



Public Health  
England

Protecting and improving the nation's health

## **CASCADE report**

# Commissioning support for applying behavioural science and delivering evaluation for public health

Prototype testing of a support tool to embed behavioural science evidence in local  
authority public health commissioning

# Contents

Executive summary .....	3
1. Introduction .....	6
2. Aims and objectives .....	8
3. Methods .....	9
4. Results .....	16
5. Changes derived from data analysis to apply in the beta development of the tool.....	34
6. Limitations, conclusions and next steps .....	38
References.....	40
Appendices .....	42

## Executive summary

Worldwide, the contribution that human behaviour makes to the burden of non-communicable disease is increasing (1, 2). Behaviour such as tobacco use and lack of physical activity contributes to the development of diseases like diabetes and heart disease (1, 2). Addressing increases in these diseases through preventive action is a public health priority. A growing interest in understanding and applying behavioural science within public health practice has culminated in the publication of a **national public health strategy**. However, recent research has found that local authority public health commissioners and service providers face a range of barriers to the use of evidence from behavioural science. A range of implementation interventions and system changes are likely required over time to increase behavioural science use amongst public health commissioners and service providers.

This study focused on a prototype commissioning support tool that was designed to address some of the barriers. The tool formalises the process of directing commissioners' and service providers' attention to the need to consider behaviour change evidence. It makes clear when and how to use evidence within the standard commissioning cycle. It also supports the production of content for the commissioning specification document, which is a major output of the commissioning process. Finally, it provides guidance to those bidding to provide services about what is required from them, in order to deliver an effective service, including guidance on the development of a logic model of the service.

A prototype commissioning support tool was developed based on findings from earlier research. This study aimed to identify what improvements and adaptations to the prototype tool were needed for a fully functioning beta version that could be rolled out for piloting with the public health workforce.

A combination of think-aloud and reflective interviews were carried out with public health commissioners, decision makers and providers of services from 5 different local authority regions in England (total of 36 interviews). Interviews were mainly carried out via skype with screen and audio recordings made. Some interviews were conducted face-to-face and audio recorded. All interview recordings were transcribed, and the data analysed to identify common themes around additions and adaptations needed to the prototype tool.

Key themes that emerged related to:

- accessibility and usability of the CASCADE tool
- credibility and trust in the source of the tool
- the need for CASCADE to more comprehensively reflect the commissioning process
- the potential for the CASCADE tool to contribute effectively to local authority public health commissioning
- needs of commissioners and barriers that were not currently addressed by CASCADE

Based on these findings, a set of 12 required changes were identified to translate the prototype into a functioning beta version. These include changes to the way the tool looks and functions, to make it more clear and user-friendly. They also include embedding more content to orientate the user, as they begin to engage with the tool, and an example of the finished output produced by the tool. Persuasive messaging needs to be built into the website introduction pages in the tool in order to encourage use and to help users to win support for a behavioural science approach from senior managers within their workplace, where this is required. Users also wanted access and links to other useful resources and training support from within the tool. Users found the tool credible and trustworthy and felt that a fully functioning beta version would support the workforce to acquire knowledge and skills and to build behavioural science capacity.

Part of the prototype recommends the use of logic models to plot the way evidence-based content was intended to have its effect on service outcomes. This content was highly valued by users and it is therefore recommended that this is developed further in a revised version. Users also wanted the tool to better support co-production approaches and ongoing stakeholder input throughout the whole commissioning process. The way the tool is organised also needs to better reflect the iterative nature of working in commissioning rather than the current linear configuration of the tool (albeit with the current ability to move backwards and forwards to make changes). Tailoring of content via input from the user at the set-up stages and through algorithms that drive the provision of examples in the tool are also needed. Opportunities that had not previously been identified or included in the tool, such as sharing best practice across the public health system, were also identified. If the next phase of the tool development is successfully undertaken and rolled out in line with the required changes highlighted here, then the tool could form part of a useful set of resources that act in support of recent Public Health strategy as set out in [Improving people's health: Applying behavioural and social sciences to improve population health and wellbeing in England](#).

## List of figures

Figure 1. The main dashboard in CASCADE prototype .....	11
Figure 2. Example of an opened explanation tab .....	18
Figure 3. Example of a weight management 'case study' .....	22

## List of abbreviations

Abbreviation	Meaning
BCT	Behaviour change technique
BSPHN	Behavioural Science and Public Health Network
COPD	Coronary obstructive pulmonary disease
CPD	Continuing professional development
CASCADE	Commissioning support for applying behavioural science and delivering evaluation (name of tool) <sup>1</sup>
HEE	Health Education England
LA	Local authority
LGA	Local government association
NCD	Non-communicable disease
NICE	National Institute for Health and Care Excellence
PHE	Public Health England
TDF	Theoretical domains framework
WHO	World Health Organization

<sup>1</sup> The original conceptualisation of this tool was given the name EQUIP: Evidence and Quality in Public Health. The name change reflects a greater focus on preparing to evaluate a commissioned service as well as inclusion of behavioural science evidence in service specification development.

# 1. Introduction

The contribution that non-communicable disease (NCD) makes to early death and morbidity is growing worldwide (1). In developed and developing nations alike the contribution that human behaviour makes to the acquisition of NCD is also increasing (1, 2). Conditions such as ischemic heart disease, diabetes mellitus (Type 2) and coronary obstructive pulmonary disease (COPD) continue to increase in large part because of behaviours that include tobacco use, unhealthy eating, low levels of physical activity, and excessive alcohol consumption (3, 4). These behaviours and the disease burden they create are considered a major public health priority (5, 6).

Within the UK, there has been growing interest in the behavioural sciences and the application of an evidence base that seeks to understand what drives health-related behaviour. Applying this evidence base can help identify the most effective strategies for reducing unhealthy behaviours and increasing uptake and maintenance of healthy behaviours (4). The National Institute for Health and Care Excellence (NICE), for example, has published public health guidance on use of behaviour change evidence in practice (7, 8). More recently, Public Health England (PHE) in collaboration with the Association of Directors of Public Health, the Faculty of Public Health, the Behavioural Science and Public Health Network (BSPHN) and the Local Government Association (LGA) published a national strategy calling for a revolution in public health practice, to harness research evidence from the Social and Behavioural Sciences to improve population health (9).

The challenges of applying evidence within healthcare systems has been widely documented (10, 11, 12). Within public health systems, research has considered the challenges related to the application of evidence-based decision making (13), but remains limited in its consideration of applications of behavioural science evidence to public health practice. One exception to this is recent research focussed on applying the theoretical domains framework (TDF; a set of 14 independent 'domains' such as skills, knowledge, beliefs about capability that can be said to influence behaviour)(14), to understanding barriers and facilitators to public health commissioners' and service providers' use of behavioural science evidence (4). The research focussed specifically on use of behaviour change evidence in the commissioning of public health improvement services (for example, weight management, smoking cessation, sexual health services) (4). It involved in-depth interviews with public health commissioners and service providers from 3 local authorities in England and a retrospective review of documentation from recent weight management service commissioning. A number of barriers to the use of behavioural science evidence were identified (4). Specifically, commissioners and service providers identified that lack of knowledge and skills related to behavioural science and how to apply it in service design were barriers to evidence use. In addition, it was common for evidence to be only partly applied to decision making or used retrospectively to justify decisions already made; and the commissioning process does not typically require staff to demonstrate the application of an evidence-based approach or to think about what behaviours need to change to help achieve a target health outcome. A range of social and environmental influences were

relevant to use of evidence; the nature of academic papers and the overwhelming amount of relevant literature were cited as specific barriers to use. Motivation to use evidence was also affected by beliefs about the relevance of academic research to the local context and beliefs that sticking too rigidly to the evidence can stifle innovation. Other recent research has identified similar prioritisations of local evidence over evidence based guidelines in public health commissioning (12). Beliefs about capability, and emotions that included fear about doing things differently, and the comfort of just doing what has been done before, were also identified as factors that influenced behavioural science evidence use (4).

In order to address the range of barriers and facilitators identified by this research it is likely that numerous implementation interventions and system changes will be required over time. Indeed, a number of recommendations were made by Curtis, Fulton and Brown (4) for how a change in practice may be supported. One of the potential solutions identified was a proposed commissioning support tool that could formalise the process of directing commissioners' and service providers' attention to the need to consider behaviour change evidence and when and how to do it within the standard commissioning cycle. It could also require that the evidence-based approach was accounted for within quality assurance structures and planned service evaluation and monitoring. It may also help to address the fear of tackling things differently and over time support the development of new skills and knowledge in the use of behavioural science evidence (15).

## 2. Aims and objectives

The aim of the research reported here was to develop and test a prototype of the previously proposed (4) commissioning support tool (named CASCADE). The tool aims to help public health staff (including commissioners) and service providers to embed behavioural science evidence systematically into the design and delivery of public health services. Specifically, the objectives of the current study were:

- to develop a prototype commissioning support tool based on findings from earlier qualitative research (4)
- to conduct a think-aloud study to understand the usability and additional requirements of the prototype tool from the perspective of potential users (that is, public health commissioners, decision makers, service providers)
- to undertake follow-up reflective interviews with participants who took part in the think-aloud user-testing to gather further feedback on the tool and to gain an understanding of the potential applicability and relevance of the tool to their work.
- to specify what amendments to the prototype would be required to develop a full beta version for testing in practice by public health commissioners



## 3. Methods

### 3.1 Development of the CASCADE prototype commissioning support tool

The current CASCADE prototype tool was developed in an iterative process by a team of software developers, ValueLabs, in collaboration with the research team. The content for the tool was developed based on earlier work which included:

1. A qualitative study to understand the use (or lack) of behavioural science evidence by public health decision makers and practitioners; including assessment of commissioning documentation from an earlier commissioning cycle (4).
2. An ethnographic study tracking a single weight management service retendering process within one local authority.

The process was tracked from the early stages of needs assessment and strategic planning to the point of going out to tender and contracting. The final prototype tool for testing was developed using Microsoft Azure software (16).

### 3.2 Description of the CASCADE prototype

The prototype began with a dashboard which provides visual summaries relating to certain aspects of the tool and some ideas for links to other resources. [Figure 1](#) is a screenshot of the dashboard showing some of the tabs and buttons described below.

The 'Services' section (top left in [Figure 1](#)) provides a summary of some of the recent and current service specifications being worked on and provides the user with the opportunity to click on 'add service' to begin the process of working up a new service specification.

Directly below 'Services' is 'Your Average Sessions', which is intended to tell the user about their activity levels within the tool.

Directly below this is a section labelled 'Reports' where final specifications or outputs from tool use could be easily accessed.

Top centre is a section labelled 'Service Status'. This is intended to show service specifications that are in progress, which stage the user is at in developing them (for example, 'Strategic Planning', 'Procuring Services' or '[Planning] Performance [monitoring] and Evaluation') and whether the process is 'on track' or 'behind schedule'.

Directly below this is a section labelled, 'Behaviour Change Tips', which is intended to provide evidence-based tips (rolling content) about what to do and not do when designing health improvement services, health promotion campaign content or other types of intervention where a change in health-related behaviour is sought.

Directly below this is a section labelled, 'Review Suggestions', which is intended to provide links to recent relevant evidence reviews (rolling content).

At the top right is a section labelled, 'Alerts', where things a user may need to be notified about would be presented as relevant.

Directly below this is a section labelled, 'Users', where new users who may need to contribute to tasks and activities within the development of a given service specification can be quickly added.

In the top left hand corner of the screen, below where the logos are located are 3 'tabs'. The first is the 'Dashboard' tab meaning the user is on the screen depicted in Figure 1. There are also tabs for 'User management' which takes the user to a more detailed component for managing user access. Next to that, the 'Services' tab takes the user to the full range of services already set up or in progress within the tool. A new service can be begun from here or from the 'Add Service' function in the 'Services' section of the Dashboard.

Figure 1. The main dashboard in CASCADE prototype

Annotations on the dashboard:

- Service Status**: Points to the 'SERVICES STATUS' button.
- Services tab**: Points to the 'SERVICES' tab in the navigation bar.
- Dashboard tab**: Points to the 'DASHBOARD' tab in the navigation bar.
- User management tab**: Points to the 'USER MANAGEMENT' tab in the navigation bar.

Dashboard Content:

- Navigation Bar**: DASHBOARD, USER MANAGEMENT, SERVICES.
- Service Status**: ADD SERVICE, SERVICES STATUS.
- STRATEGIC PLANNING**: Fix up from where you left yesterday, 45 days to complete.
- YOUR AVERAGE SESSIONS**: 2017-18. Chart showing sessions per month (Jan to Jun).
- REPORTS**: Project 1, Project 2, Project 3, Project 4, Project 5, Project 6.
- Service Status Flowchart**: Strategic Planning (Behind Schedule), Procuring Services (On Track), Performance and Evaluation (On Track), Ortho (On Track).
- Behaviour Change Tips**: Avoid using fear appeals (e.g. talking about the harms of smoking to health) in behaviour change messages unless you also pair the message with content that helps to build people's confidence to do something about it (e.g. getting help from us will make you much more likely to make a change - get help here!).
- Review Suggestions**: This recent review published in Health Psychology Review showed that digital interventions to support smoking cessation in pregnancy are effective read more here: <https://www.tandfonline.com/doi/abs/10.1080/17437195.2018.1488602>

When the user clicks, 'Add Service' they are required to give the service a name, then define the type of service using 2 drop-down menus. For example, 'Physical wellbeing' and 'obesity – diet and physical activity'.

The user is then directed through a series of components or 'tasks' within the tool that map onto the commissioning cycle. Each task is usually supplemented with further information and exemplars which sit in tabs at the top right of the task box (for example, see [Figure 2](#) below).

The tasks are as follows:

## Strategic planning – assessing needs and priorities

- define priority – including drawing on all relevant local needs assessment
- describe your problem in behavioural terms
- select the health behaviours you want services to target or identify your own

## Strategic planning – behaviour change content

- understanding behaviour change interventions
- identifying relevant systematic evidence reviews
- identifying what further evidence may need to be drawn on and who will deliver that evidence review
- specifying outcomes from the evidence review
- considering evidence relating to increasing service appeal, referral to and uptake of services
- considering any other evidence that may be relevant to service design and content
- beginning to plan for service evaluation with logic models
- submit for review: there is then an option to ask for someone else who uses the system to review work so far

## Procuring services – market testing

- assign market testing tasks – including arranging market testing event(s) and preparing a presentation about the service requirements based on the needs analysis work and evidence review work
- note feedback from stakeholders included in market testing activities

## Procuring services - evaluation of responses to tenders

- develop evaluation questions for assessing future tender responses and request support with this through the system if required.
- identify evaluation panel member with expertise to help assess this aspect of tender responses (including option to request support from relevant agencies)

## Performance and evaluation – evaluation and monitoring framework

- monitoring use of the evidence base – planning how to measure
- drawing on your logic model from earlier
- measuring changes in behaviour and other outcomes

Create final document as PDF or editable word document.

### 3.3 Ethics

Ethics approval for the research was given by Coventry University ethics service on 2 July 2019 before data collection began (ethics reference number P62489). All data collected were treated in accordance with the general data protection regulation (2018). No person identifiable information were collected and all data were stored on secure Coventry University servers with password protection. Only the authors have access to the data. The data will be destroyed after 5 years by end of November 2024.

### 3.4 Recruitment of participants

Participants recruited were representatives from local authority public health teams and service provider organisations in England. They were recruited from those who had expressed an interest in taking part in the user-testing of the CASCADE tool following promotion at public health conferences and events. All participants were provided with a participant information sheet and gave written consent prior to participating in the study. They were all made aware of their right to withdraw participation at any time without needing to provide a reason. Recruitment continued until researchers felt that saturation had been achieved. That is, no new information or reflection on the tool and participants' needs in relation to it was being elicited within the interviews.

### 3.5 Think-aloud interviews

Think-aloud methodology was applied to gather data on the usability of the CASCADE prototype support tool. Participants were guided through the think-aloud process by a researcher (SW, LS, KB) either in-person or remotely via Skype, dependent on participant preference. Participants who took part via Skype were asked to share their screen with the researcher to allow them to track where they were within the tool at any time.

Participants were provided with the link to the CASCADE website at the beginning of the testing session and were asked to work their way through the tool. Participants were required to 'think-aloud' (that is, verbalise their thoughts) as they moved through the tool until they reached the final page. The aim of this was to allow the research team to gain insights into the usefulness of the tool and to identify areas for improvements, based on participants' first viewing of the tool.

Prompts were used by the researcher if participants had difficulty in verbalising their thoughts. Participants were allowed to return to earlier pages if they wished to view them for a second time and were able to ask questions of the researcher as they progressed and explored. Think-aloud sessions were audio-recorded when conducted in-person, or video-recorded on Skype, and transcribed verbatim. Think-aloud sessions lasted between 29 minutes and 108 minutes.

## 3.5 Reflective interviews

Participants were also invited to participate in a reflective interview following the think-aloud user-testing session. They were asked to comment on the potential usefulness of the tool in supporting their application of behavioural science evidence in commissioning. Reflective interviews either took place immediately following the think-aloud session or at a later date, dependent on participant preference and the length of the think-aloud session. A semi-structured interview schedule was used to guide the interviews, with different schedules used for commissioners and service providers (see [Appendix 1](#) and [Appendix 2](#) for copies of schedules).

The commissioner interview schedule covered the following areas:

1. Commissioning role and experience,
2. Commissioning challenges and solutions.
3. Potential fit for CASCADE tool within existing role.
4. Utility of CASCADE tool in supporting decision making
5. Feedback on the commissioning tool, including order and layout.

The topics explored in the service provider interview included:

1. Experience of commissioning.
2. Experience of responding to tenders where a need for behaviour change evidence is specified and required in the tender response.
3. Support needs in relation to responding to tenders where a need for evidence is required.
4. Feedback on the prototype tool. Reflective interviews were conducted in-person or via Skype and audio-recorded. Audio-files were anonymised. Recordings were transcribed verbatim and reference to identifying information was redacted before the data were analysed using NVivo analysis software (17). Reflective interviews lasted between 12 minutes and 36 minutes.

## 3.6 Analysis

The process of familiarisation with the data began with checking accuracy of transcripts against the audio-recordings. Analysis of the think-aloud data was conducted simultaneously by 2 researchers (SW, KB) with data deductively coded according to each component (that is, task;

see [section 3.2](#) above) within the prototype tool. This allowed for pragmatic categorisation of the data to identify areas for improvement in order to guide the next stage of the technical development of the tool.

The reflective interview transcriptions were uploaded to NVivo10 to allow for an inductive thematic analysis. Analysis was guided by constant comparison methods, whereby data was compared across categories, continually refined and fed back into further data analysis cycles.

Example service specification documents were also requested from local authorities who took part in the think-aloud study and were assessed as part of the analysis to supplement, confirm and challenge our findings from the think-aloud and reflective data.

The results of this process are presented in [Section 4](#) below. Key themes identified by the researchers during this process to capture and summarise findings are presented in [Section 4.2](#) below with related figures and excerpts from transcripts provided to illustrate and support themes. [Section 4.3](#) then sets out the required changes for next steps of the tool development based on these findings.

## 4. Results

### 4.1 Participant characteristics

In total, 36 data collection sessions took place with 18 participants. Each participant engaged in a think-aloud testing session and a reflective interview. Participants were recruited from 5 local authority public health teams (Warwickshire, Coventry, Derbyshire, Hampshire, and Torbay). A total of 15 participants were based within these public health teams and were undertaking the following roles at the time of the study: commissioner (5 participants), public health consultant (one participant), service or commissioning manager (2 participants), public health practitioner (one participant), lifestyles principal (one participant), project manager (4 participants), head of commissioning (one participant).

Two participants were recruited from one public health service provider and one participant was recruited from a non-departmental government body. Just over half of the participants were female (11 participants) and level of experience ranged from around 3 months in current role to more than 15 years' experience in public health commissioning.

### 4.2 Key themes

#### 4.2.1 Accessibility and usability of CASCADE tool

The website interface was identified as having several areas where improvements could be made to its accessibility and usability. Specifically, the following areas were identified as requiring adaptation in a future iteration of the tool.

##### Dashboard

Whilst many of the features of the dashboard (see [Figure 1](#)) were seen as valuable, including the behaviour change tips and review suggestions, in its current format the dashboard was often considered 'a bit busy' and difficult to navigate. Some features were considered less valuable, such as average sessions, alerts and reports, though this functionality was not currently active so it is possible that some of these could hold value in a fully functioning beta version.

##### Quotes

(Abbreviations: P = Participant, I = Interviewer)

"Okay, so the initial page looks quite busy to me actually. So, what does that mean, Services, Add Service, so I'm thinking is this me putting in what service it is I'm going to commission, recommission? That's what I'm thinking there" [P4, think-aloud]



“There’s quite a lot of information to take in when you’re looking at it. Looking at it I can see that there are different elements of the box, there’s something to do with services; so I add my service details I assume. There’s some elements that get me to think about strategic planning. The dashboard provides some updates when I scroll down, it’s got things in there which say, ‘Your average sessions’, not sure what that means at the moment. Then obviously you’ve got reports that you may have saved, I’m assuming, that you might want to look into. I like the behaviour change tips bit, so that sounds like a useful resource, and review suggestions. Going back up to the top, I can see that there’s settings I assume I can personalise my profile by adding a picture.” [P19, think-aloud]

‘Service status’ was seen as potentially useful if the ability to add in timelines for a particular commissioning process was included, as were ‘alerts’ if this was related to other users submitting content for review or for queries from colleagues. Users were unclear what they should do next in order to enter the tool and to start a new project. Furthermore, users highlighted that the dashboard lacked information on what i) CASCADE is and the purpose of the tool, ii) an overview of the tool and how to use each section, and iii) the expected outcome of completing the tasks in the tool, including a worked example of completed content.

### Quotes

“Yeah, I mean obviously when you obviously open it up and you get the dashboard to begin with, obviously that’s sort of your main port of information initially about where you need to go, and how you navigate your way going through it. So I think probably yes, there would need to be something that was a little bit more kind of ... gives you a bit more explanation about how to use it, or you know what you might need to see or ... yeah I mean obviously it’s quite visual, and I like that but obviously the button that you obviously click to move through was add service so I am not sure that necessarily describes what you would need to do. And if you weren’t wanting to add a service, maybe that’s not quite the right terminology.” [P12, reflective interview].

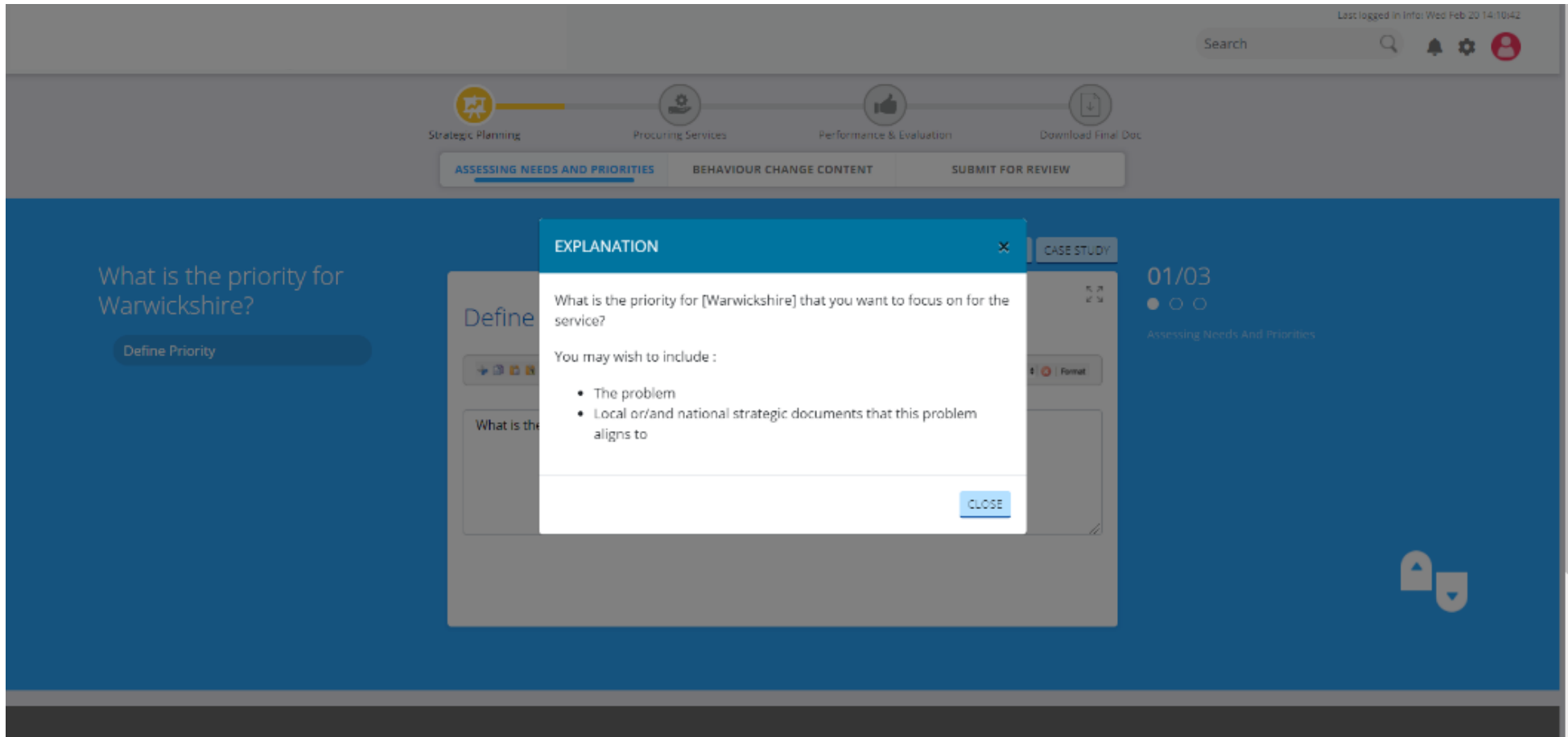
“I don’t think I can think of anything at the moment, over and above what’s in there. The only thing, if I’m doing something for the first time, is to see an example of the whole thing for a fictitious whatever. I know you’ve got the case studies but, when you complete that document it would be useful to see, ‘Here’s 1 we prepared earlier for...’ smoking cessation or whatever it is, which gave you a whole glance at what somebody had done.” [P3, reflective interview]

## Explanation and case study tabs

Figure 2, below, shows a screenshot of an opened explanation tab. The example explanation tab text states: ‘What is the priority for [Warwickshire] that you want to focus on for the service? You may wish to include:

- the problem
- local or national strategic documents that this problem aligns to’

Figure 2. Example of an opened explanation tab



Users found the information provided in tabs like the one shown in Figure 2 helpful in providing support for completion of the required tasks. However, the tabs were often not noticed by users as they navigated the tool and they needed to be prompted by the research team to view them.

### Quote

I: “Yes, I don’t know if you’ve noticed them, there’s a couple of tabs above the white box that say Explanation, and there’s Case Study, did you notice them?”

P: “No, I didn’t!” [P19, think-aloud]

### Design

Improvements to design elements are required with larger cleaner features generally preferred. For example, there were difficulties with visibility of tabs, small font size, blue on blue colour scheme, and only using a small section of the screen (white box in the centre) for entering task responses. The current design seemed to reflect an eLearning resource in places (for example, book icons) which feels at odds with the purpose of CASCADE.

### Quotes

“I think blue is very NHS, and it’s not bad, it’s good for the [CASCADE] logo, but I don’t know if the whole of the platform needs to be blue. Or, maybe, I don’t know, a lighter blue or something, if there was another colour that might not clash with the [CASCADE] logo, then we might pick that. It feels a bit either academic or Open University type tool thing, yes” [P13, reflective interview]

“As we spoke, I think it’s words, it’s having some sort of facility to make those words bigger. There’s a lot of page there and the words are very small then in the middle. Even when make your page bigger with the words, the words don’t change size; definitely something needs to happen with that I would say” [P21, reflective interview]

P: “No, the only thing I would say is I think the interactive element is really, really good and you’re getting people drawing into those boxes and one slight thing I might change is to make that take up more for real estate on that page. If that makes sense?”

I: “Yes.”

P: “So make that just bigger. I know you can’t make it bigger but just kind of by default making it a bit bigger.” [P15, think-aloud]

### Navigation

Users needed to click on ‘up’ and ‘down’ arrows to move to the next stage of the tool, but these were not immediately obvious to users and users recommended that they were changed to something more user friendly, for example, back and forwards arrows. Users were also unable to easily navigate back to the homepage and dashboard from anywhere in the tool.

### Quote

I: “So, if you follow the arrows down.”

P: “Yes, again I didn’t even notice them” [P4, think-aloud]

### Bespoke content

At present the information provided in the tool, including the information embedded in the case study and explanation tabs, is based on the CASCADE team's previous work with a local Public Health team and was focused mainly around a weight management service as an exemplar (see Figure 3). Thus, the information provided had limited relevance to those commissioning a different type of service. Users wanted to see bespoke information relevant to their own local authority and the type of service or behaviour they had selected earlier in the tool.

### Quotes

"Yeah, I think it would be. So, whoever's doing it you would assume they would know what they need to link to anyway, wouldn't you. But how does this know, is this built around [place name]? This would be built around [place name], so like I've gone into case study there, and it's linked into Warwickshire JSNA [Joint Strategic Needs assessment], would it automatically link to [place name] JSNA?... Yes, so perhaps on that first page there needs to be some dropdown or something, for you to pick your local authority. Then everything relevant should attach behind the scenes." [P21, think-aloud]

"...if you are wanting to procure something and you're designing a new service specification that kind of thing, you might need to ... I think it's probably the thing that I struggle with, it's just very bland and a little bit generic at the moment, it's not agenda specific. So I think for me if I was going into this either on that dashboard or on the next page in, you would need to click on what was going to be your agenda and then the toolkit moving forward would then be very agenda specific. So I think that then would certainly enable me to use it in a better way, because obviously some of the words here like 'define priority' it's just very generic, it isn't necessarily linked to what I would be working on. And I don't know whether that's something that my colleagues felt, but certainly for me having the toolkit agenda specific I think is something that I would find particularly beneficial." [P12, reflective interview]

### Example of a weight management 'case study'

Figure 3, below, shows a screenshot of an example weight management case study. The example case study text states:

'Example: Adult weight management

The following target behaviours were selected for weight management services:

1. Increasing the amount of daily walking.
2. Increasing the amount of vigorous exercise in a gym.
3. Reducing the daily consumption of high sugar foods.
4. Reducing the consumption of high fat foods.

Things to consider when selecting the health behaviours:

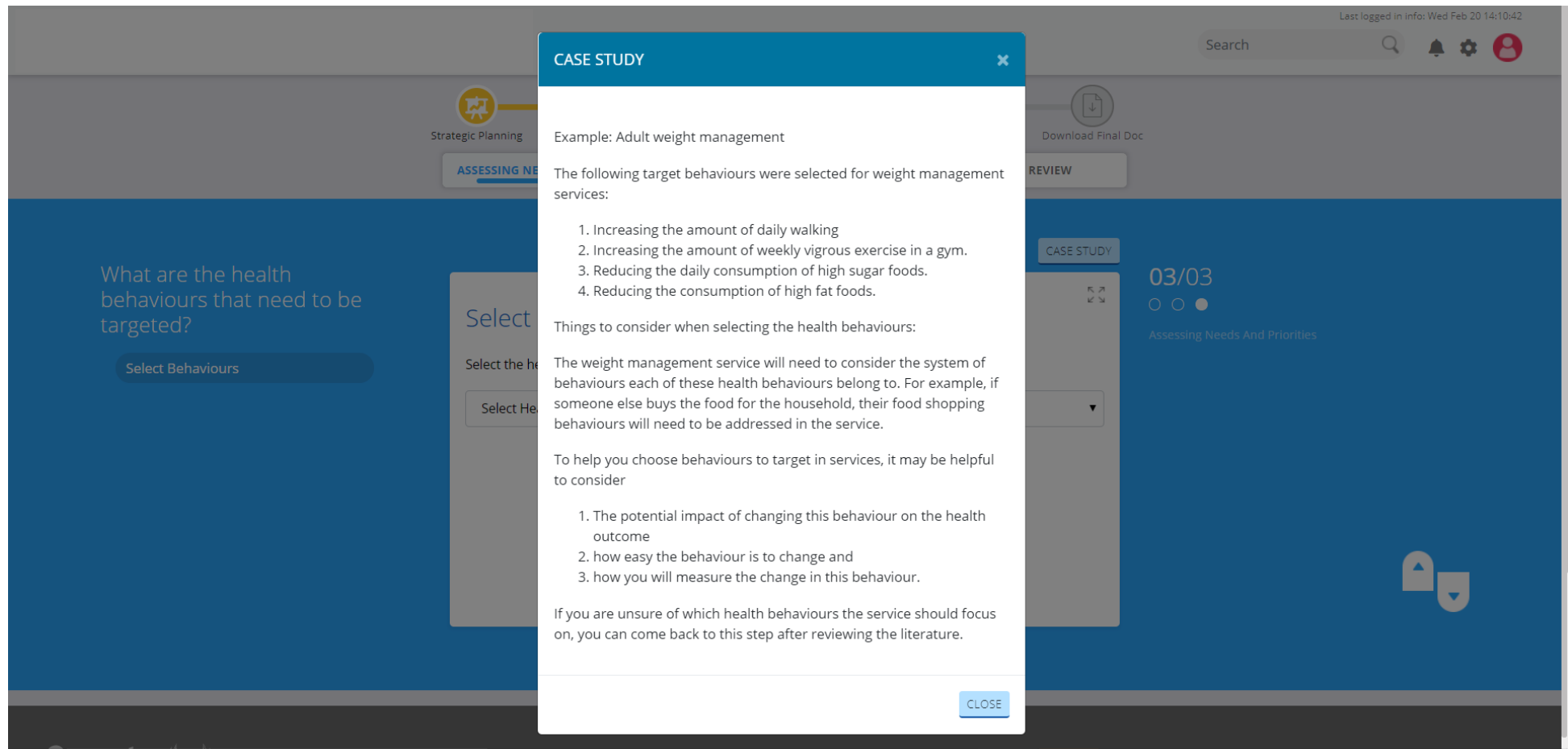
The weight management service will need to consider the system of behaviours each of these health behaviours belong to. For example, if someone else buys the food for the household, their food shopping behaviours will need to be addressed in the service.

To help you choose behaviours to target in services, it may be helpful to consider:

1. The potential impact of changing this behaviour on the health outcome.
2. How easy the behaviour is to change.
3. How you will measure the change in this behaviour.

If you are unsure on which health behaviours the service should focus on, you can come back to this step after reviewing the literature.'

**Figure 3. Example of a weight management 'case study'**



## 4.2.2 Credibility and Trust in Source

Users felt that the CASCADE tool and its contents could be trusted and had high levels of credibility. A key reason for this was the fact that it has been developed by academics from Coventry University and the University of Hertfordshire with experience of working in and with local authority public health teams in collaboration with Public Health England, as demonstrated by the presence of their respective organisational logos.

### Quotes

“So I think things that stand out for me are, 1, this is Public Health England endorsed, which is helpful in terms of credibility, it tells me that I’m looking at what’s likely to be a more useful tool. So that’s a credibility indicator for me...” [P17, think-aloud]

“Yes. I mean they all seem to be ...I mean it’s obviously produced by an academic organisation, it’s got PHE written all over it, your guidance seems to be going through routes where there is trusted information, so yes” [P16, reflective interview]

In addition, the information provided was considered to be from a credible source due to the inclusion of references and provision of live links to academic evidence.

### Quote

“Oh, I see, so this would be a link to academic journals, that’s okay. I think that’s helpful, it’s always useful to know who’s published as well, you know, if it’s watching [inaudible 0:04:30] you know dot com, I’m not really going to read it. But I guess I’ve got again a list of credible sources that I’d be considering. But useful to have academic papers, I think they’re used quite a lot when we’re doing commissioning.” [P17, think-aloud].

## 4.2.3 Need for CASCADE tool to more comprehensively reflect the wider commissioning process

### Tasks need to fit cyclical and iterative nature of commissioning

The tool tasks are currently presented and completed in a linear format (although you can move backwards and forwards to add and adjust). However, users highlighted that this is not reflective of the way the commissioning process works in reality. Typically, the process is more likely to be cyclical and iterative with commissioners continuously moving forwards and backwards through the process. Users expected to see this level of complexity reflected within the tool.

### Quotes

“So, these are Strategic Planning, Procuring our Services, and Performance & Evaluation. I think for this bit as a commissioner, I’d want to see the commissioning cycle perhaps, in its entirety, I think that would be useful to help people track where they are, and just see how they’re doing with the different elements.” [Pt13, think-aloud].

“Potentially, yes. I think what I wasn’t clear about is, is it really fit for commissioning, which is quite big I suppose but commissioning is not a very linear process, you have to go round and

round and back and start again and go backwards and forwards and there are lots and lots of stop offs along the way and I don't know if that complexity was embedded within it..." [P17, reflective interview]

### Changing representation of market testing activities

At present stakeholder engagement is reflected in 1 place (market testing event also referred to by some as market engagement) in the middle of the commissioning stages. Users felt that there should be further information on this aspect and prompts for users to report the outcomes of their stakeholder engagement activities (with users, non-users and professional stakeholders) throughout the entire process.

#### Quote

" 'Market testing presentation evaluation', I think there's a bit missing in-between, so maybe if you have another tab here around preparing for the tender, so if you have things like evaluation questions, and then it can prompt them to think about what sort of question and helping evaluate behaviour change content of the service. Then they can have this bit, now that we've asked for the information you've submitted it, and then you're evaluating their responses." [p13, think-aloud].

Some participants also stated that the market engagement (when done well) is an overarching process that consists of a variety of activities that are conducted at multiple stages throughout the commissioning process, and it was felt that the CASCADE tool did not currently promote this. A greater focus on encouraging co-production from a range of relevant stakeholders throughout the tool was favoured.

#### Quotes

"I think probably 1 of the crucial things was actually doing that stakeholder and patient engagement was absolutely vital. We've really made sure that within [place name] the voices of those individuals that took the time to complete either on online consultation form, or from those vulnerable groups that we actually went out and spoke out, we've really made sure that their voices were heard within the specification, and actually without their input, that's what the service is all about, it's around delivering a service for the people of [place name] and we need to make sure that their voice were heard. And I really feel that the service specification has their voices running through it, very loud and very clear about what they would like to see, and how they would like that service to function. So, I think just going back to that, that was a really key element and something that I don't think the specification would be quite so robust had we not had that really" [P12, reflective interview]

"Another key thing which I didn't mention and I'm also not really good at is the audience and service users. I think a really big chunk of making anything work properly, is engaging with people who would use the service. Most times they don't give us enough time to do that, or we don't really have the right resources, or [0:11:36.5] to do this. I feel if you can... and I cringe in using this word, co-produce, with residents, with service users, then you have a better service. This is when you have to do it right from scratch, so even the needs assessment... so, if you



take the commissioning cycle, if you do it right through all of the commissioning cycle then you're probably golden, because you have a service that works and a service that people want to use, because they've designed it and it works for them, almost like what you've done here, some user testing around [0:12:16.2] for you, and we really want it to be useful and free to use it, so feedback" [P13, reflective interview]

### The need to be clear about what CASCADE is focused on

The dashboard set up of the CASCADE prototype and the lack of explicit content on what it was intended for led to an assumption that it should support the entire commissioning process as a type of project management tool. Users reported however that several other departments within their own organisation (for example, procurement, legal) are likely to be involved within the commissioning process at different stages, taking ownership over certain aspects of this, for example, procurement teams may run market testing events, legal department may deal with contracting. This was not currently reflected within the tool. Furthermore, it was highlighted that these departments will have their own processes and software to help with this, and therefore users were unclear on how the CASCADE tool fitted within these additional systems.

### Quotes

"...so if it is about a project management tool for commissioning a service it's missing quite a lot of steps in terms of identifying who your populations are, your evaluation framework, identifying what scores you are going to be putting against things, how much you're putting against money and how much you are putting against quality and how you are assessing quality etcetera and it feels like there is a big chunk of stuff missing here." [P16, think-aloud].

"The commissioning process is something you can't do on your own, you have to work with other people in the organisation and external, you have to talk to experts in the field that you are not familiar with. For example, behaviour change scientists, experts outside your area who have done similar things. The population that you're working with, and procurement people who I call the procurement police, to make sure you don't break the law, because it's a very clear process that has to be followed in a particular way, and you have to make sure that you adhere to [inaudible 07:28] rules and regulations, and that the process can't be jeopardised by process not being followed." [P3, reflective interview]

"We have a procurement team so they'd be involved when it comes to the procurement of services. We also have a knowledge and intelligence team that would be involved at the outset. So if we're looking at literature reviews and things like that, then they could potentially be involved in searching for evidence for us, and then we have project managers that work with us as well so there's a few different departments that tend to get involved, the legal department will get involved when a service has been procured and when we're looking to contract together, then the legal department is there as well. So, there's a few different departments within DCC are involved and then also different parts the public health team as well." [P10 reflective interview]

Similarly, users expressed concern that real world service specifications include many additional components that are not considered within the CASCADE tool at present, for example, sustainability, equalities, social value, budget. Therefore, users queried how far the CASCADE tool could potentially go in terms of supporting the completion of the entirety of local authority service specifications. If this was not possible, users would like some indication of how they could map across what was produced as a result of the CASCADE tool into their own current service specification templates.

### Quotes

“I think like I said for me, it would be useful if it could fit in with the context of writing the whole, you know, writing a service specification, that’s where I’d like it to sit. I don’t know at the moment, it feels like a standalone tool for the behavioural science but it needs to work with the whole service...So for example with the sexual health service, that would only be a small part of that service specification So if you could get support around other parts of it, maybe if there was something in there around financial modelling as well, that would be quite useful.” [P10, reflective interview]

“And obviously a budget section, there isn’t a budget section in there at the moment. You know again, we’re crossing into project management but you would still have your budget or express your budget within your spec.” [P31, reflective interview]

## 4.2.4 Potential for CASCADE tool to contribute to effective commissioning

### Support for a breadth of behaviour-specific knowledge acquisition

Several users identified that the tool had a role in addressing commissioner knowledge gaps in relation to behaviour change and research skills, as well as the evidence base relevant to the variety of services and interventions that they now have responsibility for. Understanding the evidence base for each type of service was seen as a challenge due an increased focus on commissioners working on a broader range of services as opposed to focusing on 1 type of service and thus developing specialist knowledge of this 1 area as a result.

### Quotes

“...So I think the research element for me is a bit of a gap, I know that’s where I kind of fall down a little bit, because I’m not very au fait about where I would necessary go for finding really appropriate research or things like that so if that’s already on there then that would be useful. I can’t think of anything else.” [P12, reflective interview]

“I think there is definitely something about we are increasingly doing a broader range of work so in the past we had a whole team that was purely responsible for commissioning drug and alcohol services and now that’s probably 1 day of my week. And now I’m doing a whole load of other stuff. So, we don’t have in the same way specialist commissioners who’ve got that depth of knowledge in a particular area so I know stuff about sexual health, but I will not know anything compared to [name]. That’s her thing, she lives and breathes it, and has done forever.

So there is something about knowing enough and also knowing what you don't know as well, so that's a real challenge." [Pt16, reflective interview]

### Addressing the variability in knowledge and skills amongst commissioners

Service providers involved in the study also expressed the opinion that knowledge of behaviour change seemed variable amongst commissioners. The extent to which behaviour change content was included in the service specifications was variable, and in some cases when it was required, content did not reflect the most up to date evidence or the content was somewhat vague. Service providers therefore felt that increasing commissioners' knowledge of behaviour change would be beneficial and would result in enhanced consistency of behaviour change content included within service specifications, and a more straightforward response process for them.

### Quotes

"Sometimes people are guilty of skipping elements within the analysis stage of the procurement process, and the fact that sometimes they don't always do an in-depth review of their own service, because they think they know everything, but actually lots of times the providers will hide key bits of information. Or, needs analysis they think, 'I know my service, I know the demand', actually things change and there might be new documents or research that come out, but they don't see because they think, 'I know all there is', for example on sexual health." [P2, think-aloud].

"...Then the third group are the group who want change but who don't necessarily have the knowledge of experience and they don't always know that they haven't got the knowledge or experience and that sounds really patronizing from my side, because I'm not sure that I'd be able to identify them, but you find it out as you go along. As you go through the process and you ask a question about...I've been in an interview where we talked about, I don't even think the BCTs were out at that point but we were talking about behaviour change and they had no idea what we were talking about. I think it might have been a smoking one, so it was one where we were citing something out of the guidance and they had absolutely no idea what we were talking about and said well what's that?" [P8, reflective interview]

"I think it will be really-really useful, it will be really useful for commissioners, and for us as the provider because as I've said, some of the specifications are quite vague, and to have more of a standardised expectation and specification around behaviour change will be great for us as a provider, and also it will be great for building the evidence base around behaviour change." [P20, reflective interview].

"Really rarely. Now there's been a flux of COM-Bs mentioned, there's obviously been the TTM model mentioned very recently, very rarely I think probably only 1 in the last 12 months I can think of where they talked COM-B and BCTs and they actually seemed to know the COM-B model more clearly than just something that they'd seen. It's something that they'd heard about but didn't really have an understanding. One tender in the West Midlands asked for a mapping of interventions to BCTs, 1." [P8, reflective interview]

### Logic modelling the service was highly valued

The majority of participants in the study really liked the inclusion of logic models. They liked the example logic model that was included, the blank template logic model and the opportunity to think about and plan the service using a logic model template.

#### Quotes

“Case study on logic model. What am I looking at? That’s a handsome thing, isn’t it? Yeah, nice.” [P17, think-aloud]

“So, I’m clicking onto ‘Logic model’. That’s about, ‘If you haven’t already planned logic model...’ so, you’ve got something here which gives an idea of how to do this, which I’m just looking at. It looks quite useable and very easy to understand. What you could do is put an example in there which would help people to think... “

I: “Just scroll up, scroll up on the blue.”

P: “Oh, right, ‘Case study.’ Yes, that’s fine, that’s useful, so you’ve done that already. Sorry, I missed that, I didn’t see that.” [P3, think-aloud]

P: “Oh, I like Logic Models!”

I: “A lot of people have said that, they really like them.”

P: “Yeah, they really drive you to be very explicit about your assumptions, and actually help to set out in a very clear way what you think; ‘I’m doing this because of...’ and, ‘This is what I expect to happen...’ Inputs, yeah. Assumption, yeah, I think that’s helpful.” (P4, think-aloud)

“...Okay, Case Study Logic File, there’s the logic model again, yeah, cool. Okay. Logic model, okay, that’s good. This is the template to fill in. Great. Again, this as a freestanding, in fact this isn’t available to on other websites, and such, would be really cool. There’s loads of logic models to be identified but, you know, it’s actually a really useful one. And it’s the kind of thing people could again, one of those things people would visit and re-visit like” [P15, think-aloud]

### Opportunity to be linked with support valued

Whilst the ‘request support’ links were illustrative and not yet functional in the prototype, users valued the idea of an opportunity to access outside support from academics and other professionals with expertise in behavioural science and behaviour change. Many users identified that they had limited experience of embedding behavioural science in commissioning and welcomed the idea of bringing in external expertise for this. However, it was viewed as difficult to identify who could provide this support internally or externally. Whilst valued, it was identified that operationalising this aspect of the tool may have some challenges.

#### Quotes

“It would be beneficial to seek advice from an expert’, who would that be then? Would that come through to the university?” [P21, think-aloud]

“So if one presses request support, oh nice! Lovely.

I: "What do you think about that?"

P: "I think it is great, where is it going through? Where does it go?"

I: "That is the question we're asking people, where do you want it to go, any thoughts about that?"

P: "Yeah well wherever it goes they need to be resourced to do it." [P8, think-aloud]

"Behavioural change experts! Yes, that's always missing. I actually have just started my journey around behaviour change, so I know for services like Stop Smoking Services you need just that one element of it. I think it should be all our services, and we probably don't pay enough attention as we should to it. I think what happens in public health is, sometimes you might not know something, but then you go, you read about it, and then you become an expert which is fine, but if you don't or if you don't have [0:14:53.1] then you're not an expert, you just go with your knowledge. But if you do have that extra expert panel person to help shape your tender, and to help you through the process, I think that would be amazing... So, yes definitely it would be a behavioural change expert is required, for all public health commissioning if you ask me!" [P13, reflective interview]

"I've got a wish list of if we could then who else would, I think going back 1 of the things I would have done and would like to do in future but it feels a bit volatile at the moment but I would have done market warming with some behavioural science input. I think that would have been extremely useful and for someone to use that in the context of sexual and reproductive health and to talk about what good looks like and what bad looks like." [P17, reflective interview]

"Support offered should be independent, perhaps offered by a collaborative centre of institutions. Is support related to additional guidance or an actual team who can deliver on this? What can PHE offer with regards to this?" [P8, think-aloud]

P: "So if one presses request support, oh nice! Lovely."

I: "What do you think about that?"

P: "I think it is great, where is it going through? Where does it go?"

I: "That is the question we're asking people, where do you want it to go, any thoughts about that?"

P: "Yeah, well wherever it goes they need to be resourced to do it." [P8, think-aloud]

### Valuable for those new to commissioning

It was highlighted that the tool could potentially support new commissioners by supplementing their existing training within public health, specifically providing them with guidance and support on behaviour change as part of the commissioning process; which is not routinely included at present. Commissioners also explained that there is a lot of information for new staff to work through when they first start working in public health and that the step-by-step process used within the CASCADE tool would be particularly helpful at aiding them to work through this.

### Quote

“...Because I think, at the moment, the commissioning training is very focused on the process and I think it would benefit by having some input on behaviour change as part of that process. So I can see it would have a benefit certainly and there are a lot of commissioners in the Council, so I think it would be beneficial to have it as part of that training but certainly within Public Health, any people new into the role, I think it's a very good tool for that because you know, it's quite a time consuming and ...There's a lot of information to learn when you first start commissioning and I think that tool breaks it down and makes it quite, what's the word, gives it a plan which I think is quite easy to follow.” [P1, reflective interview]

### Sharing best practice opportunities

Users explained that the CASCADE tool provided an opportunity for sharing best practice, including high quality existing behaviour change content and reviews and feedback from stakeholder engagement activities. It was felt that this functionality could be used both within and across different local authorities.

### Quotes

“...you can see if lots of people used it, you can see a sharing of common information would be really helpful, I'm sure we do stuff which Warwickshire have already done 6 months ago, and Birmingham did 3 years ago, for example, and if it's all on a fairly similar kind of framework and there's some [unclear 00:23:09] to all of that stuff so you see it in terms of sharing information between commissioners, that would be potentially quite useful... Yes. Or least know who else is doing similar stuff, so you can have that conversation with them. So if you could support some of that connectivity between people, I think that would be a fabulous way forward.” [P16, reflective interview]

“One of the things I found really attractive when I was developing the specification because the specification is the central point where all the processes coalesce and come together and then that is what I can hold the provider accountable for to the contract management process. That is what we score and evaluate them for. A couple of things I found really helpful that might fit well on to the [CASCADE] website are having a repository of other people's extracts or complete specifications where they talk about behaviour change and behavioural science would be helpful so I scoured the land and made friends with as many other commissioners as I possibly could and said please can I have a look at your spec and that was invaluable, absolutely invaluable. And then speaking to them afterwards and saying yeah, but how's it going and some would say that was a waste of time or this was really good or if you want that to work you need to do this, that was really helpful. Back to the wish list slightly, having behaviour change experts who can be part of an evaluation panel or inform the evaluation questions, that is really helpful as well so your spec, chapter 2 says you must do the following and we kind of outline a type of intervention, what would be very helpful is then to match that with and the way to evaluate it, here are some example questions of how one might evaluate a bidder's response to spec question 2, here are some ideal answers to spec question 2 in the evaluation process, that would be really helpful as well.” [P17, reflective interview]

### Research capacity-building opportunities

As well as increasing commissioner knowledge, the CASCADE tool was perceived as having the potential to provide professional development opportunities for commissioners. For example, the CASCADE tool has the potential to upskill commissioners in terms of developing research skills, for example, conducting evidence reviews, evaluation skills and applying behaviour change evidence to intervention and service development. Furthermore, by providing links to support available from other organisations such as the Behavioural Science and Public Health Network (BSPHN) and Health Education England (HEE) users can access other CPD activities, tools and events provided by them.

### Quotes

“...So, I think, or you know, just some more orientation like, a health psychology profession, therapy professor, your local university or, yeah, behavioural science experts or, yeah, and then again, emphasising the inhouse behavioural insight team, I think that it is PHE, is good for me, but may be also the behavioural science and public health network as well. So, a few examples here I think would be really useful.” [P15, think-aloud]

“...One of the things we’ve developed as part of this is an eLearning package which I think, touch wood, we’ve taken a real behavioural science approach to it, so it’s very engaging and all that kind of thing. It’s an eLearning that we’re calling Behaviour Change Literacy, and it’s about developing the literacy of people that are either working with patients and clients, or people that are involved in developing services, commissioning services, responsible at a strategic level, it will be available open access. But I wonder whether there is an opportunity for that kind of learning to be linked into this [CASCADE], so that people can... exactly this, not really being clear on what behaviour is. The Behaviour Change Literacy eLearning is really about developing their knowledge that behaviour change is a science, it’s an evidence-based approach, and you really need to consider the different factors, whether it’s individual level, environmental policy level, and we do start off with saying, define what behaviour change is...I’m happy to link in if there was an opportunity to provide that link, so that people are developing their literacy levels around behaviour change.” [P19, think-aloud]

### Links to other tools and resources

To support improvement in commissioner knowledge and skills, the CASCADE tool was identified as an ideal place to provide a repository for tools and frameworks (that is, BCW short guide, 23 BCTs website and app, logic model template) that can be drawn upon to both complete CASCADE tasks within the tool and independently outside of this. At present relevant tools are referred to as particularly valuable.

### Quote

P: “So all these resources here, do they appear again in other parts of the toolkit?”

I: “Not as far as I’m aware. No.”

P: “Okay. They’re so good. I’m looking at the evaluation explanation bit and like some of the [inaudible 1:11:21] the evaluation. I just think these are so useful and the kind of things that

people often want to just put to, they want to get to straightaway. So having a little area.” [P 15, think-aloud].

#### 4.2.5 Needs or barriers not met by CASCADE

Inclusion of return on investment calculator or similar would be valued

Commissioners felt that finance and budgetary factors were currently missing from the CASCADE tool, specifically return on investment, cost benefit analysis and cost-effectiveness are not included and would be valued. It was felt that this was an important factor in determining what was included within the service specification and felt that this would be a welcome addition to the tool.

##### Quote

“The big thing is always going to be return in investment cost benefit. I think the economics of all this needs to be part of the commissioner’s decision and any tools which support that financial understanding so is it worth, or not worth, what is the worth of intervention X on population Y. That’s really really hard, that is something that may be beyond any of our ability to scope out but where that is available and possible it kind of goes into the mix in terms of is it worth doing it.” [P17, reflective interview]

Barriers within the public health system not addressed

Commissioners reported that they were working within a system which had substantial barriers to innovation and this is likely to apply to the new application of behaviour change evidence in the design of public health services. This was particularly raised as an issue for services where a medical model of service delivery retains prominence and partners are likely to resist change to the status quo, for example, sexual health.

##### Quote

“...well so I think in the context of my first point around budgets, one can’t always afford the innovation and changes that one might wish to see, so I guess sort of in relation to this work, for example we may want to see more early intervention primary prevention but what we have is traditional clinical secondary and tertiary prevention...They are very clinical and they see their job as driving everybody to their service. I don’t, I see them as driving people to stay well at home, to look after their own sexual health, to see a GP or a pharmacist, to use a condom, and to not see themselves as needing to go to a specialist clinic all the time and therein lies part of the challenge between primary and secondary prevention and essentially a clinical service who have a very high threshold and thinks everybody should come and see them all the time, whereas as a commissioner I can’t afford that and I need people to stay well and not be disempowered but to be empowered to manage their own safer sexual wellbeing.” [P17, think-aloud]



## 4.3 Summary of findings

A number of requirements for revisions to the look, functionality, set-up and content of the CASCADE tool were identified. In particular, further detail is required to properly orient users of the tool to its aims and purpose as they begin to use it. Clear expectations must be set, and an example of the final output is needed. A more iterative rather than linear engagement process needs to be represented in the tool with tailored support content and examples which represent the type of service being commissioned.

The tool was generally viewed very positively, with approval for the ambition of the support tool and a sense of trust and credibility experienced by users. A range of benefits of the future use of such a tool were identified by those engaged in the study, including the potential for increasing skills and knowledge and supporting capacity-building within the public health workforce. It was acknowledged that other barriers to behavioural science evidence use exist within the public health system that are beyond the remit of the tool to address.

## 5. Changes derived from data analysis to apply in the beta development of the tool

### Change 1: dashboard revision

The main dashboard page requires substantial revision and should be replaced by an 'orientation page' in which the following is provided:

- background context to CASCADE tool and its purpose
- persuasive messages regarding the contribution of behaviour to key health issues and the relevance therefore of behaviour change and behavioural science to services commissioned by public health, emphasising that including this in services does not discount the contribution of the wider determinants of health
- manage expectations regarding what the tool can feasibly do (that is, support development of in-depth service content specification for health services focused on behaviour change content), which are in line with robust scientific evidence and NICE guidance on behaviour change. Also, support application of behavioural science content specification to logic model development to enable effective quality assurance and service evaluation planning
- include brief user videos or user guide providing an overview of the tool and how to use each section
- provide worked example of completed content which is ready to be added into a service specification so users can see what they will have achieved by using the tool.
- include a clear 'set-up' section at the organisation level so that content engaged with later in the tool can draw on relevant local strategy and the set up for local commissioning

### Change 2: commissioning cycle representation to support navigation

Add in visual representation of the commissioning cycle where each of the tasks within CASCADE are shown in a modular format- users can access each module as and when required in a non-linear process to suit their needs.

Provide additional navigation features to enhance intuitiveness of the tool. This should involve adapting the existing navigation tool to help users return to the homepage or dashboard from anywhere in the tool, along with a sub-navigation tool to allow users to move between tasks and clearly see where they are in the process.

## Change 3: algorithms to tailor examples to the type of service the user is commissioning

Implement algorithms to ensure that the information that the user enter at the beginning of the process (set-up section) is used to identify the most suitable examples and content for them throughout. More specifically, the data added in user set-up (that is, local authority name), service or project set-up page (that is, type of service) and health behaviour type should be used to 'surface' bespoke guidance, resources and case studies for users. There should also be an element of bespoke set-up for each LA whereby a new LA who wants to use the tool, provides access to local authority-specific policy documents that can be set up to be accessible within CASCADE for staff at that LA (for example, their Joint Strategic Needs Assessment, annual reports or other strategy and policy documents that may need to be reflected in commissioning content).

## Change 4: include messages about underpinning evidence base

Continue to emphasise links to academia and PHE, but also aim to further enhance credibility through emphasising the evidence base that underpins tool development.

## Change 5: keep CASCADE focussed on behavioural science content and evaluation planning

Move the focus of the tool away from apparently covering the whole commissioning cycle to a clear focus on identifying behavioural aspects of service focus, and scoping relevant evidence about how to change those behaviours so that service design can take account of this, supporting logic model development, and planning for evaluation. Because a focus on return on investment was identified as potentially useful for commissioners it would be useful to scope out the possibility of including this functionality. Alternatively, CASCADE could link to existing return on investment tools and calculators and could also include content to support data collection around costs for analysis as part of evaluation.

## Change 6: support a more co-produced market engagement approach

Re-evaluate the inclusion of the 'market testing' section currently presented in the middle of a linear process, instead focus more on promoting co-production and stakeholder engagement from the start and the need to continue this throughout the entire process.

## Change 7: change some terminology

Change the headings given to each section to more accurately reflect the terminology used in existing service specifications, for example, change 'What is the priority for [local authority]' to 'Define the national and local context'.

## Change 8: flexible formatting options to be embedded

Allow sufficient flexibility within the tool for users to edit the format of the final product to be in line with their own local authority template, for example by changing font size or style and adding local authority logos. This could also include the option for users to upload their own template that the tool will populate.

## Change 9: include links to other training and support in orientation and set-up section

Include a training or support page for users which can be accessed at any point within the tool, including outside of completion of a specific project. This should include a suite of interactive tools and guidance related to behavioural science, including [Achieving behaviour change \(ABC\) guidelines for national and local government](#), the [behaviour change techniques app](#), the [behaviour change development framework](#). In addition, users will be provided with information on how behavioural science can support the design and delivery of public health services, behaviour change tips with links to systematic reviews. This also provides an opportunity to highlight the need to access behavioural science expertise, for example via [behavioural science and public health network](#), with reference to the recent social and behavioural science strategy for public health.

## Change 10: support sharing of best practice

Add in functionality in the form of a portal to allow local authorities to share examples of best practice in relation to behaviour change content within service specifications. Ensure that it is clear that sharing content is not a prerequisite of using the tool and that the CASCADE team will not be sharing information created by users of the tool without express permission from that user.

## Change 11: clarify role for and adjust 'request support' functionality

Re-evaluate functionality of the 'request support' buttons currently present within the tool (see task 4. Procuring Services - Evaluation of responses to tenders in [section 3.2](#) above). At present this suggests that additional support from behaviour change experts is on offer as part of the tool, which isn't correct. Instead provide links to organisations that they contact to engage with experts in behavioural science who may be able to support with this (at additional cost), and there is a need to prompt users to think about engaging with these people at the set-up page.

## Change 12: develop logic model and evaluation planning support

Beef up the evaluation planning and service monitoring planning content, with addition content based around creating logic models to support evaluation planning and design.

## 6. Limitations, conclusions and next steps

### 6.1 Limitations of the methodology

Findings must be considered in the context of methodological limitations. The interviewees constituted a self selected sample of public health commissioners, officers and service providers who may have a greater knowledge or support for embedding behavioural science within the commissioning process than the wider workforce. Although the purpose of qualitative research is not to achieve population representativeness or generalisability the self-selecting bias which is true of all research participation may mean some less favourable perspectives are missing from the data. It must also be acknowledged that the interviews were conducted and analysed by researchers invested in supporting the growth of quality behavioural science application in public health practice. Therefore the possibility of bias in the analysis should be noted. The purpose of this research was however to pragmatically assess the tool for its potential weaknesses and to look for the opportunity to address these in future development and so the researchers, whilst operating from a position of positive bias were also actively aiming to apply a critical approach. In addition, the authors who conducted the interviews and analysis in this study (SW and KB) were different from the author who had led the prototype development work (KC).

### 6.2 Conclusions and next steps

The CASCADE prototype commissioning support tool was developed to support users to understand when and how to embed behavioural science evidence where it is relevant to effective service design. It was intended to address a range of barriers to the use of behavioural science evidence that were identified in previous research (4).

Participants involved in the study recognised that the tool (when operating with full functionality) would likely support improvements in knowledge, skills and ability to use behavioural science evidence in the public health workforce in future. Participants also made recommendations about a need to enhance content to support market testing or market engagement with the service development process, with several commenting on a desire to be supported to co-produce services with end-users.

We plan to draw on work that has specifically looked at bringing co-production into the strategic commissioning cycle to support improvements here (18, 19). Participants were also in favour of content focussed on using logic models for evaluation planning, and to support ongoing monitoring of services. We also identified new opportunities for the tool, such as sharing best practice across the public health system. If the next phase of the development is successfully undertaken and rolled out, the tool could form part of a useful set of resources that act in support of recent public health strategy as set out in [Improving people's health: Applying behavioural and social sciences to improve population health and wellbeing in England](#) (9).

A clear set of required changes based on the analysis of participants' think-aloud and reflective interview transcripts have been identified. The next steps for the CASCADE commissioning support tool involve working with an appointed software developer to translate the required changes into a revised paper-based or wireframe specification of a beta version, incorporating all that has been learned in the current study.

The paper-based or wireframe specification will be shared with those who have participated in the current study to gain a sense of the extent to which the proposed beta version incorporates the feedback they gave. Adjustments may then be made again before beginning to translate the concept into a beta version. Thorough in-house testing of the beta version will be carried out before beginning to identify pilot site users for the beta version. The research team have now secured funding for this phase of the work and are working on detailed specification and appointing the developer.

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# Appendices

## Appendix 1. Commissioners and decision makers reflective interview schedule

### Post-test discussion schedule (commissioners)

To be completed via skype or telephone after the user testing session.

#### General feedback on the website

Do you like the look of the tool?

Could the presentation of information be improved?

Is it easy to use?

Can you find your way around?

Is it enjoyable to use?

Do you feel you can trust the information provided?

Do you find the information valuable?

Would you use CASCADE?

#### General questions regarding current role

Could you talk me through your experience of commissioning services and interventions within your LA or PH department, or elsewhere in other jobs?

What role did you have in this?

What was the experience like?

Are there any problems or challenges that you face in this?

What solutions have you previously found to overcome these challenges?

To what extent are other people involve in the commissioning process with you?

Who else would you like support from?

Based on what you have seen during the think-aloud...

2. How might such a tool or system work or fit within your current role or previous roles?
3. Would such a tool support you with decision-making processes at specific stages within your commissioning cycle?
  - a. In what way could this support you?
  - b. What other support would you like to see embedded within the tool?
  - c. Are there any specific 'pain points' within the commissioning cycle where you would require support? How could a tool such as this support with this?
4. How does the layout and order of this tool fit with your own commissioning cycle or process?
  - a. Are there any aspects of your own commissioning cycle that are missing from the current tool? If so, where would they fit?
  - b. Are there any aspects that are in the incorrect order?
- 5) Show the participant the NHS Cycle or Warwickshire PH Behavioural Science cycle diagram (a PowerPoint file). How does this fit in with your own commissioning cycle?

## Appendix 2. Service provider interview schedule

### Post-test discussion schedule (service providers)

To be completed via skype or telephone after the user testing session.

#### General questions

Explain: The tool aims to support commissioners with decision-making throughout the commissioning cycle. Using the tool will support commissioners in embedding current behaviour change evidence into the development of service specifications, and the completion of specific tasks within the tool will directly feed into tender documentation that you might respond to as a service provider.

Do you have any experience of commissioning services, either within your current role or a previous role?

If so, how would such a tool have supported you in that role?

What is your experience of working with public health commissioners so far?

Do you have any experience of responding to tenders where a need for behaviour change evidence is specified and required in the tender response?

If so, could you reflect on that experience and explain how you dealt with that?

Are there any aspects of the tool related to behaviour change evidence that you are currently unfamiliar with? If yes, what were they?

Would you require specific support in responding to tender specifications where a need for evidence is stated?

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Public Health England  
Wellington House  
133-155 Waterloo Road  
London SE1 8UG  
Tel: 020 7654 8000

Website: [www.gov.uk/phe](http://www.gov.uk/phe)

Twitter: [@PHE\\_uk](https://twitter.com/PHE_uk)

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Prepared by Professor Katherine Brown, Dr Stefanie Williams, Dr Kristina Curtis and Dr Emmie Fulton.

For queries relating to this document, please contact Professor Katherine Brown, University of Hertfordshire at [k.brown25@herts.ac.uk](mailto:k.brown25@herts.ac.uk)

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