



Public Health
England

Protecting and improving the nation's health

Whole systems approach to obesity programme

Learning from co-producing and testing the guide and resources

July 2019



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Pilot and test local authorities involved in the whole systems approach to obesity programme

Pilot local authorities



Test local authorities



Public Health Suffolk

Executive summary

Background

In 2015, Public Health England (PHE), with the support of the Local Government Association and the Association of Directors of Public Health, commissioned Leeds Beckett University (the programme delivery partner) to deliver the whole systems approach to obesity programme. The programme set out to co-produce, with 4 pilot local authorities, a practical guide and resources describing the 'how-to' process of setting up a local whole systems approach. The guide – Whole systems approach to obesity: A guide to support local approaches to promoting a healthy weight and resources were published in July 2019, separately to this learning report. They are available through the GOV.UK website.

This programme did not set out to develop guidance on specific policies, interventions or actions to include as part of a whole systems approach. Action planning is an important part of the process, which is supported by other guidance including, [Promoting healthy weight in children, young people and families: A resource to support local authorities](#).

This report accompanies the guide and resources. Its purpose is to share learning about:

- co-production of the process, guide and resources with 4 pilot local authorities ([stage 1- co-production](#))
- testing the implementation of the process, guide and resources with an additional 7 test local authorities ([stage 2 – testing](#)) including evaluation of the short-term impact ([stage 2 – impact](#))

Stage 1: Co-production of the process, guide and resources

Four pilot local authorities were recruited through an expression of interest process to work with the programme delivery partner to co-produce a guide and resources, testing systems science techniques and tools. Learning from other local authorities, stakeholders and data sources provided further insights into the local context.

A range of activities were undertaken with the 4 pilot local authorities, including interviews with senior stakeholders and regular workshops and meetings with the implementation team and wider stakeholders. Additional methods informed the programme's understanding of the local context including analysis of expression of interest submissions, a survey with wider stakeholders and analysis of local authority obesity documents.

Local contextual considerations included the complexity of obesity causes, variance in obesity prevalence within local authorities and competition with other priorities. A number of implementation challenges were identified through co-production with the 4 pilot local authorities, some related to obesity generally and some to implementation of a whole systems approach. These included the complexity of systems concepts, local authorities being at different stages in implementing obesity strategies, securing senior level engagement and buy-in, and time and resource required to implement the approach. This learning was used to shape and develop the guide and inform the type of support provided through the resources.

The 4 pilot local authorities, programme delivery partner and PHE each had different expectations of the programme, including resource and time commitments, which impacted on the earlier stages of co-production. To mitigate this, the programme delivery partner took a more flexible approach to co-production with some testing done in sequence rather than in parallel. This enabled them to build on learning from each local area.

Stage 2: Testing the implementation of the process, guide and resources

Seven different local authorities were recruited to test the process, guide and resources, to establish if they were practical to implement and what changes would improve them. The programme delivery partner provided all the test local authorities with similar training but different levels of facilitation support.

A range of data collection methods were used to capture learning including semi-structured interviews and focus groups, documents created by the local authorities during the testing period, stakeholder feedback and researcher observations.

The test local authorities made progress in implementing the process irrespective of the facilitation provided and overall reported that the resources were fit for purpose. Learning suggested that factors for effective implementation included time available, confidence, skills, experience and continuity of the local implementation team. Strong social networks, a well-connected team supporting the process and multi-sectoral senior leadership buy-in were identified as essential in enabling the process. Local authorities identified barriers, such as how competing priorities and budgetary constraints across the local authority acted to deter some stakeholders from engaging or being in a position to take ownership of actions.

Testing was critical to inform what changes were required to strengthen the process, guide and resources.

Stage 2: Evaluation of short-term impacts

The impact evaluation explored whether implementing the process and guide had an effect on a number of short-term outcomes related to stakeholder engagement, systems knowledge and type of actions. This evaluation was undertaken with the 7 test local authorities.

A range of data collection methods were used to measure change in outcomes including stakeholder workshop registers, stakeholder evaluation forms, actions included in different action registers, systems maps completed during workshops and a system network stakeholder survey.

Overall findings suggested the beginning of a change in mindset and shift towards systems thinking in the test local authorities. Local authorities reported an increased number of partners engaged in the process. Positive change was seen in stakeholder knowledge and/or understanding of systems science and the complexity of obesity causes. There were indications of a shift from actions predominately targeting individual lifestyle factors to those targeting wider determinants of health and towards structural actions that were more likely to bring about sustainable systems change. These findings are encouraging but need to be interpreted with caution given the short timeframes of the evaluation.

Conclusions and next steps

The whole systems approach to obesity programme delivered against its objective of developing resources to support local authorities begin the process of implementing a whole systems approach to tackling obesity. The programme has explored and made progress in understanding what a different approach to the complex issue of tackling obesity could look like. The guide and resources, co-produced with local authorities, have evolved in response to feedback from a broad range of stakeholders and provide local areas with something that is locally relevant and practical. A whole systems approach requires a clear vision and a recognition of the reality of the challenges and opportunities facing local authorities. It will need time and commitment to set up, although as the local authorities involved demonstrated, it can support a local area to connect with different stakeholders, align thinking and adopt systems approaches.

Whilst the focus of the current programme was on developing a whole systems process, it is also essential that we understand the impact of specific policies, interventions and actions that form part of a whole systems approach. Local authorities involved in the programme are still in the early stages of implementing their whole systems action plans, so it is too early to understand the impact of this new way of working and range of actions on the local system of obesity causes. Systems leaders, academics and local stakeholders need to work together to develop consistent approaches to evaluating collective actions as part of a whole systems approach and share learning across the wider system about what works.

This is just the start of the journey and it is imperative that local areas are supported with implementing, embedding, sustaining and evaluating the approach. PHE has identified key priority themes including promoting systems leadership, facilitating the sharing of learning and developing the skills of the local workforce. The challenge is to generate ownership of the approach across the whole local system and secure the leadership, resource and commitment to do this.

Associated resources:

- Whole systems approach to obesity: A guide to support local approaches to promoting a healthy weight
- [Promoting healthy weight in children, young people and families: A resource to support local authorities](#)
- Place based approaches to reducing health inequalities

Acknowledgements

This report provides learning on the co-production and testing of Whole systems approach to obesity: A guide to support local approaches to promoting a healthy weight and the accompanying resources. Four original pilot local authorities co-produced the guide representing the different tiers of local government in England – County, Unitary, London Borough and District. Seven additional local authorities tested the guide and many others reviewed it and provided feedback. An advisory group provided expert support throughout the programme and the guide was peer reviewed by experts in the field ([appendix 1](#)). Our thanks go to all these partners who provided their time and expertise to support the development of the guide.

Introduction

Background

In 2015, Public Health England (PHE), with the support of the Local Government Association and the Association of Directors of Public Health, commissioned Leeds Beckett University (the programme delivery partner) to deliver the whole systems approach to obesity programme. The vision of the programme was to co-produce, with local authorities¹, a tried and tested approach and tools to enable every local authority in England to create a local whole systems approach to tackling obesity. Building on local, national and international learning, the programme set out to translate systems science techniques and tools into a practical “how to” guide and resources describing the process of setting up a whole systems approach. The guide and resources, which were primarily designed to support local authority public health teams, are now available through the GOV.UK website: [Whole systems approach to obesity: A guide to support local approaches to promoting a healthy weight](#).

The programme did not set out to develop guidance on specific policies, interventions and actions to include as part of a whole systems approach. Decisions about which actions to prioritise should be locally agreed and reflect local context. Other guidance is available to support this including: [Promoting healthy weight in children, young people and families: A resource to support local authorities \(1\)](#).

The programme worked with 4 pilot local authorities to co-produce the process, guide and resources and 7 additional test local authorities to test them. A further 40 local authorities reviewed the guide and resources as part of an informal engagement exercise in 2018. Feedback from this engagement exercise, which is not reported here, was used to further amend the process, guide and resources.

¹ In 2013, local responsibility for the prevention and management of obesity transferred from the NHS to local authorities, who have a statutory responsibility to have a Director of Public Health and Health and Wellbeing Board in place. Local authorities receive a public health grant, which covers the prevention and treatment of obesity. Within this the National Childhood Management Programme is a mandated service that measures the Body Mass Index of 4-5 year old and 10-11 year old children every year.

Purpose of the report

This report accompanies the guide and resources. It was produced to share learning about the approach taken to develop and test the process, guide and resources, to inform future co-production work and encourage further research in this area. The report shares learning about:

- co-production with 4 pilot local authorities to develop and deliver the process, guide and resources ([stage 1 – co-production](#))
- testing the implementation of the process, guide and resources developed in stage 1 with a further 7 test local authorities to establish if they were practical to implement, what changes were needed, and if they worked for a broader set of local authorities ([stage 2 – testing](#))
- evaluating the short-term impact of implementing the process, guide and resources ([stage 2 – impact](#))

Report structure

The report presents key learning from stages 1 and 2 in separate sections. To keep the main report as concise as possible, some of the learning has been summarised in tables and the main description of the methods, information on the pilot and test local authorities and additional information is included in the appendices. The learning from stages 1 and 2 is followed by a discussion, and next steps section. Terms used in this report are explained in a glossary in [appendix 2](#). A chronological overview of the programme's key events is included in [appendix 3](#).

Whole systems approach to obesity: A guide to support local approaches to promoting a healthy weight provides the context for what is discussed and should ideally be read in conjunction with this report. Alternatively, the section below includes a definition of a whole systems approach, which has been developed through the programme, and a brief overview of the published 6-phase process included in the guide. This 6-phase process evolved from an earlier 5-phase version. The 5-phase version was tested with the 7 test local authorities, and is the version discussed in this report (see [figure 1](#)).

The whole systems approach to obesity programme definition and overview of the process

Whole systems approach to obesity – programme definition

The programme partners acknowledge that there are many different perspectives on what a complex or whole systems approach is. The following definition has been informed by academic thinking and learning from working with local authorities through the programme:

“A local whole systems approach responds to complexity through an ongoing, dynamic and flexible way of working. It enables local stakeholders, including communities, to come together, share an understanding of the reality of the challenge, consider how the local system is operating and where there are the greatest opportunities for change. Stakeholders agree actions and decide as a network how to work together in an integrated way to bring about sustainable, long-term systems change”.

Overview of the whole systems approach to obesity process

<u>Phase</u>	<u>Aim</u>	<u>Key steps</u>
Phase 1 Set-up	Secures senior-level support and establishes the necessary governance and resource structure to implement the approach.	<ol style="list-style-type: none"> 1. Engage with senior leaders to obtain their support 2. Set-up a core working team to undertake the day-to-day operations and coordinate the approach 3. Establish resources to support the process 4. Secure the accountability, advice and support of a group of senior stakeholders offering a broad range of expertise to ensure the approach has sufficient challenge, governance and resource
Phase 2 Building the local picture	Builds a compelling narrative explaining why obesity matters locally and creates a shared understanding of how obesity is addressed at a local level.	<ol style="list-style-type: none"> 1. Collate key information about obesity locally 2. Start to understand the local assets including community capacity and interest 3. Establish a comprehensive overview of current actions 4. Identify the departments, local organisations and individuals currently engaged in supporting work around obesity
Phase 3 Mapping the local system	Brings stakeholders together to create a comprehensive map of the local system that is understood to cause obesity. Agreeing a shared vision.	<ol style="list-style-type: none"> 1. Prepare for workshop 1: <ul style="list-style-type: none"> • Identify and engage wider stakeholders • Prepare presentation slides and add local information • Prepare facilitators to undertake system mapping 2. Deliver workshop 1: system mapping 3. Begin to develop a shared vision
Phase 4 Action	Stakeholders come together to prioritise areas to intervene in the local system and propose collaborative and aligned actions.	<ol style="list-style-type: none"> 1. Prepare for workshop 2: <ul style="list-style-type: none"> • Create a comprehensive local system map • Prepare presentation slides and add local information • Prepare facilitators to support action mapping • Refine a draft shared vision 2. Deliver workshop 2: action planning 3. Develop a draft whole systems action plan 4. Refine the shared vision
Phase 5 Managing the system network	Maintains momentum by developing the stakeholder network and an agreed action plan.	<ol style="list-style-type: none"> 1. Develop the structure of the system network 2. Undertake the first system network meeting 3. Present the finalised shared vision 4. Agree the action plan
Phase 6 Reflect and refresh	Stakeholders critically reflect on the process of undertaking a whole systems approach and consider opportunities for strengthening the process.	<ol style="list-style-type: none"> 1. Monitor and evaluate actions 2. Maintain momentum through regular meetings 3. Reflect and identify areas for strengthening 4. Monitor progress of the whole systems approach and adapt to reflect how the system changes over time

Stage 1: Co-production of the process, guide and resources

Summary

What we did

Four pilot local authorities were recruited to work with the programme delivery partner to co-produce the process, guide and resources, testing systems science techniques and tools. Learning from other local authorities, stakeholders and data sources provided further insights into the local context.

What we found

Local contextual considerations included the complexity of obesity causes, inequalities and variation in the prevalence of obesity within local areas, competition with other local authority priorities and expectations for evidence and return on investment for the approach. A number of implementation challenges were identified through co-production with the pilot local authorities, some related to obesity generally and some to implementation of a whole systems approach. These included the complexity of systems concepts, local authorities being at different stages with implementing obesity strategies, securing stakeholder engagement and buy-in, and time and resource required to implement the approach.

The pilot local authorities, programme delivery partner and PHE each had different expectations of the programme, including resource and time commitments, which impacted on the earlier stages of co-production. To mitigate this, the programme delivery partner took a more flexible approach to co-production, with some testing with pilot local authorities done in sequence rather than in parallel. This did deviate from the original plans but enabled the programme delivery partner to build on learning from each pilot.

What action we took

Learning about the local context and implementation challenges was used to shape the development of the guide and inform the type of support provided in the resources.

Learning about the co-production process has been used to inform other national programmes that involve co-production work with local authorities and can also be used for future programmes.

Aims

The aim of the co-production was to develop a process, guide and resources on how to implement a whole systems approach to tackling obesity, which would be practical for all local authorities to use, within their local context. The learning shared in this section covers:

- understanding the local context for addressing obesity
- implementation considerations identified during co-production and how these were addressed
- reflections on the co-production process

For this programme, co-production means collaborative working between PHE, the programme delivery partner and the pilot local authorities to develop the process, guide and resources. This included engaging senior management in local authorities and consideration of the local context and delivery mechanisms. In addition to co-production with the 4 pilot local authorities, additional local authorities, wider stakeholders and a community of learning² provided regular input into the development of the process, guide and resources, through surveys and workshops. This additional learning was used in stage 1 to inform the understanding of the local context for addressing obesity.

Recruitment of pilot local authorities

Pilot local authorities were recruited between October and December 2015 through an expression of interest process. Durham County Council, Gloucestershire County Council, London Borough of Lewisham and North Kesteven District Council were selected from 61 applications, representing the different tiers of local government in England. A memorandum of understanding was established between the pilot local authorities, PHE, and the programme delivery partner as a contract of engagement. The pilot local authorities received implementation support from the programme

² A web presence was established for the programme which built a community of learning comprising other local authorities and stakeholders with an interest in sharing and receiving learning.

delivery partner but no direct financial support. [Appendix 4](#) provides further details of the recruitment process and demographic profiles of the 4 pilot local authorities. To comply with ethical requirements, reference to the pilot local authorities will remain anonymous.

Methods

Understanding the local context for addressing obesity

A range of activities were undertaken between September 2015 and July 2017 to collect information about the local context for addressing obesity including the challenges, barriers and facilitators and examples of existing practice (both interventions and partnerships). These included:

- analysis of content included in the 61 local authority expressions of interest submissions to become programme pilots
- a survey with the community of learning to identify opportunities and enablers for tackling obesity locally
- a review of local authority obesity related corporate documents to obtain information about how obesity was framed and prioritised
- a workshop with pilot local authorities, additional local authorities and wider stakeholders to gain an understanding of the materials required to support local authorities with implementing a whole systems approach

Co-production with 4 pilot local authorities

A range of activities were undertaken between February 2016 and November 2017 with the 4 pilot local authorities. Meetings were held with senior leaders and public health teams to understand:

- the structures, processes, culture and underpinning successes in each organisation
- reasons for, and expected value of, participation in the programme
- key local authority priorities
- key stakeholders and challenges with partnership working

Meetings were held with key senior officers in each local authority and some partner organisations using appreciative inquiry techniques to understand what they felt worked well in their organisations (2, 3).

A 2-day workshop was attended by representatives of all pilot local authorities, and in some cases representatives from their partner organisations, to share learning and ideas, generate draft materials and identify ideas about what would help local authorities with implementing a whole systems approach.

Two or three half-day workshops were held in each pilot local authority to test and review the resources and tools under development. Each pilot local authority tested a different iteration of the material as it was refined following feedback from previous sessions.

The pilot local authorities also provided written feedback on the guide and resources during the course of the programme.

Appendix 5 provides further information on the methods used and details of data analysis.

Learning from the co-production process

Understanding the local context for addressing obesity

A number of key themes were identified, which provided the context for implementing a whole systems approach to tackling obesity locally. Obesity as a local priority and local challenges to addressing obesity were identified as particularly important themes and are discussed below. **Table 1** summarises all contextual themes and how they informed the development of the process, guide and resources.

Obesity as a local priority

The commitment of local authorities to tackling obesity was evidenced within meetings, interviews and by its inclusion in local strategies. Most local authorities highlighted specific obesity strategies in their expressions of interest to become a programme pilot,

for example, a Healthy Weight Strategy. Only a few local authorities stated they had no obesity strategy in place.

Analysis of strategies indicated a general focus on national obesity-related priorities (such as sugar reduction) rather than locally identified priorities, and on individual-level actions rather than more upstream actions addressing the wider determinants of health. There was an indication of competition between addressing obesity and other priorities including regeneration, economic development and social care.

Local challenges to addressing obesity

Local authorities emphasised the presence of health inequalities, with areas of higher deprivation often experiencing poorer health generally and higher levels of excess weight, poorer diets and lower levels of physical activity. The diversity of communities and neighbourhoods was highlighted, including the level of deprivation, ethnicity and rural versus urban populations. Local authorities stated that services needed tailoring to accommodate different languages, circumstances and attitudes of communities. Several local authorities reflected that obesity and associated behaviours, including the consumption of less healthy food, being physically inactive and being overweight, were ingrained in communities. Local authorities stated that some health professionals were unsure how to address these issues and were reluctant to do so.

Many local authorities highlighted that budgetary constraints impacted on their service provision, interventions and staff capacity. Obesity was viewed as a large-scale issue and in light of limited resources it was challenging to justify prioritising preventative programmes and/or non-mandated services. Local authorities emphasised a requirement to demonstrate a return on investment for services (for example, weight management) and prevention initiatives. Coupled with competing local authority priorities and perceived ineffectiveness of programmes, local authorities reported that it was challenging to build a case for investment in obesity.

Local authorities recognised the opportunity to build the case for a long-term approach to tackling obesity and identified the diverse range of partners they were working with, on some level, including other local authority services, the NHS/health sector, the voluntary and community sector (VCS), businesses and education providers (see [appendix 6](#) for further details or partner organisations). Some local authorities acknowledged that more work was needed to align the priorities and organisational

cultures of different departments and that silo-working and silo-thinking was still common place.

Table 1: Contextual themes identified by senior leaders and local stakeholders and how they informed the development of the process, guide and resources

Key theme	Stakeholder reflections	How learning informed the development of the process, guide and resources
Obesity as a priority	Difficult for longer-term issues such as obesity to compete for attention and funding with shorter-term issues, or those that seem more fundamental such as economic growth or children’s services	<p>Built the case to align tackling obesity with other major local authority priorities</p> <p>Signposted to PHE resource, which supports local authorities with making the case for why other internal departments and external stakeholders should engage in the obesity agenda (1)</p>
Guidance on how to tackle obesity	Addressing obesity is complex, particularly when compared to some other issues, and clear guidance is needed for local authorities	Highlighted benefits of a whole systems approach, time, resource and staff capacity required for effective implementation and the need for clear leadership involvement and governance structures
Robust evidence	<p>Robust evidence base is required to support decision making</p> <p>Clear guidance requested on what specific actions to implement</p>	<p>Explained that a whole systems approach is about alignment of actions rather than a focus on single and individually targeted interventions</p> <p>Emphasised that whole systems approaches focus on the sum of all actions rather than just the</p>

	<p>Evidence about the impact of specific obesity-related interventions is less comprehensive than local authorities would like</p> <p>Some obesity research is not relevant to the context for local authorities, such as basic science and clinical focused research</p>	<p>effectiveness of isolated activities/interventions</p> <p>Developed a logic model to demonstrate the outcomes local areas could expect to see if implementing a whole systems approach</p> <p>Highlighted the need to include short, medium and long-term outcomes</p> <p>Emphasised the need to focus on evidence or actions relevant at a local level</p>
<p>Return on investment</p>	<p>Public health is under pressure to provide details of return on investment for programmes of work</p> <p>There is information about return on investment for individual, rather than population level, primary and secondary prevention approaches</p>	<p>Explained that a whole systems approach is about a different way of working</p> <p>Emphasised that outcomes should have wider benefits in the longer term, for example, for health, improved use of the built environment and greenspace and increased active travel</p>

Considerations identified during co-production and how these were addressed

Table 2 presents a number of key points of learning, which were identified through co-production with the pilot local authorities. It also explains how this learning was used to adapt the guide and resources. Some points related to tackling obesity generally and some to implementation of a whole systems approach.

Table 2: Co-production: key points of learning from pilot local authorities

Key points of learning	How learning informed the development of the process, guide and resources
Systems thinking and a whole systems approach represent new concepts and ways of working for most stakeholders	Provided guided and pragmatic resources to help stakeholders understand these concepts and implement the approach
Assumption that a whole systems approach is the same as joined-up working	Provided a definition of a whole systems approach and explained what it means in practice
Momentum lost due to time gaps between stakeholder sessions	Adapted the approach to include less time between interactions and activities
Local authorities are at different stages in developing local strategies and action plans to address obesity	Recognised this within the guide and outlined how a whole systems approach can build on and support existing strategies and actions
Local authority and external stakeholders need support to understand the impacts of obesity and why it is not just an issue for public health	<p>Included workshop activities to facilitate a shared understanding of the real impacts of obesity locally</p> <p>Developed a resource which identifies local authority documents where obesity could be integrated</p>

<p>Time required to set up and implement a whole systems approach and engage wider stakeholders when there are competing local priorities</p>	<p>Simplified the process and provided detailed guidance, for example shortened the exercise of mapping the local system</p> <p>Signposted to PHE resource designed to support local authorities with making the case for why other internal departments and external stakeholders should engage in the obesity agenda and consider how this aligns with their own priorities (1)</p> <p>Emphasised that a whole systems approach should build on existing good practice and be adapted to the local context</p>
<p>Continued focus on finding a solution to obesity through a small number of interventions (“magic bullets”) targeting individuals rather than addressing wider environmental issues</p>	<p>Emphasised the benefits of implementing a wider set of actions as part of a whole systems approach supporting individuals with obesity and wider environmental causes</p> <p>Developed a tool (the action scales model), which conceptualises where to take action across different levels of the system that aligns to principles of systems thinking</p>
<p>Working with elected members has raised issues about how to frame complex issues</p>	<p>PHE produced briefing for elected members to accompany guide (4)</p>

Reflections on the co-production process

Following recruitment of the pilot local authorities and the initial engagement activity in 2016 there were pre-election related sensitivity periods, which affected progress with co-production in the short-term due to public activities being restricted. There were also public health staffing changes in some pilot local authorities which required new team members to become familiar with the purpose and the stage of involvement in the programme. In addition, the development of Sustainability and Transformation Plans and some specific local government business had some impact on the programme.

These events resulted in a period of reduced dialogue and activity between the programme delivery partner and pilot local authorities including delays in workshops and activities. Strategies were employed to mitigate these issues, for example a series of regular telephone calls was established between the pilot local authorities, PHE and the programme delivery partner. This enabled open discussion about the experience and provided useful opportunities to explore the support required from PHE and the programme delivery partner.

During their final interviews with the programme delivery partner, local authorities provided reflections on their frustrations with the co-production. Key themes included a lack of clarity about the programme and co-production activities, an expectation to receive more direct guidance on evidence-based actions to tackle obesity, initial slow progress and unexpected administrative requirements.

At the same time, the pilot local authorities recognised that whole systems approaches presented an opportunity for tackling obesity and other public health issues and most intended to adopt the process they had helped co-produce.

Stage 2: Testing the process, guide and resources

Stage 2 involved testing the process, guide and resources, co-produced with the pilot local authorities, with 7 additional test local authorities.

Although the 4 original pilot local authorities were not part of this formal testing phase, they continued to contribute significantly to the development of the guide and received ongoing support from the programme delivery partner throughout the course of the programme.

Recruitment of the test local authorities

Seven local authorities were recruited from a pool of local authorities who had participated in a whole systems approach to obesity conference in October 2016 and interactive programme workshops in 2017. City of Bradford Metropolitan District Council, Dudley Metropolitan Borough Council, Halton Borough Council, Hertfordshire County Council (with East Herts and Hertsmere District Councils) Oldham Metropolitan Borough Council, Solihull Metropolitan Borough Council and Suffolk County Council were selected as they were able to commit to the requirements of the programme, including short implementation timescales, and were logistically accessible by the research team (see [appendix 7](#) for the programme engagement requirements for the test local authorities and [appendix 8](#) for demographic profiles of the 7 test local authorities). To comply with ethical requirements, reference to the test local authorities will remain anonymous.

Training and support

After recruiting the 7 test local authorities, the programme delivery partner hosted 2 one-day workshops. The first workshop (October 2017) provided an overview of the guide and first 4 phases of the process. The second workshop (December 2017) provided an overview of phase 5 of the process and a forum for the test local authorities to share learning, experiences and challenges to implementation.

The programme delivery partner provided the following 3 different levels of support to understand whether local authorities in general would be able to independently set up a

whole systems approach using the guide or whether they would require additional facilitative support:

- non-facilitated – three local authorities implemented all elements of the guide independently and were supported only through telephone and email correspondence as required
- partially facilitated –two local authorities implemented all elements of the guide independently except for receiving on-the-day support to deliver the 2 stakeholder workshops. Additional support was provided through telephone and email correspondence
- fully facilitated –two local authorities implemented elements of the guide independently with fully facilitated support from the programme delivery partner to develop and deliver the 2 stakeholder workshops and the systems maps. Additional support was provided through face-to-face meetings, telephone and email correspondence

To accommodate the tight timeframes required for testing the guide, the allocation of local authorities to the different levels of facilitation support was based on practical considerations, including the proximity of each local authority to the research team.

This section of the report is divided into 2 parts:

1. Testing the implementation of the process, guide and resources
2. Evaluating the short-term impact of implementing the process, guide and resources

1. Testing the implementation of the process, guide and resources

Summary

What we did

The process, guide and resources were tested with 7 test local authorities, to establish if they were practical to implement, what the enablers and barriers to implementation were, and what changes would improve them.

What we found

The test local authorities made progress in implementing the process irrespective of the level of facilitation provided. Overall, they reported that the resources were fit for purpose. Learning suggested that factors for effective implementation of the process included time available, confidence, skills, experience and continuity of the local implementation team.

Strong social networks, a well-connected team supporting the process and multi-sectoral senior leadership buy-in were identified as essential in facilitating the process. Local authorities identified barriers, such as how competing priorities and budgetary constraints across the local authority acted to deter some stakeholders from engaging or being in a position to take ownership of actions.

What action we took

A number of modifications were made to the guide to reflect key learning from the test local authorities. These included adapting the process to include an additional phase, simplifying presentation content around systems concepts and the mapping process and strengthening the case for stakeholders outside public health to get involved.

Aims

Testing the implementation of the process, guide and resources with 7 test local authorities aimed to establish if the process, guide and resources were practical to implement and the changes that would improve them.

The learning shared in this section covers:

- each phase of the process
- training and facilitation support
- barriers and enablers to implementation and how this learning has informed the development of the guide

Methods

Table 3 provides an overview of the data collection methods used to test the implementation of the guide, and the time points at which the different methods were used. Ethical approval for the collection and analysis of this data was granted by the Leeds Beckett University Research Ethics Committee.

Table 3: Overview of methods used to test the implementation of the guide

Methods used	Phase					Follow-up ¹
	1	2	3	4	5	
Semi-structured interviews / focus groups	X	X	X	X	X	X
Document / resource analysis	X	X		X	X	
Stakeholder evaluation forms		X		X		
Researcher observation forms		X		X	X	
Workshop facilitator feedback		X		X		
Fidelity assessment (workshop recordings)		X		X		
Researcher reflections	X	X	X	X	X	X

¹ 9-months after starting the process

A range of data collection methods were used to test the implementation of the guide. Semi-structured interviews and focus groups were undertaken to explore the elements associated with each phase of the process. The documents and resources created by the local authorities during implementation were analysed to establish if and how they deviated from what was expected. Workshops were evaluated using stakeholder feedback forms, researcher observation forms and facilitator questionnaires. To determine the extent to which workshops were delivered in line with the proposed

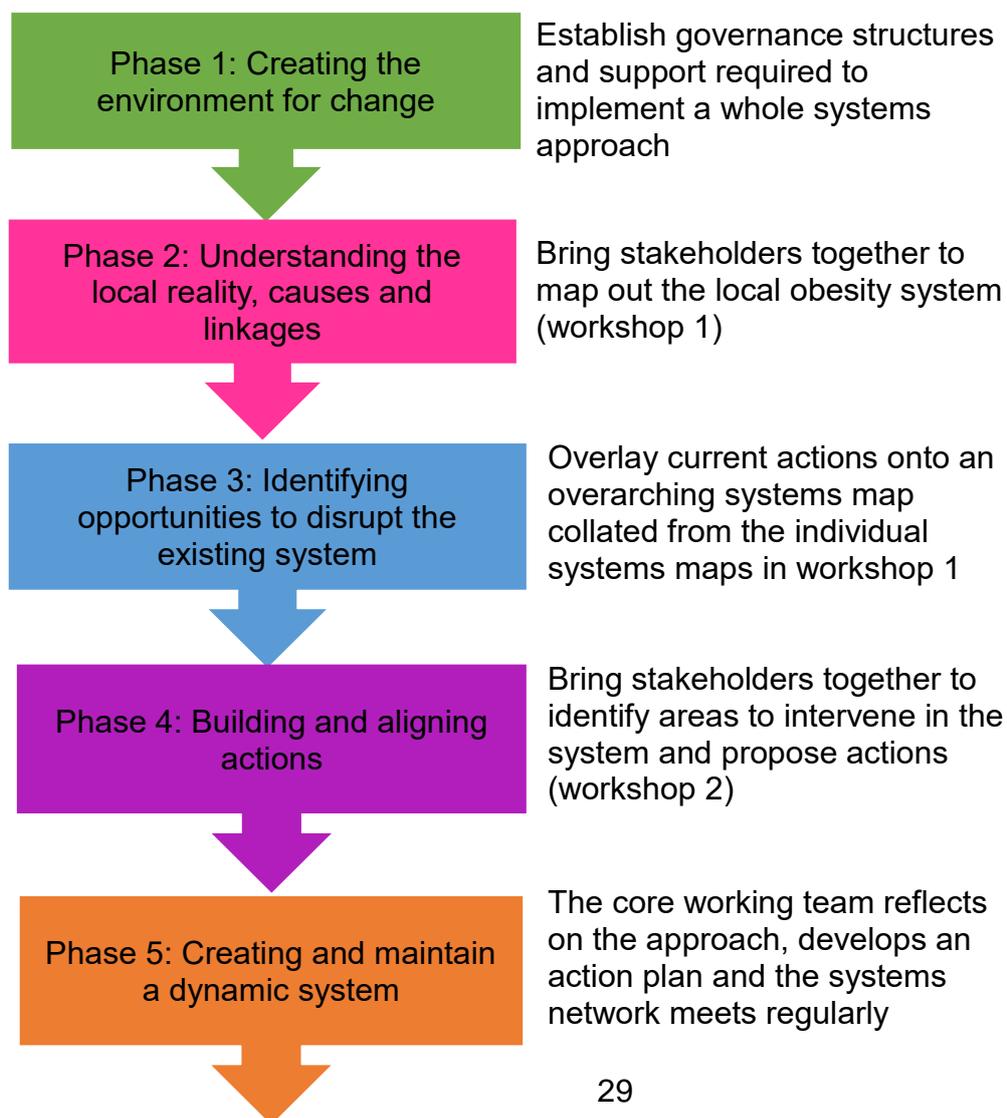
process in the guide, workshops were filmed, and fidelity assessed retrospectively. Researcher reflections were undertaken throughout.

See [appendix 9](#) for further information on the methods used and details of data analysis.

Learning from testing the implementation of the process, guide and resources

Test local authorities tested an earlier five-phase iteration of the process, summarised in [figure 1](#).

Figure 1: Five-phase version of the process tested by the test local authorities



Phase by phase learning

Phase 1: all test local authorities stated that the different activities in phase 1 provided the foundation for tasks later in the process. The guide and resources were used differently by local authorities for this phase. This was dependent on the activity, familiarity and confidence with specific subjects and activities, and the time available. Resources were consulted or followed more intensely for some activities and were used as a general guide for others.

Phase 2: test local authorities viewed phase 2 as crucial to developing a whole systems approach. Preparation for workshop 1 enabled them to develop a more comprehensive understanding of how obesity was being addressed locally. Local authorities reported that the recommended videos on systems thinking supported both presenters and participants with their understanding of systems science concepts, which they found complicated and challenging. Local authorities suggested that further guidance for facilitators on the mapping process would be beneficial.

Phase 3: local authority leads found phase 3 useful for operationalising the process locally. It helped them to develop a better understanding of the need for a whole systems approach, as they could see the local complexity of obesity causes and how the process was coming together into actions. Most local authorities recognised the importance of compiling an overarching system map to develop an understanding of the complexity of the local causes of obesity. The mapping process was reported to be workable in practice for local authorities, the software straightforward to use, and the process intuitive resulting in visually stimulating maps. Local authorities advised that the guide needed to be more prescriptive on how best to present the overarching system map back to the stakeholder group in workshop 2.

Phase 4: overall, phase 4 was well received by local authorities and stakeholders. Local authorities advised that the asset-based approach, building on what local authorities and their partners were currently doing, was a positive approach. Stakeholders reflected that the workshop provided an opportunity to meet and share ideas with other stakeholders. Feedback suggested that workshop 2 helped increase stakeholder buy-in and participants reported the benefit of getting input from stakeholders who knew how different parts of the system worked. The workshop continued to build momentum and relationships amongst stakeholders, and the actions identified by stakeholders were indicative of a shift in mindset (see [impact evaluation](#)).

Phase 5: when the implementation of phase 5 was assessed, the test local authorities had made variable progress. Stakeholders from two local authorities who had held their first system network meeting, stated that they had made good progress, had increased levels of confidence in systems working and had planned a series of aligned programmes at multiple levels (such as, individual, community and societal). They also stated that the process had started to change stakeholder mindsets. For different reasons the remaining test local authorities had not yet reached this stage.

Training and facilitation support

The test local authorities found the 2 one-day training workshops helped them understand the process and effectively complete some of the activities.

Local authorities who received full facilitation of workshops by the programme delivery partner viewed this as being helpful to explain systems thinking and to develop systems maps. Where full facilitation was not provided, adherence to guidance on how to conduct workshops varied between local authorities. This was evidenced through the researcher observations and video recordings of workshops. Variation included adapting workshop 2 slides with pre-existing content and concepts, which on analysis of stakeholder evaluation forms indicated a more limited understanding of the principles of a whole systems approach. The programme delivery partner observed that this impacted on the effective implementation of subsequent activities. Another local authority who received no support, allocated time to prepare and understand systems concepts and delivered workshop 2 effectively.

Barriers and enablers to implementation and how these have informed the development of the guide

Table 4 summarises barriers and enablers to implementation from testing the implementation of the process, guide and resources with the test local authorities and how this learning has informed the development of the guide.

Table 4: Barriers and enablers to implementation and how these have informed the development of the guide

Barrier	Enabler	Key learning	Changes to the process, guide and resources
<p><u>Phase 1</u></p> <p>Insufficient resources, in particular staff time</p> <p>Difficult to identify the appropriate individuals and roles to form the core working team and the resource to maintain it</p> <p>Reliance on one person to co-ordinate the process</p> <p>Challenges gaining multi-sectoral senior leadership buy-in</p>	<p>Obesity is a local authority priority</p> <p>Existing enthusiasm for systems thinking among some senior leaders</p> <p>Establishing a small dedicated team to implement the process at an early stage</p> <p>Ability to draw on existing networks and prior knowledge of key system stakeholders</p>	<p>Senior leadership support and involvement is crucial</p> <p>Difficult to engage wider sectors when the respective senior leader(s) do not yet buy into the whole systems approach</p> <p>Mapping actions highlighted and aided interpretation of the wider determinants of health and individual lifestyle factors responsible for obesity and facilitated reflection on their current approach to addressing obesity</p>	<p>Core elements underpinning the process were developed and articulated as systems working behaviours in the guide</p> <p>Phase 1 adapted into 2 phases</p> <p>Built the business case for stakeholders outside public health to tackle obesity – included cross-reference to a PHE resource (1)</p>

Barrier	Enabler	Key learning	Changes to the process, guide and resources
<p>Hierarchical local authority structures made it difficult to access senior leaders</p> <p>Difficult to engage stakeholders if there was no existing relationship</p> <p>Obesity was not seen as the business of sectors outside public health and other sectors did not see how they could contribute to the obesity agenda</p> <p>Guide content and format was not appropriate for all types of colleagues, some elements too long or academic</p>	<p>Ability to draw on previous work that related to activities in phase 1</p> <p>Training days delivered by the programme delivery partner</p> <p>Existing experience of the core working team</p>	<p>The network analysis tool enabled reflection on current partnerships and highlighted the absence of some departments in the obesity agenda.</p> <p>More time was required to complete activities</p>	<p>Information on the importance of senior leadership support was strengthened, including how to engage senior leaders and maintain their support</p> <p>Adapted the guidance on stakeholder engagement</p> <p>Included clarification on membership, roles and responsibilities on the core working team</p> <p>The recommended time frames for phases 1 and 2 (relating to published version of guide) were increased to 6-8 weeks</p> <p>Simplified systems language</p>

Barrier	Enabler	Key learning	Changes to the process, guide and resources
<p><u>Phase 2</u></p> <p>Gaps in awareness of the variety and breadth of work undertaken locally, both within and outside the public health team</p> <p>Lack of access to local data</p> <p>Challenges when undertaking the system mapping process including:</p> <ul style="list-style-type: none"> • a tendency to focus on causes outside local control (such as national policy on food advertising) • underestimating the importance of good facilitation 	<p>Existing professional experience and knowledge of obesity</p> <p>Experience of running workshops</p> <p>Ability to present local data in an engaging way</p> <p>Availability of experienced facilitators</p>	<p>Workshop resources (slides and accompanying notes) were considered useful</p> <p>The mapping process enabled stakeholders to see the bigger picture and the complexity of the local causes of obesity</p> <p>The mapping process presented opportunities to collate information on local activities and initiatives</p>	<p>Simplified presentation content and increased interactive activities</p> <p>Provided more detailed system mapping guidance</p>

Barrier	Enabler	Key learning	Changes to the process, guide and resources
<p>Difficulties learning and explaining the systems science concepts in the workshop</p> <p>Time required to prepare for workshop 1</p>			
<p><u>Phase 3</u></p> <p>Time required to prepare for workshop 2</p> <p>Lack of teamwork within the core working team</p>	<p>Confidence in learning and using specialist software</p>	<p>This phase helped the core working team to develop a better understanding about the need for a whole systems approach</p>	<p>Phase 3 combined with phase 4</p> <p>Recommendation added of one month in between the 2 workshops</p>

Barrier	Enabler	Key learning	Changes to the process, guide and resources
<p><u>Phase 4</u></p> <p>Challenge in securing and maintaining support of senior leaders and insufficient senior staff in attendance</p> <p>Difficulty explaining the systems concepts and models in the workshop</p> <p>Facilitators' limited understanding of the process and individual tasks within workshops</p>	<p>A supportive culture (for example, having attendance and opening and closing remarks at events from senior leaders)</p> <p>Active involvement of senior leaders</p> <p>A community-based workshop venue</p> <p>Commitment and effort of stakeholders</p>	<p>Involvement of senior leadership in workshops was critical</p> <p>Workshop 2 continued building momentum and relationships amongst stakeholders</p> <p>Workshop 2 activities helped change mindset</p> <p>Challenges understanding the iceberg model</p>	<p>Provided more detailed presentation guidance and increased interactive activities</p> <p>Replaced the iceberg model with the action scales model</p> <p>Simplified the process and provided more detailed guidance for proposing actions</p>

Barrier	Enabler	Key learning	Changes to the process, guide and resources
<p><u>Phase 5</u></p> <p>Difficulty in maintaining senior leadership involvement and support</p> <p>A change in senior leadership</p> <p>Network members lacking sufficient seniority to affect change</p> <p>Community members not sufficiently engaged in process</p> <p>Competing resource commitment</p>	<p>Health and wellbeing and/or childhood obesity as a local authority priority</p> <p>A well-connected core working team leads to a strong and diverse network</p> <p>Senior leadership support, engagement and ongoing involvement in the process</p>	<p>Maintaining momentum was key; people needed to see action to be part of something</p> <p>Local authorities wanted to approach the ongoing process in different ways depending on the local system</p> <p>It was important to involve a diverse range of motivated stakeholders from across the system who have the influence to implement change from the outset</p> <p>Senior leadership was important to maintain momentum</p>	<p>The content in this phase was made more practical</p> <p>Phase 5 extended into 2 phases (phase 5 and 6)</p>

Barrier	Enabler	Key learning	Changes to the process, guide and resources
<p>Competing priorities and budgets of a diverse network of stakeholders</p> <p>Challenges engaging some stakeholders due to competing priorities and budgetary constraints, including:</p> <ul style="list-style-type: none"> • lack of engagement in an area that was not considered to be a sector or organisational priority • difficulties committing without financial resource • lack of willingness to resource work • difficult to obtain commitment to actions that need financing 			

Whole systems approach to obesity programme: learning report

Barrier	Enabler	Key learning	Changes to the process, guide and resources
<ul style="list-style-type: none">• taking ownership of actions			

2. Evaluating the short-term impact of implementing the process, guide and resources

Summary

What we did

The impact evaluation examined the impact of implementing the process, guide and resources in the 7 test local authorities. Due to the short evaluation timescales, the evaluation focused on a number of short-term outcomes related to stakeholder engagement, systems knowledge and type of actions.

What we found

Overall findings suggested the beginnings of a change in mindset and early shift towards systems working in the test local authorities. Local authorities reported engagement of more partners than had previously involved in the obesity agenda. Positive change was seen in stakeholders' knowledge of systems science concepts and the complexity of obesity causes from the presentations and interactive sessions in the workshops. The collective development of a local system map was found to have wider benefits than identifying the local causes of obesity, including relationship building and enabling stakeholders to see their place in the system and role in tackling obesity. There was also evidence of the balance of actions transitioning from predominately targeting individual lifestyle factors to targeting wider determinants of health and systems structures.

What action we took

These findings are encouraging, though need to be treated with caution given the short timeframes of the evaluation. PHE will continue to support local authorities to implement and evaluate the approach and encourage research organisations to build on learning from this programme.

Aims

The impact evaluation aimed to explore the impact of the early stages of implementing a whole systems approach. This involved evaluating changes in the following short-term outcomes:

- breadth of stakeholder engagement
- stakeholder knowledge about 1) systems science, 2) the complexity of obesity causes and 3) types of actions to address obesity
- type of and shift in actions (or proposed actions) to tackle obesity

The impact evaluation also explored stakeholders' understanding of:

- the local system of obesity causes
- the operationalisation of the local whole systems approach

Methods

Table 5 provides an overview of the data collection methods used to measure changes in short-term outcomes, and the time points at which the methods were used.

Table 5: Overview of methods used to measure changes in short-term outcomes

Methods used	Phase				Follow-up ¹
	1	2	3	4	
Action analysis	X		X		X
Stakeholder evaluation forms		X		X	
Stakeholder registers (invitees / attendees)		X		X	
Document / resource analysis			X		
System network survey					X

¹ 9-months after starting the process

Stakeholder registers were used to analyse the breadth of stakeholder engagement in the programme and identify new stakeholders. Stakeholder evaluation forms were used to examine workshop attendees' knowledge on: 1) systems science, 2) the complexity of obesity causes and 3) types of actions to address obesity.

Each local authority's actions to address obesity were assessed at different stages in the process:

- pre-whole systems approach to obesity programme (pre-WSO) actions: a baseline assessment of existing and planned local authority actions before involvement in the whole systems approach to obesity programme (phase 1)
- proposed actions: actions proposed during workshop 2 (phase 4)
- action planning: actions included in an action plan created by the core working team during the programme (phase 5)

Local authorities actions were categorised by the programme delivery partner against the wider determinants of health model³ (used in the programme's action mapping tool resource) and action scales model (depicts different levels of intervention in a system) (5).

Local obesity system maps developed by local authorities and stakeholders were used to assess understanding and visual representation of the local causes of obesity.

A system network survey investigated the perspectives of the system network stakeholders about the extent to which a whole systems approach was being operationalised.

See [appendix 10](#) for further information on the methods used and details of data analysis.

Learning from the impact evaluation

Table 6 provides an overview of the data collected within each local authority. In cases where it was not possible to collect data, further explanation is provided in the relevant section below.

³ The wider determinants of health is not a systems model but one that local authorities are familiar with.

Table 6: Data collected by local authority per phase to measure short-term outcomes

	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7
Phase 1							
Action analysis	Y ¹	Y	Y	Y	Y	N ²	Y
Phase 2							
Stakeholder evaluation forms	n=35	n=25	n=18	n=13	N	n=28	n=30
Stakeholder registers (invitees / attendees) ²	Y	Y	Y	Y	Y	Y	Y
Phase 3							
Document / resource analysis (collated systems map)	Y	Y	Y	Y	Y	Y	Y
Phase 4							
Stakeholder evaluation forms	n=26	n=13	n=23	n=15	N	N	n=13
Stakeholder registers (invitees / attendees) ³	Y	Y	Y	Y	Y	Y	Y
Follow-up 9-months post commencement							
Action analysis	Y	Y	Y	Y	N	Y	Y
System network survey	Y	N	Y	Y	Y	Y	N

¹ Y signifies that data was captured and/or information was provided by the local authorities to allow data analysis.

² N signifies that data was not captured and/or information was not provided by the local authority to allow data analysis.

³ A number of local authorities provided incomplete information (for example: an attendee list but not an invitee list), for full details see findings section.

LA: local authority

Breadth of stakeholder engagement

Invitees

Six test local authorities provided a complete list of stakeholders invited to workshop 1 and 5 provided this for workshop 2. Of the 561 unique stakeholders invited across both workshops, 274 (49%) worked in local authorities and 287 (51%) worked in stakeholder and community organisations. The majority of invited stakeholders represented the health sector (26%), school/children's services (15%) and community services (12%), with voluntary/community/faith (2%), GPs (2%), fire/police (1%) and housing (1%) being least represented (see [appendix 11](#) for a detailed list of sector representation for workshop invitees).

Attendees

An average of 92 stakeholders were invited to workshop 1 in each local authority, of which 35 (38%) attended. This was based on data from 6 local authorities. However, the number of stakeholders invited to attend workshop 1 varied greatly by local authority, ranging from 29 to 146. Similarly, the percentage of invited stakeholders who attended varied considerably, ranging from 26% to 72%, but with the majority falling below 50%.

An average of 93 stakeholders were invited to workshop 2 in each local authority, of which 38 (41%) attended. This was based on data from 5 local authorities. Similar to workshop 1, the number of stakeholders invited to attend workshop 2 ranged from 30 to 146, and the percentage of invited stakeholders who attended varied considerably, ranging from 31% to 70%, but with the majority falling below 50%.

An average of 24 stakeholders attended both workshops in each local authority. This was based on data from 5 local authorities. Fourteen stakeholders who did not attend workshop 1 attended workshop 2, and 12 stakeholders who attended workshop 1 did not attend workshop 2.

Stakeholders new to the local authorities' obesity networks

Six of the 7 local authorities identified which stakeholders were new to the local authority obesity network since starting the process for workshop 1, and 4 of the 7 local authorities provided this information for workshop 2. On average, 50% of workshop participants were new to the local authorities' obesity networks, although this varied greatly between local authorities, ranging from 11% to 83%. Fifty percent of new stakeholders were from the health sector with the rest from a range of different sectors including leisure, planning and transport, school and children's services and community services (see [appendix 12](#)).

Stakeholder knowledge

At the end of the workshops, attendees completed evaluation forms, in which the majority either 'agreed' or 'strongly agreed' (ranging from 69% to 91%) that the workshops had helped improve their understanding of how obesity impacts on and connects with their work; improve their understanding of systems thinking; increased their awareness of the complexity of addressing obesity; and increased their ability to think differently about solutions for tackling obesity locally (see [appendix 13](#))

Type of actions

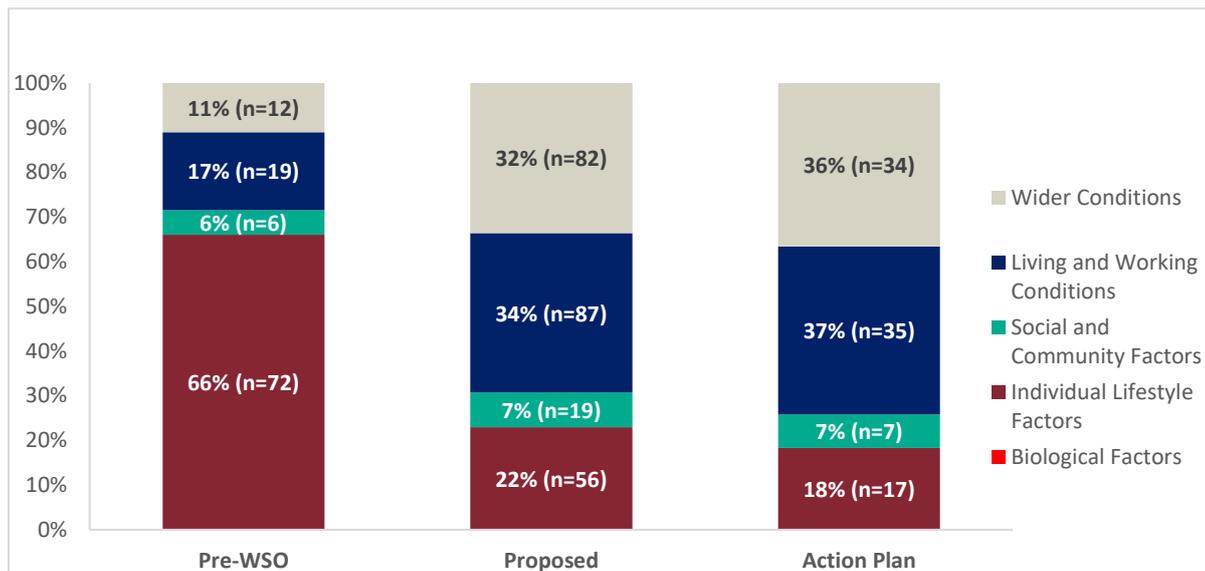
Four local authorities were included in the actions analysis, as they provided information on actions at all timepoints. See [appendix 10](#) for further information on the models used for actions analysis.

A total of 110 (average 28; range 19 to 37) pre-WSO actions were identified by the local authorities, a total of 257 (average 64; range 29 to 98) actions were proposed during workshop 2 and a total of 94 (average 24; range 4 to 56) actions were included within their action plans. These figures represent the combined numbers of individual actions for the 4 pilot local authorities who submitted this data. Duplicated or similar actions in different local authorities have not been removed from these figures.

Wider determinants of health

There were shifts in reported actions targeting the different wider determinants of health levels at different time points ([figure 2](#)). The largest shifts between pre-WSO actions and those in the action plan were observed in actions targeting individual lifestyle factors, living and working conditions and wider conditions. Sixty-six percent of pre-WSO actions focused on individual lifestyle factors; this had reduced to 20% in the action plans. Conversely, 17% and 11% of actions in the pre-WSO plan related to living and working conditions and wider conditions respectively. These increased to 37% and 36% respectively in the action plan. (See [appendix 14](#) for examples of individual actions identified in the action mapping tool and by stakeholders during workshop 2, which were categorised by the research team).

Figure 2: Distribution of actions against the wider determinants of health model



Note: percentages do not total 100 and n value may not add up to reported totals due to a small number of actions being either unclassifiable or unreadable.

Note: pre-WSO actions (in phase 1): a baseline assessment of existing and planned local authority actions before involvement in the whole systems approach to obesity programme.

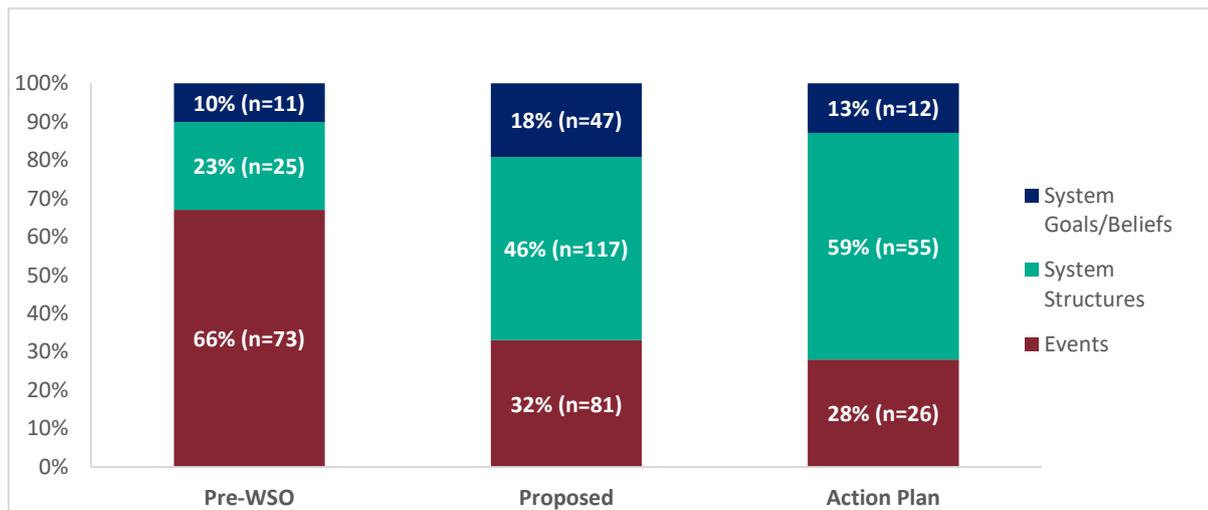
Proposed actions (in phase 4): actions proposed during workshop 2.

Action planning (in phase 5): actions included in an action plan created by the core working team

Action scales model

Similar shifts were also observed in actions analysed using the action scales model (figure 3). There was a high proportion of events-related actions in the pre-WSO plans (66%), which had reduced to 28% in the action plans. Conversely, actions targeting system structures, which constituted 23% of pre-WSO actions, increased to 59% in the action plans. Although the percentage of actions targeting systems goals and beliefs did increase, the difference was much smaller than for systems structures actions (see appendix 15 for examples of actions).

Figure 3: Distribution of actions against the action scales model



Note: percentages do not total 100 and n value may not add up to reported totals due to a small number of actions being either unclassifiable or unreadable.

Event-level actions, which decreased between the pre-WSO and action plan measurements, mostly focused on individual physical activity programmes (for example, group-based physical activity sessions, health walks, exercise on referral), health improvement programmes (for example, breastfeeding support services) and weight management services.

For system structures, pre-WSO actions principally focused on planning to improve the built and physical environment, and physical infrastructure. Action plans generally maintained actions across these themes but also introduced actions targeted at building relationships between parts of the system (for example, advocacy of multiagency partnership, building contacts with professionals and community members), obtaining a better understanding of the system (for example, undertaking insight work and evidence reviews, creating a connection between all activity currently being undertaken across the borough), and altering the flow of information across the system (for example, ensuring accessible up to date information, improving food labelling/nutritional information of food products, exploring the role of the National Child Measurement Programme in informing parents of their child's weight status).

A further observation was that action plans from several of the local authorities included collective action around a chosen theme at different system levels and across sectors. This was a key element of action mapping in workshop 2 and the data presents some

evidence that this was incorporated into the final action plans. See [appendix 16](#) for examples on delivering active travel.

Local system of obesity causes

Figure 4 shows one theme included in the final version of a collated system map from one of the test local authorities. Four maps were created using specialist software (including the 2 facilitated local authorities whose maps were created by the programme delivery partner) and 2 local authorities created paper copies. Five local authorities made one overarching systems map, as outlined in the guide, whilst one made 4 collated maps based on specific themes. One local authority produced the map in figure 5 using a different technique.

Of the 5 local authorities who created 1 overarching map, 4 also identified themes on their maps as outlined in the guide. Six themes were identified by more than 1 local authority: Transport / Public transport (n=2); Fast food (n=2); Food knowledge / Food education (n=2); Workplace / Health in workplaces (n=2); Cooking (n=2); and Schools / Health in education settings / School environment (n=3).

Figure 4: Example section of a systems map

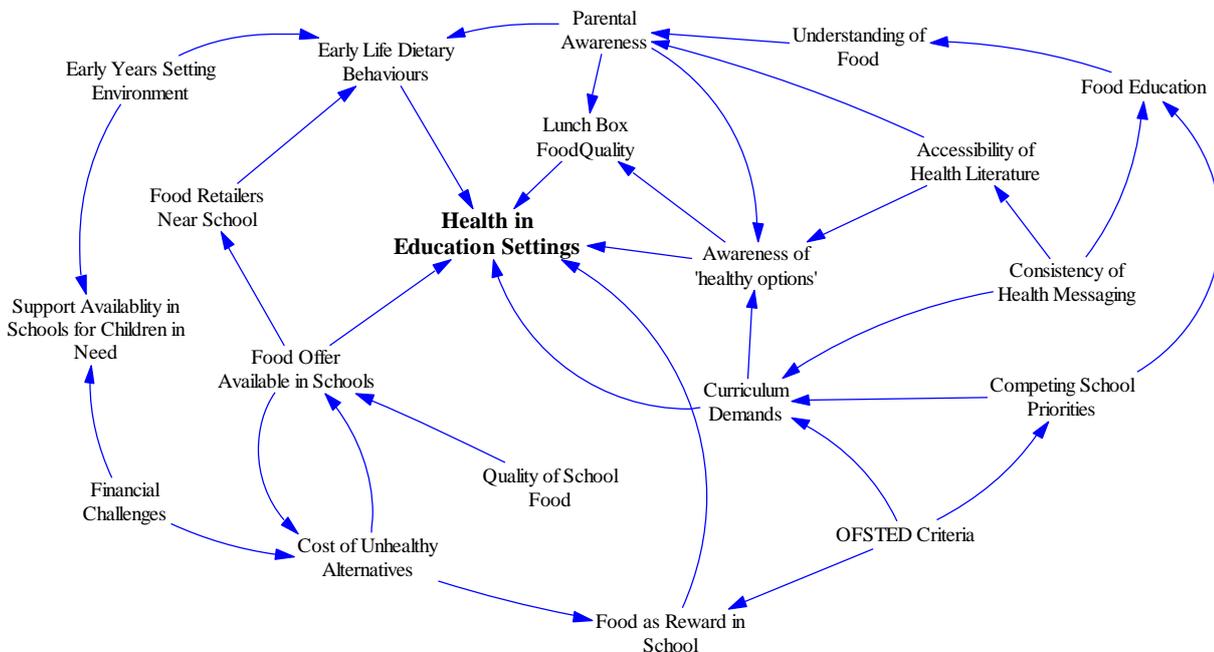
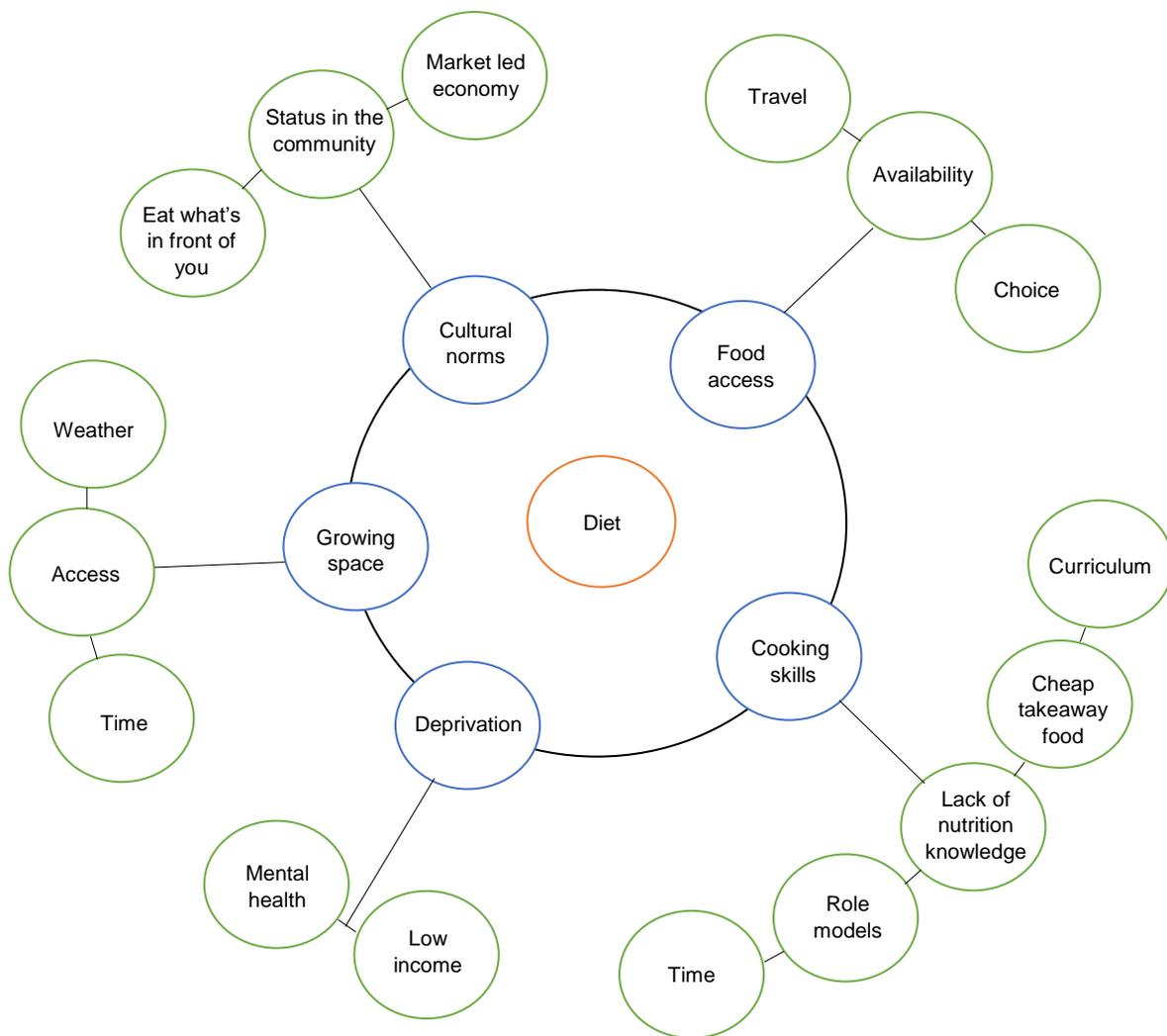


Figure 5: Representation of a map produced using a different technique



Operationalisation of a whole systems approach

Five of the 7 test local authorities circulated a system network survey to understand the extent to which members of the systems network considered that a whole systems approach was being implemented in the local area. Only 19 stakeholders completed the survey (ranging from 1 to 9 per local authority) despite several reminders. Due to the poor response rate, the data was not considered to be representative and has not been presented in this report.

Discussion

The whole systems approach to obesity programme was set up following research undertaken by PHE and the Association of Directors of Public Health, which identified that support with shaping a whole systems approach to tackling obesity was a key priority for local government Directors of Public Health (6). Aligning with PHE's key role of supporting local delivery (7), the programme aimed to produce a tried and tested process and tools that would enable local authorities to create a local whole systems approach. The programme built on the foundations articulated in the Foresight Tackling Obesity: Future Choices report and research commissioned by the National Institute for Health and Clinical Excellence (NICE) (8, 9). The programme started before the evaluation report of the systems-focused Healthy Towns programme was published, though it usefully aligned with some of the report's key recommendations, including developing a local obesity system toolkit (10).

In July 2019 a guide – Whole systems approach to obesity: A guide to support local approaches to promoting a healthy weight, and resources were published. This report, which accompanies the guide, shares learning about the co-production and testing of the process, guide and resources, including proportionate evaluation of some short-term impacts.

Adopting a co-productive approach – how did it work?

The programme's co-productive approach with local authorities was essential to develop a guide and resources that was relevant to local users. However, the programme partners had different expectations of the programme work and there were clear barriers to co-production, particularly within an environment of competing local priorities and limited resources. A memorandum of understanding was put in place at the beginning, although in reality it was partners listening to each other's views and discussing matters, which helped to reach consensus. A recent review that examined co-production working in the UK with service users identified similar challenges and recommended that academics and practitioners clearly articulate a shared understanding of co-production before starting the process (11).

The programme required substantial time commitment from local authorities to support the co-production process and although the pilot local authorities received in-kind support from the programme delivery partner, they received no direct financial support.

This could have had an unintended impact on the programme in terms of the pace and how work developed. Making the case for administration resource could support future co-production work with minimal impact on the sustainability of the approach.

Were local authorities able to implement the whole systems approach?

Local authorities involved in the testing phase were able to deliver the process outlined in the guide. A number of local contextual barriers to implementing the approach were cited. These included capacity and capability of local teams, ability to engage wider stakeholders with competing priorities, securing ongoing multi-sectoral senior leadership engagement and the long-term focus needed to tackle obesity.

Whilst the local authorities tested the programme materials in the real world, some of these barriers may have been exacerbated due to the short time frames imposed by the programme to test the resources. Indications are that local authorities may take a flexible approach, though implementation practice remains to be fully understood and will become apparent over time.

The programme delivery partner facilitated the system mapping workshops in 2 out of 7 test local authorities and there was evidence that colleagues valued this support. For local authorities who did not receive facilitation, there was evidence that colleagues who prepared adequately and demonstrated the skills and confidence to deliver presentations about systems thinking concepts, and facilitate systems mapping sessions, were able to deliver high standard workshops and robust systems maps. However, not all local authorities had the skills or time to do this. The capability of local teams was identified as a potential barrier to implementing aspects of whole systems approaches. There is an opportunity to consider how this can be addressed locally, within the context of local resource pressures, perhaps through a peer support/action learning set model between neighbouring local authorities.

These barriers to addressing obesity using systems approaches are not new and reflect findings from large complex systems programmes, such as Total Place (12) and Healthy Towns (10). Total Place identified similar themes, including the need to develop a shared understanding of other stakeholders' agendas and perspectives and the challenges of doing things differently. A key recommendation of the Healthy Towns evaluation was the "early identification and engagement of stakeholders at all levels of the system" based on a programme's ability to act as a key enabler through stimulating engagement with a wide range of local stakeholders. Similarly, senior level support and

the engagement of a broader range of strategic leaders was one of the 10 features of a whole systems approach to tackle obesity outlined by Garside et al. (9), which informed NICE guidance on working with local communities (13). This was also identified as one of the key features associated with successful approaches in a systematic review, which looked at systems approaches to obesity and other complex public health challenges (14).

These barriers should be interpreted within the context of the current structures of public health in England, which transitioned from the NHS into local government in 2013 as a result of the 2012 Health and Social Care Act (15). The transition occurred at a time of significant and ongoing financial challenge across the public sector including the reductions in the public health budget. The Phoenix Report (16), which explored the impact of the reforms on the Public Health function, identified similar contextual challenges including competing policy initiatives, challenges of partnership working and reductions in resources and financial constraints.

The allocation of resources to support a whole systems approach warrants consideration. Bagnall et al. (12) highlighted several process evaluations of approaches targeting obesity and other complex public health and societal issues, which identified a lack of resource as a barrier to successful implementation. Similarly, Cummins et al. (10) highlighted financial benefits associated with gaining Healthy Town status as one of the most significant facilitators, providing 'an opportunity to develop initiatives, create new jobs and engage stakeholders from within the public, private and third sectors.' Since the whole systems approach to obesity programme did not involve any additional funding for local authorities, the need for senior level support to lead the change and consider what was needed to make it happen was perhaps even more important. The extent to how this approach (without associated resourcing) delivers something sustainable was not investigated. The issue of sustainability was faced by the Healthy Towns programme sites where loss of funding had a direct impact on each of the town's capacity to sustain their programmes and activities.

The process and guide were developed and tested specifically to tackle obesity and promote a healthier weight, though local authorities involved in the programme recognised that the tools and approach could also be applied to tackle other public health issues. Public health professionals in local authorities work across different public health agendas so there is potential for it to be applied in a broader sense.

What was the impact?

The programme's short testing timeframes meant it was not possible to measure the impact of a whole systems approach in the longer term and explore the sustainability of the approach. However, the programme found some evidence of changes in a number of short-term impacts. These included an increase in actions targeting different levels of the system, stakeholder engagement and understanding of systems, suggesting the beginnings of a shift towards systems thinking. This provides some indication of the importance of local authorities and their stakeholders spending time and effort on developing this understanding and supports observations by Cummins et al. (10) who noted the need for local leads to have time and space to develop as 'systems thinkers'.

Mapping the local system of obesity drivers is a key feature of the programme, which engaged stakeholders in some of the principles of systems thinking. System mapping is gaining popularity in public health, with others having used systems mapping approaches in obesity (17, 18), dietary inequalities (19) and physical activity (20). The system maps produced by the test local authorities identified similar obesity themes to obesity maps developed with communities in the USA as part of a national US healthy eating and active living programme (18). These were: 1) healthy eating policies and environments; 2) active living policies and environments, 3) health and health behaviours; 4) partnership and community capacity; and 5) social determinants. It is important to note that while the overarching themes were similar, there were differences in maps between local authorities, which reflected the local context. Learning from the programme suggests that system maps produced locally develop local ownership and benefit from being based on the knowledge and experience of local stakeholders.

The process of building system maps is called group model building and started as a means of creating dynamic simulation models. Its use has been extended to engage stakeholders to develop causal maps to help them understand problems, see and understand systems and to build local capacity (18). Hovmand noted that the appropriate systems approach for a programme of work will depend on the type of insight required (21). At one end of the spectrum, systems picture and diagrams can help groups identify how the components of a system are connected. Qualitative causal maps provide a further level of insight, such as recognising how others think about a system, potential leverage points and how to transform a system by adding or removing feedback loops. Finally, to fully understand how system structures determine the systems dynamics and identify actual leverage points, extensive simulation modelling and testing is required (21).

Taking account of the time and experience of stakeholders who would be undertaking the mapping process, and the goal of enabling local authorities to undertake systems mapping independently without relying on expert support, qualitative system mapping was considered appropriate for this programme. It illustrates the complexity of the issue and enables a wide range of stakeholders to see their place in the system and how they are influenced by other factors in the system.

Qualitative system mapping does have a number of limitations. There is limited empirical evidence on the value of these maps (20), inferred causality may not be accurate and important variables on causal pathways may be missing. The systems dynamic literature also emphasises that these types of maps do not allow for reliable, and may even result in misleading, inferences about behaviour (22, 23). However, Rutter et al noted that these types of “conceptual models can advance our understanding of the complexity of planning comprehensive and integrated approaches to a public health issue.... [and] ...can also guide both selection and prioritisation of actions, and help to coordinate responses to problems” (20). Local authorities who initially questioned the benefits of allocating time to this process subsequently reported the systems mapping process to be pivotal in bringing about positive change in stakeholder knowledge and understanding of systems science and the complexity of obesity causes.

There was evidence of local authorities increasing the engagement of new stakeholders through implementing the whole systems approach, though the health sector made up the majority of the stakeholders involved. There were key omissions in representation from some sectors across all local authorities (for example, local business representation) and limited voluntary, community and faith sector engagement. The importance of the breadth of stakeholders engaged is further borne out through the systems map that was produced, and consequently the action plans that were created. Key gaps in stakeholder representation or knowledge may lead to the omission of important interrelationship and/or causes of obesity.

Public health teams, who led the programme in the local authorities, may have inadvertently influenced the type of stakeholders who were engaged. The focus was initially on engaging other local authority departments rather than external stakeholders although this evolved during the programme. Local authorities involved in the programme engaged communities to varying degrees. This was largely dependent on the existing relationships and history the local authority had with communities. Nevertheless, the importance of integrating communities into a whole systems

approach was evident and follow up interviews with local authorities helped to inform content on community engagement and asset mapping in the guide. Stakeholder, including community engagement is an iterative process and something, which should evolve as the approach becomes more embedded.

Through using the programme's action scales model (4) local areas started to demonstrate a shift in the type of actions to address obesity. There was a shift from event-led actions predominately targeting individual lifestyle factors to an increase in actions that targeted system structures, which have greater potential to change how the system functions. Actions that target events (such as, individual weight management interventions) have a role alongside actions targeting system structures (such as, planning legislation to change the food environment) and in the long term could collectively have greater impact through reshaping the structures of the system that cause the events to happen. This shift is encouraging and could suggest that the local authorities and stakeholders involved in the programme were beginning to apply systems thinking.

These findings could suggest a shift in thinking since the Healthy Towns Programme as the evaluation of that programme acknowledged that a shared understanding of what constituted a systems-based intervention was lacking (10). This shift is also supported by a model developed by Swinburn et al. (24) to support action at all levels; action for those who are already or at risk of overweight/obesity, and more population-level preventative action at the wider environmental level. Furthermore, the Childhood Obesity Trailblazer programme is supporting local authorities with developing local levers to tackle obesity as part of a whole systems approach. Upstream system levers feature in the range of levers that are being tested (25).

Given the long-term nature of systems working, there is a clear need to develop the evidence base on the impact of whole systems working in the long term, recognising the collective impact of a wide range of actions. There is currently minimal guidance in place to support this type of evaluation. Systems techniques are being used in a National Institute for Health Research (NIHR) funded project to evaluate the Soft Drinks Industry Levy (26). Additionally NIHR systems evaluation guidance to inform local evaluations (27, 28) and updated Medical Research Council guidance to support the evaluation of complex interventions (29) have recently been published (30). These are

⁴ The action scales model is a very simple representation of a complex system, outlining 4 systems levels (see [appendix 15](#) for further details). It is used as a means of conceptualising where to intervene in a system in order to bring about the greatest long-term sustainable change.

important pieces of research and guidance, which will extend and support the evaluation of interventions in complex systems. There is also a relatively untapped opportunity to research and provide practical guidance on how to evaluate the collective impact of a range of interlinked actions in a defined system as part of whole systems approach.

Considerations

The current report was prepared by Leeds Beckett University and PHE with the research undertaken by Leeds Beckett University. It was reviewed and commented on by a number of independent academics involved with system and community approaches. A primary aim of the report was to generate learning to support the continued development and improvement of the guide and resources, within the lifetime of the programme. Hence it seemed logical and pragmatic that this was undertaken by the team developing the wider programme. Given the qualitative nature of a large part of the research, it is important to acknowledge that this could also have resulted in reporting bias.

Concluding remarks

The programme was commissioned to explore and co-produce a way to enable local authorities to create their own local whole systems approaches to tackling obesity. Learning from the local authorities, involved in co-producing and testing the guide and resources, suggests that the programme delivered on these aims.

Exploring how to enable local whole systems approaches to tackling obesity has created considerable learning and it is clear that local authorities are a key driving force for such an approach and making it everybody's business at a local level. There remains opportunity to generate ownership of the approach and the obesity agenda, and secure the leadership, resource and commitment to integrate this new way of working across the whole local system. In parallel, ongoing commitment is required at both a national and local level to understand the impact of whole systems working in the short, medium and long-term.

A key legacy of the programme is that it has helped to mainstream the conversation about systems approaches and their application to tackling obesity at a local level and increase access to systems techniques for local public health colleagues. Whilst there

are different ways to implement systems approaches, the guide represents one way in which to translate and transfer this collective experience to support local authorities on their whole systems journey.

Next steps

PHE and partners have identified key themes to work on to support local authorities and their partners to implement and embed whole systems approaches to tackling obesity (Table 7).

Table 7: Next steps

Priority theme	Action
Knowledge and skills	Support the local workforce so that they can confidently use the guide and other resources to implement a whole systems approach to tackling obesity. This should include developing skills around systems thinking and facilitation.
Communities of practice/learning	Consider how to promote the exchange of learning and evidence through networks/stakeholder groups, including action learning sets.
Systems leadership	Develop a shared narrative on systems working across relevant national programmes, promote and make knowledge of the whole systems approach widely available in our organisations and explore opportunities across wider government. Systems working to be an integral part of What Good Looks Like for healthy weight across the lifecourse publication(1).
Communications	Consider different strategies to communicate the publication of the guide and how to enable local areas to communicate the benefits of the approach, including an edition of PHE Health Matters.
Evaluation	Explore opportunities around methods and approaches to evaluate whole systems approaches to tackling obesity and other health outcomes.

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Appendices

Appendix 1: Acknowledgments

This report was produced by Leeds Beckett University and PHE, in partnership with the Local Government Association and the Association of Directors of Public Health. Our thanks go to all individuals and organisations who freely gave their time and expertise to support the development of this learning report, which accompanies the Whole systems approach to obesity: A guide to support local approaches to promoting a healthy weight.

Special thanks go to the programme’s advisory group, pilot local authorities (Durham, Gloucestershire, Lewisham and North Kesteven), test local authorities (Bradford, Dudley, Halton, Hertfordshire, Oldham, Solihull and Suffolk), the 40 other local authorities who reviewed the guide and resources and external experts who peer reviewed the guide and resources.

Whole systems obesity advisory group members

Name	Organisation
Jim McManus	Association of Directors of Public Health Hertfordshire County Council
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Paul Ogden	Local Government Association
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Ann Crawford	Public Health England, East Midlands

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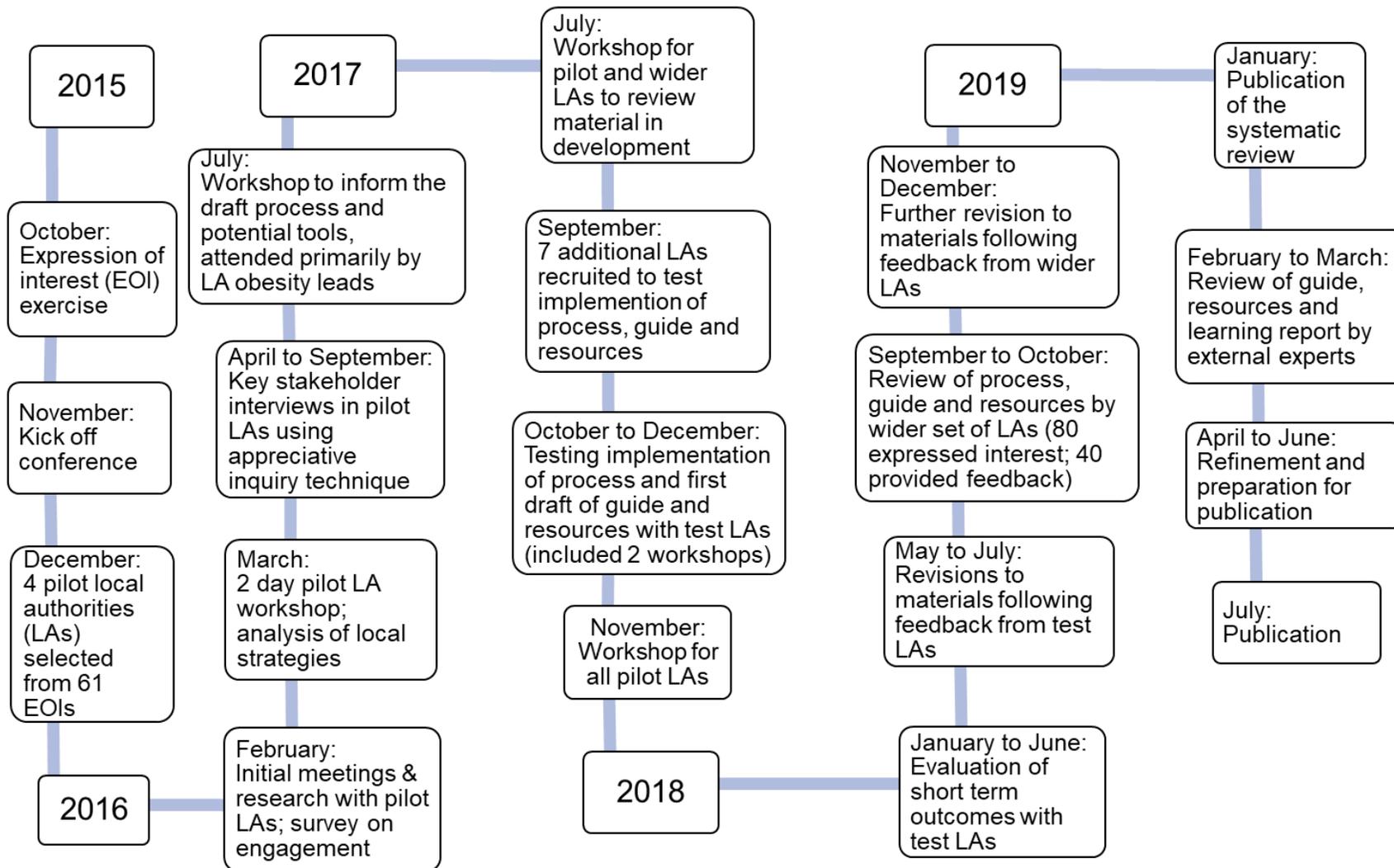
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Appendix 2: Glossary

Action mapping tool	A tool to collate actions to address obesity from across the system based on the wider determinants of health model.
Action scales model	A simple tool representing a complex system, outlining 4 systems levels (events, system structures, system goals and system beliefs), as a means of conceptualising where to intervene in a system.
Community of learning	Local authorities and stakeholders with an interest in sharing and receiving learning about the whole systems approach to obesity programme. Interested parties signed up to the community of learning online.
Core working team	A small number of individuals who co-ordinate the whole systems approach in local areas, undertaking the day-to-day work and providing administrative support.
Group model building	The process of building system maps (for this programme to depict the system of local obesity causes).
Iceberg model	A tool developed through the programme, which depicted the different levels of a system using an iceberg analogy. This model was subsequently developed into the action scales model (31).
Network analysis tool	A tool to determine the departments, organisations and individuals involved in tackling obesity across the local area.
Pilot local authorities	Four local authorities (Durham County Council, Gloucestershire County Council, London Borough of Lewisham and North Kesteven District Council) who co-produced the whole systems approach to obesity guide and resources.

<p>System network</p>	<p>A broad set of local stakeholders, from within and outside of the local authority, responsible for the sustained implementation, adaptation and refinement of the whole systems approach and action plans.</p>
<p>Test local authorities</p>	<p>Seven local authorities (City of Bradford Metropolitan District Council, Dudley Metropolitan Borough Council, Halton Borough Council, Hertfordshire County Council (with East Herts and Hertsmere District Councils), Oldham Metropolitan Borough Council, Solihull Metropolitan Borough Council and Suffolk County Council) who tested the whole systems approach to obesity guide and resources.</p>
<p>Wider determinants of health model</p>	<p>A socio-ecological model which illustrates 5 factors that influence health: biological factors, individual lifestyle factors, social and community factors, living and working conditions and wider conditions (5).</p>
<p>Whole systems approach</p>	<p>The programme-specific definition: A local whole systems approach responds to complexity through an ongoing, dynamic and flexible way of working. It enables local stakeholders, including communities, to come together, share an understanding of the reality of the challenge, consider how the local system is operating and where there are the greatest opportunities for change. Stakeholders agree actions and decide as a network how to work together in an integrated way to bring about sustainable, long-term systems change.</p>

Appendix 3: Chronology of whole systems approach to obesity programme



Appendix 4: Recruitment and demographic profile of pilot local authorities

In October and November 2015, all local authorities in England were invited by PHE to submit an expression of interest to be one of the 4 pilot local authorities in the three-year whole systems approach to obesity programme. Local authorities were required to describe the value they would derive from participating in the programme, the 3 biggest challenges they faced in tackling obesity and current obesity stakeholders and partners. The invitation letter included the selection criteria; successful local authorities would represent different tiers of local authority (Unitary and District, Upper Tier and London Borough), geography and contextual challenges such as rurality, inequalities, deprivation and black and minority ethnic populations.

Sixty-one applications were received, and applications were screened and shortlisted by the programme delivery partner. A panel of PHE, the Association of Directors of Public Health and the Local Government Association considered the 17 shortlisted applications and selected 4 final pilot local authorities – Durham County Council, Gloucestershire County Council, London Borough of Lewisham and North Kesteven District Council (Table 8).

Table 8: Characteristics of the pilot local authorities¹

	Type	Population (000s)	Prevalence of adult OW/OB	Population in lowest IMD decile
Durham	County Council ²	516	72.5%	28.7%
Lewisham	London Borough	286	61.2%	36.6%
Gloucestershire	County Council ³	606	63.8%	15.0%
North Kesteven	District Council	110	65.5%	0.0%

¹ At the point of recruitment; ² Unitary; ³ Upper Tier

OW/OB: overweight and obese; WB: white British; IMD: index of multiple deprivation

Appendix 5: Methods: co-production of the process, guide and resources

Understanding the local context

The following activities were undertaken between October 2015 and July 2017.

Analysis of expressions of interest

Sixty-one expressions of interest to be a pilot local authority on the whole systems approach to obesity programme were received in November 2015. Expressions of interest included information about the challenges, facilitators and barriers to tackling obesity in each locality and provided examples of existing work (both interventions and partnerships).

Survey of Community of learning

A **web presence** was established for the programme which started to build a community of learning comprising other local authorities and stakeholders with an interest in sharing and receiving learning about the whole systems approach to obesity programme. In June 2019 this had over 600 sign ups and has provided a platform for wider engagement through newsletters, reports on events and surveys. A survey was undertaken with the community of learning members (response: 43 participants from 37 different local authorities) to identify how non-pilot local authorities wished to be engaged with the programme and what they perceived to be the opportunities and enablers for addressing obesity in their local areas.

Review of corporate documents

A desktop analysis was undertaken to identify local authority obesity related documents. Documents identified included Directors of Public Health annual reports, health and wellbeing strategies, joint strategic needs assessments, corporate plans, strategies referencing overweight/obesity (including adult and children and young people's service plans) and action plans relating to these documents.

Workshop with pilot local authorities, additional local authorities and stakeholders

To obtain an understanding of what materials would support local authorities with implementing a whole systems approach, a workshop was held early in July 2016. Thirty colleagues, mostly local authority obesity leads, attended and were introduced to the process.

Co-production with 4 pilot local authorities and additional local authorities

The following activities were undertaken between February 2016 and November 2017.

Meetings with senior managers and public health teams

Initial meetings in the pilot local authorities with senior managers (local authority chief officers/directors/elected members) and public health teams took place in February 2016, using appreciative inquiry as a method of understanding the structures, processes, culture and the factors underpinning success in each organisation. Appreciative inquiry is a strengths-based approach to promote positive change in people, groups and organisations by focusing on what is done well in or by an organisation (2, 32). It enables researchers to obtain a better understanding of how organisations work in reality and specifically for this programme how they were creating approaches to address obesity. In addition, the meetings explored:

- reasons for applying and the expected value of participation in the programme
- local authorities' priorities
- key stakeholders and challenges with partnership working

Subsequent interviews with senior officers and partner organisations

Between March and September 2016, interviews were undertaken in the pilot local authorities with key senior officers (chief officers/directors/heads of service/elected members/public health leads) in each local authority and partner organisations. These were identified by the local programme lead and included a clinical commissioning group (CCG) representative, academy manager and voluntary sector partner) between March and September 2016. The interviews used a guided framework underpinned by appreciative enquiry to understand what was done well in the organisation and to create a mind-set of building on strengths and potential in their system. A total of 42 recorded interviews were undertaken across the 4 pilot local authorities.

Workshops with pilot local authorities

A 2-day event hosted by the programme delivery partner was held in March 2016, attended by representatives of all pilot local authorities and some representatives from their partner organisations (for example, CCG, GP and academy manager). This event aimed to bring the pilot local authorities together to share learning and ideas, explain the next steps of the programme including application of systems thinking, generate draft materials and identify what would help local authorities. The programme delivery partner subsequently created a number of tools and approaches to test with the pilot local authorities. These formed the basis of the first workshops in each local authority area.

From June 2016 a number of half-day workshops were held in each pilot local authority to test and review the resources and tools under development, including group model building and systems mapping processes. Due to individual local authority commitments, these workshops did not run concurrently in all 4 pilot local authorities. As a result, each pilot tested a different iteration of the material as it was refined following feedback from each pilot session. This enabled the programme delivery partner to adapt the activities and supporting resources to reflect feedback from each pilot, making them more user-friendly as the process developed.

The pilot local authorities also provided written feedback on the guide and resources during the course of the programme.

Researcher reflections

Observations from the programme delivery partner underpinned co-production and evaluation. This approach required the researchers to both collect and analyse data from fieldwork with the pilot local authorities. The programme delivery partner collated and discussed these reflections at weekly meetings.

Data collection and data analysis

A qualitative thematic framework analysis was applied to the expressions of interest, including the data presented by local authorities on existing programmes and strategies. Thematic analysis allows identification of commonalities and differences within the qualitative data, allowing descriptive and/or explanatory conclusions clustered around themes (33).

Whole systems approach to obesity programme: learning report

Detailed notes were taken by the research team at all meetings with senior leaders, public health teams and at events and workshops. In addition, the research team held feedback and debrief sessions after each event. Feedback notes and notes from debrief sessions were reviewed and emerging themes collated.

Interviews with senior officers were recorded, transcribed and thematic analysis undertaken.

Ethical approval was obtained from Leeds Beckett University Research Ethics Committee.

Appendix 6: Partner organisations of pilot local authorities

Local authority services

Health and wellbeing board, public health team, elected members, planning/town planners, environment and green spaces, environmental health, transport, housing, licensing, leisure, children's centres /early years, social care, family support teams and sports development.

NHS/health

CCGs and primary care/GPs, hospitals/foundation trusts/acute care, mental health trusts, community healthcare, community pharmacies, health visitors, health trainers, community health champions, weight management pathways and clinical specialties such as cardiology and diabetology.

Voluntary and community sector

VCS sector generally, organisations providing support for particular groups (for example, young people, carers, older people), umbrella organisations providing support and development of the VCS in general, community groups providing physical activity opportunities or infrastructure (for example, Sustrans, Health Walks, Football) and improving the food environment (for example, Incredible Edible, allotments) and faith groups.

Education

Early years settings, schools, further education and universities.

Business

Initiatives to improve the food offer of local catering businesses or takeaways, larger employers in terms of workplace health initiatives and links with the local chamber of commerce.

Whole systems approach to obesity programme: learning report

Commissioned service providers

Weight management, early years, leisure services and housing.

Networks

Sports partnerships, city alliances, food partnerships and other local consortiums.

Appendix 7: Stage 2: Test local authority programme engagement requirements

Table 9: Test local authority programme engagement requirements

Timeline and process phase	Local authorities to do the following
<p>October 2017</p> <p>Creating the environment for change</p>	<ul style="list-style-type: none"> • identify a local lead to coordinate the process • secure senior level leadership including a senior level champion who will help to provide profile and engage stakeholders - either officer or elected member • identify two dates for the two stakeholder workshops. Each workshop will last 3 hours • hold a series of 35-40 minute 1 to 1 interviews with a range of senior colleagues to ask, “what works well here?” This will help to identify the current strengths in the local authority that give insight into what a successful approach to obesity would need to look like • consider how obesity relates to other local priorities • collate material on actions related to addressing obesity using the template provided • collate material on networks using the template provided • identify and engage the relevant stakeholders and invite them to the two workshops • provide an update to senior local authority leaders setting out the findings of this preliminary work and what this means for next steps

<p>November 2017</p> <p>Understanding the local causes and linkages</p> <p>Identifying opportunities to intervene in or 'disrupt' the existing system</p>	<p>Stakeholder workshop 1 (3 hours)</p> <p>Local authority invites stakeholders to attend the first workshop.</p> <p>A senior leader presents the current local position on obesity.</p> <p>Stakeholders carry out a range of activities to share understanding of local issues and causes, identifying some themes. These are the areas on which stakeholders are starting to focus their ideas and energies.</p> <p>Following stakeholder workshop 1, the local authority team work with Leeds Beckett University to translate the material generated into a small number of clearer "goals". These are a more clearly defined set of points; around which actions will be planned in the next phases.</p>
<p>November/ December 2017</p> <p>Building and aligning actions around key points or goals</p>	<p>Stakeholder workshop 2 (3 hours)</p> <ul style="list-style-type: none"> • stakeholders consider the goal(s) (derived from workshop one) and uncover some of the barriers and root causes which prevent the goal(s) from being realised – drawing on their expertise to generate a map of local issues • stakeholders look at each of the challenges and start to consider what actions could be taken to address them • stakeholders review who should be involved in taking the actions forward • this enables the local authority to create a long list of actions that reflect the thinking of a wide range of stakeholders, focused around a small number of goals: these are the points where stakeholders are committing to change the system. It should also help to identify and engage any stakeholders whose involvement has now become recognised as important

<p>Ongoing as desired by the local authority</p> <p>Creating and maintaining a dynamic system</p>	<p>The local authority's team will then take the material generated by the workshop and review the actions, considering how they might be better aligned or adapted and collate the actions into a single action plan, with support from the programme delivery partner.</p> <p>Set up a cross-stakeholder working group that will meet regularly to take forward the actions in the action plan – regular liaison across the stakeholders and actions will enable the system to work more effectively together, and adapt and change as circumstances change, so that the action plans are always moving towards the agreed goals.</p>
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Appendix 8: Demographic profile of test local authorities

Table 10: Characteristics of the test local authorities¹

	Type	Population (000s)	Prevalence of adult OW/OB	Population in lowest IMD decile
Bradford	Metropolitan District	533	63.7%	32.6%
Dudley	Metropolitan Borough	316	67.4%	8.0%
Halton	Borough ²	127	61.1%	26.6%
Hertfordshire	County ³	1 178	59.7%	0.03%
Oldham	Metropolitan Borough	217	66.4%	22.7%
Solihull	Metropolitan Borough	207	63.4%	11.9%
Suffolk	County ³	742	61.5%	4.7%

¹ At the point of recruitment; ² Unitary; ³ Upper Tier

OW/OB: overweight and obese; WB: white British; IMD: index of multiple deprivation

Appendix 9: Methods: testing the implementation of the process, guide and resources

Evaluation of the implementation of the process, guide and resources was informed by the Medical Research Council guidance on the process evaluation of complex interventions (34). The evaluation considered 3 key areas:

- implementation: what elements of the guide were implemented and how
- mechanisms for change: how the delivered process produced change
- context: how did the context influence implementation and outcomes associated with the whole systems approach

Semi-structured interviews / focus group

Interview guides for each phase were developed by the research team to explore the elements associated with each phase. The interviews, carried out after each test local authority completed each phase, focused on:

- barriers and facilitators to implementation (general and context specific)
- if the process was adapted how and why
- who was involved in the implementation of each phase
- how long it took to complete each phase
- local contextual factors that affected fidelity to content
- usability of the guide and resources

The semi-structured nature of the interviews allowed the researcher to expand, adapt, and add to the line of inquiry throughout the conversation. Probes were also used to explore interviewee responses in greater depth. Interviews were predominantly completed over the phone and lasted between 30 to 120 minutes. All interviews were recorded and transcribed for analysis.

Document / resource analysis

Review of documents and resources created by the test local authorities during implementation of the whole systems approach enabled the research team to 1) establish whether the recommended documents/resources were created, 2) assess if and how this deviated from what was recommended and/or anticipated, and 3) gain

further insight about the processes followed during the implementation. The test local authorities were provided with a list of documents to send to the research team and asked to share any additional documents/resources to support the evaluation. The requested list of documents included:

- presentations to senior leaders
- workshop and system network presentations
- generated system maps
- stakeholder attendance registers
- action registers
- action plans

Stakeholder evaluation forms

Stakeholders who attended workshops were asked to complete an evaluation form with questions on: 1) understanding of the activities and workshop content; 2) the opportunity to learn new skills and/or material; 3) the opportunity to network with other likeminded stakeholders; 4) activities/workshop components that were challenging and/or need improving; 5) expectation of the workshop versus what was delivered; and 6) any additional training and/or resource requirements. Responses were captured using a mixture of Likert scale questions (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree) and free text responses.

Researcher observation forms

During workshops, researchers made notes about workshop delivery, the engagement of stakeholders, barriers and facilitators to implementation, room layout, facilitation styles and general reflections on the process.

Workshop facilitator feedback

Workshop facilitators completed feedback forms to establish: 1) engagement and participation of the stakeholders (broadly and with regards to specific tasks); 2) whether stakeholders understood how to complete the tasks; 3) the audience's understanding of systems thinking; 4) the need for additional resources/guidance; and 5) barriers and facilitators to the workshop delivery. The feedback form was completed by facilitators within one week of the workshop being delivered.

Fidelity assessment (session filming)

Resources to support the test local authorities with the delivery of workshops included a workshop template and presentation slides with accompanying notes. To determine the extent to which workshops were delivered in line with the guidance in these resources, workshops were filmed, and fidelity assessed retrospectively. Assessment was undertaken using a checklist, indicating where the workshop was delivered as planned, and where there was deviation from resources. Comments were logged by the researcher to describe the amended process.

Researcher reflections

A reflective process was undertaken throughout, whereby the programme delivery partner captured observations in the field (see [appendix 4](#) for further details).

Data analysis

Qualitative data was analysed using thematic analysis (35) with methods triangulated to provide clearer insights (see [appendix 4](#)).

Ethical approval was obtained from Leeds Beckett University Research Ethics Committee.

Appendix 10: Methods: evaluating the short-term impact of implementing the process, guide and resources

Stakeholder registers

Lists of workshop invitees and attendees were used to understand the breadth of stakeholder engagement in the programme and which stakeholders were new to the local authority obesity network (identified by the local authority core working team).

Stakeholder evaluation forms

Stakeholders who attended workshops were asked to complete an evaluation form to examine short-term changes in their knowledge on: 1) systems science; 2) the complexity of obesity causes; and 3) types of actions to address obesity.

Action analysis

Each local authority's actions to address obesity were assessed at different stages in the process:

- pre-WSO actions (in phase 1): a baseline assessment of existing and planned local authority actions before the whole systems approach to obesity programme
- proposed actions (in phase 4): actions proposed during workshop 2
- action planning (in phase 5): actions included in an action plan created by the core working team

To examine the extent to which existing and proposed actions changed as a result of implementing the process, actions were categorised against 2 models:

- wider determinants of health model – actions were categorised according to the level they influence within a wider determinants of health model (5): 1) biological factors; 2) individual lifestyle factors; 3) social and community factors; 4) living and working conditions; and 5) wider conditions
- action scales model – actions were categorised according to the different system level they influence: 1) events; 2) system structures; 3) system goals; and 4) system beliefs

The action scales model is derived from the iceberg analogy, used to explain how systems function in our daily lives (31), and the intervention level framework (36), a framework to identify places to intervene using a complex systems science perspective.

Providing a very simple representation of a complex system, the model outlines 4 systems levels:

- events – these are the things that we can see in our day to day lives, the things that arise from how the system functions. They are also often referred to as the ‘symptoms’ of how the system functions
- system structures – these relate to how the system is organised; the structures, the processes, and the relationships between the parts. It is these structures which cause the events to arise
- system goals – these are the targets that the system, or a part of the system, is working to achieve. We structure the system in a way that makes it possible to achieve the goals; goals drive the organisation of the system structures
- system beliefs – often referred to as ‘mental models’, these are the deeply held beliefs, norms, attitudes and values of the individuals and organisations which cause the system to function, and keep functioning, as it does

The model uses the lens of the systems levels as a means of conceptualising where to intervene in a system in order to bring about the greatest long-term sustainable change. The deeper the level of action (towards system beliefs), the greater the potential leverage for changing the functioning of the system.

System maps analysis

To obtain a greater understanding and visual representation of the local causes of obesity, local authorities developed local obesity system maps (phase 2). With stakeholders working in small groups of 6 to 8, the system mapping involved:

- creating lists of what stakeholders perceived to be the local causes of obesity
- prioritising causes to be used as starting points for maps
- creating several maps, based on prioritised causes, following the steps in the workshop slides

The individual maps created during workshop 1 were collated by the core working team during phase 3 into a single overarching system map. This process involved:

- organising the individual system maps into groups – for example, maps created on ‘uptake of active transport’ and ‘walking routes to school’ could be grouped into ‘active transport’
- choosing an option for creating the maps – using specialised software (for example Vensim, Microsoft Visio and InsightMaker), generic software (for example Microsoft PowerPoint) or producing a paper copy
- creating the maps – following the step-by-step guide provided in the resources

System network survey

This survey investigated the perspectives of system network stakeholders about the extent to which a whole systems approach was being operationalised. The survey was adapted from the Indig et al. (37) questionnaire, with permission from the authors, which was created to evaluate obesity prevention partnerships.

Data analysis

Quantitative data were analysed using descriptive and frequency statistics in instances where data were collected at one time-point, for data collected on the same subjects at multiple time points paired sample *t*-tests were used. Qualitative data was analysed using thematic analysis (35) with methods triangulated to provide clearer insights (see [appendix 5](#)).

Ethical approval was obtained from Leeds Beckett University Research Ethics Committee.

Appendix 11: Sector representation for workshop invitees

Table 11: Sector representation for workshop invitees

Sector	All LAs	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
CCG	17 (3)	3 (2)	4 (4)	4 (6)	1 (3)	4 (3)	1 (1)
Community services	63 (11)	16 (11)	6 (7)	9 (13)	4 (12)	21(15)	7 (10)
Elected members	17 (5)	4 (3)	1 (1)	11 (15)	0	9 (6)	2 (3)
Environment	17 (3)	5 (3)	0	2 (3)	2 (6)	5 (4)	3 (4)
Fire/police	4 (1)	0	3 (3)	0	0	1 (1)	0
GP	10 (2)	7 (5)	1 (1)	0	1 (3)	1 (1)	0
Health ¹	142 (25)	50 (34)	23 (25)	16 (22)	9 (27)	28 (19)	16 (22)
Housing	7 (1)	0	1 (1)	3 (4)	1 (3)	2 (1)	0
Leisure	29 (5)	13 (9)	1 (1)	3 (4)	3 (9)	7 (5)	2 (3)
Planning/transport	41 (7)	9 (6)	4 (4)	5 (7)	6 (18)	10 (7)	7 (10)
School/children's services	79 (14)	13 (9)	19 (21)	4 (6)	4 (12)	20 (14)	19 (26)
Voluntary/community/faith sector	10 (2)	2 (1)	2 (2)	2 (3)	1 (3)	2 (1)	1 (1)
Other	91 (16)	15 (10)	14 (15)	13 (18)	2 (6)	33 (23)	14 (19)
Unspecified	24 (4)	9 (6)	12 (13)	0	0	1 (1)	2 (3)
Total	561	146	91	72	34	144	74

¹ Included stakeholders from a variety of sectors, for example, health improvement, public health, health and wellbeing, health and social care, dietitians, weight management service providers, health visitors, nurses

LA: local authority

Appendix 12: Stakeholders new to the pilot local authority obesity networks

Sector	New stakeholders n	Percentage of total
CCG	2	1%
Community services	8	6%
Elected members	1	1%
Environment	2	1%
Fire/police	0	0%
GP	2	1%
Health ¹	66	49%
Housing	2	1%
Leisure	11	8%
Planning/transport	8	6%
School/children's services	9	7%
Voluntary/community/faith sector	2	1%
Other	10	7%
Unspecified/missing	11	8%
Total	134	100%

¹ Included stakeholders from a variety of sectors, for example, health improvement, public health, health and wellbeing, health and social care, dietitians, weight management service providers, health visitors, nurses

CCG – clinical commissioning group

Appendix 13: Workshop attendees' responses to questions assessing knowledge of systems science, the complexity of obesity causes and types of actions to address obesity

The tables below show the responses of participants who attended workshop 1 (n=149) and workshop 2 (n= 105), to questions assessing their knowledge of systems science, the complexity of obesity causes and types of actions to address obesity as a result of attending the workshops.

Response of participants to evaluation questions for workshop 1 (% of total respondents)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	N/As
I have a better understanding of how obesity impacts on and connects with my work	0.7	2.7	26.2	34.9	34.2	1.3
I have a better understanding of systems thinking	0.7	1.3	20.1	41.6	35.6	0.7

Whole systems approach to obesity programme: learning report

The explanation of systems thinking was sufficient for my needs	1.3	1.3	11.4	44.3	29.5	12.1
The event increased my awareness of the complexity of tackling obesity	1.3	2.7	15.4	42.3	37.6	0.7

Response of participants to evaluation questions for workshop 2 (% of total respondents)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	N/As
I have a better understanding of how obesity impacts on and connects with my work	0.0	1.9	17.1	41.9	34.3	4.8

Whole systems approach to obesity programme: learning report

I have a better understanding of systems thinking	1.0	0.0	21.9	34.3	39.0	3.8
The event enabled us to think differently about solutions for tackling obesity locally	1.0	1.0	5.7	42.9	48.6	1.0

Appendix 14: Example actions mapped against the wider determinants of health model

The information below shows the categorisation of actions against levels within the wider determinants of health model. Categorisation was done by the research team and not the local authority.

Individual lifestyle factors:

- weight management programmes
- employee/workplace health and wellbeing
- physical activity sessions
- cooking classes

Social and community factors:

- community capacity development programmes
- allocating community grants
- breastfeeding peer support
- community connectors initiatives

Living and working conditions:

- active travel infrastructure
- school food plans
- breastfeeding friendly initiatives
- healthy catering awards

Wider conditions:

- open and green space management/planning
- health in all policies
- physical space provided in the local area to grow fruit and vegetables
- establishment of a multi-agency partnerships

Appendix 15: Example actions mapped against the action scales model

The information below shows the categorisation of actions against levels within the action scales model. Categorisation was done by the research team and not the local authority.

Events:

- weight management programmes
- employee/workplace health and wellbeing
- physical activity sessions
- cooking classes
- walking bus initiatives

System structures:

- making every contact count training
- school travel plans
- engage shops to offer promotions on healthier products and/or services
- cheap/ free access to healthy activities for children and family groups
- ensure parks and green spaces are well lit, clean and safe places to play
- introduce a congestion charge
- provide free school meals for all primary school children
- create a strategic approach to physical literacy across early years
- policy regulations around space to enable children to be physically active in early year settings

System goals:

- good food award schemes
- develop planning policy and strategies that support public health outcomes
- financial incentives to get businesses to be healthier for their staff and customers
- incentives for active travel or sustainable travel
- use MP for lobbying at national level, for example for consistent food labelling
- encourage additional greenspaces to be developed

System beliefs:

- workshop for local retailers to highlight the benefits of providing healthy food
- work with communities and local community safety team/transport team to alter perceptions of safety
- use role models to promote healthy eating and physical activity
- promote health benefits of active travel

Appendix 16: Collective action example

Active travel actions	Stakeholders involved	Anticipated outcomes
<p>Ensure active travel to pre-school, schools and colleges is supported and promoted by:</p> <ul style="list-style-type: none"> • provision and promotion of infrastructure and storage facilities onsite to encourage cycling and scooting • targeted provision of school crossing patrols to support pupils walking to school in areas of high traffic volume • development of ‘park and stride’ schemes with local businesses to reduce congestion immediately outside schools 	<p>Road safety Transport Public health, children’s services Schools Colleges Businesses</p>	<p>Increased level of children and young people commuting to school using a form of active travel</p>
<p>Upskill children and young people to be confident in using cycling for transport and recreation purposes by:</p> <ul style="list-style-type: none"> • delivery of cycle training in community settings for children, young people and families • delivery of balance bike training in community settings for pre-school ages • delivery of in school cycle training 	<p>Road safety Schools</p>	<p>Greater levels of activity through participation in cycling</p>

<p>Assess rates of walking and cycling</p> <ul style="list-style-type: none"> • to school and focus interventions • where they are needed most 	<p>Road safety Intelligence team Public Health</p>	<p>Reduction of inequalities through increased active travel</p>
<p>Conduct an evidence review of what makes for effective messages to encourage behaviour change towards more active travel</p> <p>Conduct insight work on understanding the relationship between local residents and their cars</p>	<p>Transport Public Health Communications and public affairs (CAPA) Community groups and residents Schools Businesses</p>	<p>More targeted and effective messages to encourage behaviour change</p>
<p>Development of online and onsite cycle training and guidance. Training to start with pre-school age (balance bikes) progressing up to training for adults</p> <p>Develop a cycle map for the borough (online and paper based)</p> <p>Upskill local cycling clubs to support introduction to cycling for non-cyclists</p>	<p>Road safety Transport CAPA Planning and regeneration Public health Voluntary cycling clubs</p>	<p>Increased skills and confidence in the public's ability to cycle, thereby increase cycling</p>

<p>Develop and promote networks of infrastructure for walking, cycling or scooting</p> <p>Improve storage at stations, workplaces and places of education</p>	<p>Transport CAPA Planning and regeneration Businesses Public health Colleges</p>	<p>Increased uptake in active travel</p>
<p>Use planning processes to develop compact neighbourhoods where people can access shops, amenities, healthcare and other services by making a short journey within their local community.</p>	<p>Planning and regeneration Public health Clinical commissioning groups</p>	<p>More services and amenities available in the local community, leading to increased uptake in active travel</p>
<p>Promote active travel into work through workplace wellbeing initiatives</p> <p>Encourage employers to offer mileage payments for work related business journeys made by cycling</p>	<p>Local businesses Road safety Public health</p>	<p>Financial incentive for staff and employers leading to increased cycling</p>
<p>Link in with national programmes such as walk to school week, clean air day</p>	<p>Schools CAPA Road safety Public health</p>	<p>Raise the profile of active travel and the associated benefits</p>
<p>Removal of cost as a barrier to cycling through low cost options for cycle hire or</p>	<p>WMCA Road safety Public health</p>	<p>Increase levels of cycling in our</p>

<p>ownership (cycle-share scheme, local cycle re-cycle schemes)</p>	<p>Cycling Voluntary organisations</p>	<p>most deprived communities</p>
<p>Use community-based programmes / organisations to ensure target groups are appropriately engaged when promoting active travel initiatives</p>	<p>Road safety Voluntary organisations</p>	<p>Increased active travel in specific target groups as well as at a population level</p>
<p>Explore parental attitudes and behaviours of 'perceptions of risk' to gain insight that will inform planning of services and potential campaigns.</p>	<p>Public health Children's services Road Safety Leisure Services Nurseries Schools Colleges</p>	<p>Increased understanding of parental perceptions of risks and the consequential behaviours that may undermine messages / services / activities that promote a healthy weight</p>