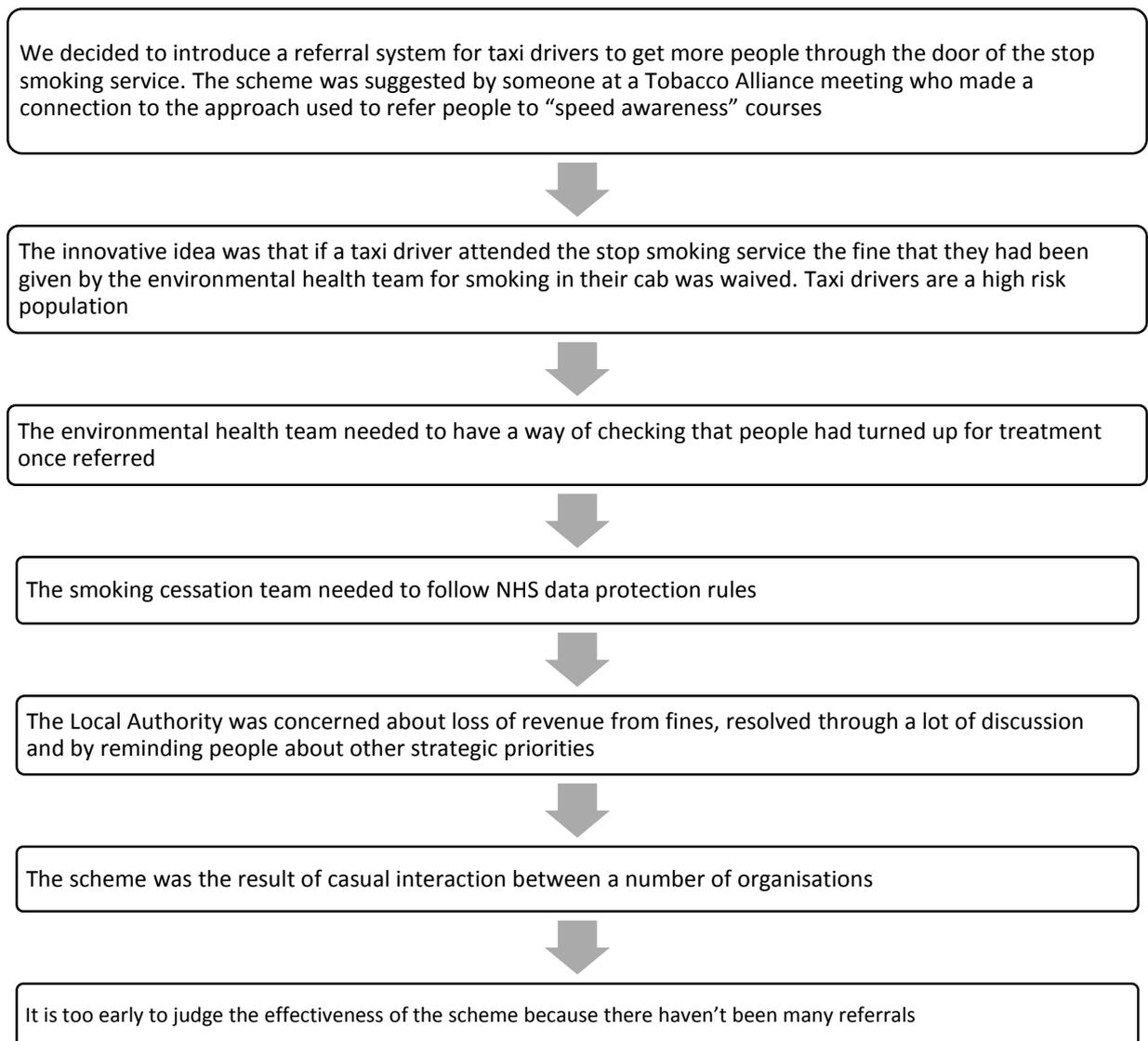
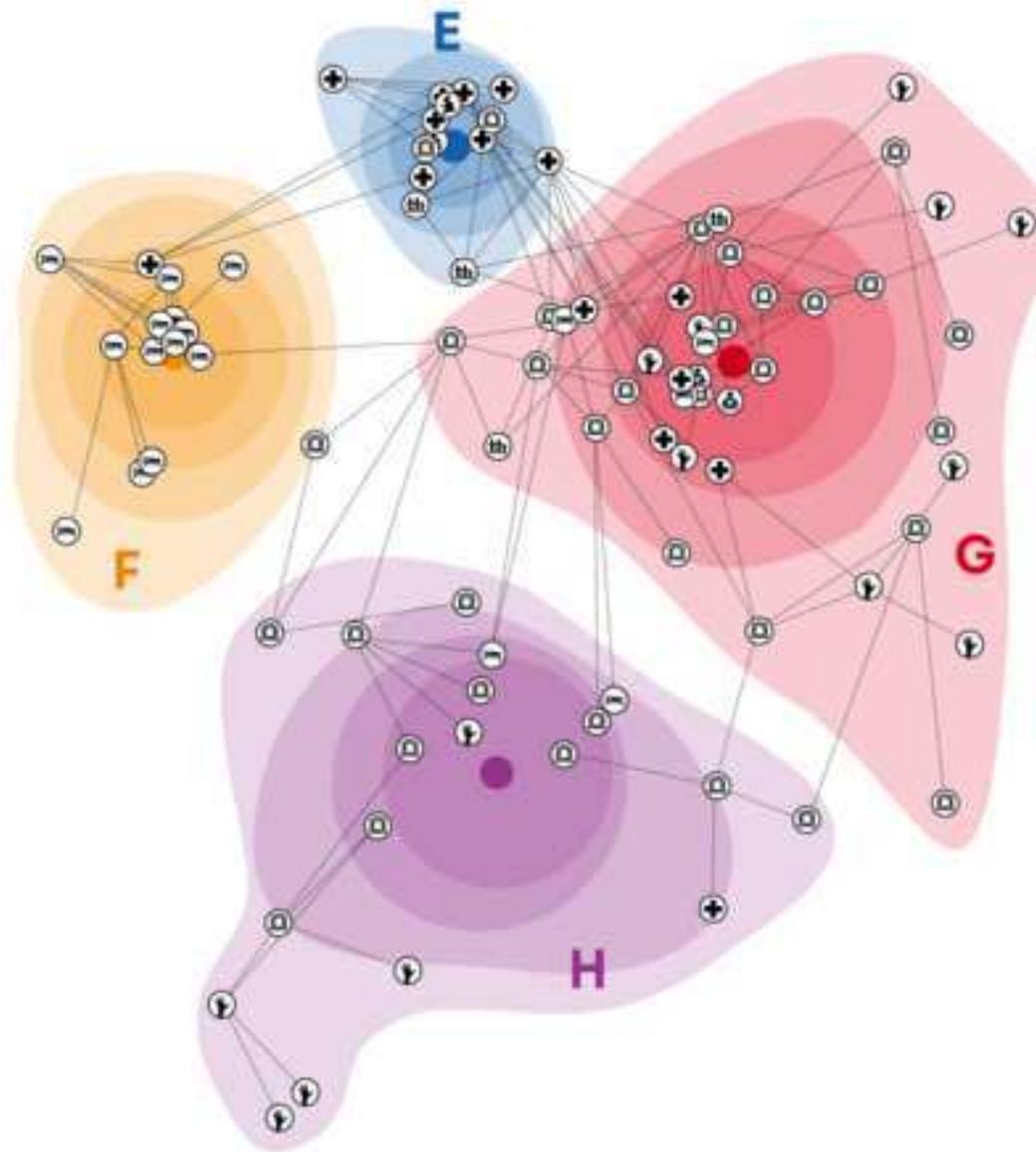


Figure 3 Developing a Smoking Cessation Referral System flow chart

Figure 3

Site 2 GOES TO

4 clusters



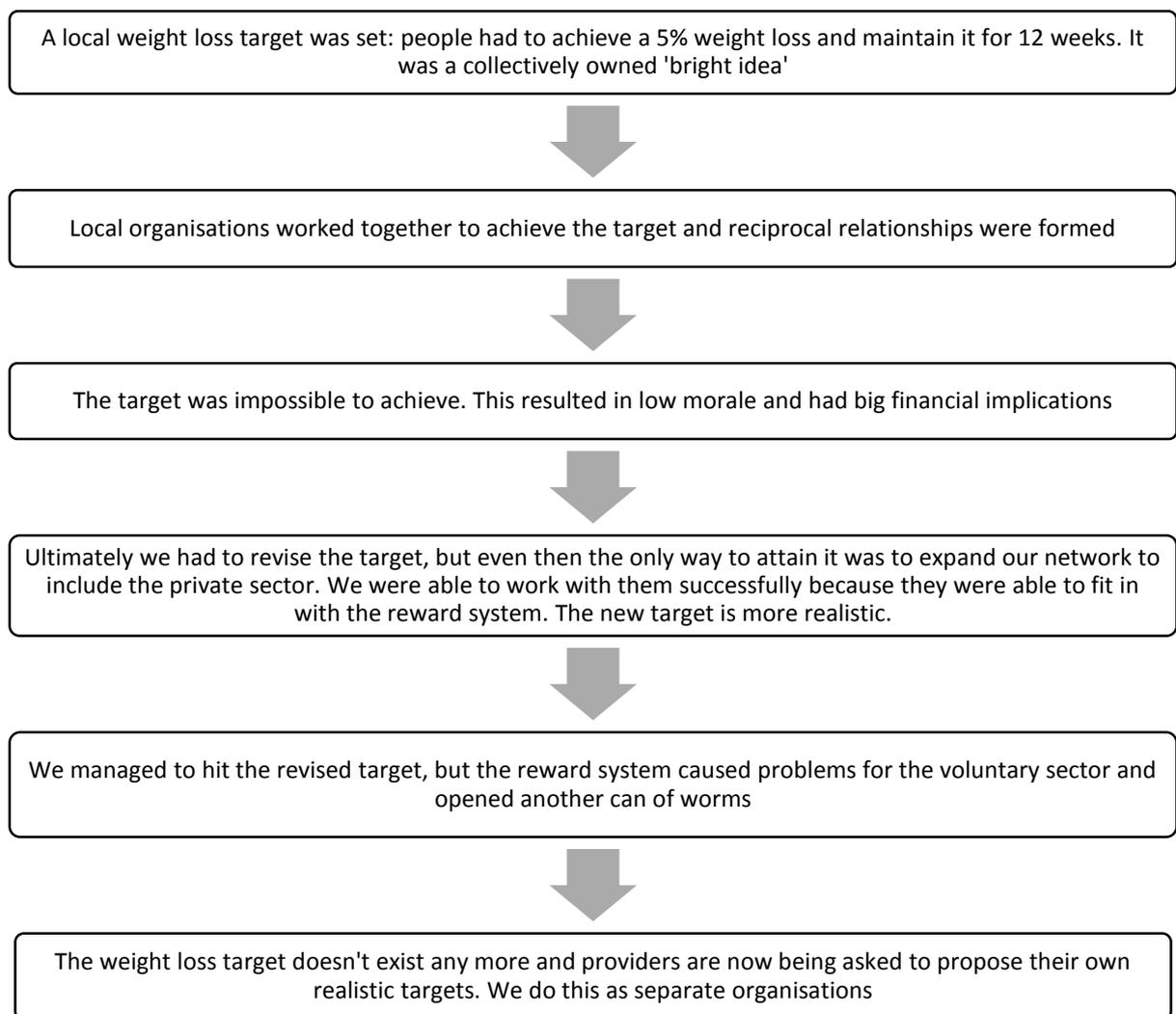
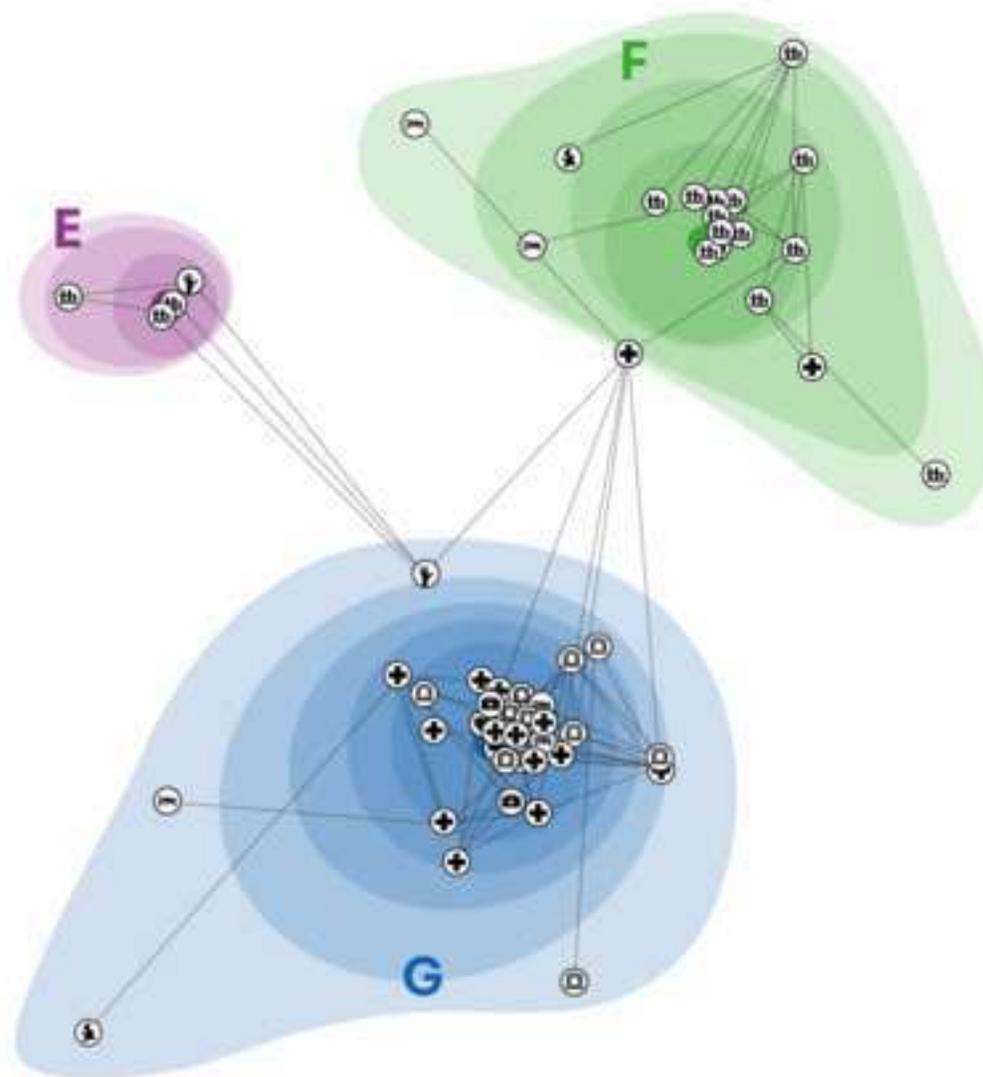


Figure 5 Creating, Shaping and Meeting a Weight Loss Target flow chart

Figure 5

Site 3 GOES TO

3 clusters



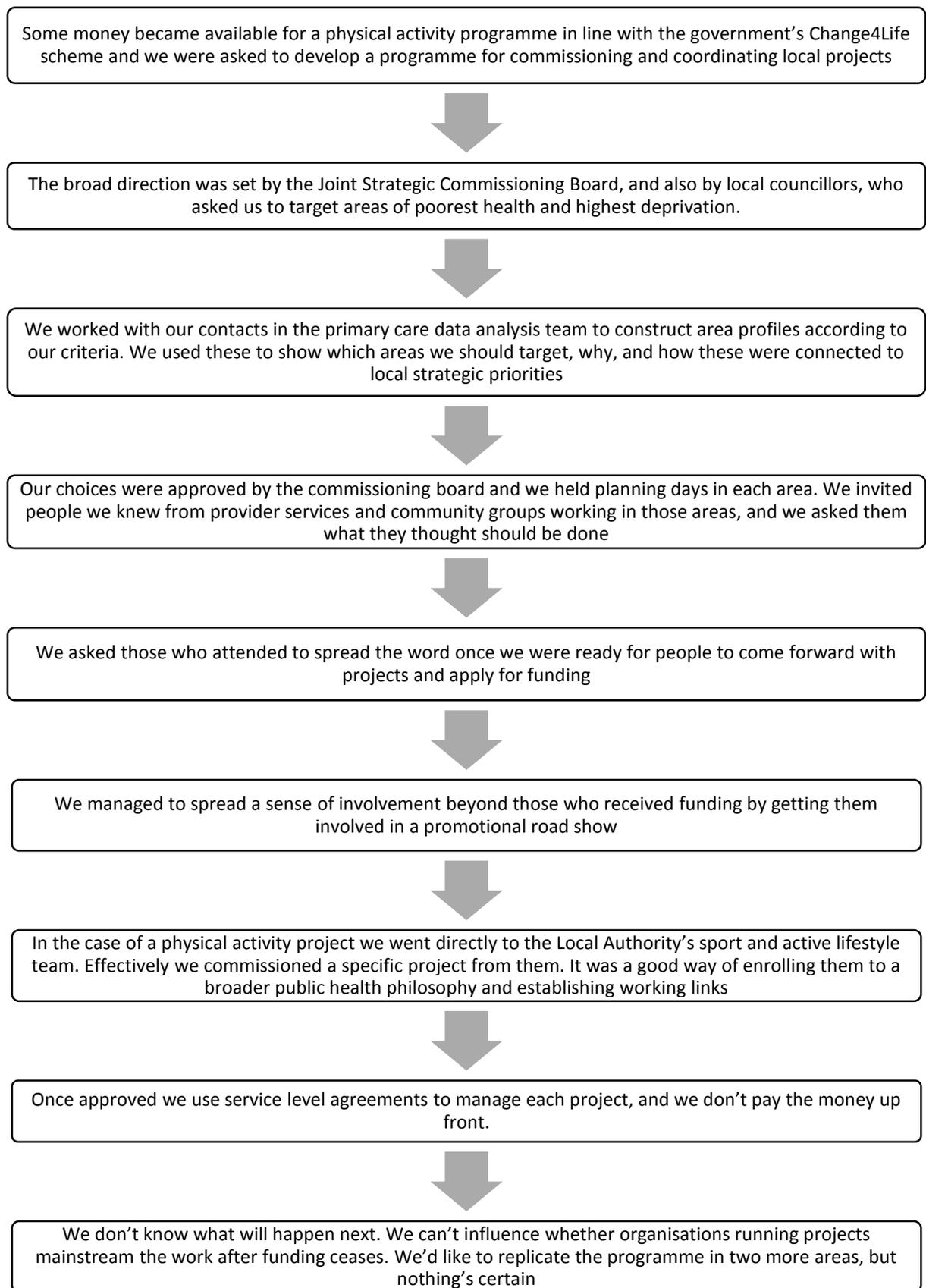


Figure 7 Coordinating neighbourhood health and wellbeing projects flow chart

Study site	Health and wellbeing priority	Organisations involved
1	Reducing the prevalence of smoking	Primary Care Commissioning organisation, Community Health Services organisation, Local Government Authority, Fire Service, Probation Trust, Acute Hospital Trust, Primary Care Medical Practices, Pharmacies, Social Housing Provider
2	Planning appropriate (i.e. community/locality specific) healthy lifestyle interventions	Primary Care Commissioning organisation, Community Health Services organisation, Local Government Authority, Pharmacies, Primary Care Medical Practices, Children's Centres, Acute Hospital Trust, schools, private sector employers
3	Preventing vascular disease	Primary Care Commissioning organisation, Community Health Services organisation, Local Government Authority, Primary Care Medical Practices, private sector employers, local football and rugby clubs, Regional Health Authority, national Department of Health.

Table 1: Priority areas for each study site and the organisations involved

Site 1	Site 2	Site 3
Writing service specifications	Creating, shaping and meeting a weight loss target	Coping with reorganisation
Dealing with targets and performance indicators	Sharing resources	Implementing national guidance/policy/priorities
Planning a health fair/stop smoking day	Coping with reorganisation	Improving the health of council staff
Developing a smoking cessation referral system	Targeting your audience	Developing and implementing a town planning & health project
Coping with NHS cuts and reorganisation	Setting local priorities	Coordinating neighbourhood health and wellbeing projects
Brokering relationships between people from different services	Developing and implementing a weight management programme for mums-to-be	Targeting your audience
Improving taxi drivers health	Making services sustainable	Assigning tasks to people and roles
Sharing responsibility for the tobacco agenda	Commissioning services	
Knowing your audience	Increasing awareness of 'Smoke free homes'	
Working as street level bureaucrats		

Table 2: Overview of accounts of collective knowledge creation