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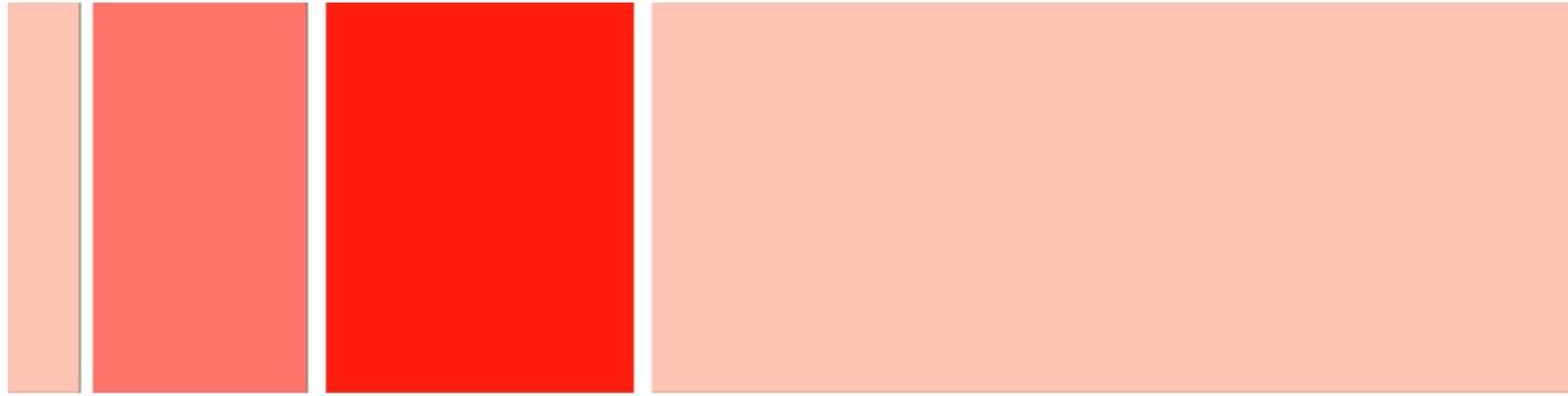
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Supporting People Data Linking Feasibility Project:

Technical Report



Supporting People Data Linking Feasibility Study: Technical Report

Laura McGinn, Swansea University
Sarah Lowe, Welsh Government
Martin Heaven, Swansea University
Lucie Griffiths, Welsh Government



Views expressed in this report are those of the researcher and not necessarily those of the Welsh Government

For further information please contact:

Sarah Lowe

Knowledge and Analytical Services

Welsh Government

Cathays Park

Cardiff

CF10 3NQ

Tel: 0300 062 5229

Email: sarah.lowe@wales.gsi.gov.uk

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Glossary of Acronyms

A&E	Accident and Emergency
ADRC	Administrative Data Research Centre
ADRC-W	Administrative Data Research Centre in Wales
ADRN	Administrative Data Research Network
ADS	Administrative Data Service
ALF	Anonymised Linking Field
CG	Capgemini
CSSIS	Community Care Information System
CWA	Cardiff Women's Aid
DAA	Data Access Agreement
DAWN	Digital All Wales Network
DETR	Department of the Environment, Transport and the Regions
DoB	Date of Birth
DPA	Data Protection Act
DWP/HMRC	UK Department for Work and Pensions/HM Revenue & Customs
EDDS	Emergency Department Dataset (A&E records)
ESRC	Economic and Social Research Council
FPN	Fair Processing Notices
HIRU	Health Information Research Unit
HRG	National Resource Groups
ICCS	Integrated Care Co-ordination Service
ICT	Information and Communications Technology
ILLY	One of the Supporting People Data Systems in use in Local Authorities in Wales
IGRP	SAIL Information Governance Review Panel
KAS	Knowledge and Analytical Services
LA	Local Authority
LSOA	Lower Layer Super Output Area
MoJ	UK Ministry of Justice
NISCHR	National Institute for Social Care and Health Research
NLP	Natural Language Processing
NHS	National Health Service
NWIS	NHS Wales Information Service

ONS	Office for National Statistics
PEDW	Patient Episode Database for Wales
PHW	Public Health Wales
PPIW	Public Policy Institution for Wales
RAISE	One of the Social Services Data Systems in use in Local Authorities in Wales
RALF	Residential Anonymised Linking Field
RCT	Randomised Control Trials
REA	Rapid Evidence Assessment
R&E Group	Research and Evaluation Steering Group
SAIL	The Secure Anonymised Information Linking Database
SCHOOP	The research project <i>Social Care and Health in Older People</i>
SLA	Service Level Agreement
SQL	Structured Query Language
SP	Supporting People
SPNAB	Supporting People National Advisory Board
SPRINT	One of the Social Services Data Systems in use in Local Authorities in Wales
WDS	Welsh Demographics Service (GP registration history database)
WIMD	Welsh Index of Multiple Deprivation
WISERD	Wales Institute of Social and Economic Research, Data & Methods

Glossary of Terms

Accommodation-based support	As distinct from floating support, accommodation-based support is tied to particular accommodation.
Capgemini Model	The UK Department for Communities and Local Government commissioned Capgemini to create a model to assess the financial benefits of the supporting people programme in England as a whole and in the regions and Local Authorities across England. A similar model is in use in Northern Ireland.
Data Max	Welsh Government Knowledge and Analytical Services Programme to Maximise the Use of Existing Data.
DRAIG	The Social Services service user database procured by the Wales System Consortium of eight Local Authorities in 2004.
Floating support	Floating support is more flexible in its nature than accommodation-based support; it can be provided in a wide range of places, including supporting a person in their own home. A support worker may have a number of clients at one time and provide a flexible support service to meet their individual needs.
ILLY	One of the Supporting People Data Systems in use in Local Authorities in Wales.
'Lead Need'	The main reason for referral to Supporting People as recorded in the Supporting People administrative data.
Level of support	The levels of support are floating support and accommodation-based support.
Outcomes data	A set of mandatory Supporting People information related to the outcome of the services provided over a six month period. The returns are sent to Welsh Government from the Local Authorities.
Research and Evaluation Steering Group	The group, chaired by Cymorth Cymru, that was set up to deliver longitudinal research to demonstrate the impact of the Supporting People Programme.
PARIS	One of the Social Services Data Systems in use in Local Authorities in Wales.
'Service Group'	The type of Supporting People service to which the user was referred as recorded in the Supporting People routine administrative data.
Sitra	The membership body for the UK supported housing sector.
SPRINT	One of the Social Services Data Systems in use in Local Authorities in Wales
Who 12 Data	A quarterly data return by Local Authorities to Welsh Government which includes information on the number of households applying for housing assistance under the Housing Wales Act 2014 and the number of homeless households in temporary accommodation.

1 Introduction

Policy Background

- 1.1 The Supporting People Programme provides housing-related support to help vulnerable people to live as independently as possible.
- 1.2 In 2014-15 the Supporting People budget was £124.4 million. This is an annual budget and the total grant available changes according with budgetary constraints. The programme supports more than 60,000 people each year and aims to prevent problems by providing help as early as possible.
- 1.3 There are two key elements to the type of support provided – long-term and short-term - long-term maintenance support is designed to help people retain or gain independence and avoid the need for more costly interventions such as entering care, and short-term more preventative services designed to help people avoid homelessness. The programme is largely preventative in nature and this is in keeping with the aims of The Housing Act (Wales) 2014.
- 1.4 The vision of the Supporting People Programme is to help people find and keep a home that meets their needs and encourages independence in a healthy and safe environment.
- 1.5 The aims of the Supporting People Programme are:
 - to help vulnerable people live as independently as possible; and
 - to provide people with the help they need to live in their own homes, hostels, sheltered housing or other specialist housing.
- 1.6 A Research and Evaluation Steering Group was set up to aid in the development of longitudinal research to demonstrate the impact of the Supporting People Programme and to ensure effectiveness and value for money. The group comprised three members of the Supporting People National Advisory Board along with Local Authority, service provider and Welsh Government representatives. The group is developing a twin strand approach, including qualitative and quantitative research.
- 1.7 The routine administrative data relating to people accessing Supporting People services did not contain indicators of the impact of services on those people, e.g. on their health, housing circumstances or economic status, and the data held by Local Authorities about the outcomes of Supporting People recipients did not lend itself data linking (for further discussion, see Chapter 2). The group therefore proposed to explore the use of linked routine administrative data to assess the impact of Supporting People services on the people accessing those services. A proposal was made to Lesley Griffiths AM, Minister for Communities and Tackling Poverty, who agreed to part-fund a Feasibility Study to ascertain the potential of data linking, undertaken using the SAIL (Secure Anonymised Information Linking) Databank and the Administrative Data Research Centre for Wales, to contribute to a Supporting People evaluation.

The Potential Contribution of Data Linking

- 1.8 Data Linking is a technique for creating links between data sources so that anonymised information that is thought to relate to the same person, family, place or event can be connected for research purposes.

- 1.9 In 2006, the Welsh Government National Institute for Social Care and Health Research (NISCHR) funded the creation and development of the Health Information Research Unit (HIRU) at Swansea University. The aim of this unit was to develop a means by which routinely collected health data from many different sources could be utilised in a linked way whilst conforming to international best practice in terms of information security. The process developed was called Secure Anonymised Information Linking (SAIL). SAIL demonstrated how routine administrative data from multiple sources could be made available for research purposes in a safe, secure and robust manner¹ (further information about the process and about SAIL is provided in Chapter 3 and Appendix B).
- 1.10 At the UK level, research funders, government departments and devolved administrations formed the Administrative Data Taskforce 2012. As a result, the Economic and Social Research Council and other funders created a UK Administrative Data Research Network (ADRN), which includes an Administrative Data Research Centre (ADRC) in each country of the UK. A collaborative bid between Cardiff University and SAIL at Swansea University was successful in bidding to become the ADRC in Wales; future data linking projects taking place in Wales would therefore be completed at the ADRC in Wales (ADRC-W) and within the information governance, information security and ethical context of the ADRN.
- 1.11 The Welsh Government Knowledge and Analytical Services Programme to Maximise the Use of Existing Data (Data Max) has been working with the UK Economic and Social Research Council to explore how ambitious Welsh Government plans can be in terms of making better use of existing data for Wales. Much of this work involves improving the availability of linked data for research purposes. As a result of these activities, it became clear that data linking may have the potential to assist in evaluating the Supporting People Programme. This project was therefore part-funded by the Welsh Government and the ESRC to examine the feasibility of using linked data to deliver a quantitative evaluation of the impact of the Programme. The Project was carried out by a full-time researcher attached to the Administrative Data Research Centre for Wales.

Project Aim and Objectives

- 1.12 This Feasibility Study aimed to explore the contribution that data linking could make to the evaluation of the Supporting People Programme through assessing the ways in which health service use varies according to the characteristics of Supporting People recipients. In addressing this research aim, the study will be part of a larger project to evaluate the impact of the Supporting People Programme in Wales.
- 1.13 Objectives:
- to assess the feasibility of creating an all-Wales dataset bringing together routine administrative data for services delivered through the Supporting People Programme in Wales;

¹ All research proposals using SAIL can only proceed if approved by a group of independent reviewers called the Information Governance Review Panel (IGRP).

- to identify any barriers to the acquisition of the Supporting People routine administrative data for linking;
- to identify what additional datasets could be acquired that would contain indicators of the impact of Supporting People services on recipients, e.g. on their health, housing circumstances and economic status;
- to advise on the extent to which routine administrative data can be acquired for various subgroups of recipients within the wider population of Supporting People recipients;
- to assess the extent to which a control group can be identified for analysis purposes;
- to advise on the likelihood of a future project being able to identify any NHS cost offsetting associated with the provision of Supporting People services; and
- to make recommendations to Welsh Government as to whether a quantitative evaluation of the Supporting People Programme in Wales will be feasible using linked routine administrative data.

1.14 Given the vulnerability of some of the groups supported by Supporting People, it was accepted from the outset that it may not be possible to evaluate the impact of Supporting People either on all user groups or for the whole of Wales. The Feasibility Study was therefore expected to identify where any gaps in evidence were likely to remain despite the use of linked data and, if necessary, to recommend a full evaluation that would be constrained in certain ways, for example limited to certain user groups or geographies.

Project Governance

1.15 The research post dedicated to this study was funded jointly by Welsh Government and the ESRC. The researcher was based at Swansea University, where she had a line manager responsible for managing HR processes, ensuring the project adhered to the correct project management procedures, supporting the researcher in managing key project risks and, where possible, exploiting existing networks in order to help achieve the project objectives. The researcher also had an academic supervisor to provide guidance on training and development, analytical methodology and the use of SAIL as well as coaching on SQL, data manipulation etc. The ADRC statistician and an ADRC Research Support Team project adviser also provided advice and support to the researcher. Additionally, the researcher was part of a small team of analysts funded by the Welsh Government and ESRC and attached to the ADRC Wales, which allowed her to draw on informal networks for advice and support as well as being able to take part in the SAIL User Forum. However, in terms of the delivery of analytical projects, this post is supervised by the Welsh Government Knowledge and Analytical Services Team Lead for the Data Max Programme. For this project, both the Data Max Team Lead and the Supporting People research lead were jointly responsible for the day to day running of the project and for the supervision and guidance of the researcher.

1.16 The researcher attended the monthly meetings of the Supporting People Research and Evaluation Steering Group, providing a monthly update consisting of:

- a one-page progress report; and
- a revised version of the Report Skeleton.

1.17 The Supporting People Research and Evaluation Steering Group, in turn, reported on the progress of the group and its work to the Supporting People National Advisory Board (SPNAB) which provided advice to the Minister on the proposed strategic direction for the Supporting People Programme.

Report Structure

1.18 The processes, issues, problems and limitations encountered in the Project are documented in this Report, as well as recommendations regarding the feasibility of using data linking to deliver a full quantitative impact evaluation. Chapter 2 describes the project methodology as well as the opportunities and challenges of working with linked data. Chapter 3 reports the findings of a literature review or rapid evidence assessment and provides, as a result, a proposed Supporting People logic model and a summary of proposed indicators of the impact of Supporting People. Chapter 4 provides the Project findings with regard to the acquisition and linking of Supporting People data, including findings about the process of acquiring data, the challenges encountered and the implications for a full evaluation; this Chapter also provides recommendations for how data collection for Supporting People could be improved to facilitate future research and data linking activities. Chapter 5 presents the findings with regard to linking rates and the characteristics of the sample of Supporting People recipients. Chapter 6 presents the findings of some initial exploratory analysis of the Supporting People datasets. Chapter 7 presents the findings from the substantive analysis of a set of indicators of the impact of Supporting People on health service use. Chapter 8 explores the feasibility of creating a control group for a full evaluation. Chapter 9 discusses the potential to deliver a cost-offset model as part of a full evaluation. Chapter 8 makes recommendations about the feasibility of and options for using data linking to deliver a full quantitative evaluation of the impact of the Supporting People Programme.

2 Methodology

Introduction

2.1 The key research questions for the Feasibility Study were:

- Whether linking routine administrative data about the people accessing Supporting People services to other routine administrative records had the potential to allow us to analyse the impact of the services on those people, e.g. on their health, housing circumstances and economic status;
- For the Feasibility Study, whether an analysis could be completed of a small number of key indicators of health service use (relating to the use of primary care, A&E and hospitals) before and after people began receiving support.

2.2 An important question when designing this Study was precisely what impacts the Supporting People Programme was designed to have on the lives of recipients. Although Welsh Government officials and the Supporting People Research and Evaluation Steering Group were able to provide some documentation regarding the expected impacts of the policy, a detailed list of indicators of the impact of Supporting People needed to be identified.

2.3 Once the impact indicators had been agreed by the Research and Evaluation Steering Group, the Study needed to develop and answer a range of more specific research questions relating to the impact indicators, all of which would provide answers to the underlying question of whether data linking was the best method available to deliver a quantitative evaluation of the impacts of Supporting People.

2.4 In order to answer the broad questions identified above, this Study used a range of methods, including:

- a brief literature review or ‘Rapid Evidence Assessment’²;
- a collection of information from Local Authorities and Supporting People providers about the Supporting People routine administrative data they held;
- the acquisition of Supporting People routine administrative data from two pathfinder Local Authorities for linking to routine health records; and
- some initial exploratory and provisional substantive analysis of that data.

The following sections describe the methods used in the Study.

2.5 The Feasibility Study took place between March and September 2015.

How does data linking in SAIL work?

2.6 As noted in Chapter 1, the work of the Welsh Government Data Max Programme had demonstrated that data linking might be able to help in evaluating the Supporting People Programme. A summary of what Welsh Government had already learned about the key opportunities and challenges of working with linked data is provided below, followed by a discussion of the key advantages data linking was felt to have for an evaluation of Supporting

² A Rapid Evidence Assessment is one of a number of different methods for reviewing existing evidence in use in Government in the UK. It is a ‘quick overview of existing research on a (constrained) topic and a synthesis of the evidence provided by these studies to answer the REA question’. For further information see: <http://www.civilservice.gov.uk/networks/gsr/resources-and-guidance/rapid-evidence-assessment/what-is>

People. Please see Appendix B for more detailed background information about how the SAIL system works in practice and about the role of the ADRC-W.

The Opportunities of Working with Linked Data

- 2.7 Linked data can provide a depth of information not found when using a single dataset by anonymously adding together information held about the same person, household, dwelling or event from a range of sources.
- 2.8 Where data from more than one source needs to be linked together for research purposes, data linking of some kind will be required. Although Welsh Government can undertake data linking internally, it does not have the facility to then provide secure access to that data to external academic, public and third sector researchers for analysis. The Welsh Government-funded SAIL system at Swansea University therefore offers the best solution currently available for linking data about Wales.
- 2.9 Data Linking – and in particular SAIL and the new Administrative Data Research Centre for Wales (ADRC-W) that SAIL supports - provides new possibilities for linking together data from different sources in a safe, secure and robust manner. The Administrative Data Research Network aims to have the highest standards of secure data sharing. Please see Appendix B for the criteria projects must meet.
- 2.10 Linked data has the potential to improve the evidence base by allowing:
 - the creation of retrospective baselines or control groups;
 - research to be undertaken on hard to reach or rare groups or on small geographical areas;
 - long-term follow-up without expensive ‘keeping in touch’ exercises; and
 - surveys to be replaced, reduced or better targeted.
- 2.11 Linked data also offers some distinct advantages in terms of its ability to report impact indicators:
 - Where multiple routine administrative datasets are required to define a single impact indicator, linking will be the best solution. For example, the concept of ‘mental ill-health’ can be defined using data from a range of routine health records;
 - Where the information required to create an impact indicator is held at the Local Authority level, analysis at the Wales level will only be possible by linking records from all 22 Local Authorities in Wales. For example, levels of social care use can only be analysed by linking routine social care records across all Local Authorities.
- 2.12 Data linking allows a range of impact indicators to be analysed for the users of the service in question but it also opens up further lines of enquiry:
 - transitions between different services e.g. movements between housing, social care and health services can be examined, allowing the complexity of the ‘journeys’ of recipients to be explored more fully; and
 - the dynamics of service use can be explored – identifying how many users – and what kinds of users – travel in and out of the service over time.

The Challenges of Working with Linked Data

- 2.13 Nevertheless, there are challenges associated with using linked data to create impact indicators, some of which can be overcome by investing in further development activities once the data has been acquired for linking.
- 2.14 Many of these challenges relate to the fact that routine administrative data is collected for operational and not for research purposes. In summary:
- It can take a long time to acquire new routine administrative datasets for linking and to get the data 'research ready'. Legal barriers and/or risk aversion can cause delays. However, with the creation of the ADRN, attempts are being made to address legal barriers and risk aversion, the process of acquisition should begin to shorten and ongoing, routine data flows can begin to be established.
 - Routine administrative data can be missing key information needed to perform robust analysis e.g. information about the socio-economic or employment status of Supporting People recipients and information required for equalities monitoring. However, missing information can often at least partially be replaced by linking to additional survey or administrative sources.
 - When developing indicators using large, complex routine administrative datasets, time and resources can be required to manage the complexity e.g. deciding precisely which definitions to use and how to manage issues around e.g. severity and duration.
 - Where routine administrative data about the same service has been collected separately by different organisations e.g. Local Authorities, there is often a lack of standardisation in terms of the format and content collected, so that additional work is required to reconcile the data into a single, harmonised dataset.
- 2.15 Routine administrative data is also, by its very nature, longitudinal, presenting additional challenges in terms of the sheer size and complexity of the data, the required analysis methods and the challenges of visualising the findings.
- 2.16 It can be challenging to validate estimates based on routine administrative data where a) existing 'best estimates' may be based on surveys or other less robust sources; or b) the definition that can be created using routine administrative data is qualitatively different to that used for the existing 'best estimate'.
- 2.17 The extent to which these challenges would be likely to impact on a full quantitative evaluation for Supporting People is discussed in Chapter 5.

The key advantages of data linking for the evaluation of Supporting People

- 2.18 As noted above, data linking presents some challenges; however, it has some key advantages that the Supporting People Research and Evaluation Steering Group felt might make it particularly suitable for delivering a quantitative component to the evaluation of the Supporting People Programme:
- 2.19 Where data from 22 Local Authorities, held in up to 22 different formats, potentially plus data from numerous providers, needed to be brought into a single, harmonised dataset, data linking using SAIL/ADRC-W was felt to be the best solution.

2.20 Data linking also offered distinct advantages with regard to researching the outcomes of Supporting People service recipients:

- Since the Programme works with vulnerable groups e.g. people with substance misuse problems, and has a remit specifically around preventing homelessness, Supporting People service recipients were likely to be relatively mobile and hard-to-reach. Flagging Supporting People recipients anonymously in routine administrative data would therefore be likely to be easier, more reliable and significantly less expensive – as well as being potentially ethically more acceptable - than finding recipients prepared to participate in evaluation research in the ‘real world’.
- Because the routine health records held in SAIL are available dating back to 2004 for GP records, 2009 for A&E and 1999 for hospital admissions, linking the Supporting People administrative data to routine health records would allow the study to look back in time in order to examine health service use (and in future potentially other events for additional topics including education and social care) both before and after the Supporting People intervention.
- The fact that an evaluation would need to compare health service use before and after Supporting People intervention was felt to present a challenge for primary research. It would be both difficult and potentially unethical to identify potential Supporting People recipients before they came into contact with Supporting People services in order to interview them. In order to re-interview recipients afterwards – particularly in the longer-term - the kinds of ‘keep in touch’ exercises usually implemented in longitudinal studies would be expensive and would be likely to suffer from particularly high rates of attrition in such potentially mobile groups.
- Using data linking, the outcomes of Supporting People recipients can potentially be followed up long term at relatively low additional cost in a way that is not amenable to attrition. Since the datasets held in SAIL include mortality records, losses to follow up by death can also be identified.
- Since Supporting People is designed to support individuals going through some very challenging life events, both response rates to primary research and the reliability of self-reported information about outcomes might be low. Due to these issues, any attempt to deliver a quantitative study as primary research would most likely result, in practice, in the kind of qualitative study that is being recommended as a component of a full evaluation of Supporting People.

2.21 As noted above, data linking also opens up further lines of enquiry:

- transitions between Supporting People and other services can be examined and the complexity of the ‘journeys’ of recipients can be explored e.g. it may be possible to look for patterns of ‘crisis’ before or around the time of entering Supporting People, or for patterns of increased use of more routine health services immediately after the intervention followed by decreased use of the NHS over time; and
- the dynamics of Supporting People service use can be explored: identifying how many users – and what types of recipients – travel in and

out of the service over time, including identifying the characteristics of repeat users and examining whether their outcomes are different compared with one-off users.

Literature Review Methodology

- 2.22 A literature review was undertaken in order to identify potential research questions and to identify similar work done elsewhere in the field. In order to inform the design of the quantitative evaluation, a key objective of this review was to inform the development of the proposed impact indicators for agreement with the Supporting People Research and Evaluation Steering Group.
- 2.23 To ensure that some substantive analysis of the Supporting People routine administrative data could be delivered within the short timescale for the Feasibility Study, it was clear from the outset that the analysis would need to be constrained to a small number of indicative impact indicators that could be constructed relatively easily using routine health records. A key requirement for the literature review was therefore to find evidence from the literature about the key impact indicators on which the Feasibility Study analysis should focus.
- 2.24 Given the time constraints of the Feasibility Study, a Rapid Evidence Assessment (REA) was used in place of a systematic review as a faster method of reviewing the existing evidence.
- 2.25 There was a need to constrain the focus of the REA due to the large volume of research literature around homelessness and housing support. As the Supporting People Programme supports a wide range of people with various needs, the time and resources were not available to provide an exhaustive review of evidence focusing separately on each specific client group (for example, those with mental health support needs, alcohol/substance abuse support needs, domestic abuse support needs etc.). The REA therefore focused on homelessness prevention and housing support more broadly, homelessness and health, studies reporting any specific health impacts of homelessness or housing support interventions, and the challenges of homelessness research or the evaluation of homelessness prevention programmes. This reduction in scope was also designed to prevent the REA from becoming biased toward one particular recipient group.
- 2.26 The search terms used included the following:
- Housing and vulnerable people
 - Housing support
 - Floating support
 - Housing interventions
 - Homelessness and health
 - Housing and quality of life
 - Housing and wellbeing
 - Effectiveness of housing support or floating support
 - Housing policy
 - Homelessness and health service use
 - Health service use and vulnerable groups

- Homelessness prevention or homelessness triggers
- Homelessness characteristics
- Homelessness interventions
- Reducing Accident and Emergency attendances
- Homelessness outcomes
- Improving or assessing homelessness outcomes
- Homelessness and data linking
- Data linking and effectiveness of interventions.

2.27 Sources that were searched were: Web of Knowledge, PubMed (Medline), ScienceDirect, Google Scholar, Cochrane Library, PsychInfo, Taylor and Francis Online.

2.28 Given that there is a wide body of literature around homelessness prevention and housing support, searching was carried out until the researcher was confident of having identified the main themes in order to provide an overview of the existing evidence. The gaps or limitations of the literature on specific housing interventions for homeless individuals or individuals facing homelessness are also discussed as part of the REA (see Chapter 4).

2.29 Studies were excluded if:

- the study related purely to housing improvement interventions such as insulation;
- the study related to an intervention that fell outside the remit of Supporting People e.g. retirement housing; or
- intervention was focussed entirely on a single specific 'lead need', recipient group or health condition.

2.30 The final number of studies summarised was thirty-six.

2.31 The strengths of the REA Methodology were:

- due to the limited project timescale, it provided a fast synthesis of the evidence;
- it was considered proportionate to the task;
- it did not risk being drawn into too much depth on specific conditions/lead needs; and
- it provided a brief overview of a research topic where a vast amount of literature existed.

2.32 The limitations of the REA methodology were:

- It was not systematic so risked introducing bias to some extent;
- the methodological quality of studies was not considered in depth - abstracts were screened using the inclusion criteria; studies were excluded where insufficient information was included to allow for a full understanding of the study methodology e.g. number of participants, study design; studies were excluded if there existed a possibility of bias in the results; and

- grey literature was not included.

The collection of information from Local Authorities and Supporting People providers about the Supporting People routine administrative data they held

- 2.33 The ideal dataset to feed into the analysis for an evaluation of Supporting People would comprise, for all 22 Local Authorities in Wales, the data Local Authorities have been collecting about the subjective outcomes of Supporting People recipients since 2012 (henceforth referred to as ‘the Outcomes Data’). The Outcomes Data contains a wealth of potentially useful information about recipients and the outcomes of their support journey; further detail about the support they received could have been added to this using the routine administrative data. However, the Outcomes Data does not currently lend itself to data linking and the routine administrative data was not a required part of the Outcomes Data collection and therefore no standard approach to collecting or holding the data has been taken by Local Authorities.
- 2.34 The reason the Outcomes Data may not lend itself to data linking is that the unique reference number for the dataset is unlikely to provide a sufficient matching rate through the current NWIS matching process. Instead of containing the identifiable details required for linking, the outcomes data contains a recipient reference number in the format ‘XXXddmmyyG’ where XXX = the first 3 letters of the user’s surname, ddmmyy = DoB and G = gender. It is unclear how many records would match reliably using the three fields (DoB, gender and first three letters of surname) created using this reference number.
- 2.35 Since the Outcomes Data was not available for linking – and therefore for analysis – any plans for a delivering a quantitative evaluation would of necessity be forced to rely on using the routine data relating to the administration of the Supporting People Programme. The Feasibility Study therefore needed to examine whether and how the Supporting People routine administrative data could be linked together across Local Authorities.
- 2.36 It should be noted, however, that even if the Outcomes Data had been available for analysis, a robust quantitative evaluation would attempt to validate and/or supplement those subjective measures by making comparisons with objective measures derived from routine administrative records. Linking the Outcomes Data to other routine records would also allow triangulation between sources³ in order to understand whether self-reported changes in outcomes are reflected in individuals’ use of other services e.g. health services.
- 2.37 In order to gather as much information as possible about the Supporting People routine administrative data held by Local Authorities, initial contact was made with Supporting People teams from all 22 Local Authorities in Wales via an introductory email inviting them to express an interest in taking part in the Feasibility Study. Upon receipt of a response from interested Local Authorities, the researcher was able to begin negotiating data acquisition by collecting information on the Supporting People data held at the Local Authority level. The aim was to find out if routine administrative data about Supporting People was

³ In a concept borrowed from navigational techniques, triangulation is where findings from two or more sources are compared with the idea that one can be more confident with a result if different methods lead to the same result.

held by the Local Authority at the individual level necessary for data linking and, if not, whether it was likely to be held at the provider level.

- 2.38 Where Local Authorities reported that they did hold individual level data, Supporting People teams were asked to provide further details about the content of the data such as the services and recipient groups for which data was available, the time period covered by the dataset(s), the system used to store the data, and potential extraction methods. This kind of information – i.e. ‘data about data’ is referred to as ‘metadata’ e.g. data documentation, data dictionaries⁴. Column headings and anonymised example data were requested in order to establish precisely what information was held by each Local Authority.
- 2.39 The researcher also requested information about related datasets such as social care and housing options data; however, as Supporting People data was generally found to be held separately to data on social care and housing options, the acquisition of metadata and of the data itself had to be pursued through separate contacts within the Local Authority. For each Local Authority, an assessment was made as to whether the data was held in a suitable format for linking i.e. whether it included the minimum required identifiers of full date of birth, gender and full address including postcode (for further discussion, see Chapter 4).
- 2.40 For Local Authorities where enough information was gathered to determine whether the data was useable for the Feasibility Study, metadata was requested in order to support the interpretation and analysis of the Supporting People datasets.
- 2.41 In parallel to seeking information about the data, the researcher gathered information from Local Authorities on their data sharing policies to ascertain the legal processes required to share the data with NWIS and SAIL. This involved working with Local Authority information governance staff and legal teams to gather their standpoints on potential legal gateways for data sharing and to negotiate the type of agreement required by the Local Authority in order to share the data.
- 2.42 Where individual-level Supporting People data was not held by Local Authorities, the researcher gathered information about the numbers of providers delivering Supporting People services in the Local Authority area and the likely legal barriers to data acquisition in order to assess the feasibility of acquiring data from providers for a full quantitative evaluation. Due to the short time scale of the Feasibility Study, it was decided not to attempt to acquire data from providers. However, the acquisition of data from providers would need to be considered fully if a full evaluation study proceeds.
- 2.43 Please see Chapter 4 for a discussion of the limitations of the Supporting People routine administrative data currently held by Local Authorities.

The Acquisition of Local Authority Supporting People administrative data

- 2.44 The Study invited Supporting People leads from all 22 Local Authorities in Wales to participate.

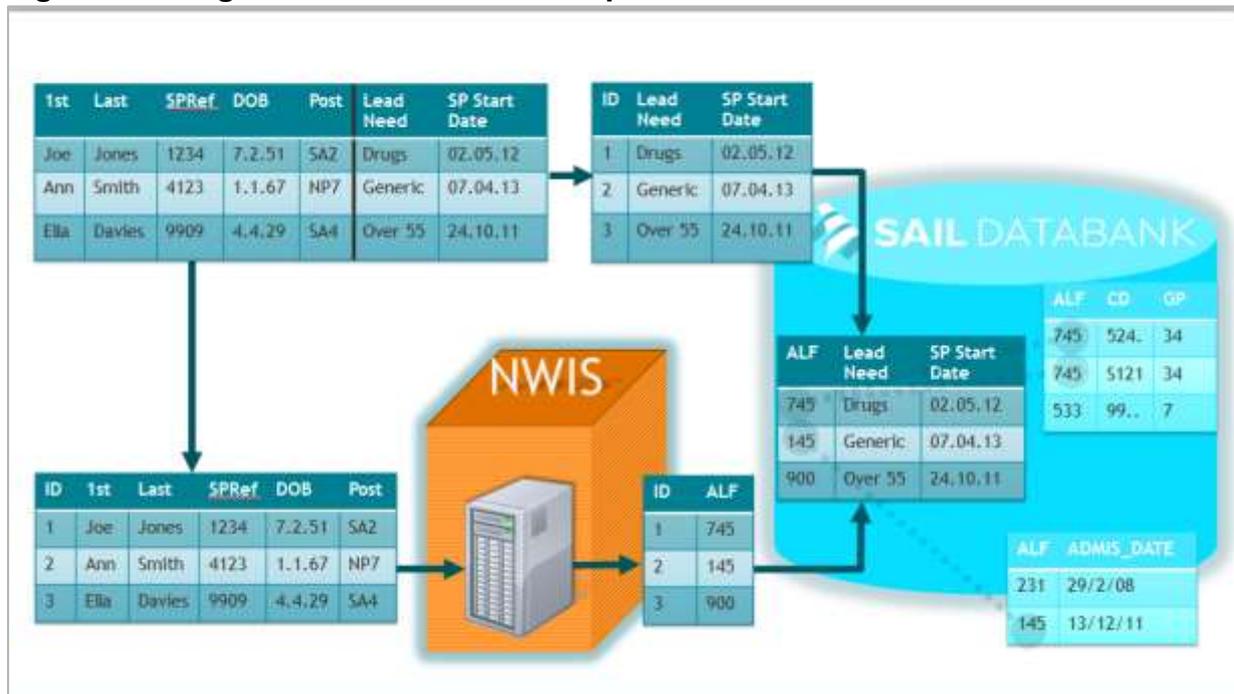
⁴ There are two metadata types: i) ‘structural metadata’, about the design and specification of data structures; and ii) descriptive metadata about the content of the dataset or of individual fields within the dataset.

- 2.45 As noted above, the Study gathered information about the Supporting People administrative data held by all Local Authorities. Where possible within the limited timescales of the Feasibility Study, all Local Authorities were asked to provide Supporting People administrative data to allow it to be anonymously linked to routine health records held about recipients, for analysis purposes.
- 2.46 It was agreed with the Supporting People Research and Evaluation Steering Group that although the Project would attempt to acquire data for all Local Authorities in Wales, it would not expect to achieve complete data acquisition within the short time scale available to the Feasibility Study.
- 2.47 A key requirement was to document and assess the challenges associated with data acquisition in order to quantify the challenge for a full evaluation.
- 2.48 The anonymisation process involved the use of a ‘trusted third party’⁵, the NHS Wales Information Service, (NWIS), who were provided with only the identifiable components of the Supporting People data, in this case the full name, date of birth and address of each recipient. When data is linked, the identifiable data can either be provided at individual person level or at address level. The Supporting People identifiable data was provided to NWIS at the person level. When the identifiable information is at the person level, NWIS use it to generate a unique number for each individual, before destroying the identifiable data so that the unique numbers cannot be linked back to the person. Consistent processing by NWIS ensures that data for an individual always generates the same unique person number. In this way, records already held in SAIL relating to the same individual could be linked to the Supporting People data without either individuals or households being identifiable to researchers.
- 2.49 NWIS use the Welsh Demographic Service (WDS) data as the ‘population spine’ or ‘template’ for its anonymisation process. The WDS is a database of everyone registered with a GP in Wales from 1994 to the present day. Individual people who have been registered with a GP in Wales, past and present, are represented in the WDS data as an index of unique numbers, known as the Anonymised Linking Field (ALF). The WDS includes an anonymised residential address history – an index of numbers, one for each household in Wales, known as the Residential Anonymised Linking Field (RALF). In this way, it is possible to associate ALFs with RALFs, that is: people to homes.
- 2.50 The normal standard practice for transferring data is to utilise a secure electronic data transfer facility. For NHS organisations transfers into NWIS use such a system based on the Digital All Wales Network (DAWN). For non-NHS data providers, a secure internet based facility is in place, and for the transfer of data into SAIL a separate but similar Internet based facility is available. User accounts and passwords are created for named individuals from the data provider organisation to allow them to access these systems.
- 2.51 With data sharing agreements in place, the data was transferred using what is known as the “split file process” as depicted in Figure 2.1 (below). An index field was added to the Supporting People data before it left the Local Authority, numbering all the records.

⁵ A ‘trusted third party’ is an organisation with secure facilities for matching data.

- 2.52 The Local Authority then securely uploaded a file containing the index and the name, date of birth and address details to NWIS. This file is always referred to as “File1” by those processing it.
- 2.53 A second file, “File 2” was securely uploaded by the Local Authority to SAIL. This file contained the index field and the intervention data, without the name, date of birth and address data. In this way, the identifiable data and the intervention data never appear in the same file during the transfer.
- 2.54 The “File 1” data received by NWIS was processed to produce “File 3”. File 3 consisted of a table with two columns - the index and the associated ALF generated for each individual. This file was transferred to SAIL using a web-based secure file upload and switching service. File 2 and File 3 were linked using the index number. The index number was then discarded, leaving a table of anonymised intervention data linkable to other data using the ALF.

Figure 2.1 Diagram of the SAIL NWIS ‘Split File Process’



What routine records were available in SAIL containing information about potential impact indicators?

- 2.55 As noted above, the Feasibility Study needed to make recommendations for how information about the impact of Supporting People could be evidenced by linking the routine administrative data for Supporting People recipients to other routine records containing information about potential impact indicators.
- 2.56 SAIL already contained the majority of existing routine health records for Wales e.g. GP Event, Hospital Accident and Emergency, in- and out-patient data, plus a growing number of routine administrative datasets for other topics e.g. home energy efficiency interventions and education. Data from a range of surveys, such as the National Survey for Wales and the Welsh Health Survey, was also available in SAIL. For further information about the data sets available in SAIL, see Appendix C.

- 2.57 The purpose for which SAIL was created and part-funded by the Welsh Government was to support research in the field of health informatics, so the majority of work before 2011 understandably went into the acquisition of routine health records. Datasets relating to non-health topics tended to be acquired as a result of specific projects, so the non-health content was in the minority and of variable coverage and quality.
- 2.58 At time of writing, SAIL contained little data for social care, housing or socio-economic indicators such as benefit receipt or labour force participation. In order to report on social care, housing or socio-economic impact indicators for a full Supporting People evaluation, a range of additional datasets would therefore need to be acquired for SAIL/the ADRC-W.
- 2.59 Due to the short timescales for the Feasibility Study and the ease of availability of a range of routine health records in SAIL, the decision was made to focus on analysing impact indicators relating to health service use for the Feasibility Study. Please see Chapter 3 for the literature review, on the basis of which impact indicators were selected for the Feasibility Study and are proposed for a full evaluation study. Please see Chapter 4 for further brief discussions about the data that could be acquired for additional topics e.g. social care and housing, if a full evaluation were to proceed.

The Project Approvals Process

- 2.60 As noted in Chapter 1, the SAIL infrastructure supports the Administrative Data Research Centre for Wales. The project was therefore required to seek approval from the ADRN Approvals Panel. The Approvals Panel makes sure the process of granting access to sensitive, linked administrative data is fair, equitable and transparent. It assesses the projects against the following criteria:
- the research must be purely non-commercial;
 - the research must be feasible, ethical and have a clear potential public benefit;
 - the case must be made for using administrative data to carry out the research;
 - the relevant dataset must only be accessible through the Network, rather than alternatives (for example Farr Institute, UK Data Service Secure Lab, or longitudinal studies);
 - the project must not be research which a government department or agency would carry out as part of its normal operations; and
 - the project makes its results public through the ADRN website.
- 2.61 A further requirement for all proposals involving the analysis of routine health data within SAIL is to obtain approval from the SAIL Information Governance Review Panel (IGRP). IGRP is a panel of independent specialists in informatics governance and lay members that oversee all research taking place within SAIL. An IGRP application contains an outline of the research rationale for creating the links, any new datasets that would be accessed, and precisely what variables would be required from the linked datasets. Researchers must indicate in the application that they have considered the handling of sensitive data in the research design. Although the data sets are all totally anonymised in

SAIL, the selection of a really specific sub-group based on age and gender at small area (LSOA) level, looking at a specific condition could return small numbers. Small numbers in a published output could be put together with other local knowledge to establish who the statistic refers to. Researchers are given access to the data at the level of detail necessary in order to complete their analysis, but need to ensure that nothing potentially identifiable is revealed in their reporting. IGRP applications must indicate how the analyst proposes to deal with small numbers (e.g. through grouping and aggregation of cases).

2.62 The project was approved by both governance panels without any concerns being raised.

The process for making data ‘research ready’

2.63 It should be noted that routine administrative data is not designed for research purposes, can be complex and is by nature longitudinal. Reconciliation of datasets across sources to create a ‘research ready’ dataset therefore tends to require further time investment, even where the data relate to a service that is, in practice, delivered identically by a range of providers. With routine administrative data in particular, data collection tends to be driven by the requirements of service delivery so it is possible, and in practice commonly observed, that the same kinds of information will tend to be held in different formats by different service providers.

2.64 To simplify the task of reconciling the data the Study requested from Local Authorities only a small set of key variables that contained information of the highest priority in terms of the analysis. This allowed the process of data acquisition to be fully tested and routine data flows to be established as pathfinders for a full evaluation but would minimise the task of data reconciliation.

2.65 In consultation with the Supporting People Research and Evaluation Steering Group, the key variables selected for analysis were:

- Age and gender of Supporting People recipient;
- Supporting People ‘lead need’;
- Duration of Supporting People support;
- Complexity of need;
- Level of Supporting People support i.e. floating or accommodation-based; and
- (If available) reason for leaving Supporting People.

2.66 In practice, not all of the above variables were available from both participating Local Authorities and some presented challenges for analysis. Please see Chapter 4 for findings about the consistency and quality of the routine Supporting People administrative data, Chapter 6 for the findings of the initial exploratory analysis of the data, including a discussion of the availability of the list of key variables provided above and Chapter 7 for the findings of the analysis of the indicators of the impact of Supporting People on health service use.

Analysis of Linking Rates and Sample Characteristics

- 2.67 A key challenge for any evaluation of Supporting People using linked data was whether recipients could be found in the WDS – the population spine used by SAIL to link data - and could therefore be linked to routine health records. Where Supporting People recipients may be particularly residentially mobile and to have suffered from periods of homelessness and possibly rough sleeping, they may not have had the opportunity to register with a GP at a particular address, which may mean that they do not appear in the WDS and therefore their Supporting People data cannot be linked to other routine records. This would mean that the impact of Supporting People on health service use could not be analysed.
- 2.68 The problem of Supporting People recipients not having a WDS record was envisaged to be more of an issue for some service groups than others, with older people in receipt of accommodation-based support and families with young children being the most likely to appear in the WDS and young adults with histories of offending or substance misuse the least likely to appear in the WDS.
- 2.69 The SAIL system was originally designed for linking health datasets where NHS number is usually available. Where the NHS number is both available and has been generated by a machine rather than typed in manually, the system produces very high matching rates. Where no NHS number is available, the system relies on looking up personal details: First name, last name, address, postcode, gender and date of birth. The accuracy and completeness of the recording of these items is crucial to achieving matching success. Although probabilistic matching is used (where the most similar match is found to the information that has been presented) sometimes the details supplied do not provide sufficient information to enable matching.
- 2.70 As part of the linking process, the overall number of cases with an ALF, i.e. the cases capable of being linked to other records, are delivered automatically by NWIS. Where a dataset contains a complete record of all the relevant identifiers, linking rates can be high. For example, for the Millennium Cohort Study (MCS) sample for Wales, 99.6% of participants matched with an ALF with high accuracy due to the completeness and accuracy of the survey data collection. However, the MCS is a survey and the data was collected with data linking in mind. This was not the case for the Supporting People routine administrative data so it was difficult to judge without acquiring the data what the linking rates might be.
- 2.71 Because File 2 includes information both for the recipients that can be linked and for those that can't, it is possible to assess whether any bias has been introduced through 'failure to link' by comparing the characteristics of the linkable and non-linkable groups.
- 2.72 Headline linking rates for each dataset are reported in Chapter 5. In order to assess whether linking rates varied by Local Authority or by the characteristics of Supporting People recipients, analysis was undertaken to compare the cases where records were able to be linked with cases that were not, to compare the number of cases that could vs. couldn't be linked by all known characteristics of the sample and of recipients, including gender, age group, and 'service group' or 'Lead Need'. These figures would allow the Feasibility

Study to assess whether any bias in linking rates was likely to exist if a full evaluation proceeds and to identify any solutions that might feed into the analysis methods recommended for the full evaluation. Of particular interest was whether a full evaluation may need to be constrained to certain user groups or geographies within Wales. Please see Chapter 5 for the findings from the analysis of linking rates.

Initial Exploratory Analysis of Linked Data

- 2.73 Even if Supporting People recipients could be found in the WDS, it was by no means certain that they would make use of health services in such a way that they would generate routine health records or, given that records did exist, that sufficient numbers of events would be found to allow a robust analysis of change over time. The ability of the Study to identify and quantify change over time relies on finding sufficient absolute numbers of health service events before, during and after Supporting People intervention, to test whether those changes are statistically significant.
- 2.74 In order to assess whether sufficient numbers of health service events could be identified, the proportion of recipients who had no recorded GP events were analysed for 12 months before and after the Supporting People start date.
- 2.75 Initial, exploratory analysis was also undertaken in order to identify any patterns in the use of Supporting People services, e.g. relating to the level and duration of support, that needed to be considered when completing the analysis of the impact indicators. This analysis included an attempt to identify the proportion of 'out of area' cases, which was of specific interest to the Research and Evaluation Steering Group.
- 2.76 Please see Chapter 6 for the findings of the exploratory analysis.

Analysis of the impact of Supporting People on Health Service Use

- 2.77 The Supporting People Programme was developed with the expectation that the support offered would help to prevent homelessness, and also help people maintain their independence and continue to live in their own home rather than enter long-term care. As a result of this primary purpose the Programme also expects to reduce the demand on the NHS and other services.
- 2.78 A challenge for the Feasibility Study was to try to understand what the pattern of health service use might be expected to look like over time. It was theorised that the pattern of health service use might be affected by a variety of factors, including the fact that an increase in health service use following the Supporting People start date may be a positive impact, given that some health conditions may have gone untreated during more chaotic periods of people's lives.
- 2.79 Areas where the expectations were clearer were that the presence of a Supporting People intervention should lead to:
- more appropriate engagement with primary care rather than ad hoc use of emergency 'blue light' services; and
 - fewer reasons for using health services that might be associated with the more chaotic and risky lifestyles that may result in individuals being at risk of homelessness.

- 2.80 Using Supporting People administrative data from those Local Authorities able to participate in the Feasibility Study, a small number of key indicators of health service use were analysed. Please see Chapter 3 for a discussion of the selection of impact indicators.
- 2.81 Due to the limited timescale available for the Feasibility Study, only a relatively simple provisional analysis of the data could be completed, reporting the numbers of health events observed per service user before and after support was provided by Supporting People. More complex kinds of analysis could be undertaken as part of a full quantitative evaluation.
- 2.82 In discussion with the Research and Evaluation Steering Group, it was decided that the Feasibility Study should examine health service use over a period of two years; this included the period before recipients began receiving support and the period after the Supporting People intervention. In order to give an indication of the possible impact of Supporting People on health service use, findings were analysed for the 30-day periods 12 months before, 6 months before, 3, 2 and 1 months before, 1, 2 and 3 months after, 6 months after and 12 months after recipients began receiving support.
- 2.83 Small numbers of recipients or health service events were a problem for the Feasibility Study, where it was necessary to analyse the data for each of the two participating Local Authorities separately. Small numbers are suppressed and cannot be reported due to the risk of disclosure. Small numbers would be less of a problem for a full quantitative evaluation, where datasets for more than one Local Authority could, where appropriate, be combined for analysis purposes.
- 2.84 Given that the Welsh Government was interested in quantifying the contribution Supporting People makes to the prevention of homelessness, it was considered essential to try to answer the question of whether Supporting People is 'making a difference' – i.e. how Supporting People recipients differ from people who are similar but who have not experienced an Supporting People intervention in terms of the outcomes that Supporting People is theorised to influence. In order to gather the most credible evidence about whether Supporting People is making a difference in the lives of its recipients, the study needed to make recommendations on the feasibility of constructing a control group⁶. The Feasibility Study has proposed a number of potential control groups that could be used in order to demonstrate that any patterns found in the data could potentially be attributed to Supporting People. For further discussion about the potential to create a robust control group, please see Chapter 8. .
- 2.85 For the Feasibility Study, the complex analysis necessary to show the margin of error around all rates of health service use is not shown. For further discussion of the margin of error, including examples of analysis conducted showing the margin of error, please see Appendix F. However, it should be noted that the example margins of error are presented only to allow an

⁶ A control group is composed of individuals who do not receive an intervention. They are selected to closely resemble the individuals who do receive the intervention. The analysis compares the intervention group to the control group to determine whether the intervention had an effect. By serving as a comparison group, the analysis can isolate the impact the intervention had.

assessment to be made of whether any change over time is statistically significant. The numbers of events in themselves are not subject to a margin of error because they are based on a census of cases and not a survey sample. The margins of error shown in Appendix E are relatively wide due to the small numbers of cases available for analysis. Small numbers would be less of a problem for a full quantitative evaluation. With greater numbers of recipients, margins of error would become correspondingly narrower and it would be possible to make more robust judgements about whether changes over time are significant. It would also be possible to make more robust assessments of whether there are significant differences in patterns between Supporting People recipients and control or comparison groups. However, for the Feasibility Study, where numbers are small, findings where a consistent effect or trend over time is observed are nevertheless worthy of note and suggest some association between the support provided by Supporting People and levels of health service use.

- 2.86 This study makes use of data linked between two complex administrative sources (Supporting People routine administrative data and routine health records). The methods of analysis and data linkage used in this Feasibility Study were both innovative and exploratory. We have confidence in the results for the two local authority areas involved but a full data linking evaluation study is required before the findings can be generalised to all local authority areas and before we can conclude the extent to which observed patterns can be attributed to the Supporting People programme alone. For further discussion of the limitations to both the Supporting People routine administrative data and the analysis, please see Chapter 4.
- 2.87 With regard to the data on health service use, a number of challenges arose. As noted above, the routine health records are not designed for research purposes and so are not 'research ready'. When developing indicators using large, complex administrative datasets, time and resources can be required to manage the complexity, for example:
- examining large numbers of potential indicators to identify the best proxy for each impact indicator or user group where numerous diagnosis codes exist for each health condition and prescribing is not necessarily easily connected to a specific diagnosis;
 - to refine the definition to be applied, e.g. where conditions included under a definition of mental health as developed for one purpose may not be appropriate for an impact indicator for Supporting People;
 - narrowing GP Event data down in order to create a single overarching indicator of the use of GP Services. It is not possible in SAIL to distinguish what kind of interaction e.g. a face to face visit to a GP, test carried out by a practice nurse, printing of a repeat prescription etc., generated a particular record. The date of each 'event' is recorded. Each single piece of information recorded in primary care creates a record, so two prescriptions and a blood pressure reading, for example, would create three records for a patient on the same day. The simplest way to reduce this complexity within the limited timescale of the Feasibility Study was to report the 'number of days on which GP events occurred'. Further, more detailed work would be

required to establish what the ideal indicators might be for a full evaluation study;

- to identify and/or develop methods to manage issues around severity and duration of health conditions – although simple numbers of e.g. hospital admissions of &E visits were analysed for the Feasibility Study, if a full evaluation study were to proceed, it would be important to identify ways to reflect the severity and duration of the relevant conditions and the duration of the resulting healthcare; and
- to take into account the fact that the data tends to be longitudinal in nature – as noted above, for the Feasibility Study, relatively simple analysis was completed looking at events in the period 12 months before and 12 months after Supporting People support began.

If a full evaluation project proceeds, it is recommended that further thought be given to the selection of indicators of the impact of Supporting People on health service use.

- 2.88 Even at the Feasibility stage, it was recognised that the overall numbers of observed health service events were only a part of the picture. The Research and Evaluation Steering Group wished to examine whether, irrespective of whether the level of health service use changed, the reasons for health service use changed. This would give an indication of whether health service use became more appropriate – or simply associated with less ‘crisis-related’ conditions – after support began. Because the methods were being developed as the Feasibility Study progressed, and the complexity of the routine health records in SAIL meant that the development of each method was extremely time-consuming, different methods of examining the reasons for health service use are presented in Chapter 7 for different indicators of health service use.
- 2.89 Initial thoughts were that a comparison of the reasons for health service use between Supporting People recipients and the general population would be informative. Even this analysis was complex to achieve and examples of this analysis are shown in Chapter 7. However, upon examining these findings, it was decided that comparing the reasons for accessing different health services before and after receiving Supporting People support would be the most helpful analysis to complete. In completing this analysis, the complexity of the health data was a challenge, since, as noted above, for many health conditions there is no single diagnosis code an prescribing is recorded at the level of the specific item prescribed and not at the level of a class or purpose of drug. The analysis presented for the Feasibility Study is therefore limited to presenting the diagnosis codes and prescribing codes that increased or decreased the most after support began. If a full evaluation study proceeds, it is recommended that further development work is done to design methods to create more meaningful indicators by aggregating diagnosis or prescribing codes to more meaningful levels e.g. to be able to report the prescribing of ‘antidepressants’ rather than of individual anti-depressant drugs.
- 2.90 However, only by comparing the findings for the Supporting People recipients to a suitable control group can we be sure to attribute any changes in health service use to Supporting People. The creation of control groups is discussed in the next section.

The Feasibility of Creating a Control Group

2.91 As discussed in more detail in the HM Treasury Magenta Book⁷:

“Good impact evaluations attempt to control for all the other factors that could generate an observed outcome. In other words, they attempt to estimate the counterfactual. ... However, the importance of controlling for these other factors depends on how many there are and how likely they are to affect the (outcome) of interest. ... If the relationship between the policy and the desired outcome is a simple and direct one, there might be few intervening factors and the need to take account of them by estimating the counterfactual with some form of control group might be slight. ... However, if the relationship is complex,” (as it is in the case of Supporting People,) *“and numerous factors potentially affect the outcomes of interest, a more formal attempt to estimate the counterfactual is necessary.”*

2.92 Given that the Welsh Government was interested in quantifying the contribution Supporting People makes to the prevention of homelessness, it was considered essential to try to answer the question of whether Supporting People is ‘making a difference’ – i.e. how Supporting People recipients differ from people who are similar but who have not experienced an Supporting People intervention in terms of the outcomes that Supporting People is theorised to influence. In order to gather the most credible evidence about whether Supporting People is making a difference in the lives of its service users, the study needed to make recommendations on the feasibility of constructing a control group.

2.93 As noted above, data linking has the potential to allow the construction of a control group both anonymously and virtually, without the need to find the relevant individuals in the real world. However, the task is not a simple one, since the control group must, ideally, be as similar as possible to the group that received the intervention or the validity of the comparison would be significantly reduced. Whether it would be possible to construct a control group would therefore rely strongly on the availability of relevant data.

2.94 It should also be noted that various statistical phenomena, including ‘regression to the mean’ are relevant to the development of controls for the investigation of the impact of Supporting People on health service use. ‘Regression to the mean’ is where the health service use of recipients may reduce over time even without the presence of an intervention because they are the individuals whose crises were sufficiently severe as to lead them to seek support in the first place; on average, then, their level of health service use may therefore fall, whether they receive active support or not.

2.95 Further, if there is a limited pool of people at risk of homelessness and the higher risk individuals are the first ones removed from that pool by being provided with support, the individuals who remain to be selected for support would become less high risk over time. This would lead to an over-estimation of the reduction in health service use for the population of Supporting People recipients over time.

⁷ The Magenta Book is the HM Treasury guidance on what to consider when designing an evaluation. Please see: <https://www.gov.uk/government/publications/the-magenta-book>

2.96 For a brief discussion of how control or comparison groups might be created for a full evaluation study and for the findings of some initial exploratory analysis to help appraise the options for the construction of a control group, please see Chapter 8.

The Potential to Deliver a Cost Offset Model

2.97 As noted in Chapter 1, the Supporting People Programme is designed to prevent problems in the first place or to provide help as early as possible in order to reduce demand on other services such as health and social services. A key requirement for any quantitative evaluation of Supporting People would therefore be to assess whether the demand on other services is reduced in the period after the provision of Supporting People services.

2.98 In England and Northern Ireland, a tool developed by Capgemini has proven useful in showing the financial savings made by Supporting People and housing support services both in England as a whole and in the regions and Local Authorities across England⁸. Some Local Authorities in Wales already use the Capgemini tool, demonstrating that it would be feasible to use the tool in Wales. The questions for this Study were:

- whether a similar tool could be created for Wales using linked data; and
- whether the use of linked administrative data would allow improved cost offsetting estimates to be provided.

2.99 The Study made a brief examination of the data requirements for the Capgemini tool, assessed the extent to which a similar tool could potentially be built into SAIL and made an initial assessment of the extent to which the use of linked routine administrative data might improve the accuracy of the resulting cost offsetting estimates. Please see Chapter 9 for the findings with regard to the feasibility of delivering a Cost Offset Model.

⁸ See <http://www.sitra.org/policy-good-practice/supporting-people/valuing-supporting-people-use-of-the-capgemini-tool/>

3 Literature Review

- 3.1 The purpose of this Project is to contribute to the evaluation of Supporting People by providing statistical evidence for the effectiveness of the policy. The Supporting People Programme has the prevention of homelessness at its core and contributes to meeting the aims of the Welsh Government's Ten Year Homelessness Plan 2009-2019 (Welsh Government, 2009).
- 3.2 The first step in evaluating the policy is to identify the outputs, outcomes and impacts that are expected if the policy is implemented successfully. The Supporting People Programme was developed with the expectation that the support offered would help to prevent homelessness, and also help people maintain their independence and continue to live in their own home rather than enter long term care. As a result of this primary purpose the Programme also expects to reduce the demand on the NHS and other services. Although Supporting People services were developed with these broad expectations, the development of a more detailed set of impact indicators was required in order to underpin the evaluation.
- 3.3 Currently, Supporting People recipients are grouped by their lead support needs. Typically this is the same as the service people accessing Supporting People services are referred into. However, many individuals will present with multiple support needs and these will be recorded as secondary or tertiary needs where appropriate. For example, individuals with learning disabilities support needs, individuals with mental health support needs, those experiencing domestic abuse with support needs, individuals with substance misuse support needs, and older people requiring long-term residential services. A vast research literature exists on vulnerable homeless populations and due to the heterogeneous nature of the experience of individuals at risk of homelessness e.g. in terms of their past experiences, their reasons for being at risk of homelessness, their mental and physical health and their level of social exclusion (Hodgson, Shelton & van den Bree, 2015; Savelsberg & Martin-Giles, 2008), studies are often focused on specific sub-groups within the broader group of those at risk of homelessness, for example 'young homeless individuals with psychopathology' (Hodgson, Shelton & van den Bree, 2015).
- 3.4 It was beyond the scope of this project to perform a systematic review for each of the nineteen Supporting People recipient sub-groups. Instead, this 'rapid evidence assessment' (REA) focuses specifically on the current evidence base for the triggers of homelessness, on homelessness prevention and on the benefits of housing-related support for homeless individuals or those at risk of homelessness. The REA also sought to identify any existing evaluations of housing-related support in order to inform the methodology for this Study.

Defining homelessness

- 3.5 In order to deliver an analysis of a homelessness prevention programme, it is necessary first to define 'homelessness'. The 'meaning of homeless and threatened homelessness' provided in the Housing (Wales) Act 2014 is as follows:

- (1) A person is homeless if there is no accommodation available for the person's occupation, in the United Kingdom or elsewhere, which the person—
 - (a) is entitled to occupy by virtue of an interest in it or by virtue of an order of a court,
 - (b) has an express or implied license to occupy, or
 - (c) occupies as a residence by virtue of any enactment or rule of law giving the person the right to remain in occupation or restricting the right of another person to recover possession.
- (2) A person is also homeless if the person has accommodation but—
 - (d) cannot secure entry to it, or
 - (e) it consists of a moveable structure, vehicle or vessel designed or adapted for human habitation and there is no place where the person is entitled or permitted both to place it and to reside in it.
- (3) A person is not to be treated as having accommodation unless it is accommodation which it would be reasonable for the person to continue to occupy.
- (4) A person is threatened with homelessness if it is likely that the person will become homeless within 56 days.

3.6 In 2009, at the United Nations Economic Commission for Europe Conference of European Statisticians (CES), held in Geneva, defined homelessness as falling into two broad groups:⁹

(a) Primary homelessness (or rooflessness). This category includes persons living in the streets without a shelter that would fall within the scope of living quarters;

(b) Secondary homelessness. This category may include persons with no place of usual residence who move frequently between various types of accommodations (including dwellings, shelters and institutions for the homeless or other living quarters). This category includes persons living in private dwellings but reporting 'no usual address' on their census form.

The CES acknowledges that the above approach does not provide a full definition of the 'homeless'.

3.7 Article 25 of the Universal Declaration of Human Rights, adopted 10 December 1948 by the UN General Assembly, contains the following text regarding housing and quality of living:

“Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of

⁹ United Nations, ["Enumeration of Homeless People"](#), United Nations Economic and Social Council, 18 August 2009; Economic Commission for Europe Conference of European Statisticians, Group of Experts on Population and Housing Censuses, Twelfth Meeting, Geneva, 28–30 October 2009.

unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.”¹⁰

- 3.8 Legal definitions of homelessness are important because Local Authorities have a legal duty to help certain people if they ask for help when they are homeless or threatened with homelessness. However, the definition below, offered by Fitzpatrick et al. 2000, Anderson and Christian, 2003 (p.106), provides a description of the kinds of situations in which a person might need support in order to prevent homelessness:

“The following list of circumstances could all be considered as homelessness: rooflessness (i.e. street homelessness or ‘rough sleeping’); living in emergency/temporary accommodation for homeless people; living long-term in institutions because no other accommodation is available; bed and breakfast or similar accommodation unsuitable for long-term residence; informal/insecure/impermanent accommodation with friends or squatting; intolerable physical conditions, including overcrowding; and, involuntary sharing (e.g. abusive relationships)”

- 3.9 According to the homelessness charity Crisis, a home is not just a physical space: it also provides roots, identity, security, a sense of belonging and a place of emotional wellbeing¹¹. Homelessness can also cover a wide range of situations from rough sleeping to ‘hidden’ types of homelessness where people live in hostels, squats, bed and breakfast accommodation or stay with friends or family. Given the range of circumstances in which a risk of homelessness can arise, homelessness is a complex area to research.

The Challenges of Researching the Topic of Homelessness and of Evaluating Homelessness Prevention Interventions

- 3.10 There are a number of challenges associated with researching homelessness. The homeless population is often transient and may be leading chaotic lives, which makes it challenging to carry out longitudinal research following the same individuals over time (Hodgson, Shelton & van den Bree, 2015). Homeless individuals also tend to have complex and varying needs, making it difficult to group all homeless people together.
- 3.11 There are also many interacting factors that may be experienced on different levels for different individuals; for example, mental health issues, drug and alcohol problems and family breakdown (Carter, 2015). Carter (2015) points out that it is unlikely that a ‘one-size fits all’ model is an effective approach to homelessness prevention interventions and Housing+ Cymru (2001) further emphasised the need for support to be individualised on a case by case basis.
- 3.12 The impacts interventions will be expected to have will also differ depending on the homelessness sub-group. This must be taken into account when attempting an evaluation of the effectiveness of housing support.
- 3.13 Many individual characteristics and circumstances both lead to, and are perpetuated by, homelessness. Drug and alcohol addiction, and offending, are examples of where causal and symptomatic effects can be difficult to separate. (DCLG 2012)

¹⁰ <http://www.un.org/en/universal-declaration-human-rights/index.html>

¹¹ <http://www.crisis.org.uk/pages/-about-homelessness-61900.html>

- 3.14 These challenges also impede the development and evaluation of homelessness interventions. Randomised control trials (RCTs) are rare as it is unethical to knowingly withhold support to vulnerable people in need. For example, in a Cochrane review on the effectiveness of supported housing schemes for people with mental disorders, Chilvers (2010) sought to compare supported housing schemes with outreach support schemes or 'standard care' for people with severe mental disorder/s living in the community. They did not identify any studies where randomised trials had been completed and noted that 'many ... initiatives are based on informal reports of effectiveness'.
- 3.15 The Supporting People Programme covers a wide range of housing-related services (both low and high level support); it is therefore challenging to find evaluations undertaken elsewhere that are truly similar. There is a wide range of potential combinations of 'lead need' along with the type and level of support individuals receive through the Supporting People Programme. For example, groups may include young people with mental health issues receiving floating support, older people receiving alarm services, and individuals experiencing domestic abuse receiving sheltered accommodation. Within the limited time scale of this Feasibility Study, it was not possible to cover the full range of existing evidence on all of these subgroups and all of the related homelessness interventions in depth.
- 3.16 As a result of the issues raised above, little evidence about similar evaluations was found to directly inform the methods of this Study.
- 3.17 However, as discussed in Chapter 2, data linking can address some of the challenges identified above. Utilising existing routine administrative data makes it possible to track a homeless individual over time and alleviates the risk of low follow-up rates. Another potential advantage of data linking over other research methods is that it reduces the costs associated with data collection, since collecting baseline and follow-up information using self-reported methods can be costly. Routinely collected data may also carry less of a risk of bias as opposed to data collected with a particular project or research question in mind, since once an individual has been identified in the data, they can be followed up long term at no additional cost.
- 3.18 This Project is one component of a wider research programme already underway to evaluate different aspects of Supporting People, including management charges and services provided to older people (yet to be published). A mixed methods approach is recommended if a full evaluation proceeds, including a qualitative component that focuses on the experiences of recipients. The use of linked administrative data may be the only practical way to collect robust data and to deliver a robust quantitative analysis of the impact of Supporting People on such a mobile, vulnerable and hard-to-reach population.

Homelessness risk factors and triggers

- 3.19 Current evidence suggests that homelessness can be caused by a multitude of social, individual and/or economic factors. However, establishing which factors are most significant to a specific group of homeless individuals is very challenging (Harding, Irving & Whowell, 2011). Identifying general risk factors

associated with homelessness is nonetheless beneficial as it provides evidence for preventative work (Fitzpatrick et al., 2000).

- 3.20 Research by Harding et al. (2011) suggests that there are two distinct pathways into homelessness; a 'life events' and a 'life-long' pathway. The 'life events' pathway to homelessness is typically characterised by difficult life events such as eviction, bereavement or relationship breakdown and the life-long pathway is characterised by childhood disadvantage. Harding et al (2011) acknowledged that not every homeless individual in their study fitted exclusively into just one of these groups; however, the pathways provided a useful foundation to examine the self-reported experiences of homeless people. Understanding the pathways to homelessness also serves in informing the approach of targeted prevention interventions for at-risk groups (Fitzpatrick et al., 2000).
- 3.21 The research literature suggests that a number of specific events, or 'crisis points', can trigger homelessness, and particularly rough sleeping (Fitzpatrick, 2000). These include: leaving the parental home after arguments; marital or relationship breakdown; widowhood; discharge from the armed forces; leaving care; leaving prison; worsening in general health, worsening in mental health status or an increase in alcohol or drug misuse; a financial crisis or increasing debts; eviction from a rented or owned home and losing residency of children (Anderson, 2001; Fitzpatrick, 2000; Anderson, Kemp & Quilgars, 1993; Evans, 1996).
- 3.22 Fitzpatrick (2005) notes that no single trigger is 'necessary' or 'sufficient' for homelessness to occur. This may be due to the complex interaction of multiple factors but also the multitude of different problems experienced by homelessness individuals. For example, Kemp, Neil and Robertson (2006) found evidence to suggest that movements into homelessness among problem drug users were associated with recently losing residency of children, other recent family problems and deteriorating general health. Likewise, movements out of homelessness were associated with not having recent family problems.

The prevention of homelessness

- 3.23 Homelessness reviews emphasise the need for research, interventions and policies to focus on the prevention of homelessness (for example, Carter, 2015; Mackie et al., 2012; McDonagh, 2011; Fitzpatrick, Kemp & Klinker, 2000). Prevention strategies are argued to be most effective if targeted at individuals who are at the greatest risk, and especially during the time where they face potential 'trigger' points (Fitzpatrick, Kemp & Klinker, 2000; Randall and Brown, 1999; Lindblom, 1991).
- 3.24 Research has demonstrated that homelessness prevention is more cost effective than tackling the effects of homelessness (Pawson, Netto, Jones, Wager, Fancy & Lomax, 2007). Mackie (2014) argues that the shift in focus towards prevention in homelessness policy has resulted in proven benefits to society and to individuals at risk of homelessness. As noted above, the Housing (Wales) Act 2014 contains legislative changes putting the focus very firmly on homelessness prevention in Wales and the duty on Local Authorities to support those facing homelessness (within 56 days).

- 3.25 The Public Policy Institute for Wales (PPIW) recently conducted a rapid evidence review for the Welsh Government with the aim of understanding existing evidence on homelessness and identifying areas requiring further research (Carter, 2015). Carter (2015) emphasised the importance of monitoring and evaluating interventions and recommends that the Welsh Government could benefit from collecting individual level data on cases of homelessness. In their 2012 paper, Mackie et al. point out that the homelessness data collection in Wales is limited and does not lend itself to robust quantitative evaluation. The Housing (Wales) Act 2014 will lead to improvements in the homelessness data collection in Wales, although the data will still not be collected by Welsh Government at the individual level. However, acquiring individual level routine administrative data from Local Authorities is a potential avenue for an evaluation of the Supporting People Programme, which may provide an insight into the bigger picture of homelessness in Wales.
- 3.26 The Supporting People Programme aims to assist in preventing homelessness by supporting vulnerable people to maximise, maintain and sustain their independence and live independently in the community through the provision of a range of housing related support services. Support services are client lead and support provided is in negotiation and agreement with the recipient. Some examples of support provided through these housing related support services may include:
- Assistance to access accommodation (e.g. completing housing application forms, liaising with Housing Options Teams, liaising with Private and Social Landlords)
 - Help and understanding complying with the terms of a tenancy
 - Resettlement and move on advice
 - Signposting, referring and liaison with other agencies
 - Acquiring, developing and maintaining life skills
 - Help with correspondence
 - Identifying and applying for benefits
 - Support with bill paying, arranging direct debits and assistance with budgeting and financial matters
 - Support to access education, training and employment
- 3.27 Vulnerable people in need of support are likely to approach a range of services and therefore linking data from a number of different sources is likely to be an effective research method. Data linking can also have limitations where data may not be available for all relevant services, e.g. where data from some third sector organisations may not be available.

Health and homelessness

- 3.28 Research demonstrates that homeless populations experience high levels of, often co-existing, physical and mental health problems, as well as relatively high rates of premature mortality (McDonagh, 2011; Welsh Government, 2003; Pleace and Quilgars, 1997). Bines (1994) found evidence suggesting that there is a high incidence of conditions such as chronic chest or breathing problems, headaches, skin complaints such as wounds and ulcers among the homeless population when compared with the general population, with musculoskeletal

problems and sight problems being a particular problem for rough sleepers. The homeless population also have high levels of tuberculosis, hepatitis C virus, and HIV (Beijer, Wolf and Fazel, 2012). The high prevalence of mental health problems in the homeless population is also well documented (Welsh Government, 2003).

- 3.29 Stephens (2002) points out that poor mental and physical health, risk-taking behaviour, self-neglect, self-harm and suicide are common among the young homeless population. Sexual risk behaviour is also common, which, in turn, is associated with outcomes such as sexually transmitted infections, unplanned pregnancy and the potential for abuse or exploitation (Stephens, 2002)
- 3.30 Research by Stephens (2002) suggests that young homeless people are more likely to be the victims of crime rather than the perpetrators, in part, because of the vulnerability and dangers of street living. The study by Stephens also explores the role of social exclusion in homelessness which can lead to high levels of need amongst the young homeless population.

Health service use among the homeless population

- 3.31 A review carried out in 2003 for the Welsh Government identified barriers to appropriate health service use among the homeless population such as stigma and social exclusion (Welsh Government, 2003). The review illustrated the complex nature of medical conditions in homeless individuals, as well the barriers that often prevent homeless individuals from accessing effective medical care, such as discrimination, fear or experience of judgemental attitudes from staff and inflexibility of services. The literature identifies evidence for some specific barriers to accessing NHS services for rough sleepers. Rough sleepers face a number of barriers to accessing healthcare including, again, discrimination from health professionals, and negative perception of health services, a lack of knowledge of services, fear of stigmatisation and neglecting health as a form of self-harm (NHS Hammersmith, 2012).
- 3.32 Although the above review implies that homeless individuals encounter barriers when seeking medical care, research by Victor (1992) suggests that utilisation of GP services, A&E departments, and inpatient hospital treatment are higher in the homeless population than in the general population (Victor, 1992). Little and Watson (1996) found evidence to suggest that homeless individuals may use A&E as a substitute for primary care. They also found that alcohol was frequently a factor which appeared to contribute to A&E usage among homeless individuals.
- 3.33 In a Department of the Environment, Transport and the Regions (DETR) survey, Anderson et al. (1993) found that the vast majority of single homeless people in England were registered with a GP or knew of a GP they could go to if they felt unwell. However, North, Moore and Owens (1996) found that only 30% of homeless individuals accessing Accident and Emergency (A&E) departments were registered with GPs, as compared with 97% of the general population.
- 3.34 Homelessness individuals represent a group with a high demand on acute NHS services (Three Boroughs Homelessness Team, 2008; Department of Health 2010). A review by NHS Hammersmith (2013) found that rough sleepers use more secondary health services compared to the general population.

Furthermore, in a North American study, Hwang et al. (2013) found that, within a system of universal health insurance, homeless individuals had significantly higher rates of health service utilisation compared with a control group consisting of age and gender matched, low-income individuals from the general population, with particularly high emergency department and inpatient hospital use for homeless individuals.

- 3.35 There are a number of factors which explain high rates of health service utilisation in homeless individuals. A study by Gelberg, Anderson & Leake (2000), suggests that homeless individuals are a vulnerable population with a greater need for health services due to high levels of acute and chronic health conditions, high burden of disease, poor disease management and the effects of social exclusion. Particularly high rates of emergency care service utilisation may result from barriers such as lack of knowledge of where to seek health care, lack of transport, cognitive impairment and perceived discrimination (Hwang et al., 2013). In a U.S. study, Rodriguez et al. (2009) also found that homeless individuals often access emergency health services for food, shelter and safety.
- 3.36 Gray and Pleace (2012) evaluated the effectiveness of floating support in Northern Ireland. In a survey administered to Supporting People floating support service providers, respondents felt the strongest impacts of floating support services were on 'enabling users to live in ordinary housing' (100% of respondents described the impact as 'large'), 'increasing social inclusion' (88%), 'improving users' health' (82%), 'reconnecting with friends/family/wider social networks' and 'prevention of tenancy breakdown' (both 6%) and 'accessing/obtaining tenancy' (71%). Overall, 55% of recipients reported that their floating support services had a large impact on preventing hospital re-admission.
- 3.37 Fitzpatrick et al. (2011) conducted a rapid review examining evidence on health interventions aimed at improving the health of homeless individuals. They concluded that health and social policies that incorporate the provision of housing as an intervention can improve health as well as housing status. The research also suggests that housing interventions can increase utilization of health care services for chronically ill homeless populations (Fitzpatrick, et al. 2011).

Preventing avoidable hospital and A&E attendances

- 3.38 Welsh Government assumed that the Supporting People Programme could prevent avoidable/unnecessary hospital admissions and A&E attendances to some extent by alleviating the problems faced by Supporting People users when they are referred to the programme. The time of referral most likely represents a time of crisis for Supporting People users and intervening here with housing-related support could potentially prevent the escalation of issues which homeless individuals often face and which, in turn, could prevent avoidable/unnecessary hospital and A&E attendances.
- 3.39 There appears to be a lack of evidence around the patterns of health service use in homeless individuals, or individuals facing homelessness, before and after a homelessness intervention. McDonagh (2011) found evidence that 'visible' forms of homelessness, such as the use of hostels or applying to the

council to register as homeless often happen after contact with non-housing agencies like social services, mental health services, drug agencies and the criminal justice system.

- 3.40 With this in mind, although empirical evidence is lacking, it could be theorised that Supporting People users may have episodes of contact with health services immediately prior to Supporting People referral; the nature of this contact would also be a vital factor in exploring patterns of health service use. Although not directly comparable to Supporting People in terms of the intervention studied, Mayhew (2009) used a trend analysis of pre- and post-service use in the evaluation of an Integrated Care Co-ordination Service (ICCS). ICCS is a care co-ordination system aiming to allow over 65's to remain at home and prevent unnecessary hospital admissions and A&E visits by co-ordinating a number of interventions tailored to individual needs, including odd jobs around the home, assistance with moving into more appropriate accommodation, financial advice, or referrals to health and social care providers. Mayhew (2009) found that average hospital admissions and A&E visits per client per month increased in the months preceding referral and showed a gradual decline in the months after referral. ICCS was also found to be associated with reduced bed days and A&E attendances post referral; however, it was not possible to use a control group for ethical reasons so it is not certain whether the changes in service use would have occurred anyway due to other factors.
- 3.41 The theory is that a similar pattern of service use may be observed in Supporting People recipients. In other words, health service use may increase immediately before and during a crisis and, if the correct support is offered (through Supporting People), emergency or crisis health service use will gradually decline and plateau.
- 3.42 Data linking is an invaluable resource which would enable further investigation of the pattern of health service use in Supporting People recipient journeys. As the research in the above section on health and homelessness suggests, it is plausible to also theorise that Supporting People recipients will show high utilisation of health services, especially A&E, in the months prior to Supporting People referral. As the Supporting People Programme aims to help recipients to access appropriate healthcare, a decrease in A&E attendances and an increase in primary care (GP) services could be indicative of the effectiveness of the support they received through Supporting People.
- 3.43 Although this REA sought to identify studies looking at whether individuals moved from high-cost, crisis-related services (e.g. A&E) to a more routine health condition management orientated system (i.e. primary care), using the limited search terms included for the Feasibility Study and within the limited timescales available, no evidence was found. It is recommended that this area is one where further examination of the literature should be made if a full evaluation proceeds.

The additional cost to public services of homelessness

- 3.44 Although for the Feasibility Study the additional cost to the NHS was the main focus, given the availability of data for analysis on health service use. However, it should be noted that there is evidence of an additional cost for a much wider range of services associated with homelessness, including to DWP, the Ministry of Justice and to Local Authorities (DCLG, 2012). Given the limited timescale at the Feasibility Stage, the REA focussed on reviewing the specific evidence about the use of health services.
- 3.45 Homelessness is costly for the NHS, especially for rough sleepers who have significantly higher levels of health needs (NHS Hammersmith, 2013). However, it is difficult to pinpoint the costs of homelessness due to the complex combinations of causal risk factors and triggers and also consequence of being homeless; so, while there are costs of supporting somebody with multiple needs whether they are homeless or not, being homeless adds to these costs through consequential effects (DCLG, 2012).
- 3.46 A range of studies have evidenced the increased cost on the health service associated with homelessness. A report by the Royal College of Physicians noted that poor health could be both a cause and a consequence of homelessness (RCP, 1994). Expert opinion summarised by DCLG (2012) suggests that perhaps the majority (circa two-thirds) of serious chronic health problems amongst homeless people pre-exist before the person becomes homeless (and may be a part of the cause of the transition to homelessness), although will often be exacerbated by the person being homeless; this suggests net costs in the order of one third of gross costs.
- 3.47 Maguire et al (2009) suggest that psychological disorders strongly predict homelessness, in particular youth homelessness and rough sleeping. The charity St. Mungo's (2008) found that approximately half of their residents had mental health problems, 32 per cent had an alcohol dependency and 63 per cent had a drugs problem.
- 3.48 DCLG (2012) suggest that health problems, in particular mental health problems, substance misuse and alcohol dependency are more prevalent among the homeless population, especially among rough sleepers with potentially significant costs for health and support services. Unfortunately there is a lack of evidence of the numbers of homeless people who use these services. Case study evidence suggests the costs to the public services of people with multiple needs can be considerable. DCLG (2012) also note that for homelessness, 'the causal and consequential divide is often blurred. This creates significant challenges in identifying the true costs of homelessness, namely the 'counterfactual' which is needed to move from estimating gross costs, to estimating the additional, or net costs, i.e. the costs over and above the costs that would be incurred anyway were those same individuals were living in settled accommodation.
- 3.49 Cost benefit analyses provide evidence that investment in early intervention is likely to save considerable amounts of resources 'throughout the lifetime of someone who has a mental health problem which develops in childhood' (Irvine and Morley, 2001). Mental health problems present challenges in terms of identifying an appropriate response, as problems may present themselves in many different forms, through different precipitating factors, and respond to

different approaches. Analysing the additional cost of homelessness to the NHS is further complicated by the fact that many of the risk factors for mental health problems are also risk factors for homelessness in the young (Wrate and Blair, 1999). Stephens (2002) suggests that a range of additional health risks are associated with the young homeless, with particularly strong evidence for greater mental health needs than for the general population, with 'mental health problems ... eight times as high for people living in hostels and bed and breakfast accommodation and eleven times higher for those whom sleep rough, compared to the general population'.

- 3.50 In the study by Mayhew (2009) mentioned above, the method of evaluation tracks patient attendance at A&E departments and hospital stays 12 months before they are accepted into the care co-ordination service and evaluates the resultant savings in health care activity. It found that the service results in between 14 and 29 saved hospital bed days per client per year and between three and eight A&E attendances.
- 3.51 For the findings with regard to the feasibility of delivering a cost offset model, please see Chapter 7.

Indicators of the impact of Supporting People

- 3.52 As noted in Chapter 2, the project examined the research literature and the policy documentation relating to the Supporting People Programme in order to identify the public services on the use of which Supporting People might be expected to impact. We then reviewed the data available within SAIL in order to propose one or more indicators for each area of public service use.
- 3.53 Although, as noted above, the research evidence is patchy, Welsh Government theorised that the Supporting People Programme may influence a range of wellbeing outcomes. Key outcomes in the Welsh Government Supporting People Outcomes Framework are: Feeling Safe, Contributing to the safety and well-being of themselves and of others, Managing accommodation, Managing relationships, Feeling part of the community, Managing money, Engaging in educational learning, Engaging in employment/voluntary work, Physically healthy, Mentally healthy, Leading a Healthy and Active lifestyle .
- 3.54 Some of these outcomes are subjective and would therefore be difficult to address in a data linking project. However, if a full evaluation proceeds, a qualitative component is recommended in order to explore the more subjective outcomes associated with Supporting People.
- 3.55 For the quantitative component of the evaluation, it is likely that routine administrative data could be obtained from Local Authorities on the support received by individuals through the Supporting People Programme but also, for the same individuals, on their use of social services, housing options and homelessness services. It may also be possible to acquire data from DWP/HMRC in order to examine the impact of Supporting People on employment and economic status.
- 3.56 A number of health datasets already exist in the SAIL databank and, through data linking, it will be possible to identify changes health service use in relation to the provision of Supporting People. Taking into account the data that could be obtained and the data already in SAIL, two areas that were felt to lend themselves to further investigation using data linking, particularly at the

feasibility stage of the project, are the impact Supporting People might have on health service use for both physical and mental health conditions.

- 3.57 In order to evidence the physical and mental health of Supporting People recipients, changes in patterns in the use of health services such as GP visits, hospital appointments and A&E attendances would all be in line with the Supporting People Programme's aim to prevent problems in the first place or to provide help as early as possible in order to reduce demand on such services.
- 3.58 The Feasibility Study aimed to identify what data existed to allow the reporting of indicators of the use of health and other services, both at the feasibility stage and for a full evaluation, in order to provide recommendations for a robust evaluation (for the analysis of the impact indicators chosen for the feasibility stage, please see Chapter 8).

Developing indicators of the impact of Supporting People on health service use

- 3.59 A key requirement for the literature review was to find evidence from the literature about the key service use indicators on which an evaluation of Supporting People should focus. As noted in Chapter 3, to ensure that some substantive analysis of the Supporting People routine administrative data could be delivered within the short timescale for the Feasibility Study, it was clear from the outset that the analysis would need to be constrained to a small number of indicative impact indicators that could be constructed relatively easily using routine health records. Therefore, the following sections report, firstly, on the full range of indicators that might be included in the analysis should a full evaluation proceed and, secondly, on the smaller set of health service use indicators that could be reported at the feasibility stage.

Proposed impact indicators for a full evaluation

- 3.60 From the findings of the REA, the project sought to identify the kinds of broad topic areas where indicators of the impact of Supporting People could be sought. Datasets already in SAIL and datasets that might be acquired should a full evaluation study proceed were reviewed.
- 3.61 Table 3.1 (below), lists the full range of topic areas for which indicators could be developed as part of a full evaluation and the data sets from which they might be derived. For datasets not currently available in SAIL, further work would be required to acquire the data and, once acquired, to develop more detailed impact indicators for analysis.
- 3.62 It should be noted that although SAIL already holds a wide range of health datasets, there are challenges in using the data for analysis purposes, since for many health conditions numerous codes exist in the data, often requiring detailed development work to refine and validate a definition before analysis can begin.

Table 3.1 Proposed impact indicators for a full evaluation

Topic	Impact Indicator	Data Set	Acquisition/Quality Issues
Already Available in SAIL			
Physical health			
Infectious disease e.g. TB, hepatitis	A&E diagnosis/GP event code	Emergency Department Dataset (EDDS)/GP Event Data	EDDS data available in SAIL but further development work required to define indicators. GP Event data available for around 78% of practices – SAIL are working to increase this proportion.
Skin problems			
Respiratory disease/bronchitis			
Diabetes (poor management of)			
Sexually transmitted diseases (STIs) including HIV/aids			
Mental health			
Depression/anxiety	A&E diagnosis/GP event code i.e. antidepressants	EDDS/GP Event Data	Mental health definition already validated and published using datasets available in SAIL GP Event data available for around 78% of practices – SAIL are working to increase this proportion.
Suicidal (feelings or attempt at suicide)	A&E diagnosis	EDDS/GP Event Data	
Self-harm	A&E diagnosis	EDDS	
Schizophrenia/psychosis	A&E diagnosis/GP event code i.e. antipsychotics	EDDS/GP Event Data	
Lifestyle			
Alcohol abuse	A&E diagnosis	EDDS	Data available in SAIL but further development work required to define one or more indicators.
Substance misuse			
Injury from violence			Data available in SAIL but further development work required to define one or more indicators and to separate out specific causes related to violence or crisis.

Topic	Impact Indicator	Data Set	Acquisition/Quality Issues
Not currently available in SAIL but potential to deliver for a full evaluation			
Use of social care services	e.g. levels of service use for Supporting People recipients compared with similar individuals not in receipt of Supporting People	Local Authorities in Wales	Work led by the Welsh Government Data Max Team will seek to acquire data from Local Authorities in Wales.
Use of Local Authority 'Housing Options' services			
Labour force participation	e.g. Proportion in receipt of benefits	DWP/HMRC data	DWP data likely to become available in the short term. HMRC data is likely to require new primary legislation – a Cabinet Office consultation is open at the point of writing to seek feedback on how the government can use data to improve public services for citizens and to improve decision-making. ¹²
Interactions with Criminal Justice/Prison/Probation Service	e.g. Proportion of Supporting People recipients having interactions of various types with the criminal justice system before and after support begins	Police, Ministry of Justice or Home Office data	SAIL projects have already begun negotiations to access criminal justice data. Further work would be required to negotiate access to records for specific individuals and potentially for any comparison groups identified.

¹² <https://www.gov.uk/government/consultations/better-use-of-data-in-government>

Impact Indicators for the Feasibility Study

3.63 As noted above, due to the limited time available at the feasibility stage, a small number of key impact indicators was identified that could be constructed using existing data. The purpose of the analysis for the Feasibility Study was to demonstrate the kinds of findings that might be provided if a full evaluation were to proceed. It was accepted from the beginning that there would be limitations to the robustness of the analysis presented at the Feasibility stage.

3.64 In discussion with the researcher, the Research and Evaluation Steering Group agreed that ideally they would wish to see an analysis of the following for the Feasibility Study:

- the number of days on which GP events occurred¹³;
- the number of A&E visits;
- the number of A&E visits for mental health causes;
- the number of emergency hospital admissions;
- the number of hospital admissions (emergency and elective);
- the number of hospital outpatient appointments.

Each of the above would ideally be examined before and after recipients began receiving support from Supporting People.

3.65 The Research and Evaluation Steering Group were also interest in:

- the proportion of Supporting People recipients resident in the areas served by the Welsh Government Communities First, Families First and Flying Start initiatives; and
- the proportion of Supporting People recipients receiving services outside their Local Authority area.

3.66 In practice, the analysis delivered at the feasibility stage was a subset of the list provided above. The two main reasons for narrowing the focus were a) the limited timescales available; and b) it was decided that it would be more difficult to tie outpatient appointments and elective admissions to the specific time period during which individuals were receiving support from. Supporting People. The three areas analysed at Feasibility Stage were, therefore:

- the number of days on which GP events occurred¹⁴;
- the number of A&E visits; and
- the number of emergency hospital admissions.

3.67 Please see Chapter 7 for the findings of the analysis of the health impact indicators. If a full evaluation proceeds, further work could be done to examine in greater detail the reasons for the use of different kinds of health services and to report impact indicators for the broader range of topics listed in Table 3.1 (above).

¹³ Multiple GP Events will occur on a single day e.g. each drug prescribed or physical measurement e.g. blood pressure, is recorded as a separate event.

¹⁴ As noted above, multiple GP Events will occur on a single day e.g. each drug prescribed or physical measurement e.g. blood pressure, is recorded as a separate event.

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4 Findings: The Acquisition of Supporting People Administrative Data

Key Points

- Information gathered from Local Authorities indicated challenges in terms of data quality and data management e.g. inconsistent, incomplete or incorrect recording, duplicate records and data held in multiple systems.
- Eleven Local Authorities reported that they held individual level Supporting People routine administrative data. Of these:
 - Two Local Authorities (Blaenau Gwent and Swansea) were able to provide data for the Feasibility Study;
 - Four Local Authorities were either in the process of providing data or were exploring the feasibility of providing data but weren't able to deliver the data by the Feasibility Study deadline;
 - Three Local Authorities reported that issues around data protection and fair processing prevented them from sharing the data; and
 - Two Local Authorities declined to provide data for the Feasibility Study due to lack of resources.
- Seven Local Authorities reported that they did not hold routine administrative data for Supporting People recipients at the individual level necessary for data linking. For these Local Authorities, individual-level data was held by providers only and was not collated by Local Authorities.
- Four Local Authorities were either unable to participate or failed to respond when approached for the Feasibility Study so insufficient information was collected about the routine administrative data they held for Supporting People.
- For the seven Local Authorities that did not hold individual-level data, the magnitude of the task of acquiring data directly from providers was scoped by the researcher, showing that data would need to be acquired from between 12 and 27 providers per Local Authority. Options for acquiring data from providers can be explored if a full evaluation proceeds.
- Although challenges exist in terms of acquiring, reconciling and analysing the existing data, indications are that a quantitative evaluation is deliverable, at least for those Local Authorities that hold individual-level data.

- 4.1 This Chapter summarises the process of data acquisition for the routine Supporting People administrative data for the Feasibility Study, including any associated issues around completeness, quality, processing and reconciliation. Lessons are identified for acquisition should a full evaluation proceed and recommendations are made for upstream data collection.
- 4.2 In practice, given the timescales, the Project focussed on acquiring routine administrative data for Supporting People only rather than, in addition, acquiring data to allow the reporting of a broader range of impact indicators e.g. data for housing options and social care. Instead, the Project focussed on delivering analysis for impact indicators for the topic of health, where routine administrative records were already available in SAIL for linking. However, even where additional datasets could not be acquired in time, every effort was made to collect information about the likely challenges of acquiring the data for a full evaluation.
- 4.3 This Chapter reports what was learnt about the data we did collect but also information about the datasets we would like to have acquired for other areas of impact such as housing and social care, including the likelihood of the project being able to acquire the datasets for a full evaluation.

What Supporting People data is held at Local Authority level?

- 4.4 Table 4.1 (below) summarises the progress that was made at Feasibility Stage with regard to acquiring data. Information gathered from Local Authorities indicated challenges in terms of data quality and data management e.g. inconsistent, incomplete or incorrect recording, duplicate records and data held in multiple systems.
- 4.5 Eleven Local Authorities reported that they held individual level Supporting People routine administrative data. Of these:
- two Local Authorities (Blaenau Gwent and Swansea) were able to provide data for the Feasibility Study;
 - four Local Authorities were either in the process of providing data or were exploring the feasibility of providing data but weren't able to deliver the data by the Feasibility Study deadline;
 - three Local Authorities reported that issues around data protection and fair processing prevented them from sharing the data; and
 - two Local Authorities declined to provide data for the Feasibility Study due to lack of resources.
- 4.6 Seven Local Authorities reported that they did not hold routine administrative data for Supporting People recipients at the individual level necessary for data linking. For these Local Authorities, individual-level data was held by providers only and was not collated by Local Authorities.
- 4.7 Four Local Authorities were either unable to participate or failed to respond when approached for the Feasibility Study so insufficient information was collected about the routine administrative data they held for Supporting People.

Table 4.1 Summary of data acquisition progress by Local Authority

Local Authority	Data acquisition progress
Blaenau Gwent and Swansea	Some data acquired for Feasibility Study. Blaenau Gwent data for accommodation-based support for older people to follow if a full evaluation proceeds. Swansea SPRINT data for Tenancy Support Unit to follow if a full evaluation proceeds
Rhondda Cynon Taff and Merthyr Tydfil	Lack of postcodes in data held up acquisition process. Did not wish to share data in the absence of a signed SLA between SAIL and NWIS.
Caerphilly	Did not wish to share data in the absence of a signed SLA between SAIL and NWIS.
Neath Port Talbot	Data too complex and time consuming to acquire for Feasibility Study. There is potential to revisit data acquisition if a full evaluation is commissioned.
Gwynedd, Ceredigion and Denbighshire	Legal issues relating to fair processing notices precluded acquisition of data for Feasibility Study.
Cardiff and Vale of Glamorgan	Declined to provide data for the Feasibility Study due to lack of resources.
Conwy and Newport	The process did not progress sufficiently in time for them to participate in the Feasibility Study. It is still unknown whether the Local Authority holds data at the individual level.
Bridgend, Carmarthenshire, Monmouthshire, Pembrokeshire, Powys, Torfaen and Wrexham	Data not held at the individual level.
Anglesey and Flintshire	Unable to participate/did not respond to Feasibility Study so level of data unknown.

The Challenges of Acquiring Administrative Data for Supporting People Service Users

4.8 Please see Chapter 2 for a summary of the methods used in order to acquire data and metadata from Local Authorities. The following sections summarise the challenges encountered as a result of attempts to acquire Supporting People routine administrative data from Local Authorities.

Legal Barriers and Associated Issues

- 4.9 SAIL follows the data protection guidance provided by the Information Commissioners Office and operates within the Swansea University Data Protection Policy which is in line with all the relevant UK and EU law. The anonymous nature of data held in SAIL is such that it is not governed by the Data Protection Act (DPA). However, Local Authorities are bound by the DPA and a number of Local Authorities who engaged in the project voiced concerns around the legalities of sharing the data. Although it was explained that the data would be anonymised, these Local Authorities were mainly concerned with the sharing of identifiable data with NWIS as part of the anonymisation process.
- 4.10 A key legal issue for Denbighshire, Ceredigion and Gwynedd (for Gwynedd particularly in relation to recipients receiving long-term support) was whether the share was disallowed by their fair processing notices (FPNs). Supporting People recipients were/are presented with data protection/disclosure statements when sharing their data that state the purposes for which their data will be used (see Appendix D for the FPNs of Denbighshire, Ceredigion and Gwynedd Local Authorities). These Local Authorities reported that they were not able to share personal data as Supporting People recipients had not given informed consent for their data to be released for research or evaluation purposes. All of the examples of FPNs collected as part of this project differ slightly from one another and Local Authorities reported that all providers will use different FPNs on their referral forms; therefore, the scale of the problem could potentially be significant if data is sought by the evaluation project directly from providers.
- 4.11 Issues with FPNs may prohibit sharing unless Local Authorities are persuaded to pursue the public good argument available under the DPA. The project team sought legal advice from the UK Administrative Data Service (ADS) as an independent organisation not directly involved in the project. Potentially, where it can be argued that it would involve a disproportionate effort to seek consent for all Supporting People recipients and that the sharing of the data is to the benefit of the greater public good, data can be shared without the explicit consent of individuals. Two factors are relevant to whether data can legally be shared:
- The first issue is whether the data provider (in this case the Local Authority) has the power to share the data according to administrative law.
 - The second issue is whether the data share is legal under the Data Protection Act (DPA).
- 4.12 The general implied power for local authorities in Wales to share data according to administrative law is found in s. 2 of the Local Government Act 2000 (the Localism Act 2011 repeals this only in relation to England – not Wales) which states:

(1) Every local authority are to have power to do anything which they consider is likely to achieve any one or more of the following objects —

- (a) the promotion or improvement of the economic well-being of their area,*
- (b) the promotion or improvement of the social well-being of their area, and*
- (c) the promotion or improvement of the environmental well-being of their area.*

(2) The power under subsection (1) may be exercised in relation to or for the benefit of —

- (a) the whole or any part of a local authority's area, or*
- (b) all or any persons resident or present in a local authority's area.*

4.13 In addition to this power to share, local authorities must also be compliant with the DPA provisions and the Human Rights Act. Data can be shared legally in accordance with the following DPA provisions:

Schedule 2 conditions for the processing of personal data:

2(5) The processing is necessary—

(d) for the exercise of any other functions of a public nature exercised in the public interest by any person.

2(6)(1) The processing is necessary for the purposes of legitimate interests pursued by the data controller or by the third party or parties to whom the data are disclosed, except where the processing is unwarranted in any particular case by reason of prejudice to the rights and freedoms or legitimate interests of the data subject.

Schedule 3 conditions for the processing of sensitive personal data:

3(10) - engaging Sensitive Data Order No 417 (2000):

9. The processing—

(a) is in the substantial public interest;

(b) is necessary for research purposes (which expression shall have the same meaning as in section 33 of the Act);

(c) does not support measures or decisions with respect to any particular data subject otherwise than with the explicit consent of that data subject; and

(d) does not cause, nor is likely to cause, substantial damage or substantial distress to the data subject or any other person.

4.14 The timing of the project was such that a service level agreement (SLA) between NWIS and SAIL was drafted but not yet signed off. Although this issue has not been identified as a barrier to previous SAIL projects, both Caerphilly and Rhondda Cynon Taff sought legal advice on the matter and the preference of both information governance and legal teams was to wait for the SLA to be signed off before they could agree a data disclosure agreement to release the Supporting People data. Both Local Authorities wished to have the activities of both NWIS and SAIL covered in a written agreement for legal reassurance before they were content to proceed with the data share. It is expected that the SLA will be signed by April 2016.

4.15 A significant amount of time was involved in negotiating relevant agreements with Local Authorities. The request generally needed to be passed through various team members including information management, legal teams and the appropriate Information Asset

Owner or other individual who would be required to sign off an agreement. This caused significant delays.

- 4.16 Ideally, a standard Supporting People FPN should be developed across all Welsh Local Authorities to allow for (anonymised) data sharing for the purposes of research and programme evaluation. As a result of the Project, RCT and Caerphilly have been working together to draft a joint data disclosure agreement which, when finished, could be used by other Local Authorities, particularly those with whom they already work closely.
- 4.17 In the longer term, the Implementation of the Social Services and Wellbeing Act and the corresponding development of the Welsh Community Care Information System (WCCIS) will provide the opportunity to develop a standardised social care data set for Wales that could potentially be acquired for SAIL for analysis purposes. The WCCIS replaces DRAIG for the Wales System Consortium (Eight Local Authorities all presently using the same DRAIG IT system for social care data: Anglesey, Gwynedd, Wrexham, Powys, Ceredigion, Bridgend, Blaenau Gwent and Torfaen. The aim of the WCCIS is to support closer working between Local Authorities and NHS organisations through an integrated health and social care system. Whether Supporting People data will be included within this dataset is not known at point of writing, since Supporting People teams for some Local Authorities are located within social care but for other Local Authorities are within housing and the data for Supporting People is separate from both social care and housing.

Consistency and Coverage

- 4.18 From an initial inspection of the column headings and anonymised data extracts provided by participating Local Authorities, it became clear that there was a lack of consistency across Local Authorities in terms of the Supporting People data that was held.
- For all Local Authorities able to provide information to the Feasibility Study, the Supporting People routine administrative data was held in a separate system to the data for other services e.g. social care or housing. The Supporting People routine administrative data was also held in **different IT systems by different Local Authorities** and had been provided from numerous different provider systems so there was inconsistency in content. Systems in use appear in some cases to be unique to Supporting People, for example, Swansea and Caerphilly use IT systems called ILLY and SPRINT. For Swansea, ILLY is an operational prioritisation database covering all Supporting People schemes and SPRINT is a case management system which covers most of the floating support schemes. ILLY contains service codes which indicate E numbers relating to client group (it therefore does not contain the same lead needs seen in the Blaenau Gwent datasets). Even where more than one Local Authority was using the same IT system, there was scope for them to use the system in different ways. In order to provide a complete record, work would therefore be required to collate data across a number of sources e.g. where information about alarm services and/or older people's services may be held elsewhere in the Local Authority system.
 - Some Supporting People data was held in **multiple systems within a single Local Authority** e.g. for some Local Authorities data for alarm services or for older people data was held separately from the main Supporting People data. This would make it more time consuming to extract and collate this data into a usable format.

- Reports for ILLY and SPRINT are run on a yearly basis which means that when the data comes into SAIL it is in multiple files with **duplicate records** over each year. Duplicate records also appeared in the Blaenau Gwent floating support dataset – these had the same support start and end date, most differing on ‘referred by’, provider, ‘lead need’ or ‘secondary need’. Some duplication was unavoidable e.g. where recipients had received services from more than one provider or appeared in more than one year of data. However, there were cases where, for example, the same recipient was recorded with a different ethnic origin or a different gender in different records. One advantage of duplication is that where duplicate records hold different information, for example where the recipient has lived at different addresses over time, we may have more than one chance to link an individual. For more detailed discussion of duplicate records and the implications for analysis, please see Chapter 5.
- There was some **inconsistency between Local Authorities in terms of the information that was collected from providers** by Local Authorities: for example, Caerphilly included one column for ‘lead need’, Blaenau Gwent included ‘main need’ and ‘secondary need’, RCT included ‘lead need’ and ‘other need’ in one, older database while in new database (introduced in 2013) they included ‘lead need’ and four columns for ‘additional need’; Merthyr had ‘lead need’ and five columns for ‘additional need’, whilst ILLY data from Swansea has client E groups.
- There were also known **gaps in electronic records**, since Local Authorities reported that some providers only held records in hard copy and that there were circumstances where records were understandably not being kept at all e.g. where a list of emergency accommodation was provided to individuals who enquired without a record being kept of who it had been given to.
- Local Authority Supporting People representatives also reported that there will be incompleteness for some records because the providers have sent incomplete data to them. This is because providers are currently collecting the data using a **variety of methods**, including paper forms, and there is no standardisation around what is collected.
- There was also **inconsistency** in terms of what information was entered into each field e.g. for the Blaenau Gwent data it became evident that the ‘referred by’ field had been completed with the provider in some cases and in others contained the name of an individual, presumed to be the case worker.
- **Missing or incorrect data:** for example, a small number of cases for Blaenau Gwent Local Authority had a missing code for gender or included a ‘week of birth’¹⁵ that was assumed to be incorrect. Among the unlinked records for Blaenau Gwent Local Authority, 132 records had a ‘week of birth’ that was coded as the first week of January 1900. This is likely to mean that the birth date was missing in the original Supporting People record as supplied by Blaenau Gwent Local Authority (or they were born in the first week of January 1900, which was assumed to be incorrect). Some of these 132 records may have been duplicates, so 132 records may relate to fewer than 132 unique individuals. The remainder of the problematic ‘week of birth’ codes were clearly mistypes of various kinds e.g. seven records with a recorded ‘week of birth’ in the future and one recorded as ‘9191’ when perhaps it should be 1991 or 1919.

¹⁵ As discussed in Chapter 2 of the Technical Report, SAIL suppresses full ‘date of birth’, shortening it to ‘Week of birth’ because it is less disclosive.

- **Data entered correctly but inconsistently:** specimen data extracts included, for example, cases where a full stop was added at the end of a 'lead need' category or a capital letter at the beginning of a word, both of which needed to be recoded before data could be reconciled.
- In some Local Authorities data was **complete but held in a format that was not suitable for inking** e.g. even where the full address was included, it was often held in a single field when for linking each line of the address and the postcode needs to be submitted separately. First name and surname also need to be submitted in separate fields.
- The majority of Local Authority example extracts included some **free text fields** i.e. where information can be entered in a completely unstructured way. There is a risk that free text fields may include identifying information such as names or addresses so it is usually excluded when data are being shared and certainly when it is acquired for linking in SAIL. However, free text often includes rich information that would be of interest to researchers. Future data linkage projects will have the benefit of Natural Language Processing (NLP), an automated process where an intelligent computer program 'reads' text fields and turns important pieces of information into codes, discarding the rest of the text. The ADRC-Wales funding has included the purchase of such software. The Natural Language Processing software will need further testing but represents a potential way to avoid losing this rich source of data. Some free text information, for example client notes included in case management systems such as SPRINT, would need to be excluded from an uploaded data extract until the NLP system has been tested and confirmed to function as expected or unless it can be clearly established that it will not contain any identifiers. This is important to ensure that the anonymisation process is not compromised. In addition to being non-standardised, the use of free text introduces the risk of spelling or typing mistakes. Example data extracts included, for example, cases where a full stop was added at the end of a lead need category or a capital letter at the beginning of a word, both of which needed to be recoded before analysis could proceed. Local Authorities also need to ensure providers entering data are clear on what needs to be entered into each field e.g. for the Blaenau Gwent data it became evident that the 'referred by' field had been completed in some cases with the name of the provider but in others contained the name of an individual, presumed to be the case worker.
- Free text fields were used in some cases where **pre-coded drop-down lists or other standard fields might have been more appropriate:** for example, for ethnic origin the following range of codes had been recorded in the Blaenau Gwent data: w, n, NULL, Ww, WHITE BRITISH, U, B, M, NK, Y, WHITE BRITISHY, BWC, F, A, BLACK AFRICAN, C, EG, WB.
- A number of young people **aged less than 16 years** were recorded in the Blaenau Gwent floating support dataset; please see Chapter 5 for further discussion.
- The existing systems did not appear to contain any **logic checks** to ensure that, for example, dates were feasible e.g. some dates of birth or support start dates were recorded in the future.

4.19 Some Local Authorities reported carrying out some level of data cleaning after receiving data from providers. However, the fact that the data come from a variety of different providers i.e. are input by a variety of organisations even within one Local Authority, means that there is a high level of variation in the way the data is recorded. Even where data is collected using a case management system such as SPRINT, it is still the case

that a variety of individuals or organisations may be responsible for inputting the data since, depending on the Local Authority, data may be input by providers or case workers or the Local Authority Supporting People team.

- 4.20 Key issues for data linking was that that not all Local Authorities reported that they held dates of birth (apart from in Outcomes Data) or the postcode of the recipient's address in their Supporting People routine administrative data. Conwy reported that they do not hold dates of birth (except in the Outcomes Data); this could potentially be an issue for matching. Rhondda Cynon Taff and Merthyr both reported that they held addresses without the postcode. Blaenau Gwent did not hold postcodes in their floating support or accommodation-based support databases but fortunately they had the resources to add these manually in order to participate in the Study. Adding postcodes manually was not feasible for Rhondda Cynon Taff and Merthyr as their databases were significantly larger.
- 4.21 One possible solution investigated for the Study was to use software designed to match addresses to postcodes. Two data extracts of addresses from Rhondda Cynon Taff were processed by SAIL giving a success rate of 57% (2004) and 58% (2014) respectively (see Table 4.3, below). Anonymised examples of failures are as follows:
- "[Town] Refuge" = No Match – this is not a full address
 - "[House number] Heol Nryn Hyfred, [Village], [Town]" = No Match – miss-spelling of Brynhyfryd as 'Nryn Hyfred' means the software can't recognise the address.
- 4.22 Unsuccessful matches could be provided back to the Local Authority for manual coding, significantly reducing the task. Full addresses for e.g. refuges, halfway houses, could also be added by the Local Authority before the data is provided for linking. It is also recommended that Local Authorities collect the full address, including postcode, for all Supporting People recipients.

Table 4.3 Results of post-coding exercise: data extracts from Rhondda Cynon Taff

Year	2004		2014	
Geocoded Successfully	13,751	57%	1,901	58%
Total Failures	10,336	43%	1,373	42%
a) Failed - No Match	7,717	(75%)	629	(46%)
b) Failed - Too Vague	2,619	(25%)	744	(54%)
c) Failed - Error	0	(0%)	0	(0%)
Records provided	24,087	100%	3,274	100%

- 4.23 Given the problems noted above, it would take some resource within Local Authorities to clean, collate and reconcile the data before it could be provided to SAIL. However, for the future a more practical solution would be to ensure that the redeveloped Supporting People Outcomes Data spreadsheet includes, in place of the current 'unique identifier', all necessary identifiers in a suitable format to allow the data to be shared for data linking purposes i.e. full name, data of birth, gender, full address including postcode and, if possible, National Insurance Number.
- 4.24 As noted above, where Local Authorities did not hold data at the individual level required for data linking, the issue of acquiring Supporting People administrative data directly from providers was examined.

- 4.25 Findings from the Welsh Government Supporting People Scoping Review (2013)¹⁶ indicated that data collection by Supporting People service providers was extensive. However, the data was also reported to be inconsistent because providers used a number of data collection systems, some of which were unique to the provider. Since the data was not being collected in a standardised manner, collating the data acquired from providers may be time consuming. The Scoping Review also suggested that some providers held only paper-based records rather than holding data electronically. It should be noted that this review was undertaken in 2013 so improvements may have taken place in the interim. However, one Local Authority reported to the Feasibility Study researcher that some of its providers still did not hold electronic records, so this potentially remains a consideration.
- 4.26 For the seven Local Authorities that did not hold individual-level data, the magnitude of the task of acquiring data directly from providers was scoped by the researcher, showing that data would need to be acquired from between 12 and 27 providers per Local Authority (please see Table A2 in Appendix A for the numbers of providers for each Local Authority). Options for acquiring data from providers can be explored if a full evaluation proceeds.
- 4.27 The alternative to attempting to acquire data from provider organisations would be for Welsh Government to require Local Authorities to collect a set of standard variables about Supporting People recipients, including the Outcomes Data, from providers at the individual level. As noted above, if Supporting People Outcomes data was available for analysis, it would be recommended that data linking be undertaken to other routine records in order to validate the self-reported information and enhance the Outcome Data with objective indicators of the impact of Supporting People. As a minimum, the key issues identified as barriers to being able to use collected data, such as the way in which the postcode is recorded, should be standardised as good practice.

Acquiring additional administrative data to evidence the impact of Supporting People

- 4.28 There would be scope, if a full evaluation were to proceed, to evidence the impact of Supporting People on areas beyond health service use by acquiring routine administrative data for additional topics e.g. homelessness and housing, social care, criminal justice, labour market participation and/or benefit receipt.
- 4.29 The acquisition of additional datasets would be time-consuming. However, where the full evaluation would be completed at least in part as an ADRN project, the UK ADS would be responsible for negotiating access to any UK-level public sector data from e.g. the Home Office/Ministry of Justice and DWP/HMRC, and the ADRC-W would be responsible for providing the researcher with access to the data. The analyst funded to deliver the follow-on project could work with the ADS to ensure that any UK-level data acquired was fully documented and fit for purpose.
- 4.30 The acquisition of data held within Local Authorities or Third Sector organisations in Wales would be the responsibility of the Supporting People evaluation project, supported by further data acquisition efforts led by the Welsh Government Programme to Maximise the Use of Existing Data.
- 4.31 SAIL have already worked with some Third Sector organisations to acquire data for specific projects so a full Supporting People evaluation project would be able to take advantage of the contacts made and the processes put in place to acquire data.
- 4.32 The acquisition of data from Local Authorities would ideally include the acquisition of adult social care data and housing options data from Local Authorities for the

¹⁶ <http://gov.wales/statistics-and-research/measuring-impact-supporting-people/?lang=en>

Supporting People recipients and for any control or comparison groups. A Welsh Government National Institute for Social Care and Health Research-funded project was undertaken between April 2014 and March 2015 in order to document but not to acquire all-Wales social care data. At time of writing, only limited social care data was available in SAIL/the ADRC-W; however, SAIL is the most suitable environment within which individual-level records for all Local Authorities in Wales can be brought together for analysis. Work is currently underway in SAIL to acquire Swansea's social care data (from the PARIS dataset) with the SAIL databank. Due to the completion of a SAIL project entitled Social Care and Health in Older People (SCHOOP) in 2014, an extract of Social Care data in older people is already held in the SAIL databank. This data includes information such as: type of social care received, duration of social care input before admission, and length of time since first community care assessment.

- 4.33 The acquisition of additional Local Authority-held datasets would open up further lines of enquiry not only for the Supporting People evaluation but also for the wider research community, for example the ability to research Delayed Transfers of Care. As noted above, in the future, the development of the WCCIS may facilitate the acquisition of social care data for linking.
- 4.34 A number of Local Authorities have Housing Options data that could be acquired for linking should a full evaluation project proceed. For example, Swansea Local Authority held individual level data in their Orchard database, which is a case management system for both council and housing association applications where an individual or family are homeless or at risk of homelessness. However, Swansea Local Authority reported that not all cases will be entered into the system e.g. if they are resolved quickly. The data includes information about the following: housing history, notes, medical info, income, previous offers of housing, housing need points (priority), position on waiting list, re-housed, rent information. Data for Housing Options or other homelessness advice services could be a potential source of individuals who are at risk of homelessness and wider social exclusion but who have not received Supporting People services to be used as control or comparison cases in the analysis.
- 4.35 It would be useful to a full evaluation to acquire the information that lies behind the 'WHO 12' homelessness return. WHO 12 is a quarterly data return by Local Authorities to Welsh Government which includes information about the number of households applying for housing assistance under the Housing Wales Act 2014 and the number of homeless households in temporary accommodation. The returned to the Welsh Government is based on aggregate data, not on individual level or household level data. Previous and ongoing work by Ian Thomas at WISERD suggests that Local Authorities do not collect homelessness data in a uniform way and there is some uncertainty about permissions to share the data. Along with WHO 12 data, other potential sources of data about homelessness people or people at risk of homelessness are case file data from Local Authorities and case file data from direct access non-statutory homeless day centres. It is recommended that, if a full evaluation project proceeds, the acquisition of these additional datasets should be investigated.

- 4.36 It should be noted that a study by Mackie et al found the following:

'Whilst Welsh Government statutory homelessness statistics constitute the main and most widely cited source of information on homelessness in Wales, it is recognised that this data does not account for all homeless households; many others will not present to

*the Local Authority or they will present and only basic information will be returned to Welsh Government because they are not in priority need*¹⁷

This relates to the issue of 'hidden homelessness' discussed in Chapter 3.

4.37 It should be noted that the routine health records included in SAIL also contain some information about homelessness. For example, GP Read Codes include several codes for homelessness:

- 13D1: Homeless family;
- 13D2: Homeless single person;
- 9K60: Homeless – enhanced service completed;
- 9K6: Homeless – enhanced service administration.

Please see Chapter 8 for further discussion of the GP Event codes relating to homelessness and the potential to use these to create a comparison group for the analysis.

Conclusions and Recommendations

Conclusions

4.38 Information gathered from Local Authorities indicated challenges in terms of data quality and data management e.g. inconsistent, incomplete or incorrect recording, duplicate records and data held in multiple systems.

4.39 Whilst challenges exist in terms of acquiring, reconciling and analysing the existing data, assuming the recommendations made below are actioned, indications are that a quantitative evaluation is deliverable, at least for those Local Authorities that hold individual-level data.

4.40 Although it would be time-consuming, the acquisition of additional administrative datasets to allow the reporting of further indicators of the impact of Supporting People, e.g. on the use of homelessness and social care services, can be undertaken if a full evaluation proceeds.

Recommendations

4.41 Recommendations are made to the Welsh Government Supporting People team to:

- ensure that the redeveloped Supporting People Outcomes Data spreadsheet includes, in place of the current 'unique identifier', all necessary identifiers in a suitable format to allow the data to be shared with the SAIL Databank i.e. full name, data of birth, gender, full address including postcode and, if possible, National Insurance Number;
- make an assessment of whether any other analytically necessary information contained in the routine administrative data for Supporting People is not currently included in the Outcomes Data and to add this into the redeveloped Supporting People Outcomes Data spreadsheet;
- add into the terms and conditions for Local Authorities receiving Supporting People funding as of 1st April 2016 a mandatory requirement to provide this data to SAIL for Supporting People evaluation, service planning and other research and statistical purposes; this should include the use of a suitable privacy notice for Supporting People recipients and suitable data disclosure agreements between each Local Authority and both SAIL and NWIS; and

¹⁷ Impact analysis of existing homelessness legislation in Wales: A report to inform the review of homelessness legislation in Wales, Mackie, Thomas & Hodgson, 2012)

- as part of the Supporting People Outcomes guidance, Local Authorities should be required to ensure providers collect full post codes with addresses and that they should be collected in separate columns.
- 4.42 For Local Authorities that did not hold individual-level data, options for acquiring data from providers should be explored if a full evaluation proceeds.
- 4.43 For impact indicators relating to topics beyond health e.g. homelessness and housing, social care, crime, labour market participation and/or benefit receipt, acquisition of additional routine records is recommended.
- 4.44 As noted in Chapter 2, there may be value, if a full evaluation proceeds, in trying to triangulate between the Outcomes Data and the objective measures derived from routine administrative records in order to understand whether the any changes in outcomes as recorded in the Outcomes Data are reflected in individuals' use of other services e.g. health services.

5 Findings: Linking Rates and Sample Characteristics

Key Points

Based on an analysis of the routine administrative data relating to Supporting People provided by Blaenau Gwent and Swansea Local Authorities, the key points are:

- Record linking rates (between anonymised routine administrative data for Supporting People recipients and routine health records) for two Local Authorities were generally high.
- There was little evidence that the cases that were not linked differed in any systematic way from the cases that were linked. The exceptions for which the linking rates were relatively lower were for those user groups where contact information would be expected to be less accurate e.g. women experiencing domestic violence and people with a criminal offending history.
- Overall, the majority of Supporting People recipient subgroups are equally well-represented in the analysis presented in Chapters 6 and 7 of this report.
- Indications are that the findings of an evaluation would be both relatively unbiased and largely generalisable to all Supporting People recipients, at least for those Local Authorities that hold individual-level data.

Introduction

- 5.1 The linking rate is defined as the proportion of Supporting People routine administrative records for which a record also existed in the Wales Demographics Service or WDS (the database of everyone registered with a GP in Wales since 1994). As described in more detail in Chapter 2 and Appendix B, the WDS is the 'population spine' or 'index' database used to link records in SAIL.
- 5.2 The key question to be answered in this Chapter is whether the findings of a full evaluation based on the linked routine administrative records of Supporting People recipients would be generalisable to all Supporting People recipients in Wales. Whether the findings would be generalisable is dependant on two factors:
- firstly, whether linking rates are sufficiently high i.e. only a small proportion of records are lost from the analysis due to failure to link; and
 - secondly, whether evidence of any significant bias in linking rates is found in terms of the known characteristics of the sample i.e. no Supporting People recipient subgroup would be relatively less well represented in the analysis.
- 5.3 There are a number of reasons why records contained in the Supporting People routine administrative data may fail to link, including inaccurate or incorrectly formatted recording of personal identifiers.
- 5.4 In order to answer these questions, the tables presented in this Chapter present linking rates split according to the known characteristics of the sample. Analysis is provided, where possible, by level of support, by year of data collection, by the gender and age group of the recipient, by 'lead need' or 'service group', complexity of need and 'reason for leaving'.
- 5.5 It should be noted that some findings have been suppressed due to small numbers – this includes findings for some subgroups within existing tables but there were also entire tables that could not be reported e.g. it has not been possible to report linking rates for smaller 'service groups' for Blaenau Gwent accommodation-based support recipients. As discussed in Chapter 2, small numbers would be less of a problem for a full quantitative evaluation, where datasets for more than one Local Authority could, where appropriate, be combined for analysis purposes.

5.6 When interpreting the linking rates reported in this Chapter, it should be kept in mind that, for both Swansea and Blaenau Gwent Local Authorities, it is only possible to count the numbers of unique individuals once the Supporting People routine administrative records have been linked to the WDS. Before the records are linked, it is the number of Supporting People administrative records that is being counted and there may be more than one record per unique individual. In calculating the linking rates, the assumption has been made that 'records' are the same as 'unique individuals'. However, in practice, more than one record was provided for some unique individuals. This means that the linking rates reported in this Chapter are likely to be slightly underestimated. Based on cases that have linked, it is estimated that there are an average of around 1.1 records per unique individual, which means that the true linking rates are likely to be slightly higher than is shown in Tables 5.1 to 5.11 (below). This would mean, for example, that the reported linking rate of 85% shown for Table 5.1 is probably, in reality, closer to 86% - this equates to approximately 1.2 percentage points higher (the fact that it appears as an increase of 1 percentage point is due to rounding).

Findings

- 5.7 For Blaenau Gwent, data was successfully linked for 302 of 364 (or 83% of) recipients of accommodation-based support for 2012-14 and for 1,896 of 2,242 (or 85% of) recipients of floating support for 2003-15 (see Table 5.1, below). Over 90% of the floating support records were for the period 2010-15. Although Blaenau Gwent Local Authority agreed to supply data for older people in receipt of accommodation-based support, the data could not be processed within the limited timescale of the Feasibility Study.
- 5.8 For Swansea Local Authority, data was successfully linked for over 48,000 out of over 65,000 Supporting People records provided for the period 2004-15. The overall linking rate across all years was 74% but the data quality and therefore the linking rate was higher for more recent years, with linking rates of over 90% for each year from 2011-12 to the partial year of 2015-16 (see Table 5.3, below). It should be noted that some individuals receiving support from Swansea Local Authority Supporting People had spells of support that spanned two or more years of data; these individuals will therefore appear in the data for two or more of the years reported in Table 5.3 (below). So, although over 40,000 records were linked, these related to a total of 13,463 individual Supporting People recipients (table not shown). Given the relatively lower quality of the data for earlier years, it was considered that analysing data for years 2011-12 to 2015-16 would provide the best indication of whether any bias was present in the linked data for Swansea Local Authority and therefore of the feasibility of providing analysis of the impact of the Supporting People Programme. The analysis of the Swansea Local Authority data presented in the remainder of this Chapter and in Chapters 6 and 7 of this Report is therefore based on the data for years 2011-12 to 2015-16, a total of 8,450 individuals.
- 5.9 Although ideally the data would be analysed for both Local Authorities for the same time period, for the Feasibility Study it was considered more important to avoid, where possible, the issue of small numbers. Therefore the analysis of the Blaenau Gwent Local Authority data presented in the remainder of this Chapter and in Chapters 6 and 7 of this Report is based on all available data (i.e. recipients of accommodation-based support for 2012-14 and floating support recipients for 2003-2015) and has not been restricted to later years as for the Swansea Local Authority data.
- 5.10 The Swansea Local Authority Supporting People routine administrative data is complex for a number of reasons:

- Individual Supporting People recipients could appear in multiple years of data with almost identical records apart from the start and end dates. This made it difficult to be absolutely certain that spells of support were unique. In many cases, however, the first such record would tend to contain a start date but no end date and the following year's record would tend to contain no start date or an identical start date, which suggested that support had been continuous. Similarly, where a record had no end date, often an almost identical record in the following or later subsequent year (assuming several in between had no start or end date) would have either no start date or an identical start date but would contain an end date. It was assumed that a missing start date or end date for a particular year indicated that support had begun or ended in, respectively, the previous or the following year. In many cases, spells of support appeared, under this assumption, to last for several years (see further discussion in Chapter 6). This was not unexpected because the Swansea Local Authority Supporting People data included both floating and accommodation-based support.
- Duplication could also occur within the same year, with two or more records relating to the same unique individual but to different 'service groups' and often to partly or entirely different periods of time. This indicated that the same individual or family were receiving multiple services for different reasons or at different times.
- The Swansea data contained a high proportion of records (12%) where the gender of the recipient was coded as unknown. Duplication could occur where a unique individual had one record with the gender coded as unknown and one record containing the correct gender.

It should be noted that, unlike for Blaenau Gwent (see below), all Swansea Local Authority Supporting People records appeared to relate to recipients; the data contained no records for people who had been unsuccessful in gaining support.

- 5.11 The Blaenau Gwent Supporting People routine administrative data was similarly complex. Each individual in the Blaenau Gwent data could have more than one Supporting People record, each relating either to spells of support or to occasions when they were unsuccessful in receiving support. As for Swansea, spells of support could include either simultaneous or consecutive spells with the same or with different providers. The Blaenau Gwent definition of 'unsuccessful' appears, from the content of this field, to relate to factors beyond being ineligible or unsuitable for support, including, for example, 'failed to engage' (see Table 5.2, below). The fact that people can have more than one record means that a single individual can, for example, be coded as 'unsuccessful' in more than one record (i.e. on more than one occasion), either for the same or for different reasons. It is also possible for individuals to have a 'reason unsuccessful' in one record but a Supporting People start date in another record, indicating that on a different occasion they received support. Figures 5.1 to 5.3 (below) provide example case studies, created using anonymised information drawn from a number of different records and/or individuals in order to illustrate this issue.
- 5.12 Please note that the figures reported for Blaenau Gwent floating support in Tables 5.4 onwards are complicated by the issue of multiple records so figures will not always sum to the totals reported above. Similarly, the figures reported for Swansea Local Authority are complicated by the issue of duplication so figures will not always sum to the totals reported above.

Figure 4.1 Blaenau Gwent floating support: Case Study A:

Occasion 1 (i.e. Record 1): in December of 2009, Service User A was referred by the Probation Service to a provider of generic support. The lead need was recorded as 'generic floating support' with a secondary need of 'substance misuse (drugs)'. Service User A was recorded as having been unsuccessful under the code 'failed to engage'.

Occasion 2 (i.e. Record 2): in March of 2012, Service User A was referred by a third sector organisation working in the area of substance misuse to a provider of substance misuse support. The lead need was coded as 'people with substance misuse issues' with a secondary need of generic floating support. Service User A was recorded as having been unsuccessful under the code 'support no longer required'.

Figure 4.2 Blaenau Gwent floating support: Case Study B:

Occasion 1 (i.e. Record 1): in January of 2013, Service User B referred themselves to a provider of generic support. The lead need was recorded as 'generic floating support'; there was no secondary need. Service User B was recorded as having been unsuccessful under the code 'support no longer required'.

Occasion 2 (i.e. Record 2): in March of 2013, Service User B was referred by Local Authority Housing Options to the same provider of generic support. The lead need was recorded as 'generic floating support'; there was no secondary need. Service User B was recorded as having been unsuccessful under the code 'failed to engage'.

Occasion 3 (i.e. Record 3) in September of 2013, Service User B was referred by Local Authority Social Services to the same provider of generic support. The lead need was recorded as 'substance misuse (alcohol)' with a secondary need of 'mental health issues'. Service User B was recorded as having been unsuccessful under the code 'failed to engage'.

Figure 4.3 Blaenau Gwent floating support: Case Study C:

Occasion 1 (i.e. Record 1): in May 2013, Service User C was referred by Local Authority Housing Options to a provider of 'crisis support'. The lead need was recorded as 'families with support needs'; there was no secondary need. Service User C was recorded as having been unsuccessful under the code 'failed to engage'.

Occasion 2 (i.e. Record 2): in February of 2014, Service User C self-referred to the same provider. The lead need was coded as 'women experiencing domestic violence' with a secondary need of 'families with support needs'. Service User C received a spell of support.

5.13 The Blaenau Gwent Local Authority floating support dataset included 588 people for whom a 'reason unsuccessful' was recorded (see Table 5.2, below). However, because, as noted above, individuals can have multiple records, a total of 613 'reasons unsuccessful' were recorded. Thinking about all cases where a 'reason unsuccessful' was recorded (i.e. the same individual may have been 'successful on another occasion), a total of 36% of 'reasons unsuccessful' were occasions when the individual had 'failed to engage', 28% were 'not suitable for support' and 24% were coded 'support no longer required'. Looking only at those cases where, for the period for which records were available, individuals were never 'successful', the profile of 'reasons unsuccessful' was similar, with the top three reasons being 'failed to engage' (40%), 'not suitable for support' (28%) and 'support no longer required' (23%). Individuals who were never 'successful' (357 or 18% of individuals) were excluded from the analysis of the Blaenau Gwent Local Authority data presented in Chapters 6 and 7 of this Report. Please see Chapter 8 for a discussion of the potential use to which 'unsuccessful' cases could be put in constructing a control group.

- 5.14 For Blaenau Gwent Local Authority (floating support and accommodation-based support), there was no significant variation in terms of the gender of the individuals for whom record linking was possible compared with those for whom record linking failed (see Tables 5.4, below). Linking rates for all age groups were generally high at over 75% (see Tables 5.6 and 5.6, below).
- 5.15 The linking rate was 84% or higher for the majority of 'Lead Need' categories for Blaenau Gwent Local Authority (floating support and accommodation-based support). The two categories where the linking rate was below 84% were, for floating support, 'people with criminal offending histories' and 'women experiencing domestic violence' where the linking rates were, respectively, 76% and 71% (see Tables 5.7 and 5.8, below); it is theorised that the low linking rate for these 'Lead Need' groups may be due either to a relatively poorer recording of the address or to recipients being reluctant to provide a complete or correct address. Poor recording may be due to the recipient living in temporary accommodation, where the name of the location e.g. a refuge, is sufficient for Local Authority purposes but does not provide the detail required for linking. If the lower linking rate for particular recipient groups is due to relatively poorer quality address recording, efforts could be made to rectify this issue if a full evaluation proceeds.
- 5.16 For Swansea Local Authority, although the data included both the gender and the date of birth of recipients, as noted above 12% of records contained the gender code 'unknown' while for age group, 2% of records contained a missing or incorrect 'week of birth' and 18% had an invalid 'week of birth'. Although these records may have been duplicates of records containing the correct 'gender' or 'week of birth', very little time remained for analysis at the point when the Swansea data arrived in SAIL and so, since the issue of calculating age would also be made extremely complex by the issue of Supporting People recipients having records in multiple yearly datasets, the decision was made to use the gender and age information from the WDS rather than the gender and age information provided by Swansea Local Authority. If a full evaluation proceeds, sufficient time will be available to develop a method to select the 'gender' and an appropriate 'week of birth', where available, from among the Supporting People records, and to apply the 'week of birth' and 'gender' from the WDS only where gaps remain. However, for the purposes of the Feasibility Study, this decision means that the gender and age group of the non-linking cases were not available. It is therefore not possible to report variation in linking rates by gender or age.
- 5.17 The linking rates were 75% or above for most of the Swansea Local Authority 'service groups'; however, the linking rate was significantly lower at 64% for people with learning disabilities (see Table 5.9, below). This may be due to the same reason noted above i.e. a scheme or provider name is sufficient for the Local Authority; efforts could therefore be made to rectify this issue if a full evaluation proceeds.
- 5.18 For Blaenau Gwent Local Authority floating support, no significant bias was found in linking rates by whether Supporting People recipients were recorded as having a single lead need or multiple needs (see Table 5.10, below). Linking rates were above 80% for most 'reasons for leaving' but were lower for Supporting People recipients where the 'reason for leaving' was recorded either as 'resettlement' or 'custody', given that both presumably require a further change of address and for 'custody' this may mean a prison sentence, this finding is not altogether unexpected (see Table 5.11, below). Please see Chapter 8 for a discussion of the potential use to which 'reason for leaving' could be used to construct a control group.

- 5.19 A small number of cases for Blaenau Gwent Local Authority had a missing code for gender or included a 'week of birth'¹⁸ that was assumed to be incorrect (tables not shown). Among the unlinked records for Blaenau Gwent Local Authority, 132 records had a 'week of birth' that was coded as the first week of January 1900. This is likely to mean that the birth date was missing in the original Supporting People record as supplied by Blaenau Gwent Local Authority (or they were born on the first week of January 1900, which was assumed to be incorrect). Some of these 132 records may have been duplicates, so 132 records may relate to fewer than 132 unique individuals; where the records containing incomplete information may be duplicates of more complete records for the same individuals, these incomplete records may relate to relatively few *additional* unique individuals, in which case the true linking rates may be even higher than suggested above in Paragraph 5.6. The remainder of the problematic 'week of birth' codes were clearly mistypes of various kinds e.g. seven records with a recorded 'week of birth' in the future and one recorded as '9191' when perhaps it should be 1991 or 1919. If a full evaluation were to proceed, further work would be required to work with Blaenau Gwent Local Authority to, where possible, recode these cases and redeliver the data. As discussed in Chapter 4, the introduction of a standardised date field plus a data entry logic check would be one way to avoid this kind of misrecording for the future. Cases with a missing or incorrect 'week of birth' were included in all analysis apart from analysis by age group.
- 5.20 It should be noted that despite the fact that they both had a valid support start date and linking rates similar to those for other 'service groups' or 'lead needs', 88 Blaenau Gwent Local Authority Supporting People records (5%) had a missing 'lead need' code and over 1,000 Swansea Local Authority Supporting People records (6%) had either a missing or unidentifiable¹⁹ 'service group' code. These records may be duplicates of records with valid 'service groups' or 'lead needs', so may relate to fewer unique individuals. For the analysis presented in Chapters 6 and 7 of this Report, these cases have been excluded for charts where findings are reported by 'lead need' or 'service group' but, given they all had a valid start date so can be assumed to have received support, they have been included when analysing by gender or age group. If the Outcomes Data are able to be acquired for the full evaluation project, missing data would be expected to be less of a problem.
- 5.21 The minimum age for receipt of Supporting People services is 16 years. Records for individuals aged less than 16 years were therefore excluded from the analysis on the assumption that they were related to an adult who was included in a separate Supporting People record. A total of 44 Supporting People recipients for Blaenau Gwent Local Authority were recorded as being aged younger than 16 years at the point when support began; for example, one was aged 15 years, three were aged 14 years and 6 were infants aged less than 1 year (table not shown). For Swansea Local Authority, where 'date of birth' was not included in the data extract, the 'week of birth' was taken directly from the WDS so no incorrect or missing 'weeks of birth' were observed. A total of five individuals were aged younger than 16 years at the point when support began and their 'Service Group' was either 'families with support needs' (one child aged less than 10 years) or 'vulnerable young people with support needs' (four 15-year olds) (table not shown).

¹⁸ As discussed in Chapter 2, SAIL suppresses full 'date of birth', shortening it to 'Week of birth' because it is less disclosive.

¹⁹ Swansea Local Authority provided a look-up table of 'service group' codes and the code recorded was not on the list.

Table 5.1 Blaenau Gwent Local Authority: linking rate by level of support^a

Level of support	Number of Supporting People records provided	Number records linked to WDS	Linking rate
floating support	2,242	1,896	85%
Accommodation-based support	364	302	83%
Total	2,606	2,198	84%

a Although Blaenau Gwent agreed to supply data for older people receiving accommodation-based support, the data could not be processed within the limited timescale of the Feasibility Study.

Table 5.2: Blaenau Gwent Local Authority floating support: 'reason unsuccessful'^a

Reason unsuccessful	All people who were ever unsuccessful ^b		People who were never successful ^c	
	Number of records	Percentage of records	Number of records	Percentage of records
Failed to engage	218	36%	138	40%
Not suitable for support	172	28%	97	28%
Support no longer required	148	24%	82	23%
Crisis	52	8%	17	5%
Moved away	17	3%	15	4%
Mental Health Criteria	5	1%	0	0%
Ended but date not known	1	0%	0	0%
Total	613	100%	349	100%

a People could have more than one Supporting People record containing the same or a different 'reason'. A total of 30 records where support was not provided but the 'reason unsuccessful' was missing are excluded.

b A total of 588 people had 613 'reasons unsuccessful'. This includes some individuals who were 'successful' on a different occasion.

c A total of 357 people had no Supporting People start date in any record, so, within the records provided for the Feasibility Study, they were 'never successful'. This includes some individuals who were coded as 'unsuccessful' in more than one record (i.e. on more than one occasion), either for the same or for different 'reasons'.

Table 5.3 Swansea Local Authority: linking rate by year (annual data extract)^a

Year	Number of Supporting People records provided	Number of individuals with a WDS record	Linking rate
2004-05	3,365	1,786	53%
2005-06	4,661	2,710	58%
2006-07	5,206	3,275	63%
2007-08	5,544	3,619	65%
2008-09	5,807	3,945	68%
2009-10	5,963	4,174	70%
2010-11	5,696	4,033	71%
2011-12	6,084	5,562	91%
2012-13	6,066	5,564	92%
2013-14	5,520	5,043	91%
2014-15	5,339	4,886	92%
2015-16 ^b	3,992	3,665	92%
Total	65,243	48,262	74%

a some individuals had spells of support that spanned two or more years of data; these individuals appear in every year in which they received support.

b the low linking rate for 2015-16 will require further investigation if a full evaluation proceeds, working with NWIS and Swansea Local Authority.

Table 5.4 Linking rate by Local Authority and gender

Local Authority and gender	Number of Supporting People records provided	Number of records linked to WDS	Linking rate
Blaenau Gwent Local Authority Accommodation-based support 2012-14^{a,b}			
Male	196	165	92%
Female	166	136	89%
Total^b	362	301	91%
Blaenau Gwent Local Authority floating support 2003-15			
Male	971	823	85%
Female	1,271	1,076	85%
Total^d	2,242	1,899	85%
Swansea Local Authority (2011-15)^a			
Male	4,199	3,530	84%
Female	5,831	4,920	84%
Total	10,030	8,450	84%

a We can only count 'people' when linked – before linking, only records can be counted – so, some of the non-matched cases may be duplicates, meaning the linking rate may be higher than it appears.

b Two records where gender was not recorded were excluded from the analysis; these records may have belonged either to one or two individuals.

c Although data was provided for 2004-15, the linking rate was poor for years 2004-10 so this analysis has been completed based on the years for which data quality was better i.e. 2011-15.

d For a total of 3 cases, more than one record existed containing a different gender on different occasions – these were 'families with support needs' where a different adult contacted services on different occasions.

Table 5.5 Blaenau Gwent Local Authority Accommodation-based support: Linking rate by broad age band^a

Broad age band	Number of Supporting People records provided	Number of records linked to WDS	Linking rate
16-24 years	122	106	87%
25-54 years	184	167	91%
55 years or more	25	25	100%
Total	331	298	90%

a Records with a missing or incorrect date (week of birth) have been excluded from this analysis.

Table 5.6 Blaenau Gwent Local Authority floating support: linking rate by five year age group^a

Five year age group	Number of Supporting People records provided	Number of records linked to WDS	Linking rate
15-19 years	175	147	84%
20-24 years	245	218	89%
25-29 years	207	174	84%
30-34 years	152	131	86%
35-39 years	154	132	86%
40-44 years	137	123	90%
45-49 years	153	137	90%
50-54 years	135	121	90%
55-59 years	83	78	94%
60-64 years	81	74	91%
65-69 years	62	52	84%
70-74 years	48	37	77%
75-79 years	27	27	100%
80-84 years	24	24	100%
85 years or more	28	28	100%
Total ^a	1,711	1,503	88%

a Records with a missing or incorrect date (week of birth) have been excluded from this analysis (2% of cases). Age group was calculated using the first Supporting People start date so 'unsuccessful' records i.e. records with no start date, have been excluded. The overall linking rate is higher for the analysis by age group than for the analysis by gender because it excludes two groups with relatively lower linking rates i.e. records with a missing date of birth and 'unsuccessful' records.

Table 5.7 Blaenau Gwent Local Authority Accommodation-based Support: linking rate by 'Lead Need'^a

Lead Need	Number of Supporting People records provided	Number of records linked to WDS	Linking rate
People with mental health issues	72	63	88%
Young people with support needs (16 - 24 years old)	64	58	91%
Single people with support needs (not 25 - 54 years old)	53	48	91%
Total	189	169	89%

a 'Lead need' categories containing fewer than 5 Supporting People recipients have been suppressed e.g. care leavers, families with support needs.

Table 5.8 Blaenau Gwent Local Authority floating support: linking rate by 'Lead Need'^a

Lead Need	Number of Supporting People records provided	Number of records linked to WDS	Linking rate
Single parent families with support needs	24	24	100%
Single people with support needs (not listed 25 - 54 years old)	20	19	95%
Families with support needs	47	44	94%
People aged 55 years and over with support needs	206	181	88%
People with mental health issues	295	258	87%
People with physical and/or sensory disabilities	91	79	87%
Young people with support needs (16-24 years)	111	96	86%
People with learning disabilities	74	63	85%
(Lead need code missing)	104	88	85%
Generic floating support	650	546	84%
Substance misuse (drugs)	73	61	84%
People with criminal offending history	74	56	76%
Women experiencing domestic violence	351	249	71%
Total	2,120	1,764	83%

a 'Lead need' categories containing fewer than 5 Supporting People recipients have been suppressed e.g. people with chronic illnesses, refugee status. A total of 100 records were both 'unsuccessful' and had a missing 'lead need'; these cases are excluded from this analysis.

Table 5.9 Swansea Local Authority: linking rate by 'Service Group' (2011-15)^{a,b}

Service Group	Number of Supporting People records provided	Number of records linked to WDS	Linking rate
Families	1,737	1,589	91%
(Service group code missing)	66	59	89%
Mental health issues	1,165	1,028	88%
Substance misuse (drugs)	390	335	86%
Physical/ sensory disabilities	306	262	86%
People aged 55 years and over	4,805	4,098	85%
Generic floating support	2,683	2,275	85%
Substance misuse (alcohol)	288	237	82%
(Service group code incorrect)	758	602	79%
Young people 16-24 years**	1,111	836	75%
Domestic violence*	232	174	75%
Refugee status	198	148	75%
Learning Disabilities	335	214	64%
Total records	14,074	11,857	84%

a Although data was provided for 2004-15, the linking rate was poor for years 2004-10 so this analysis has been completed based on years 2011-15.

b Some individuals were coded as having more than one 'service group', so totals sum to greater than the number of unique individuals.

Table 5.10: Blaenau Gwent Local Authority floating support: linking rate by whether recipient had a single 'Lead Need' or a 'Lead Need' plus a secondary need^a

	Number of Supporting People records provided	Number of records linked to WDS	Linking rate
'Lead Need' only	615	515	84%
'Lead Need' plus a secondary need	1,776	1,517	85%
Total	2,391	2,032	85%

a Some individuals had more than one record and may have different lead need codes in different records; some individuals may also have a single lead need in one record and a lead need plus a secondary need in another record, so totals will sum to greater than the number of unique individuals.

Table 5.11 Blaenau Gwent Local Authority floating support: linking rate by ‘reason for leaving’^a

Reason for leaving	Number of Supporting People records provided	Number of records linked to WDS	Linking rate
Hospital	11	11	100%
Refused further support	81	74	91%
Referred to Supported Housing	49	44	90%
Support needs met	1,089	939	86%
Sign posted to other agencies	65	56	86%
Failed to engage	393	336	85%
Moved to higher support	59	50	85%
Moved Out of Area	88	74	84%
Deceased	29	24	83%
(Reason for leaving not coded)	452	367	81%
Resettlement	44	34	77%
Custody	20	14	70%
Total	2,380	2,023	85%

^a Some individuals had more than one record and/or more than one ‘reason for leaving’, so the totals will sum to greater than the number of unique individuals.

Conclusion

- 5.22 Overall, it can be concluded that linking rates for Supporting People routine administrative data for Blaenau Gwent (floating support and accommodation-based support) and Swansea Local Authorities were generally high and the subgroups of Supporting People recipients for which the linking rates were relatively lower were those where contact information would be expected to be less accurate, e.g. women experiencing domestic violence and people with a criminal offending history. Therefore, the majority of Supporting People recipient subgroups are equally well-represented in the analysis presented in Chapters 6 and 7 of this report.
- 5.23 Indications are that the findings of an evaluation would be both relatively unbiased and largely generalizable to all Supporting People recipients, at least for those Local Authorities that hold individual-level data.

6 Findings: Exploratory Analysis

Key Points

As a result of the exploratory analysis of the routine administrative data for Supporting People provided by Blaenau Gwent and Swansea Local Authorities, we are able to conclude that:

- Although for the Feasibility Study it was not possible to develop the complex analysis methods necessary in order to reliably separate the period during which support was being provided from the period after support ended, more complex kinds of analysis could be undertaken as part of a full quantitative evaluation.
- The question of how any improvement can be attributed to Supporting People can only fully be addressed with the use of a suitable control group, since we can only attribute the impact of Supporting People by comparing patterns for people who have experienced a crisis that puts them at risk of homelessness-related and who have had support from Supporting People with individuals who have had a similar crisis but who have not received Supporting People support.

Nevertheless, we are able to report that:

- Sufficient numbers of health events were identified relating to Supporting People recipients to reassure the Research and Evaluation Steering Group that using routine administrative records for Supporting People linked to routine health records was likely to give a realistic picture of the health events of Supporting People recipients and allow a robust analysis of change over time.
- As we might expect, Supporting People recipients were estimated to use GP services around twice as frequently as the general population in the 12 month period before support began.
- Floating support ranged in duration from a single day to over two years, with 80% of spells lasting 12 months or less.
- An estimated 27% of Supporting People recipients in Swansea Local Authority had more than one spell of support from the Supporting People Programme between 2011 and 2015, and an estimated 22% of floating support recipients in Blaenau Gwent had more than one spell of support between 2003 and 2015.
- Although there are limitations to analysing 'out of area' cases in SAIL, it is estimated that around 8% of Blaenau Gwent Local Authority Supporting People recipients were not registered with a GP at an address within the Blaenau Gwent Local Authority area; the proportion was lower at 3% for Swansea Local Authority.'
- Substance misuse (drugs)' was the 'service group' for which the greatest proportion of Swansea Local Authority Supporting People recipients was registered with a GP outside the Swansea Local Authority area.

Introduction

- 6.1 As discussed in Chapter 2, a key concern for any evaluation of Supporting People based on the use of linked routine administrative data was whether, irrespective of whether the records could be linked, sufficient absolute numbers of health service events for Supporting People recipients could be found in the routine health records to allow robust indicators to be developed of the impact of Supporting People on health service use. Furthermore, sufficient cases would ideally be available to allow the analysis of change over time. Although the Feasibility Study did not expect to identify change over time for individual recipients, it did hope to observe change over time at the level of the Supporting People recipient population and to assess whether, with the greater numbers of records that might be acquired if a full evaluation were to proceed, it might be feasible to examine change over time for subgroups of recipients.
- 6.2 In order to examine the numbers of health events recorded for Supporting People recipients, the routine administrative Supporting People records linked to the routine health records were analysed to establish the proportion of Supporting People recipients with recorded GP events.

6.3 As demonstrated in Chapter 5, the Supporting People routine administrative data is complex, with unique individuals having multiple records relating to different spells of care or to occasions when they were 'unsuccessful'. This complexity was not unexpected and tends to be a feature of data held purely for administrative purposes as opposed to data collected specifically for research purposes. In order to further explore the complexities of the data, the findings of a range of exploratory analyses are reported in this Chapter, the objective of which was to inspect the data and to understand its structure in order to make decisions about how it should be analysed. For the findings of the analysis of the indicators of the impact of Supporting People on health service use, please see Chapter 7.

Absolute numbers of health service use events

- 6.4 It should be noted that the health datasets held in SAIL vary in terms of the period of time for which records are available. High quality, comprehensive GP records go back to about 2004 whilst, for hospitals, the A&E data go back to 2009 and data on hospital admissions to 1999. So, in trying to investigate the numbers of health service events, we need to take into account the period over which those events have the opportunity to appear in the administrative record. As well as providing events back to 2004, GP events were chosen for analysis because primary care is the health service that tends to have the most frequent contact with individuals and because, for example, even an individual's registration with a practice is coded as an event. Events were analysed for the two-year period either side of the Supporting People start date i.e. for the same 'window' for which the health events were analysed for the analysis of impact indicators reported in Chapter 7.
- 6.5 Ideally, the analysis would have been completed for both Blaenau Gwent and Swansea Supporting People recipient populations. Unfortunately, the analysis could not be completed for Blaenau Gwent because only around 46% of GP practices in the Blaenau Gwent area had signed up to provide their events data to SAIL at the time of analysis (efforts from SAIL have since increased this proportion significantly - at time of writing the proportion is 68% for Blaenau Gwent and 78% across Wales - and are ongoing so if a full evaluation were to proceed, the analysis of GP events would be possible for a greater proportion of Supporting People recipients). Unfortunately, there is no simple way in SAIL to distinguish between individuals who have no GP events because they have not visited their GP and individuals who have no GP events because their practice is not signed up to provide the data to SAIL. The analysis for Blaenau Gwent would have been further complicated by the fact that some practice areas cross Local Authority boundaries and there is no simple way to exclude events for individuals not resident in Blaenau Gwent from the denominator for the analysis. However, the analysis showed that GP events were recorded for 63% of the Blaenau Gwent floating support and 70% of accommodation-based support service users, suggesting that Supporting People recipients were disproportionately registered with GP practices that were providing their GP events to SAIL.
- 6.6 GP events of some kind were found for almost all Swansea Local Authority Supporting People recipients in the routine health records – only 1% of the Swansea Supporting People recipients had no recorded GP events at all in the SAIL system (table not shown). This reassured the Research and Evaluation Steering Group that not only could the Supporting People routine administrative records be successfully linked into SAIL but that the routine health records for almost all Supporting People recipients contained health events.
- 6.7 Furthermore, as discussed in Chapter 2, some experimental standardisation analysis was completed (please see Appendix E) in order to examine whether any patterns

found in the data could potentially be attributed to Supporting People. Checks were done to compare the numbers of health service events for Supporting People recipients with those for people of a similar age and gender living in the same local authorities. This analysis is relevant here, since it compares the average level of use of GPs for Supporting People recipients with the level for individuals in the general population. The experimental analysis demonstrates that Supporting People recipients in Blaenau Gwent Local Authority used GPs more frequently on average than individuals in the general population i.e. when compared with a control group of individuals matched on age, gender and Local Authority. In the 12 month period before support began, Supporting People recipients were estimated to use GP services around twice as frequently as the general population.

- 6.8 A higher level of GP events among Supporting People recipients is what we would expect to observe, since this population is known to include greater numbers of individuals with more chaotic and risky lifestyles than will be found in the general population. This finding supports the conclusion that the numbers of health service use events observed for Supporting People recipients are likely to be relatively accurate.
- 6.9 The initial exploratory analysis also found that a total of 476 Swansea Supporting People recipients (4%) and 38 Blaenau Gwent floating support recipients (2%) died during the 12 months after support began. Although within the limited timescales of the Feasibility Study it was not possible to examine this issue further, it is assumed that these deaths were spread relatively evenly over the 12 month period, so that some of these Supporting People recipients would have died close to the date when support began and some 12 months after so that the majority of those who died would have been contributing events to the Study for several of those 12 months. In order not to further diminish the already small numbers of cases available for analysis for the Feasibility Study, the decision was taken not to exclude cases where Supporting People recipients died during the study period. If a full evaluation were to proceed, it is recommended that further analysis be completed to examine the causes of these deaths, the key question being whether they were found to occur more, equally or less frequently among the Supporting People service groups than are observed in similar subgroups of the general population e.g. the frail elderly.

Level of support and duration of support

- 6.10 As noted in Chapter 2, the Research and Evaluation Steering Group were keen for the indicators of health service use to be analysed by or level of support i.e. whether the support was 'floating support' or 'accommodation-based support', and by duration of support.
- 6.11 As noted in Chapter 4, for the Feasibility Study data was provided by Blaenau Gwent Local Authority for floating support recipients and for accommodation-based support users excluding older people, while Swansea Local Authority provided data for people receiving all levels of Supporting People support. However, based on the 'service group' alone, it was not possible to reliably ascertain which Supporting People recipients for Swansea Local Authority were receiving floating support and which were receiving accommodation-based support. Analysis by level of support was therefore not possible for Swansea. For Blaenau Gwent, analysis was conducted separately for people receiving floating support and accommodation-based support but due to small numbers this meant that the majority of the analysis for Blaenau Gwent accommodation-based support had to be suppressed for disclosure reasons. For a full evaluation, where records for different levels of support can be combined across a greater number of Local Authorities, more detailed analysis will be possible by level of support. In order to

avoid small numbers, it is not recommended that analysis be undertaken by level of support within Local Authority.

6.12 Initial exploratory analysis showed that the support provided varied in terms of its duration. The duration of Blaenau Gwent floating support ranged from 10 spells where the support had the same start and end date i.e. lasted a single day, to support of over two years in duration, with 80% of spells lasting 12 months or less (see Table 6.1, below). A further 7 spells had a duration of 2 to 3 days. The longest spell recorded in the data was for just under 9 years.

Table 6.1 Blaenau Gwent Local Authority floating support: duration of support

Duration of support (months) ^a	Number of spells	Percentage of spells	Cumulative percentage of spells
Less than 1	138	8%	8%
2 to 3	359	22%	30%
4 to 6	440	27%	57%
7 to 12	390	24%	80%
13 to 24	248	15%	95%
25 or more	83	5%	100%
Total	1,658	100%	

a Months were calculated as 0-29 days, 30-59 days etc.

6.13 The fact that duration of support varied also meant that it would be a complex analytical challenge to compare health service use before, during and after support was provided. The numbers of cases would also be reduced significantly, where, in order to compare health events before and after support was provided at least 12 months would have to have elapsed after support ended before an individual could be included in the analysis. Within the limited timescales available to the Feasibility Study, it was therefore decided not to attempt to develop the complex analysis methods that would have been necessary to disentangle these issues in order to reliably separate the period during which support was being provided from the period after support ended. The Feasibility Study has therefore focused on the simpler distinction between events before and after the date when support first began. The more complex kinds of analysis that could be undertaken as part of a full quantitative evaluation would be designed to analyse events separately for the periods during and after support was provided and for Supporting People recipients with different service use profiles.

6.14 It should be noted, however, that where the datasets provided relate to specific time periods, we can't be certain whether individuals received support beforehand or will receive it in the future, so the distinction will always be to some extent artificial. The issue of repeat use of Supporting People services and therefore analysis by duration of service can be explored in greater detail if a full evaluation proceeds. For the Feasibility Study, it was agreed that the health use indicators would not be analysed by duration of support. Instead, as discussed further below, patterns of health service use would be explored before and after people began receiving support from Supporting People.

6.15 As mentioned in Chapter 5, a proportion of Supporting People recipients made repeated use of the service over time. The issue of duplication discussed in Chapters 4 and 5, above, made it difficult to be absolutely certain that spells were unique; however, it was assumed that a missing start date or end date for a particular year indicated that support had begun or ended in, respectively, the previous or the following year. Making this assumption, it is estimated that 27% of Supporting People recipients in Swansea Local Authority and 22% of Supporting People recipients in Blaenau Gwent Local

Authority received more than one spell of support (see Table 6.2, below). The difference between Local Authorities in the proportions receiving multiple spells of support may be explained by the fact that older people in accommodation-based support, who may be more likely to be recorded as having a single, long spell of support, were excluded from the Feasibility Study data for Blaenau Gwent Local Authority.

- 6.16 For the Feasibility Study analysis, the decision was made to focus on the first spell of support recorded for each service user. It should be noted that support relating to the risk of homelessness may have occurred on occasions before the Supporting People Programme began, so that the first spell of Supporting People support may not be the first spell of support an individual had received related to a risk of homelessness. As discussed in Chapter 5, Supporting People records for Swansea Local Authority were also excluded for the period before 2011, so may have included earlier spells of support for some Supporting People recipients.

Table 6.2 Number of spells of Supporting People support by Local Authority^a

Number of spells of support	Local Authority	
	Blaenau Gwent floating support (2003-15) %	Swansea (2011-15) %
One spell	78	63
Two spells	15	21
Three spells	5	8
More than three spells	2	5
Total	100	100

a Unique individuals can have more than one simultaneous spells of support – this table has eliminated this effect.

- 6.17 Table 6.2 indicates that some Supporting People recipients had experienced more than one occasion when they were at risk of homelessness. Depending on the reasons individuals are at risk, one might expect to observe a change in the use of health services around this crisis point. Where Supporting People recipients may be experiencing multiple crises over time, simply taking a single point in time e.g. the date when the first spell of support began and observing the period immediately before and after, may obscure more complex patterns of the impact of Supporting People support on health service use.
- 6.18 A challenge for the Feasibility Study, then, was to try to understand what we should expect the pattern of health service use to look like over time. Firstly, what pattern should we expect to observe for someone experiencing the kind of crisis that might result in them receiving Supporting People services and, secondly, how should we expect the provision of support to affect that pattern? Should a relationship be expected at all for user groups such as people with learning difficulties or older people, whose support is long-term and ongoing? It should be kept in mind that a successful outcome for the Supporting People intervention might be for an individual to be able to access health services appropriately and in line with their individual support needs, even if this means an increase in use over time. We should not, therefore, necessarily expect to observe a reduction in health service use at the level of the individual Supporting People recipient or for some groups of Supporting People recipients.
- 6.19 For some Supporting People service groups, one might expect an increase in health service use leading up to the support start date, since the support may begin in response to a specific crisis that would appear in the record e.g. a domestic violence-related injury, substance misuse or mental health crisis or for the frail elderly a fall,

stroke etc. Whether and how the pattern of health service use would then be expected to change was more uncertain, because:

- the crises themselves may vary in length from a single day's acute crisis or injury to a longer period of chronic deterioration, just as the period of 'recovery' might vary in length; and
- an increase in health service use following the Supporting People start date may be a positive impact, given that some health conditions may have gone untreated during more chaotic periods of people's lives.

The issue of variation in the duration of the support itself and the existence, for some Supporting People recipients, of multiple health crises (even within a single spell of support) and/or multiple spells of support (potentially indicating additional crises) was expected to further complicate this picture.

6.20 A key question for the visual and exploratory examination of the data was whether it would be possible to identify a logical cut-off point when health service use, on average, rose or fell in relation to the point when Supporting People services were provided.

6.21 From the above discussion, various questions emerged:

- If we expect health service use to change after Supporting People support begins, how soon should we expect to observe that change? Should we, for example, expect a process of 'normalisation' to begin as soon as support begins? As noted above, some crises may be more acute and some more chronic and recovery periods longer or shorter.
- Should we expect to find an association between the duration of support and health service use? If so, what would we expect that relationship to look like?

6.22 Just as it is uncertain whether a rise or a fall in health service use would be expected, it is debatable whether we should expect that change to be faster in the presence of support or in its absence. One might theorise that the support may allow an individual to recover more quickly; however, longer support may also indicate more severe support needs. Similarly, whilst a short period of support may be all that was necessary for some Supporting People recipients, there may be cases where support may have been withdrawn too soon or an additional crisis occurred.

6.23 Areas where the expectations were clearer were that the presence of a Supporting People intervention should lead to:

- more appropriate engagement with primary care rather than ad hoc use of emergency 'blue light' services; and
- fewer reasons for using health services that might be associated with the more chaotic and risky lifestyles that may result in individuals being at risk of homelessness.

6.24 The analytical questions relating to the above were:

- How wide a 'window' should we place around the support start date in order to give a complete picture of the impact of Supporting People?
- How do we separate the impact of Supporting People from the crisis itself?
- How do we separate changes in the level of health service use from the reasons for health service use?

6.25 The choice of a 'window' had the potential to be complicated by the varying points at which the support ended for Supporting People recipients, with some having support

end sooner than others – some having support end during the ‘window’ and some continuing to receive support beyond it. For a full evaluation study, when numbers are greater and the time scales will be less limited, we recommend reporting separately on Supporting People recipients with different durations of support and different levels of support, so that, for example, individuals receiving long-term accommodation-based support are analysed separately from individuals receiving single versus multiple spells of floating support.

6.26 The question arose, in examining the data for different health services, of whether to exclude the start date itself, given that it may relate to a specific health crisis, or, if including it, whether to show health events for the start date by itself, include it in the month before or the month after support began. On the basis that not all crises would be restricted to a single day and that the remainder of the findings would be presented for a set of 30-day periods, health events for the start date were not shown separately. The choice was made to include the start date in the month after support began, for the simple reason that it was the date when Supporting People support started. Looking at the Charts presented in Chapter 7 (below), it is interesting to note that the greatest numbers of health events – the point that might be considered indicative of crisis, at least at the population level – varies by health service, with the peak of emergency hospital admissions and A&E visits falling in the month before the Supporting People start date and the peak of GP events falling in the month after. This might be theorised to reflect:

- the fact that individuals may be referred to Supporting People as a result of a health event for which they attended hospital so that the hospital visit must come before the support begins; and/or
- the fact that primary care is likely to be consulted about relatively less urgent conditions of a kind that can therefore be addressed either simultaneously with - or as a result of - support having been put in place.

If a full evaluation study proceeds, further exploratory analysis of the reasons for health service use plus some accompanying qualitative research about the Supporting People recipient journey – particularly exploring the time when support begins - would provide some contextual information about the potential explanations for some of the findings reported above and would help analysts to understand how to analyse and report on the data in the most appropriate manner.

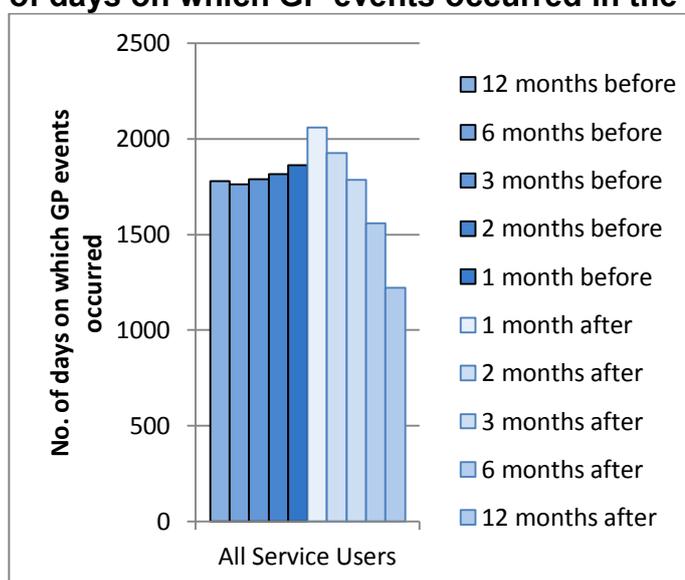
6.27 In order to give an initial indication of the possible impact of Supporting People on health service use, the Research and Evaluation Steering Group decided that the analysis should focus on health service use over a period of two years; this included the period before people began receiving support and the period after the Supporting People intervention. In order to summarise this information, findings were presented for the 30-day periods 12 months before, 6 months before, 3, 2 and 1 months before, 1, 2 and 3 months after, 6 months after and 12 months after people began receiving support.

6.28 The initial exploratory analysis looked at all people receiving floating support within Blaenau Gwent Local Authority and at the number of days when GP Events occurred. Given that, as discussed above, the crisis itself may be of variable duration, the date when support began was included in the analysis. For the Feasibility Study, the day when support began was included in the period ‘1 month after’, which may explain why the numbers of GP events are at their highest in this one-month period.

6.29 The analysis shown in Chart 6.1 (below), does not attempt to account for the complexities of the duration of support or for the existence of multiple crises or spells of

support. The analysis nevertheless demonstrates that, at the level of the whole population of Supporting People recipients – in this case for Blaenau Gwent floating support – there is an observable pattern of a slight increase in events up to the time when Supporting People support began with a decrease in events thereafter (see Chart 6.1, below). The increase was not surprising, given the ‘needs’ that can bring individuals to Supporting People e.g. domestic violence and substance misuse. The analysis showed that the two-year analytical ‘window’ did allow a useful comparison to be made of the pattern of health events leading up to and following the start of support. It was therefore decided that, due to the limited timescales of the Feasibility Study, the analysis would focus on a two-year analytical ‘window’. The more complex kinds of analysis that could be undertaken as part of a full quantitative evaluation would be designed to analyse events separately for the periods during and after support was provided and could explore wider ‘windows’.

Chart 6.1 Blaenau Gwent Local Authority Supporting People floating support: number of days on which GP events occurred in the months before and after support start date



6.30 For a full evaluation study, when greater numbers of records would be available, we would recommend analysing events separately for Supporting People recipients with different profiles. For example, we recommend undertaking some exploratory segmentation analysis in order to split Supporting People recipients into groups experiencing similar crises and receiving similar levels and durations of support, so that the following kinds of Supporting People recipients would be analysed together:

- recipients with ‘acute’ crises that consist of relatively few health events over a short period; and
- recipients with ‘chronic’ crises that appear to consist of numerous or increasing events over a longer period.

The ‘chronic’ and ‘acute’ groups could then be split into those receiving different levels (floating or accommodation-based) and durations (short-term vs. long-term) of support.

6.31 We also recommend examining a wider ‘window’ to see what happens to the reduction observed in Chart 6.1 in the longer term - does the use of health services remain lower than in the pre-crisis period?

6.32 As noted above, the fact that some people received more than one spell of support complicates the analysis. Supporting People recipients may be having repeated crises and therefore more than one period when health service use would be expected to

change (possibly showing a rise followed by a fall). However, given that the gaps between spells of support vary from a matter of days or weeks to a number of years, simply analysing Supporting People recipients with multiple spells of support separately is not an appropriate solution. The cut-off point must, at a minimum, relate to the 'window' chosen for analysis i.e. if we are analysing a period of 12 months after the support start date, individuals whose next spell of support begins within that 12 month-period should be excluded. However, this picture is complicated by duration of support. We therefore recommend that if a full evaluation proceeds, further consideration should be given to this issue, potentially informed by qualitative research with Supporting People recipients and practitioners designed to understand the issues driving the repeat use of services and their implications for the analysis. This will help to inform the decision about how wide a 'window' to examine and how to analyse the data for Supporting People recipients with different profiles e.g. with different user journeys (e.g. acute vs. chronic crises, different lead needs) or with more than one spell of support.

- 6.33 If a full evaluation proceeds, further analysis could also be completed specifically to examine changes in health service use after support ends. This could potentially involve changing the alignment of dates so that instead of being aligned based on their start date, records are aligned by their end date. It would then be possible to examine the impact the end of support has on the indicators of health service use.
- 6.34 It should be noted that the question of how any improvement can be attributed specifically to Supporting People can only fully be addressed with the use of a suitable control group, since we can only be sure of the effect of Supporting People by comparing patterns for people who have had a similar crisis but who have and have not had support from Supporting People. In this context, the question is whether, following a period of crisis, similar changes in health events (reductions of the kind observed in Chart 6.1) would be observed in a population of individuals similarly at risk of homelessness – i.e. experiencing similar kinds of crisis. The best way to examine this question is to create control group and to explore whether a reduction was also seen in the control group and, if so, whether it differed in any significant way from the reduction observed in the Supporting People intervention group. A greater reduction or a reduction that begins more quickly in the Supporting People group might suggest a positive impact of the Programme. For a discussion of the feasibility of creating a control group, see Chapter 8.
- 6.35 In conclusion, then, the challenges described above would require further examination should a full evaluation proceed so that methods can be developed to take the full complexity of the data into account. However, for the Feasibility Study it has not been possible to develop the complex analysis methods necessary to disentangle these issues in order, for example, to reliably separate the period during which support was being provided from the period after support ended.
- 6.36 On the basis of the exploratory analysis, the following analytical decisions were made:
- To focus on the simpler distinction between events before and after the support start date.
 - To focus the analysis on a two-year 'window', including the year before people began receiving support and the year after the Supporting People intervention.
 - To include the start date of support in the analysis and to include it in the period 'after support began'.
 - Not to examine the period 'during support' separately.

- To seek to examine changes in the reasons for health service use, irrespective of any change in levels of health service use.

Complexity of need

6.37 The Research and Evaluation Steering Group ideally wanted the data analysed by complexity of need. Supporting People routine administrative data was expected to include information about the 'lead need' and, where necessary, secondary and tertiary needs. It had therefore been hoped that analysis could be done separately for people with a single 'lead need' compared with people with 'complex needs' (i.e. a 'lead need' plus one or more secondary needs). However, for the Feasibility Study, Blaenau Gwent Local Authority was only able to provide data for the 'lead need' plus one secondary need and Swansea Local Authority provided 'service group' i.e. the type of service to which the user was referred, rather than information about need. In discussion with the Research and Evaluation Steering Group, it was felt that even where a secondary need was not recorded, this was not necessarily a reliable indicator that people's needs were not 'complex'. It was therefore decided that analysis would not be completed by 'complexity of need' for the Feasibility Study. The issue of complexity of need can be explored in greater detail if a full evaluation proceeds.

Reason for Leaving

6.38 Reason for leaving Supporting People was provided for Blaenau Gwent Local Authority but not for Swansea Local Authority, so although analysis has been done to examine whether there was any bias in the linking rate by reason for leaving (see Chapter 5), the choice was made not to use this variable in the analysis of health service use indicators provided in Chapter 7.

'Out of area' cases

6.39 The Research and Evaluation Steering Group were interested in exploring the proportion of Supporting People recipients who were receiving Supporting People services from a Local Authority outside the area in which they lived.

6.40 There is a limitation with regard to the SAIL Databank when it comes to answering this question. Analysis by geography in SAIL uses the address under which individuals were registered with a GP at the point when support was being received. This is not necessarily the address where they were living and receiving services from Supporting People. This problem arises due to the slow reporting of address change by GP patients to their GP practice, including delays in registering with a new GP practice when people move house.

6.41 Using the linked databases in SAIL, it is possible to eliminate cases where an individual is recorded as living in two places at once by selecting the address for which the most recent activity has taken place. However, if a person remains registered at a GP practice despite having moved either temporarily or permanently away, it is not possible to detect this in SAIL. Nor is it possible to detect when a person moves house between Local Authority areas but does not inform their GP – that individual would be allocated to a Local Authority where they no longer live.

6.42 The delayed GP registration issue tends to be particularly pronounced among mobile, young, healthy people (particularly men), who may not need to visit a doctor for long periods and who may migrate for education (e.g. students) or employment without registering with a new GP²⁰. A relatively high level of residential mobility is not unexpected for Supporting People recipients who are by definition at risk of

²⁰Wales Centre for Health *Guide to the use of population data for health intelligence in Wales* accessed at <http://www2.nphs.wales.nhs.uk:8080/hiatdocs.nsf>

homelessness. However, for Supporting People, where, as demonstrated above, Supporting People recipients tended to be using their GPs more than average and the vast majority had used a GP within the two-year analysis 'window', the issue of individuals not re-registering with a new practice is likely to have had a relatively small effect. However, where individuals remain registered with the same GP but do not inform the practice of their change of address, it is possible that they are being identified as 'out of area' when in fact they have moved into the area or vice versa. For example, it is possible that an individual might be registered with a GP in the Neath Port Talbot Local Authority area but has since moved and may be both living in the Swansea Local Authority area and receiving Supporting People support from Swansea Local Authority. Perhaps, given that there is no reason to imagine that this problem would not occur in equal numbers in both directions, it might be assumed that the incorrectly registered cases should even each other out.

- 6.43 It should also be kept in mind that only Supporting People recipients for whom linking was possible are included in this analysis, so a proportion of cases with partial or incorrect name or address information in their Supporting People administrative record will already have been removed from the analysis. If people who provide partial or incorrect contact information to Supporting People are also more likely to seek support outside the Local Authority in which they live, this analysis will under-estimate the numbers of 'out of area' cases receiving support.
- 6.44 In the hope of minimising the impact of the GP registration issue, the analysis was performed using only the address associated with the first spell of Supporting People support. Nevertheless, a total of 23 (less than 0.2% of) individuals had more than one Supporting People administrative record, containing both 'in area' and 'out of area' addresses on different dates (table not shown).
- 6.45 Bearing the issues described above in mind, the exploratory analysis showed that around 8% of Blaenau Gwent Local Authority Supporting People recipients were not registered with a GP at an address within the Blaenau Gwent Local Authority area; the proportion was lower at 3% for Swansea Local Authority. This difference in the proportion of 'out of area' cases between the two Local Authorities may at least partially be explained by the GP registration issue, since the Swansea Supporting People administrative data includes older people receiving accommodation-based support, where the address provided is likely to be a longer-term residence and where one might expect people to inform their GP of any change of address relatively swiftly.
- 6.46 For Swansea Local Authority (but not for Blaenau Gwent), it was possible to analyse the proportion of 'out of area' cases by 'service group' (see Table 6.3, below). The fact that the proportion of Supporting People recipients possibly receiving 'out of area' support varies by 'service group' suggests that the GP registration issue outlined above does not explain all 'out of area' cases, since one would expect the GP registration issue to affect all 'service groups' according to their level of residential mobility, which might be expected to be on average approximately the same at the point where their first spell of Supporting People support begins.
- 6.47 The analysis shows that 'substance misuse (drugs)' was the 'service group' for which the greatest proportion of Supporting People recipients were registered with a GP outside the Swansea Local Authority area. If a full evaluation were to proceed and data acquired for all Local Authorities in Wales, analysis could be undertaken specifically to examine the following:
- the extent and type of 'out of area' support being accessed; and

- specifically, whether individuals are simultaneously registered for Supporting People support for ‘substance misuse (drugs)’ (or any other services) with more than one Local Authority.

Table 6.3 Proportion of Swansea Local Authority Supporting People recipients registered with a GP outside the Swansea Local Authority area^a

‘Service Group’	‘In Area’	‘Out of Area’	Percentage ‘Out of Area’
	N	N	%
Substance misuse (drugs)	156	37	24
Physical/ sensory disabilities	243	16	7
Young people 16-24 years	574	37	6
Incorrect or missing service group code	787	13	6
Learning Disabilities	193	9	5
Refugee status	225	7	3
Generic floating support	1,835	57	3
Substance misuse (alcohol)	194	5	3
Mental health issues	852	20	2
Families	1,437	32	2
People aged 55 years and over	4,927	77	2
Domestic violence	182	2	1
Total	11,605	312	3

a A total of 28 duplicate cases are included in these figures; these are cases where individuals were recorded as having more than one Service Group. ‘Service Groups’ containing fewer than 5 Supporting People recipients have been suppressed.

Conclusions and recommendations

6.48 As noted in Chapter 2, for the Feasibility Study, the Supporting People Research and Evaluation Steering Group ideally wished to see analysis by the following key variables:

- Age and gender of Supporting People recipient;
- Supporting People ‘service group’ or ‘lead need’;
- Duration of Supporting People support;
- Complexity of need;
- Level of Supporting People support i.e. floating or accommodation-based; and
- (If available) reason for leaving Supporting People.

6.49 As a result of the exploratory analysis, it was established that not all of this information was available from both participating Local Authorities and that, as discussed in this Chapter, some of these variables presented challenges for analysis that could not be overcome within the limited timescales of the feasibility study.

6.50 In practice, the analysis of the health service use impact indicators for the Feasibility Study was completed for the following key variables:

- Age group of Supporting People recipient (where numbers allowed, in five-year age groups - if not, in the broader bands of 16-24 years, 25-54 years and 55 years and over);
- Gender of Supporting People recipient;
- Supporting People ‘service group’ (Swansea Local Authority) or ‘lead need’ (Blaenau Gwent Local Authority);

- Level of Supporting People support (available for Blaenau Gwent only, where data was provided separately for floating support and accommodation-based support).

N.B. the choice was made with the expectation that analysis on the full range of key variables (and many more) would be possible should a full evaluation study proceed.

6.51 If a full evaluation proceeds, a qualitative component is recommended in order to explore both with practitioners and Supporting People recipients what 'complexity of need' means in practice and issues around the duration of support and its likely impact on Supporting People recipient's health service use. This would help the evaluation assess the extent to which the quantitative analysis should expect to identify variations on health service use by complexity of need, duration of support or repeated vs one-off use of Supporting People support.

7 Findings: Indicators of the Impact of Supporting People on Health Service Use

Key Points

Based on a relatively simple provisional analysis of the Supporting People data from Blaenau Gwent and Swansea Local Authorities, the following can be reported:

- On average, Supporting People recipients used GP services more than a 'control' group matched on age, gender and local authority.
- For the majority of Supporting People recipient subgroups, the use of GP services peaked at around the time when support began and fell thereafter; by 12 months (and in some cases by 6 or even 3 months) after the Supporting People intervention, the use of GP services fell to below the level seen in the 12 months before support began.
- For some Supporting People recipient subgroups, the same pattern was seen in A&E visits and Emergency Hospital Admissions i.e. after the Supporting People intervention, the number of A&E visits fell to below the level seen in the 12 months before support began.
- The kinds of GP diagnosis and prescribing codes that decreased the most after the Supporting People start date were mostly those one would expect to be associated with a crisis, whilst those that increased most were related to more routine healthcare.
- The reasons for visiting A&E that decreased the most after Blaenau Gwent floating support was provided were gastrointestinal conditions and soft tissue injuries. For Swansea Local Authority, the reasons that decreased the most after the support start date were puncture wounds and 'social problems/homelessness'. Among the reasons that increased the most were, for Blaenau Gwent, 'psychological/psychiatric conditions', 'wound' and for Swansea 'drowning' – however, it should be kept in mind in interpreting these findings that the day when Supporting People support began is included in the 'after' period.
- The top reasons for emergency hospital admissions for Blaenau Gwent Supporting People floating support recipients were 'injury and poisoning' and 'mental health' when the top reasons for the general population were cancer and diseases of the circulatory system. For Swansea Local Authority, 'injury and poisoning' appearing in second position for Supporting People recipients compared with fifth position for the general population.

Although there are challenges in acquiring and preparing the Supporting People administrative data for analysis and in developing analysis methods appropriate to the complexity of the data, overall indications are that a quantitative evaluation would be likely to produce statistically robust substantive findings.

Introduction

- 7.1 As noted in Chapter 2, the timescales of the Feasibility Study were ambitious and it was accepted at the outset that not all Local Authorities would be able to provide individual level data within the timescales. As discussed in Chapter 4, various challenges were also encountered in terms of acquiring, reconciling and analysing the existing data. Other data linking projects have taken considerably longer than it has taken here to acquire data and report findings, so achieving so much in so short a timescale should be considered a success.
- 7.2 The findings of the Feasibility Study are nevertheless based on data that is restricted to two Local Authorities and, due to the limited timescales involved, the findings are based on a relatively simple provisional analysis of the data. More complex kinds of analysis could be undertaken as part of a full quantitative evaluation. Using Supporting People routine administrative data from the Local Authorities who were able to provide data for

the Feasibility Study, a small number of key indicators of the impact of Supporting People on health service use were analysed (please see Chapter 4 for a brief discussion of the choice of impact indicators).

7.3 The indicators of the impact of Supporting People on health service use for which analysis is presented in this Chapter are:

- the number of days on which GP events occurred²¹;
- the number of A&E visits; and
- the number of emergency hospital admissions.

Each of the indicators listed above was analysed before and after people began receiving support from Supporting People and were analysed, where available, by gender, five-year age group and 'lead need' or 'Service Group'.

7.4 The findings are reported for Blaenau Gwent and Swansea Local Authorities separately. This is because:

- the Swansea analysis includes data for all levels of support²², while the Blaenau Gwent analysis is restricted mainly to floating support recipients; some analysis has also been possible for a group of accommodation-based support recipients from which 'older people' were excluded (as noted above, Blaenau Gwent Local Authority were willing to provide data for older people's accommodation-based support but these records were held separately and could not be provided during the limited timescale of the Feasibility Study);
- the sets of data for the two Local Authorities relate to different time periods; and
- the datasets contained different information with regard to Supporting People services, with Blaenau Gwent providing data on the 'Lead Need' i.e. the main reason for referral, and Swansea providing information about the 'service group' i.e. the type of service to which the user was referred.

7.5 As discussed in Chapter 5, the analysis presented in this Chapter is based on data for Swansea Local Authority for years 2011-15, where data quality has been demonstrated to be better. For Blaenau Gwent, where numbers were small, the decision was made to include all cases that were successfully linked, so the analysis relates to accommodation-based support for 2012-14 and floating support for 2003-15

7.6 For Blaenau Gwent Local Authority, the findings are also reported for floating support recipients and accommodation-based support recipients separately. This is because the Research and Evaluation Steering Group were interested in seeing whether the indicators varied by level of support²³. However, due to small numbers, this has meant that the majority of the analysis for accommodation-based support recipients has had to be suppressed due to small numbers

7.7 For Swansea Local Authority, the data provided only allowed for a partial distinction to be made between floating and accommodation-based support²⁴, so it was not possible to report findings separately by level of support.

7.8 As discussed in Chapter 2, ideally the findings would be reported including the margin of error in order to demonstrate the level of confidence we can have in the findings. If a

²¹ As noted in Chapter 3, multiple GP Events will occur on a single day e.g. each drug prescribed or physical measurement e.g. blood pressure, is recorded as a separate event.

²² Floating support and accommodation-based support.

²³ Floating support and accommodation-based support.

²⁴ Categories of 'service group' included 'generic floating support' but for other service users, the service groups may have included a mixture of floating or accommodation-based support.

full evaluation were to proceed, it is recommended that margins of error are at least calculated, even if they are presented separately in a technical appendix rather than throughout. The decision was made for the feasibility report, however, to provide a small number of example charts in an appendix rather than to present all Charts with margins of error. The main reason for this is that numbers are small, leading to large margins of error. However, because the figures relate to whole-population administrative information and not to survey samples, the margin of error is relevant only when analysing change over time and should not be interpreted to mean that the figures themselves are surrounded by any uncertainty. Given the mostly lay audience for this Report, the risk of misunderstanding was considered smaller when the discussion of these issues was kept within a single appendix. Please see Appendix F for further discussion and for example charts showing the margin of error. However, where a consistent effect or trend over time is observed are nevertheless worthy of note and suggest some association between the support provided by Supporting People and levels of health service use. For a full evaluation study, where datasets for more than one Local Authority could, where appropriate, be combined for analysis purposes, the margins of error would be smaller.

- 7.9 As discussed in Chapter 2, the Research and Evaluation Steering Group wished to examine whether, irrespective of whether the level of health service use changed, the reasons for health service use changed. This would give an indication of whether health service use became more appropriate – or simply associated with less ‘crisis-related’ conditions – after support began. Because these methods were being developing as the Feasibility Study progressed, and the complexity of the routine health records in SAIL meant that the development of each method was extremely time-consuming, different methods are presented in the following sections for each health service i.e. for the reasons for GP events, A&E visits and emergency hospital admissions.
- 7.10 For GP events, the diagnosis codes and prescribing codes that showed, respectively, the greatest increase and decrease after the Supporting People service start date are reported compared with the top five reasons for attendance in the general population i.e. people of a similar age and gender living in the same local authority. For A&E visits the top five reasons for visiting A&E (ICD10 chapter headings) before and after the Supporting People start date are shown compared with the top five reasons in the general population. For emergency hospital admissions, the top five reasons for emergency admissions are shown for Supporting People recipients compared with a control group; for Swansea Local Authority, the reasons that increased and decreased the most after the start date are also shown.
- 7.11 When interpreting the findings, the reader should bear in mind the limitations to both the data and the analysis discussed in Chapters 2 and 4, and the findings of the exploratory analysis reported in Chapter 6. This study makes use of data linked between two complex administrative sources (Supporting People routine administrative data and routine health records). The methods of analysis and data linkage used in this Feasibility Study were both innovative and exploratory. We have confidence in the results for the two local authority areas involved but a full data linking evaluation study is required before the findings can be generalised to all local authority areas and before we can conclude the extent to which observed patterns can be attributed to the Supporting People programme alone.
- 7.12 The following, in particular, should be kept in mind when interpreting the findings:
 - As discussed in Chapter 2, for some users, an initial increase in the use of health services may be a positive impact of the support provided by Supporting People,

where health conditions may have gone untreated during periods when individuals were at risk of homelessness.

- As mentioned in Chapter 2, the comparison of findings for Supporting People recipients against a valid control group would provide evidence as to whether the patterns shown in Charts 7.1 to 7.15 (below), can be attributed to the Supporting People Programme. For further discussion of the feasibility of creating a valid control group and for some provisional analysis of a possible comparison group, please see Chapter 8.

7.13 The findings for each of the three indicators chosen to demonstrate the impact of Supporting People on health service use are reported in the following sections.

Findings

7.14 In order to allow valid comparisons to be made between different service user sub-groups, the numbers of GP events are expressed as the rate per service user and the numbers of A&E visits and emergency hospital admissions are expressed as the rate per 100 service users.

7.15 The number of categories of 'Lead Need' or 'Service Group' for which findings are presented varies by health indicator because categories with relatively small numbers of recipients or health service events have been suppressed due to the risk of disclosure. As discussed in more detail in Chapter 4, small numbers would be less of a problem for a full quantitative evaluation, where datasets for more than one Local Authority could, where appropriate, be combined for analysis purposes.

Number of days on which GP Events occurred

7.16 At the point when the analysis was completed, SAIL contained GP Event data for around 70% of GP practices in Wales and the geographical coverage was not even. This means that the analysis of GP Events related to 63% of Supporting People floating support recipients and 70% of accommodation-based support recipients for Blaenau Gwent Local Authority, whereas 99% of Supporting People recipients for Swansea Local Authority had SAIL GP event data. Efforts by SAIL to acquire data from additional GP practices continue so if a full evaluation were to proceed, the analysis of GP events would be possible for a greater proportion of Supporting People recipients. As noted in Chapter 6, the proportion of GP practices in the Blaenau Gwent area that had signed up to provide their events data to SAIL had increased from 46% when the analysis was being completed to around 68% at time of writing.

7.17 For many of the Supporting People recipient subgroups shown in Charts 7.1 to 7.5 (below), a similar pattern can be seen in the number of days on which GP events occurred (monthly rate per service user). The monthly rate increases up to and around the point in time when people began receiving support from Supporting People, followed by a decline which, by 12 months (and in some cases by 6 or even 3 months) after the Supporting People intervention, fell to below the pre-support level.

7.18 As discussed above, small numbers mean that the margin of error around the changes over time for the Feasibility Study are relatively wide but where a consistent effect or trend over time is observed are nevertheless worthy of note and suggest some association between the support provided by Supporting People and levels of health service use.

7.19 Further analysis would be necessary to establish whether the reduced level of GP use described above was maintained longer-term.

7.20 The subgroups of Supporting People recipients for which the pattern described above **was not seen** (see Charts 7.1 to 7.5, below) were as follows:

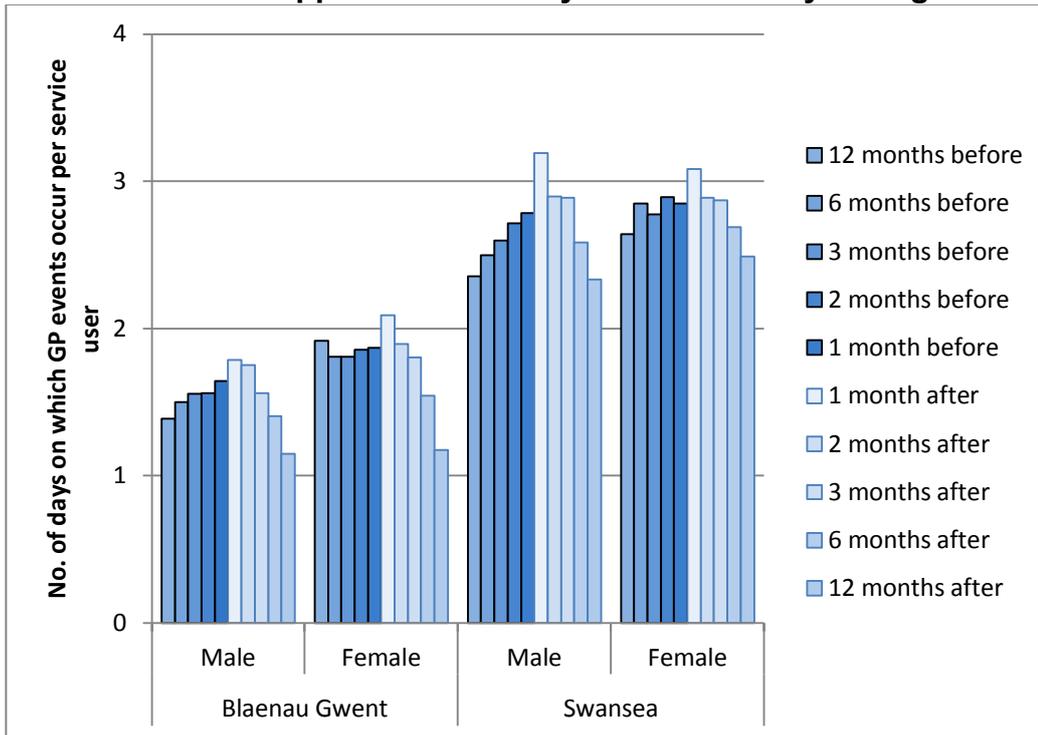
- Supporting People floating support recipients with the 'lead need' of 'young people aged 16 to 24 years' in Blaenau Gwent Local Authority.
- Supporting People floating support recipients aged 60 to 64 years and 85 years and over in Blaenau Gwent Local Authority.
- For Swansea Local Authority, Supporting People recipients being supported either for alcohol dependency or for domestic abuse, because they had learning difficulties, were a refugee or were defined as 'vulnerable young people'.
- The majority of five-year age groups for Swansea Local Authority including all five-year age groups 55 years and above.

7.21 The difference in rates by Local Authority seen in Chart 7.1 (below) may at least partly be explained by the fact that the Blaenau Gwent analysis is restricted to floating support recipients while the Swansea analysis includes data for all levels of support. Floating support is likely to be provided to people with relatively less severe needs so it would not be surprising if they also made less use of GP services. Differences in access to GP Out of Hours services may also play a part.

7.22 Possible explanations for the higher rate of GP use among older people in Swansea (see Chart 7.3b, below) are that:

- the Swansea data includes greater numbers of older people than the Blaenau Gwent data (45% of recipients were aged 55 years and over for Swansea compared with 25% aged 55 years and over for Blaenau Gwent) because the Swansea data included both sheltered tenants and floating support for older people;
- as noted above in Paragraph 35, the GP Event data was more complete for Swansea and, because older people tend to generate more GP Events, relatively more older people will be missing from the Blaenau Gwent analysis;
- there may be a difference in recording practice between the two Local Authorities. Further investigation would be needed to establish whether, for example, when people aged 55 years and over present to Supporting People, they were coded by default as 'People 55 years and over with support needs' even if they also belonged to another 'Lead Need' or 'Service Group' category. Working closely with data providers to explore these kinds of issues would be a key part of a full quantitative evaluation; and
- the figures are calculated per service user rather than per older person.

Chart 7.1 Number of days on which GP events occurred per service user in the months before and after support start date by Local Authority^a and gender



^a Swansea Local Authority Supporting People administrative data contains records for all service users; for Blaenau Gwent, the analysis is presented for floating support recipients only.

Chart 7.2 Blaenau Gwent Local Authority Supporting People floating support: number of days on which GP events occurred per 100 service users in the months before and after support start date by age group

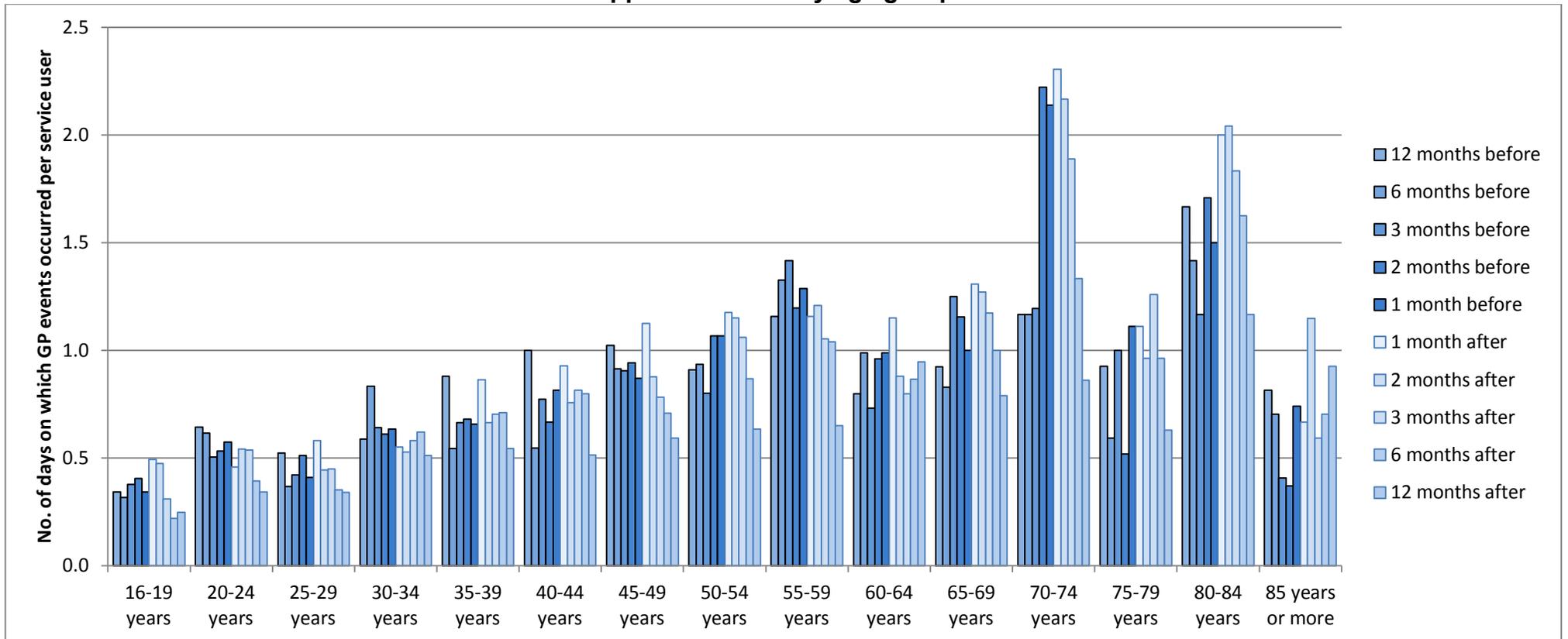


Chart 7.3 Swansea Local Authority: Number of days on which GP events occurred per service user in the months before and after support start date by age group of service user: five-year age group

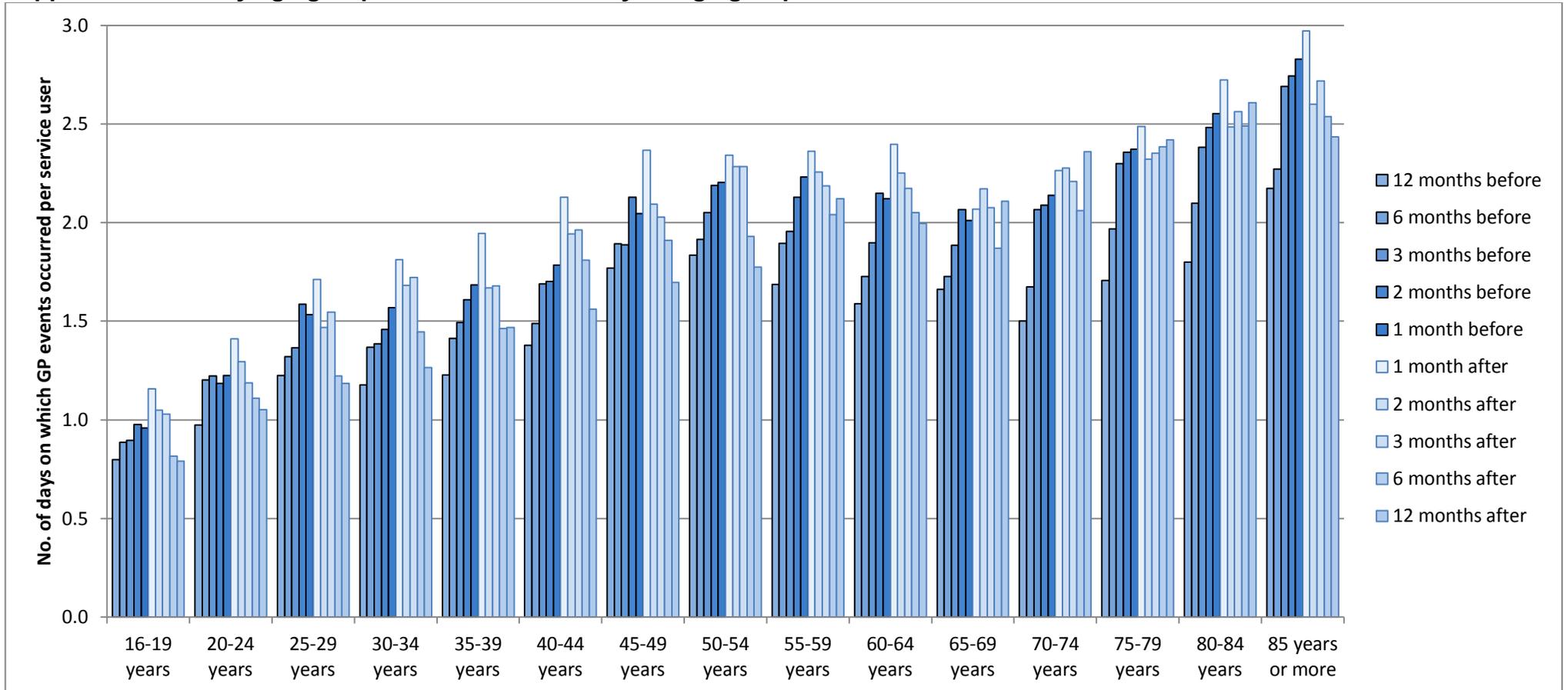
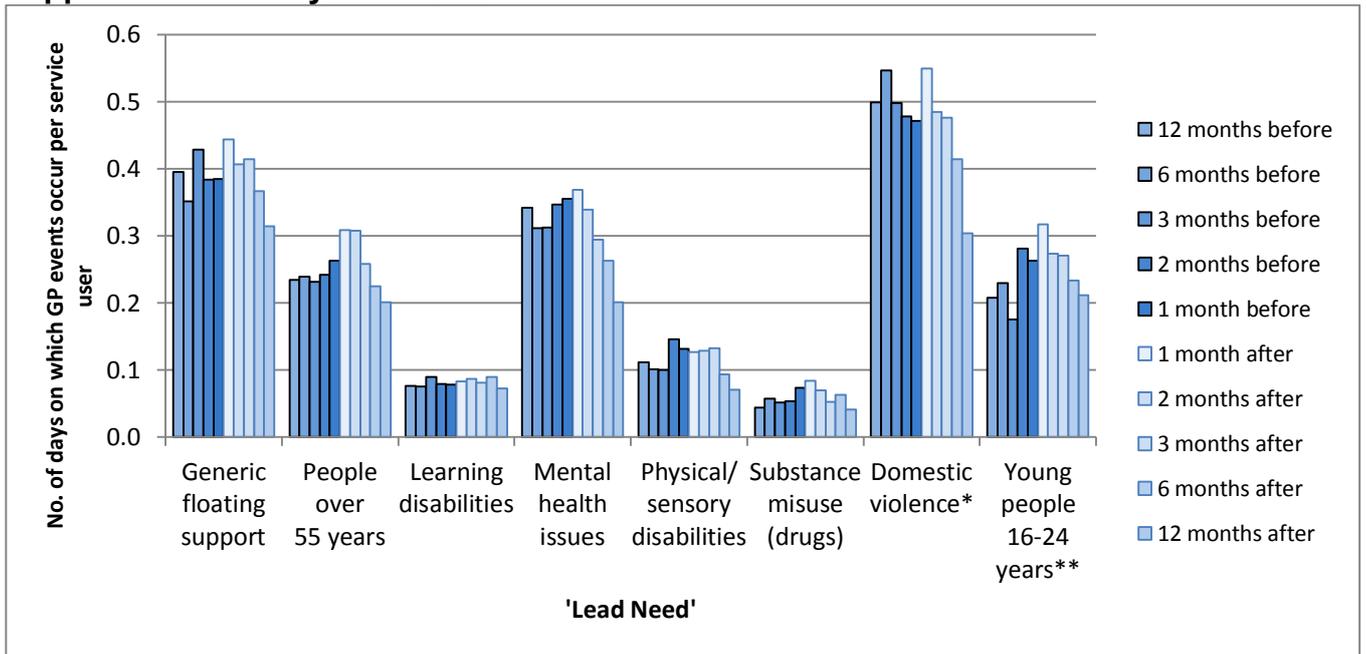


Chart 7.4 Blaenau Gwent Local Authority Supporting People floating support: number of days on which GP events occurred per service user in the months before and after support start date by service user 'Lead Need'^a

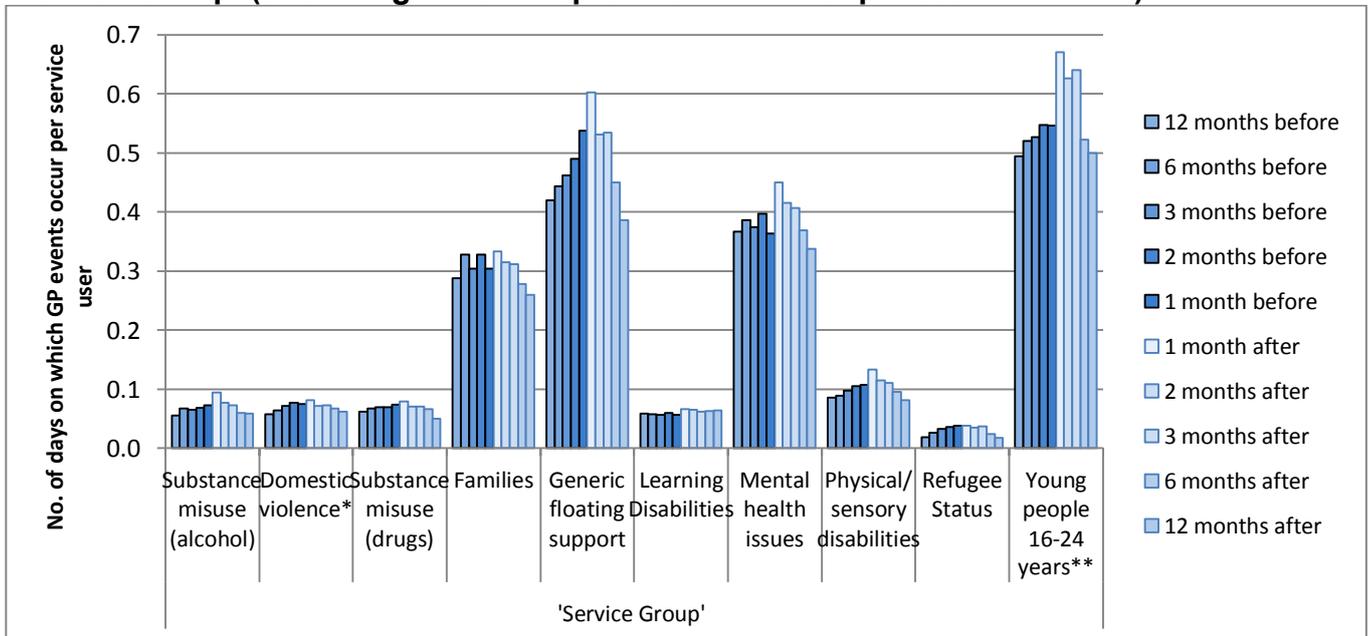


^a 'Lead need' categories containing fewer than 5 recipients have been suppressed e.g. care leavers, people with alcohol issues, people with chronic illnesses.

* Figures are for 'women experiencing domestic abuse' so are shown per female service user.

** Figures for young people aged 16-24 years are shown per service user aged 16-24 years.

Chart 7.5a Swansea Local Authority: number of days on which GP events occurred per service user in the months before and after Supporting People support start date by 'Service Group' (excluding Older People – for Older People see Chart 7.5b)^a

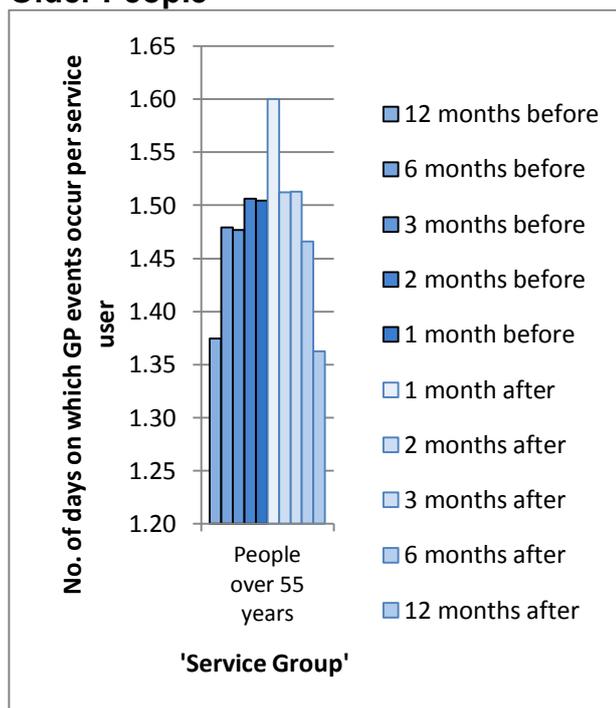


^a Recipients were excluded where no 'service group' code was provided (less than 1% of service users) or where there was an error in the service group code (6% of service users).

* Figures are for 'women experiencing domestic abuse' so are shown per female service user.

** 'Vulnerable young people' are defined as those aged 16-24 years; figures are shown per service user aged 16-24 years.

Chart 7.5b Swansea Local Authority: number of days on which GP events occurred per service user in the months before and after Supporting People support start date: Older People



7.23 The Research and Evaluation Steering Group wished to examine whether, irrespective of whether the level of health service use changed, the reasons for accessing a particular health service changed. As discussed in Chapter 2, an analysis was therefore undertaken to identify the GP diagnosis codes and prescribing codes that showed, respectively, the greatest increase and decrease during the 12 months after the Supporting People service start date.

7.24 It should be noted that, because the analysis is based on relatively small numbers of health events, change over time can only be based on small numbers, so it should be kept in mind that the findings shown in Tables 7.1 and 7.2 (below), should be considered both **exploratory and qualitative** in nature. For a full evaluation, where records from multiple Local Authorities could be combined for analysis purposes, small numbers would be less of a problem.

7.25 It should be noted that the prescribing codes for individual items have been analysed rather than the broader type of item as included in brackets. In other words, one particular antidepressant was the prescribing item that decreased the most after support began. This can only be considered indicative because there are numerous different antidepressant medications and ideally these should all be combined in the analysis. If a full evaluation were to proceed, methods could be developed to report by the broader type of prescribing rather than for individual medications.

7.26 For comparison purposes, the top five diagnosis codes and prescribing codes found in the general population (i.e. a control group of individuals matched on age, gender and Local Authority), is also shown. It should be noted that these are shown as totals for the period 2012-14, since there was no single point in time when they began receiving Supporting People services.

7.27 As a qualitative, exploratory exercise, the analysis has shown that the kinds of diagnosis and prescribing codes that decreased the most after the Supporting People

start date were mostly those one would expect to be associated with a crisis, whilst those that increased most were related to more routine healthcare.

7.28 It should also be kept in mind that, as noted above, the Supporting People start date is included in the 'after the start date' period; this may explain why 'assault' appears in the list of diagnosis codes that increased the most after the start date.

Table 7.1 Blaenau Gwent Supporting People floating support: GP diagnosis codes showing the greatest decrease and increase after the Supporting People start date plus the top five GP diagnosis codes for a general population comparison group

Order (top first)	Diagnosis code that decreased the most	Diagnosis code that increased the most	Top five diagnosis codes for general population
1	Poisoning (can include poisoning by drug overdose)	Benign neoplasm of skin	Upper respiratory infection
2	Anxiety with depression	chronic rhinitis	Chest infection
3	Alcohol dependence syndrome	Migraine	Pain in limb
4	Suicide and self inflicted injury	Acute bronchitis or bronchiolitis	Tonsillitis
5	Upper respiratory infection	Assault	Back pain

Table 7.2 Blaenau Gwent Supporting People floating support: GP prescribing codes showing the greatest decrease and increase after the Supporting People start date plus the top five GP prescribing codes for a general population comparison group

Order (top first)	Prescribing code that decreased the most	Prescribing code that increased the most	Top five prescribing codes for general population
1	Citalopram 20mg tablets (antidepressant)	Tiotropium 18µg inhalation capsules (bronchodilator)	Omeprazole 20 mg (for indigestion/gastric reflux)
2	Paracetamol (painkiller)	Metoclopramide 10mg tablets (heartburn)	Simvastatin 40 mbg (statin to reduce cholesterol)
3	Tramadol HCL 50mg capsules (painkiller)	Flucloxacillin 250mg capsules (antibiotic)	Bendroflumethiazide 2.5 mg (diuretic for high blood pressure)
4	Lactulose 3.35g/5mL solution (laxative)	Prednisolone 5mg tablets (steroid)	Paracetamol 500 mg (painkiller)
5	Diazepam 5mg tablets (anxiety disorders)	Promethazine 25mg tablets (allergy treatment)	Ventolin 100 µg Evohaler (asthma)

Accident and Emergency Visits

7.29 SAIL contains A&E data for all individuals registered with a GP in Wales.

7.30 The analysis has been done based on 'date of arrival'. It should be noted that for full evaluation study, 'date of incident', a separate code within the A&E data could also be analysed to establish whether the observed patterns change significantly. The 'date of incident' may be different to the 'date of arrival' if, for example, an injured patient for whatever reason does not attend A&E for some time after the injury has occurred.

- 7.31 Two key issues must be kept in mind when interpreting the analysis of A&E visits shown in Charts 9.6 to 9.10 (below):
- some individuals may attend A&E for conditions for which they should consult a GP. If a full evaluation proceeds, further analysis could be completed to examine the reasons why recipients were attending A&E in order both to a) focus on reporting conditions that Supporting People is designed to prevent and b) identify whether health service use became more appropriate after support is provided; and
 - A&E attendance is known to be related to the distance patients need to travel to access their nearest A&E Department²⁵. The distance people need to travel would have been different for Blaenau Gwent and Swansea Local Authorities and for different individuals within those Local Authorities. The more complex kinds of analysis that could be undertaken as part of a full quantitative evaluation would be designed to examine this issue further.
- 7.32 As discussed above, small numbers mean that for the Feasibility Study the margin of error around the differences shown in Charts 7.6 to 7.10 (below), are relatively wide. However, where a consistent effect or trend over time is observed this is nevertheless worthy of note and may suggest some association between the support provided by Supporting People and levels of health service use.
- 7.33 The difference in rates by Local Authority seen in Chart 7.6 (below), may partly be explained by the fact that the Blaenau Gwent analysis is restricted to floating support recipients while the Swansea analysis includes data for all levels of support; however, differences in access to GP Out of Hours services may also play a part.
- 7.34 For some of the Supporting People recipient subgroups shown in Charts 7.6 to 7.10 (below), a similar pattern can be seen in the number of A&E visits (monthly rate per service user) as was seen for GP visits. The monthly rate increases up to and around the point in time when people began receiving support from Supporting People, followed by a decline which, by 12 months (and in some cases by 6 or even 3 months) after the Supporting People intervention, fell to below the pre-support level.
- 7.35 Further analysis would be necessary to establish whether the reduced level of A&E use described above was maintained longer-term.
- 7.36 It should be noted that when the data for A&E Visits is analysed by age group and by either 'Lead Need' for Blaenau Gwent or 'Service Group' for Swansea Local Authority, as in Charts 7.9 and 7.10 (below), the numbers of recipients or events for some subgroups is relatively small. As discussed above, small numbers mean that the margin of error around the findings for the Feasibility Study are relatively wide but where a consistent effect or trend over time is observed are nevertheless worthy of note and suggest some association between the support provided by Supporting People and levels of health service use.
- 7.37 As discussed in Chapter 2 and above, small numbers would be less of a problem for a full quantitative evaluation, where data for greater numbers of recipients would be available for analysis. However, findings where a consistent effect or trend over time is observed are nevertheless worthy of note and suggest some association between the support provided by Supporting People and levels of health service use.
- 7.38 The subgroups of Supporting People recipients for which the pattern described above **was seen** (see Charts 7.6 to 7.10, below) were as follows:

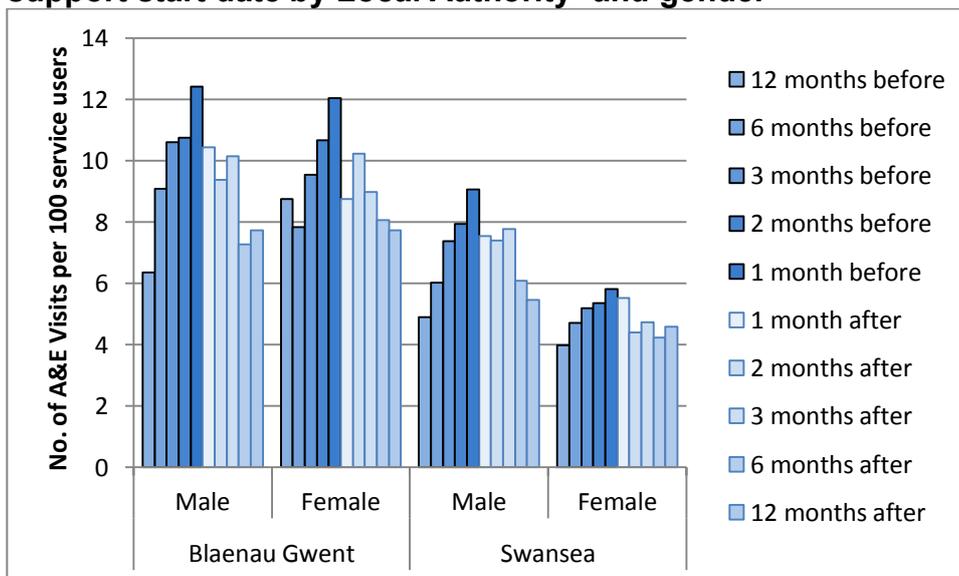
²⁵ Lyons R, Lo S, Heaven M, Littlepage B (1995) Injury surveillance in children – usefulness of a centralised database of accident and emergency attendances. *Injury Prevention* 1995;1:173-176 doi:10.1136/ip.1.3.173.

- Female Supporting People floating support recipients in Blaenau Gwent Local Authority.
- Blaenau Gwent Supporting People floating support recipients aged 35 to 39 years;
- Swansea Supporting People recipients aged 16 to 19 years, 25 to 29 years, 40-49 years and 65 to 69 years.
- Blaenau Gwent Supporting People floating support recipients with mental health issues or a physical disability.
- Swansea Supporting People recipients being referred to a specialist service for individuals with drug dependency or to a specialist service for people with a sensory or physical disability.

The remainder of the recipient subgroups did not show the pattern described above.

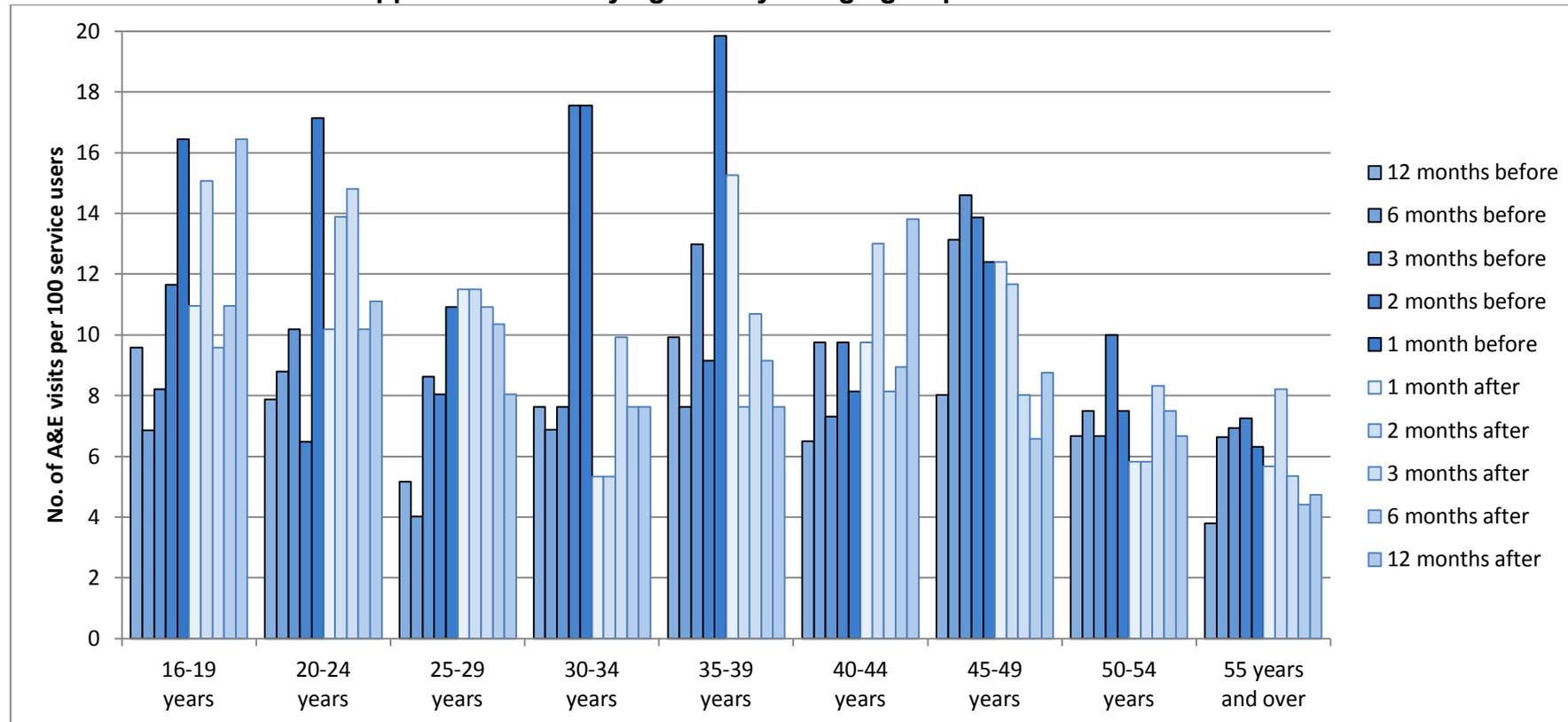
7.39 As noted above, an initial increase in the use of health services may be a positive impact of the support provided by Supporting People. It is also likely that analysing the data separately by whether repeated use has been made of Supporting People services and by duration and intensity of service provision will help to clarify the relationship between the support provided by Supporting People and levels of health service use. The more complex kinds of analysis that could be undertaken as part of a full quantitative evaluation would be designed to examine these issues further.

Chart 7.6 Number of A&E visits per 100 service users in the months before and after support start date by Local Authority^a and gender



^a Swansea Local Authority Supporting People administrative data contains records for all recipients; for Blaenau Gwent, the analysis is presented for floating support recipients only.

Chart 7.7 Blaenau Gwent Local Authority Supporting People floating support: Number of A&E visits per 100 service users in the months before and after support start date by age: five-year age group^a



^a Five-year age groups from age 55-59 years and above have been aggregated due to small numbers.

Chart 7.8 Swansea Local Authority: Number of A&E visits per 100 service users in the months before and after support start date by age: five-year age group

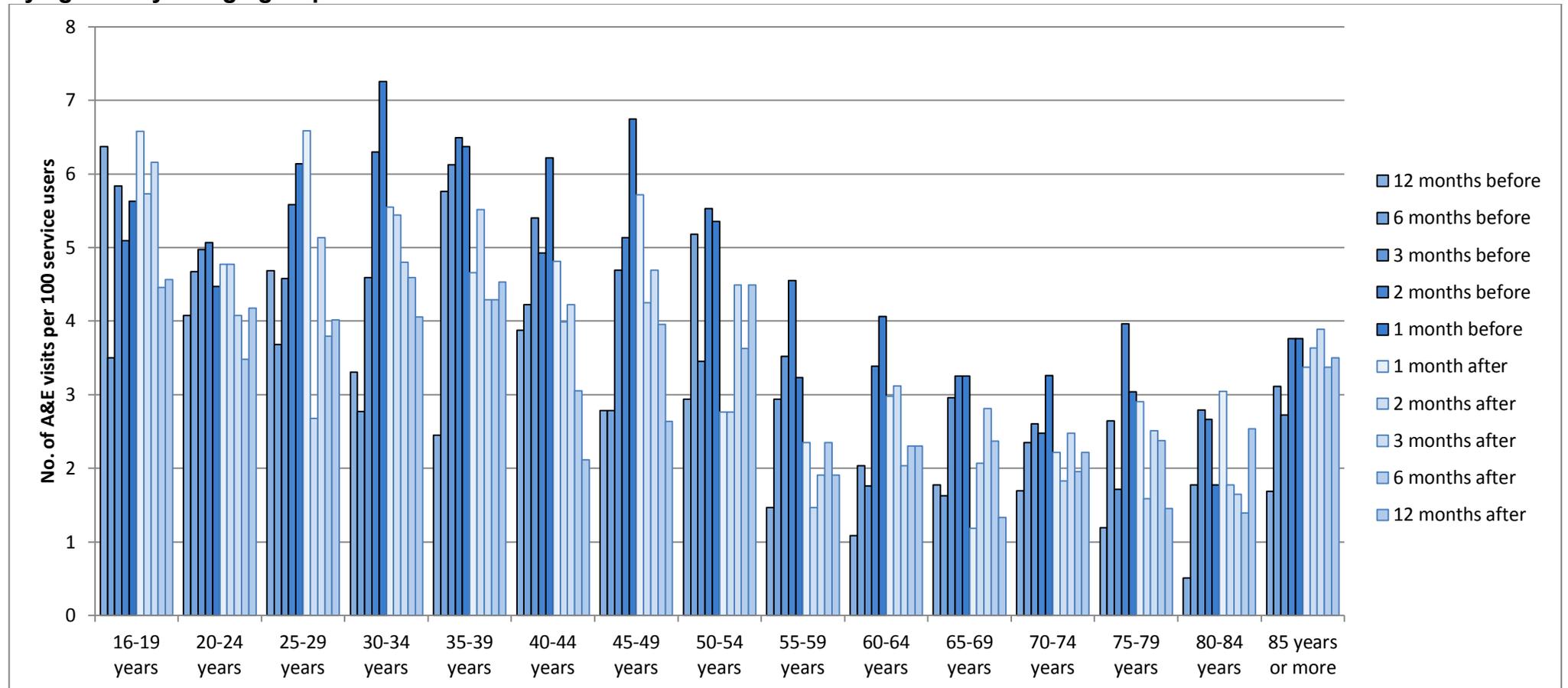
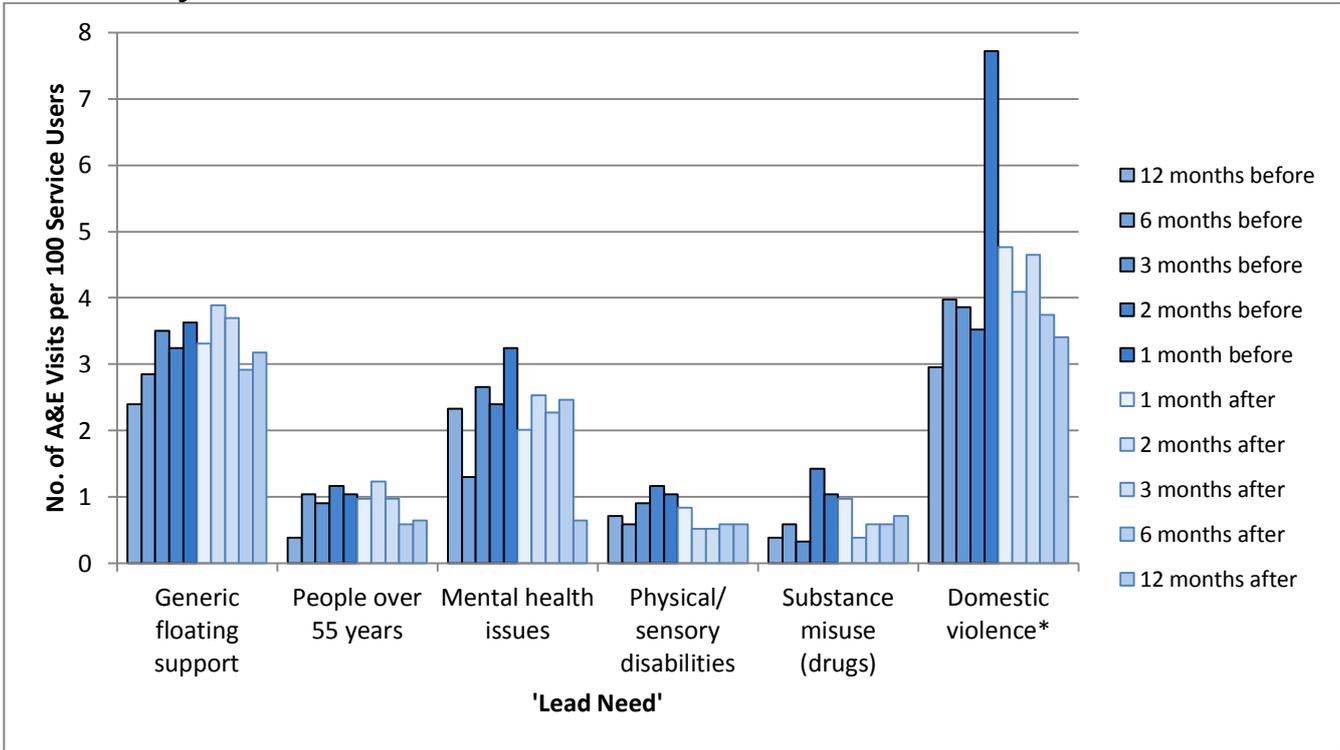


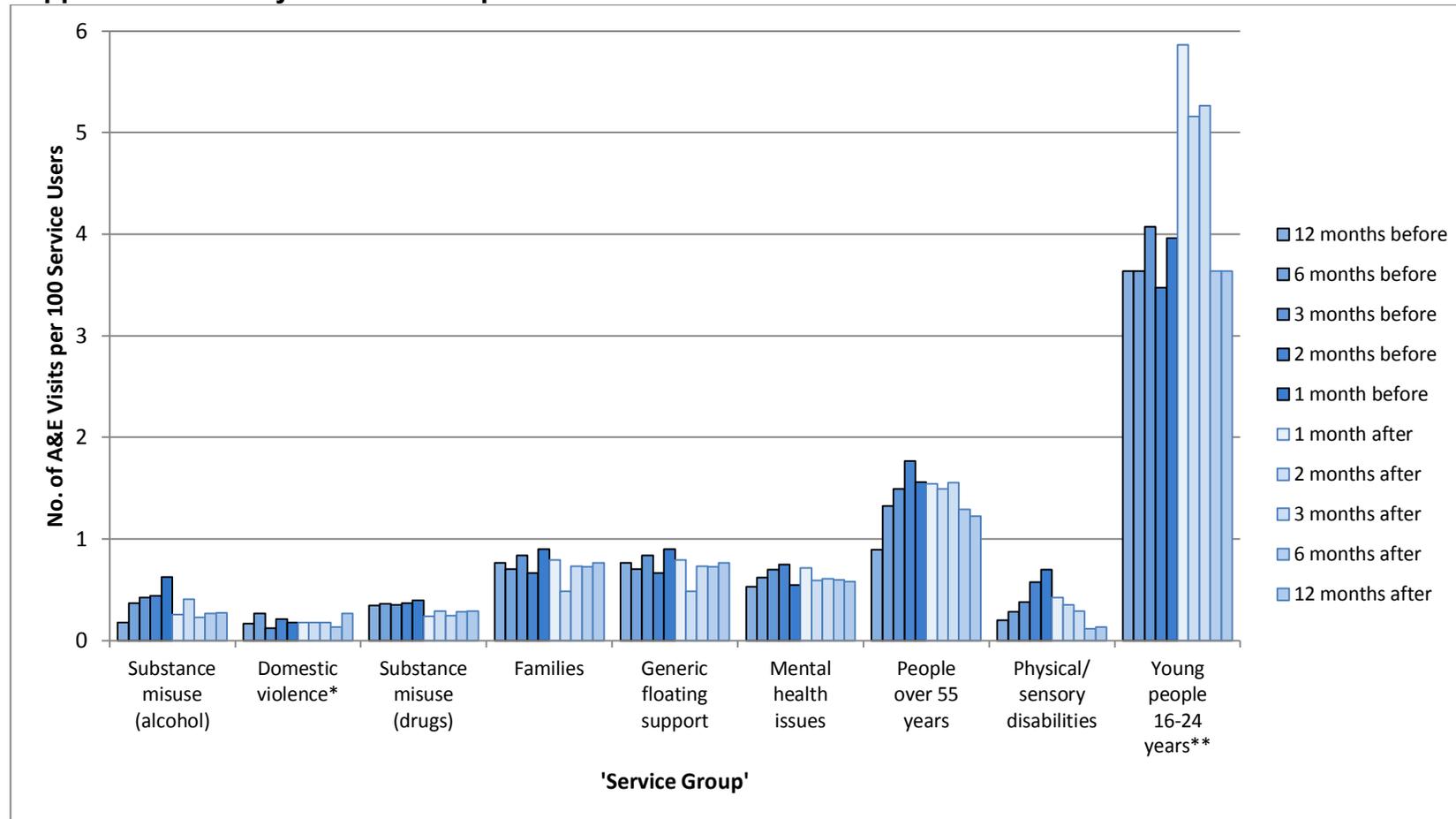
Chart 7.9 Supporting People floating support in Blaenau Gwent Local Authority: number of A&E Visits per 100 service users in the months before and after support start date by 'Lead Need'^a



^a 'Lead need' categories containing fewer than 5 recipients have been suppressed e.g. Learning disability, Young people aged 16 to 24 years.

* Figures are for 'women experiencing domestic abuse' so are shown per female recipient.

Chart 7.10 Swansea Local Authority: number of A&E Visits per 100 Supporting People recipients in the months before and after support start date by 'Service Group'^a



^a Service users were excluded where no 'service group' code was provided (less than 1% of recipients) or where there was an error in the 'Service Group' code (6% of recipients). 'Service Group' categories containing fewer than 5 recipients have been suppressed for reasons of disclosure control e.g. Learning difficulty, Refugee Status.

* Figures are for 'women experiencing domestic abuse' so are shown per female service users.

** Figures for young people aged 16-25 years are shown per service user aged 16-25 years.

- 7.40 An analysis of the top five reasons for visiting A&E (ICD10 chapter headings) before and after the Supporting People start date was undertaken to examine whether, irrespective of whether the level of health service use changed, the reasons for health service use changed (see Table 7.11, below).
- 7.41 For comparison purposes, the top five diagnosis codes found in the general population (i.e. a control group of individuals matched on age, gender and Local Authority), is also shown. It should be noted that these are shown as totals for the period 2012-14, since there was no single point in time when they began receiving Supporting People services.
- 7.42 It should be noted that, because the analysis is based on relatively small numbers of health events, change over time can only be based on small numbers, so it should be kept in mind that the findings shown in Tables 7.3 and 7.4 (below), should be considered both **exploratory and qualitative** in nature. For a full evaluation, where records from multiple Local Authorities could be combined for analysis purposes, small numbers would be less of a problem.
- 7.43 As a qualitative, exploratory exercise, the analysis shows that the reasons that decreased the most after Blaenau Gwent floating support was provided were gastrointestinal conditions and soft tissue injuries. For Swansea Local Authority, the reasons that decreased the most after the support start date were puncture wounds and 'social problems/homelessness' and the reasons that increased the most were 'ear nose and throat conditions' and 'burns, scolds and thermal conditions'. Among the reasons that increased the most were, for Blaenau Gwent, 'psychological/psychiatric conditions', 'wound' and for Swansea 'drowning'; it should be kept in mind in interpreting these findings that the day when Supporting People support began is included in the 'after' period.
- 7.44 If a full evaluation study proceeds, it is recommended that the data is explored further, possibly combining data from multiple Local Authorities to examine the issues raised above with regard to whether A&E services are being used appropriately and whether conditions purely relating to crisis should be the focus of this more descriptive kind of analysis. Qualitative research might also help to explore the appropriateness of the use made by Supporting People recipients of A&E departments.

Table 7.3 Blaenau Gwent Supporting People floating support: the reasons for visiting A&E that showed the greatest decrease and increase after the Supporting People start date plus the top five reasons for a general population comparison group^a

Order (top first)	ICD10 code that decreased the most	ICD10 code that increased the most	Top five diagnosis codes for the general population ^a
1	Gastrointestinal conditions	Psychological/psychiatric conditions	Other, mainly not diagnostically classified ^b
2	Soft tissue injury	Wound	Wound
3	Pain	Local infection	Joint injury
4	n/a ^c	Other, mainly not diagnostically classified ^b	Soft tissue injury
5	n/a ^c	n/a ^c	Fracture

a For this table, the comparator population was Wales, not Blaenau Gwent.

b This code may contain a variety of problems that are not available in the main classification and can include factors related to social issues, including homelessness.

c Further analysis was not possible due to small numbers of events.

Table 7.4 Swansea Supporting People: the reasons for visiting A&E that showed the greatest decrease and increase after the Supporting People start date plus the top five reasons for a general population comparison group

Order (top first)	ICD10 code that decreased the most	ICD10 code that increased the most	Top five diagnosis codes for general population ^a
1	Puncture Wounds	Ear, nose and throat conditions	Other, mainly not diagnostically classified ^b
2	Social problems/homelessness	Burns, scolds and thermal conditions	Wound
3	Soft tissue injury	Pain	Joint injury
4	Ophthalmic conditions	Drowning	Soft tissue injury
5	Endocrinological conditions ^c	Neurological conditions	Fracture

a For this table, the comparator population was Wales, not Blaenau Gwent.

b This code may contain a variety of problems that are not available in the main classification and can include factors related to social issues, including homelessness.

c This code includes a range of hormonal conditions, including those known to affect sleep and mood.

Emergency Hospital Admissions

7.45 SAIL contains hospital admissions data for all individuals registered with a GP in Wales.

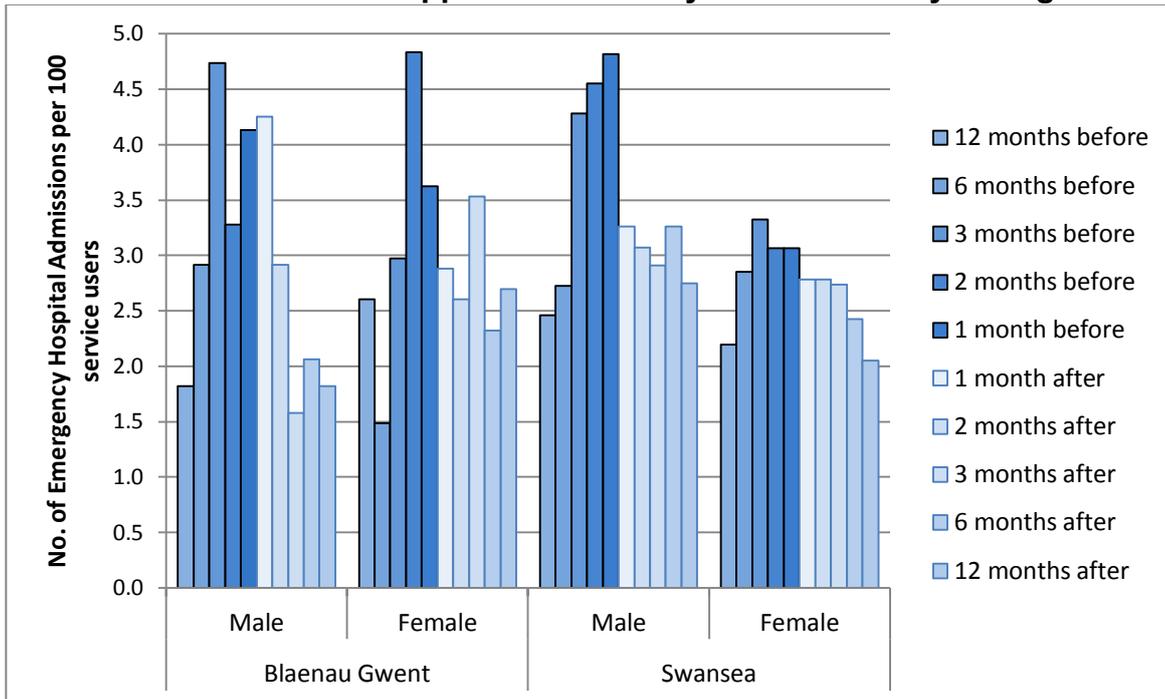
7.46 For the Feasibility Study, the decision was made to focus purely on emergency admissions – this was partly because the kinds of conditions that might be associated with an individual receiving Supporting People services were likely to result in emergency rather than elective admissions and partly because the timing of elective admissions would be more difficult to tie down to the specific spells of support. If a full evaluation proceeds, analysis of elective admissions and outpatients appointments could be presented if required.

7.47 It should be noted that when the data for emergency hospital admissions is analysed by ‘Lead Need’ for Blaenau Gwent and ‘Service Group’ for Swansea Local Authority, as in Charts 7.14 and 7.15 (below), the numbers of recipients or events for some subgroups is relatively small. As discussed in Chapter 2 and above, small numbers would be less of a problem for a full quantitative evaluation, where data for greater numbers of recipients would be available for analysis. However, findings where a consistent effect

or trend over time is observed are nevertheless worthy of note and suggest some association between the support provided by Supporting People and levels of health service use.

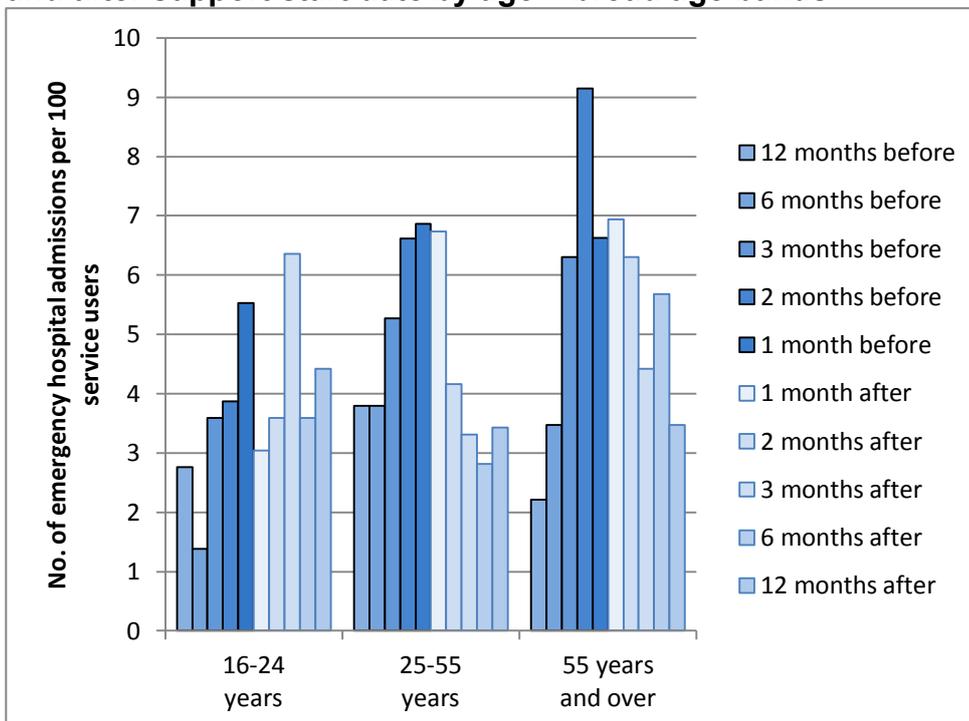
- 7.48 For some of the Supporting People recipient subgroups shown in Charts 7.11 to 7.15 (below), a similar pattern can be seen in the numbers of emergency hospital admissions (monthly rate per 100 recipient) to those seen for GP events. The monthly rate increases up to and around the point in time when recipients began receiving support from Supporting People, followed by a decline which, by 12 months (and in some cases by 6 or even 3 months) after the Supporting People intervention, fell to below the pre-support level.
- 7.49 Further analysis would be necessary to establish whether the reduced level of emergency hospital admissions described above was maintained longer-term.
- 7.50 The subgroups of Supporting People recipients for which the pattern described above **was seen** (see Charts 7.11 to 7.15, below) were as follows:
- Female Supporting People recipients in Swansea Local Authority.
 - Blaenau Gwent Supporting People floating support recipients aged 25 to 55 years;
 - Swansea Supporting People recipients aged 15 to 19 years, 25 to 29 years, 40-54 years and 60 to 64 years.
 - Blaenau Gwent Supporting People floating support recipients with the 'lead need' of generic floating support' and with mental health issues;
 - Swansea Supporting People recipients being referred to generic floating support or to a specialist service for domestic violence, substance misuse (drugs), mental health issues or a physical/sensory disability.
- 7.51 As discussed above, small numbers mean that for the Feasibility Study the margin of error around the differences shown in Charts 7.11 to 7.15 are relatively wide but where a consistent effect or trend over time is observed this is nevertheless worthy of note and suggests some association between the support provided by Supporting People and levels of health service use.
- 7.52 The difference in rates by Local Authority seen in Chart 7.11 (below), may be explained by the fact that the Blaenau Gwent analysis is restricted to floating support recipients while the Swansea analysis includes data for all levels of support. floating support is likely to be provided to recipients with relatively less severe needs so it would not be surprising if they also had fewer emergency hospital admissions.
- 7.53 As noted above, an initial increase in the use of health services may be a positive impact of the support provided by Supporting People. It is also likely that analysing the data separately by whether repeated use has been made of Supporting People services and by duration and intensity of service provision will help to clarify the relationship between the support provided by Supporting People and levels of health service use. The more complex kinds of analysis that could be undertaken as part of a full quantitative evaluation would be designed to examine these issues further.

Chart 7.11 Number of emergency hospital admissions per 100 service users in the months before and after support start date by Local Authority^a and gender



^a Swansea Local Authority Supporting People administrative data contains records for all recipients; for Blaenau Gwent, the analysis is presented for floating support recipients only.

Chart 7.12 Blaenau Gwent Local Authority Supporting People floating support: Number of emergency hospital admissions per 100 service users in the months before and after support start date by age – broad age bands^a



^a Numbers were too small to show five-year age groups.

Chart 7.13 Swansea Local Authority: Number of emergency hospital admissions per 100 service users in the months before and after support start date by age: five-year age group

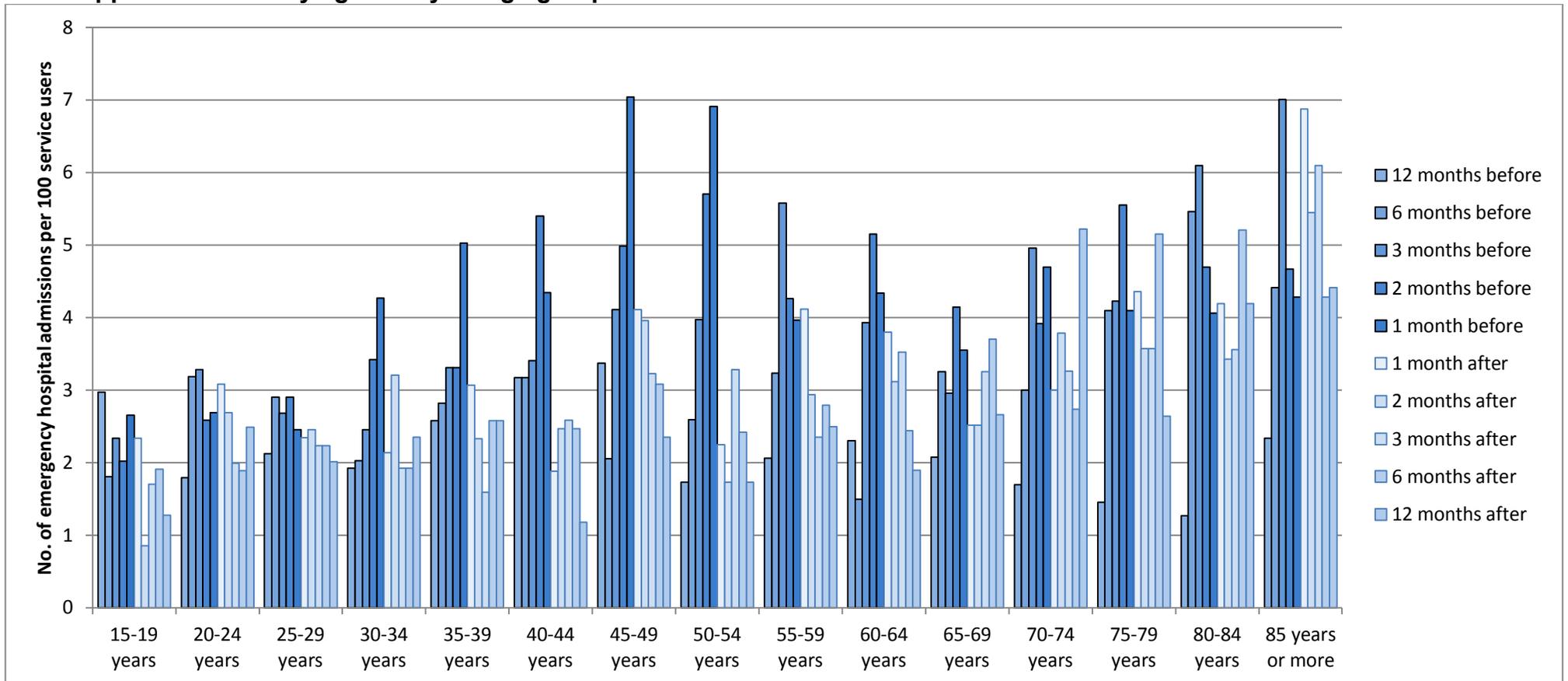
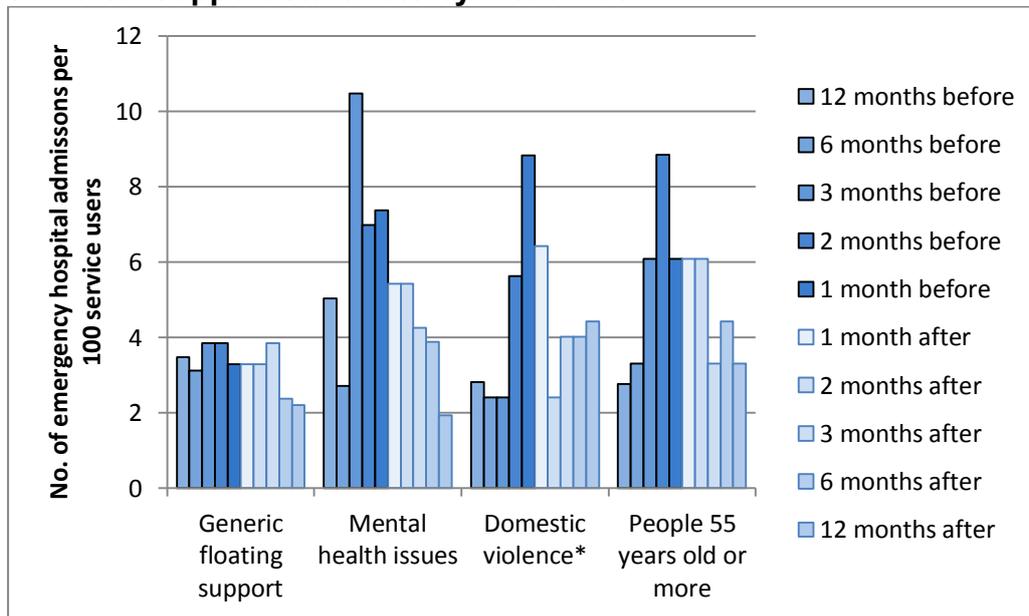


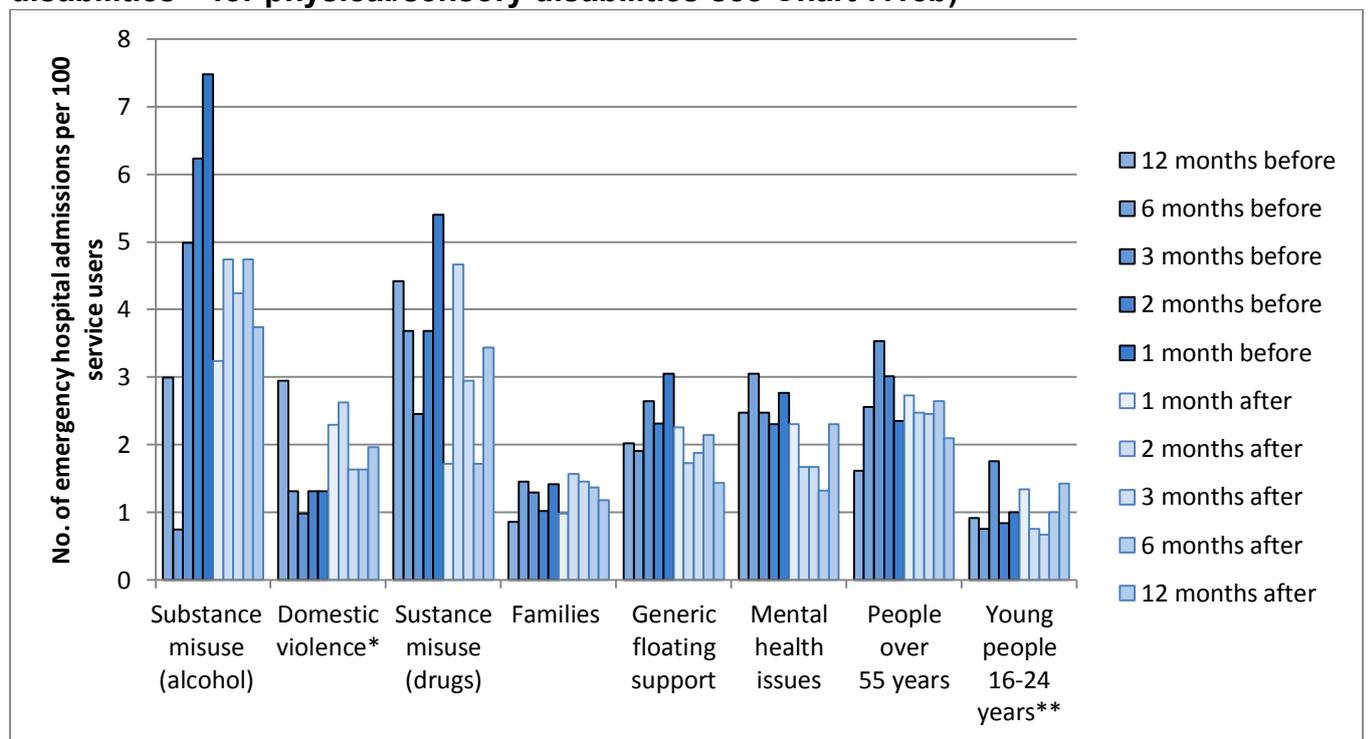
Chart 7.14 Blaenau Gwent Local Authority Supporting People floating support: emergency hospital admissions per 100 service users in the months before and after support start date by 'Lead Need'^a



^a 'Lead need' categories containing fewer than 5 recipients have been suppressed e.g. Young people 16-24 years and Refugee status.

* Figures are for 'women experiencing domestic abuse' so are shown per female recipient.

Chart 7.15a Swansea Local Authority: number of emergency hospital admissions per 100 service users in the months before and after Supporting People support start date by 'Service Group' (excluding physical/sensory disabilities – for physical/sensory disabilities see Chart 7.15b)^{a,b}



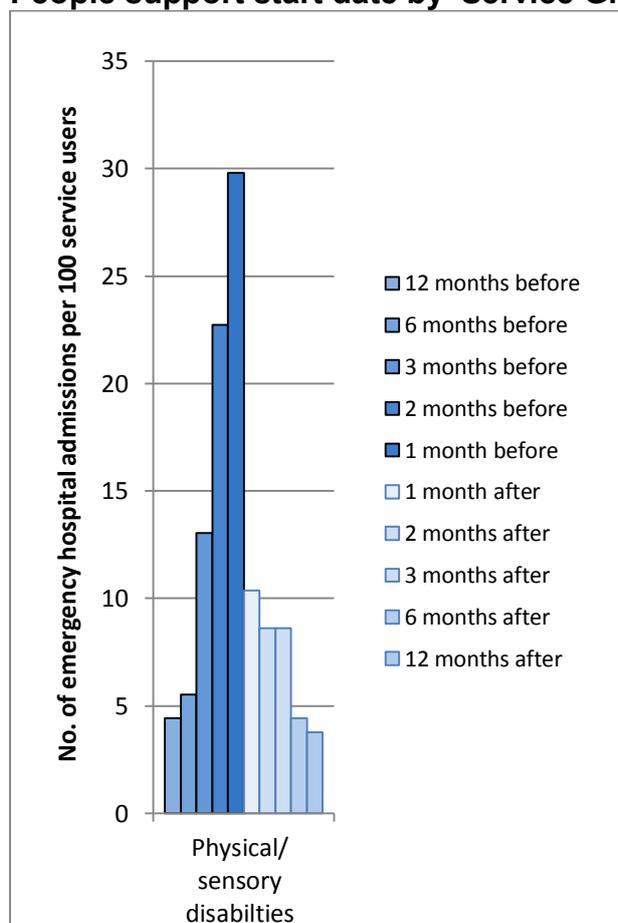
a Service users were excluded where no 'service group' code was provided (less than 1% of recipients) or where there was an error in the service group code (6% of recipients).

b Service user categories containing fewer than 5 recipients have been suppressed e.g. learning disabilities and refugee status.

* Figures are for 'women experiencing domestic abuse' so are shown per female recipient.

** 'Vulnerable young people' are defined as those aged 16-24 years; figures are shown per service user aged 16-24 years.

Chart 7.15b Swansea Local Authority: number of emergency hospital admissions per 100 service users in the months before and after Supporting People support start date by 'Service Group': physical/sensory disabilities



7.54 An analysis of the top five reasons for emergency admissions was undertaken in order to provide a picture of the baseline situation before recipients began receiving support from Supporting People, for recipients compared with a control group i.e. people of a similar age and gender living in the same local authority. This analysis is designed to examine whether, irrespective of whether the level of health service use were different, the reasons for health service use were different.

7.55 Table 7.5 (below), shows the top five reasons for emergency hospital admissions for Blaenau Gwent Supporting People floating support recipients compared with the top five reasons for a control group. The fact that the top reasons for the Supporting People floating support recipients were 'injury and poisoning' and 'mental health' when the top reasons for the general population were cancer and diseases of the circulatory system is consistent with Supporting People support being provided in response to a health crisis for some recipients.

7.56 The same analysis for Swansea Local Authority showed a similar pattern, with 'injury and poisoning' appearing in second position for Supporting People recipients compared with fifth position for the general population (see Table 7.6, below). It should be noted that, below these headline ICD10 'chapter headings' further detail is available that could be analysed in greater detail if a

full evaluation were to proceed; in this case, it is notable that ‘senility’ was among the most frequent ‘Symptoms or signs with no diagnosis classifiable elsewhere’ for the Supporting People recipients but not for the general population. It is also worth noting that three of the five most frequent ‘Injury and poisoning’ codes for Supporting People recipients were ‘Poisoning by non-opioid analgesics, antipyretics and anti-rheumatics’, ‘Poisoning by psychotropic drugs, not elsewhere classified’ and ‘Poisoning by narcotics and psychodysleptics (hallucinogens)’. Poisonings were not among the five most frequent ‘Injury and poisoning’ codes for the general population. Bearing this in mind and looking back to the findings about deaths within the Supporting People recipient population in the year following the support start date (see Paragraph 6.9, above), if a full evaluation were to proceed, it is recommended that the causes of these deaths are examined.

7.57 For Swansea Local Authority, the reasons for Emergency Hospital Admissions were compared in the year before and the year after first support start date in order to examine which ICD 10 chapter of primary diagnosis changed the most. Only the reasons that decreased are shown in Table 7.6 (below), because there was only one reason for which emergency hospital admissions increased during the year after first support start date - this was ‘diseases of the respiratory system. It is worth noting that two of the reasons that decreased the most after the Supporting People start date were related to mental health and injury and poisoning.

7.58 It should be noted that, because the analysis is based on relatively small numbers of health events, change over time can only be based on small numbers, so it should be kept in mind that the findings shown in Table 7.6 (below), should be considered both **exploratory and qualitative** in nature. For a full evaluation, where records from multiple Local Authorities could be combined for analysis purposes, small numbers would be less of a problem.

Table 7.5 Blaenau Gwent Local Authority: the top five reasons for emergency hospital admissions^a

Order (top first)	Supporting People floating support recipients	The general population ^b
1	Injury and poisoning ^c	Neoplasms (i.e. cancer and melanoma)
2	Mental, behavioural and neurodevelopmental disorders	Diseases of the circulatory system
3	Symptoms or signs with no diagnosis classifiable elsewhere ^d	Infectious and parasitic diseases
4	Diseases of the digestive system	Diseases of the digestive system
5	Diseases of the respiratory system	Endocrine and nutritional disorders

a Main reason for emergency admission only; excluding pregnancy and childbirth

b For people of a similar age and gender living in the same local authority

c Full ICD10 text (International Statistical Classification of Diseases and Related Health Problems 10th Revision) is ‘Injury, poisoning and certain other consequences of external causes’.

d Full ICD10 text is ‘Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified’.

Table 7.6 Swansea Local Authority: the top five reasons for emergency hospital admissions (for Supporting People recipients and a general population comparison group) plus the reasons for emergency hospital admissions that showed the greatest decrease after the Supporting People start date^a

Order (top first)	Supporting People recipients: ICD10 code that decreased the most	Supporting People recipients: top five ICD10 codes	The general population ^b : top five ICD10 codes
1	Diseases of the circulatory system	Symptoms or signs with no diagnosis classifiable elsewhere ^d	Symptoms or signs with no diagnosis classifiable elsewhere ^d
2	Mental, behavioural and neurodevelopmental disorders ^c	Injury and poisoning ^c	Diseases of the respiratory system
3	Injury and poisoning ^c	Diseases of the circulatory system	Diseases of the circulatory system
4	Diseases of the musculoskeletal system and connective tissue	Diseases of the digestive system	Diseases of the digestive system
5	Diseases of the skin and subcutaneous tissue	Diseases of the respiratory system	Injury and poisoning ^c

a Main reason for emergency admission only; excluding pregnancy and childbirth

b For people of a similar age and gender living in the same local authority

c Full ICD10 text (International Statistical Classification of Diseases and Related Health Problems 10th Revision) is 'Injury, poisoning and certain other consequences of external causes'.

d Full ICD10 text is 'Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified'.

Potential analysis methods for a full evaluation study

7.59 As noted above, only a small number of simple analyses could be completed in the limited time scales available to the Feasibility Study. If a full evaluation study proceeds, more complex exploratory methods could be used in order to inform the analysis, including the following:

- More exploratory analysis e.g. to examine the reasons for the use of health services, in order to focus on reasons that might be more closely related to a crisis or to Supporting People.
- Analysis methods designed to model the effect of time on the effectiveness of an intervention e.g. stepped wedge methods^{26,27}.
- The kinds of clustering or segmentation analysis used in the *Welsh Government Data Linking Demonstration Project - Journey Mapping for Patients with Multiple Chronic Health Conditions*²⁸. This could be used to split Supporting People recipients into groups apparently experiencing similar crises and/or receiving similar levels and durations of support in order to allow more detailed analysis to be completed for groups with

²⁶ https://openi.nlm.nih.gov/detailedresult.php?img=1636652_1471-2288-6-54-1&req=4

²⁷ <http://www.trialsjournal.com/series/SteppedWedge>

²⁸ <http://gov.wales/docs/caecd/research/131206-data-linking-demonstration-project-journey-mapping-patients-multiple-chronic-health-conditions-en.pdf>

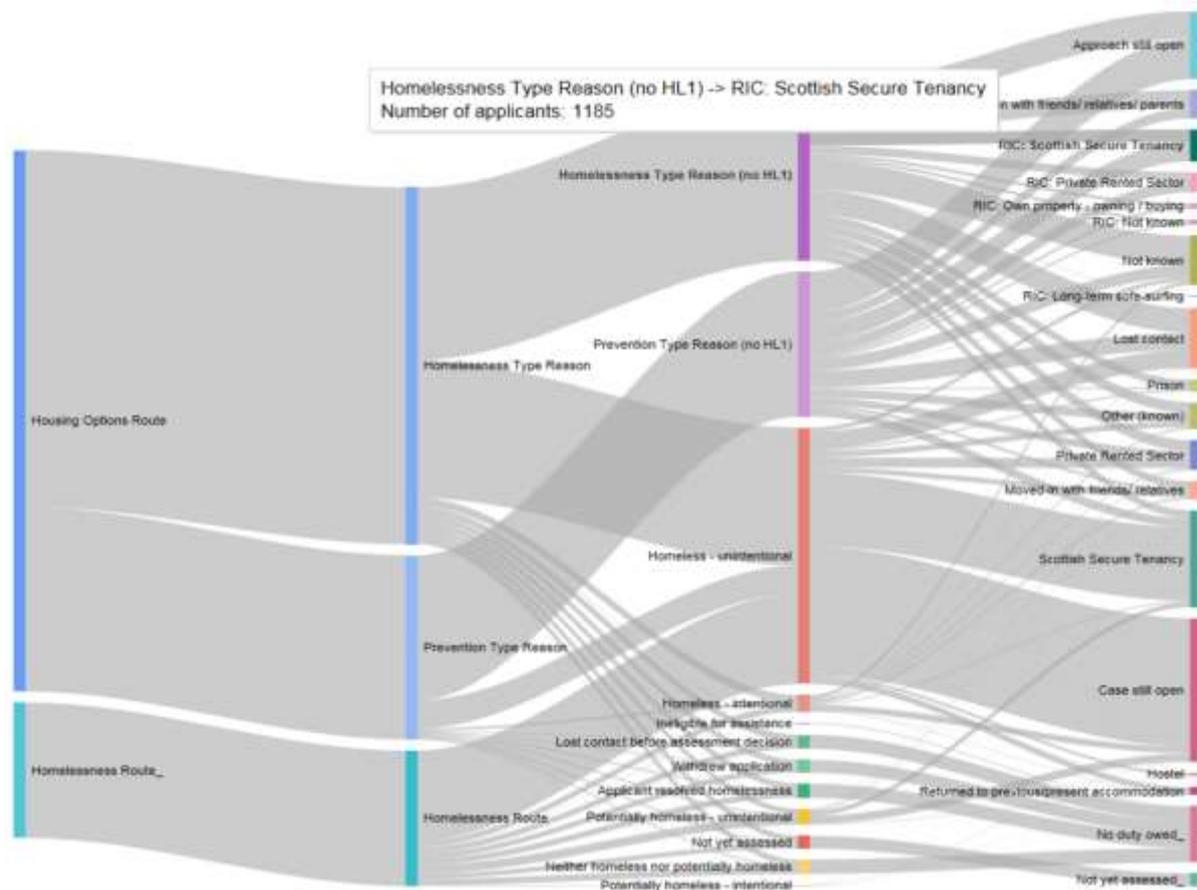
similar 'pathways' or experiences, either in terms of Supporting People or health service use. For Supporting People, similar methods could be used in order to identify groups of recipients with similar patterns of health service use before and after Supporting People intervention and to explore their characteristics. This would potentially allow policymakers to identify the recipient groups for which Supporting People has the most significant impact in order to better target future schemes.

- For example, recipients could be split into those experiencing 'acute' crises that consist of relatively few health events over a short period and recipients suffering from 'chronic' crises that appear to consist of numerous or increasing events over a longer period of time.
- Multivariate regression methods that would allow the drivers of health service use to be disentangled. The findings shown in Charts 7.1 to 7.15 (above), suggest that there are clear variations in the pattern of health service use by age and service group. Age may interact with 'lead need' to some extent to produce these patterns – for example, the use of A&E goes down over time and GP use goes up over time. There is some indication that younger age groups are also more resilient i.e. they are more likely to have health service use that is lower after the crisis than before - and this may reflect the type of event that results in Supporting People intervention. This makes sense where older people may have a serious health crisis that requires long-term recuperation or results in permanently poorer health/the need for long-term ongoing care. This suggests that by analysing by age or gender alone may obscure more complex patterns of the impact of Supporting People support on health service use. Analysing the data taking gender, age, 'service group' or 'lead need' and other characteristics into account would provide a much more robust analysis of the observed variation in health service use.

For all of the above methods, analysing the data separately by whether repeated use has been made of Supporting People services and by duration and intensity of service provision may help to clarify the relationship between the support provided by Supporting People and levels of health service use.

- 7.60 In order to demonstrate the impact of the Programme, the routine Supporting People administrative data can also be used in more qualitative ways to explore recipient journeys and patterns, using both the segmentation analysis mentioned above and innovative visualisation techniques.
- 7.61 One example of an innovative visualisation technique that might be of particular interest is a Sankey diagram. Sankey diagrams are a specific type of flow diagram, in which the width of the arrows is shown proportionally to the flow quantity – in the example reproduced below, the numbers of individuals receiving homelessness advice of different kinds are shown.

Figure 7.7 Scottish Government Sankey diagram for homelessness^a



^a Reproduced from <http://www.gov.scot/Topics/Statistics/Browse/Housing-Regeneration/RefTables/adhoc-analysis/hl1sankey>.

7.62 In summary, then, if a main stage evaluation proceeds, more complex analysis methods could be used in combination with a parallel qualitative study and innovative visualisation methods fully reflect the complexities of the data.

Conclusion: So, what does all of this mean for the feasibility of a full evaluation?

7.63 As noted above, there are challenges in acquiring and preparing the Supporting People administrative data for analysis and in developing analysis methods appropriate to the complexity of the data.

7.64 Nevertheless, overall indications are that a quantitative evaluation would be likely to produce statistically robust substantive findings. If a full evaluation study proceeds, more complex analysis methods could be used in order to fully reflect the complexities of the data.

8 Findings: The Feasibility of Creating a Control Group

Key Points

In terms of creating a robust control group, the following can be reported:

- A range of options for creating a control group are proposed, some of which are likely to result in the creation of a more robust control group than others;
- Some of the options discussed above require the acquisition of additional datasets, some of which would be acquired by the UK ADS if an ADRN project were completed as part of the full evaluation. Data acquisition from Local Authorities would need to be completed as part of the full evaluation;
- As a result of a **provisional** analysis of the number of days on which GP events occurred for all Blaenau Gwent floating support recipients compared with a comparison group made up of 'unsuccessful' records and records with a 'reason for leaving' of 'failed to engage', the following is reported:
 - Supporting People recipients had on average around 1 more GP event per month than the control group in the months before the reference date;
 - Those receiving support from Supporting People had a greater use of GPs in the period immediately after support began than the control group; this may suggest that Supporting People was helping recipients make more appropriate use of health services, which at the point of crisis means seeking treatment; and
 - Those receiving support from Supporting People showed a greater decline in use between the period of 1 month after and 12 months after the reference date (an average decline of 0.8 days on which GP events occurred per service user compared with an average of 0.2 days for those who were 'unsuccessful' or 'failed to engage'); this may suggest that Supporting People was helping recipients in ways that reduced the burden on health services.
- Equally, however, it must be kept in mind that the reduction may to some extent be greater for Supporting People recipients than controls because the service user group may be made up of higher risk individuals. The possibility of 'regression to the mean' must be kept in mind and it is recommended that the more complex methods required to control for 'regression to the mean' are undertaken if a full evaluation proceeds.
- In practice, it is recommended that if a full evaluation proceeds, the project should attempt to construct control groups using several of the methods proposed and undertake sensitivity analysis to test their suitability before choosing to use one or more in the final analysis.
- If a full evaluation proceeds, it is recommended that a parallel qualitative study is undertaken in order to inform the final choice of control group(s), to inform the analysis and to provide further context when reporting the findings.

- 8.1 As noted in Chapter 2, creating a control group will allow the most credible assessment to be made of the impact of Supporting People. In making recommendations about the feasibility of creating a control group, the researcher took into account the findings of the literature review (see Chapter 3) and practical considerations around data availability as well as making an assessment of how truly comparable any particular potential control group might, in practice, be.
- 8.2 The key to identifying a suitable control group is to find groups of individuals in the routine administrative data who share as many of the characteristics of the Supporting People recipients as possible but who have not received Supporting People support.
- 8.3 Given the vulnerable groups involved e.g. people with substance misuse problems, women experiencing domestic violence, and the fact that these

individuals are coming to Supporting People at a time when they are at risk of homelessness, for most of the Supporting People recipient groups the general population is unlikely to provide a particularly informative control group.

- 8.4 As noted in the literature review, Hwang et al. (2013), when attempting to research the use homeless individuals made of a system of universal health insurance, used a control group consisting of age- and gender-matched, low-income individuals from the general population. They found particularly high emergency department and inpatient hospital use for homeless individuals. Matching purely on age, gender and income was an acceptable comparison when all the authors were trying to do was to highlight the additional burden on health services associated with homelessness. For this study, where we are trying to identify the difference Supporting People makes to people at risk of homelessness, the control group needs, ideally, to also have been at risk of homelessness or at the least to have been experiencing a very similar, severe life event or crisis.
- 8.5 This Chapter documents the findings with regard to the feasibility of creating a control group. The options identified for constructing a control group are listed in Table 8.1 (below), along with the advantages and disadvantages of each as well as any unknowns with regard to their usefulness. The options are ranked in order of suitability with the strongest option shown first. As discussed below, ideally a range of possible control groups with different strengths and weaknesses should be constructed in order to give as accurate an indication as possible of the impact of the Supporting People Programme.
- 8.6 It should also be noted that from the inception of the Project the Research and Evaluation Steering Group understood that it may not be possible to construct a valid control group. Where creating a truly robust, comparable control group may be difficult, a full evaluation study should nevertheless consider undertaking comparative analysis with as many groups of similar individuals as possible in order to assist in interpreting the findings.

What are the Options for Constructing Control or Comparison Groups?

- 8.7 As noted above, given the very particular vulnerable groups supported by the Supporting People programme, constructing a control group presents a major challenge. It is likely to be for precisely the reasons someone is threatened with homelessness - and are in need of the support offered by Supporting People - that they are different to individuals living in more secure housing circumstances. The challenge, therefore, is to identify a control group composed of individuals with characteristics that are as similar as possible to those of the Supporting People recipients and/or who are undergoing very similar life events. The options summarised in Table 8.1 (below), are discussed briefly in the following sections.

Using Supporting People routine administrative records

- 8.8 The simplest way to construct a control group would be use the records available in the Supporting People routine administrative data itself. Three potential groups of interest were identified within the Supporting People data:
 - The individuals coded as 'unsuccessful' in the Blaenau Gwent Supporting People data;

- Supporting People recipients whose ‘support needs were not met’; and
 - Supporting People recipients who received services for a relatively short duration.
- 8.9 As discussed in more detail in Chapter 5, over 600 records contained a ‘reason unsuccessful’ (see Table 5.2). Although for some individuals support was ‘no longer required’, in the majority of cases the reasons provided suggest that the individual may make an informative comparison group e.g. ‘failed to engage’, ‘crisis’, ‘mental health criteria’. However, it should be noted that the same individuals may have received support on another occasion i.e. been ‘successful’.
- 8.10 As discussed in more detail in Chapter 5, a number of ‘reasons for leaving’ were also recorded for Supporting People recipients (see Table 5.11). The reason coded for the majority of records was ‘support needs met’, which suggests that, for some of the remaining codes, the individuals’ support needs were ‘not met’. In some cases, people died, went to prison or were referred to another service. However, some of the reasons suggest that the individuals left Supporting People voluntarily before receiving the full spell of support they were expected to receive. This may mean, depending on the duration of support they received before they left, that they may provide an informative comparison group for analysis. Codes such as ‘failed to engage’ and ‘refused further support’ could be investigated for inclusion as comparisons if a full evaluation proceeds. For Blaenau Gwent floating support, a total of 474 cases either ‘failed to engage’ or ‘refused further support’, which suggests that if records were aggregated across Local Authorities, numbers may be sufficient to provide a sufficiently large comparison group for analysis purposes, particularly if combined with the ‘unsuccessful’ cases.
- 8.11 Using ‘unsuccessful’ cases and cases where the individual left before their support needs were met would have similar advantages and disadvantages, since both are established to be at risk of homelessness but either not to have received support or to have received support of a shorter duration than was expected to be necessary. These two groups of individuals are also likely to be different to Supporting People recipients in ways that are relatively easy to understand e.g. relatively more chaotic and risky lifestyles or relatively more secure support networks to fall back on. It should be noted that, if a full evaluation were to proceed, some parallel qualitative research with practitioners would help to provide a picture of the kinds of individuals who are ‘unsuccessful’ in order to inform the analysis and formulate suitable caveats when using these groups as comparators. Based on the figures provided above, these individuals may be available in relatively small numbers within each Local Authority, but by combining cases across Local Authorities, it may be possible to gather sufficient cases to create a robust control group.
- 8.12 Although further exploratory analysis would be required before a genuinely robust comparison could be made, some **provisional** analysis is provided in Chart 8.1 (below), showing the number of days on which GP events occurred for all Blaenau Gwent floating support recipients compared with a comparison group made up of people who were ‘unsuccessful’ and people with a ‘reason for leaving’ of ‘failed to engage’. Cases where the ‘reason for leaving’ was coded as ‘refused further support’ were excluded from this analysis on the

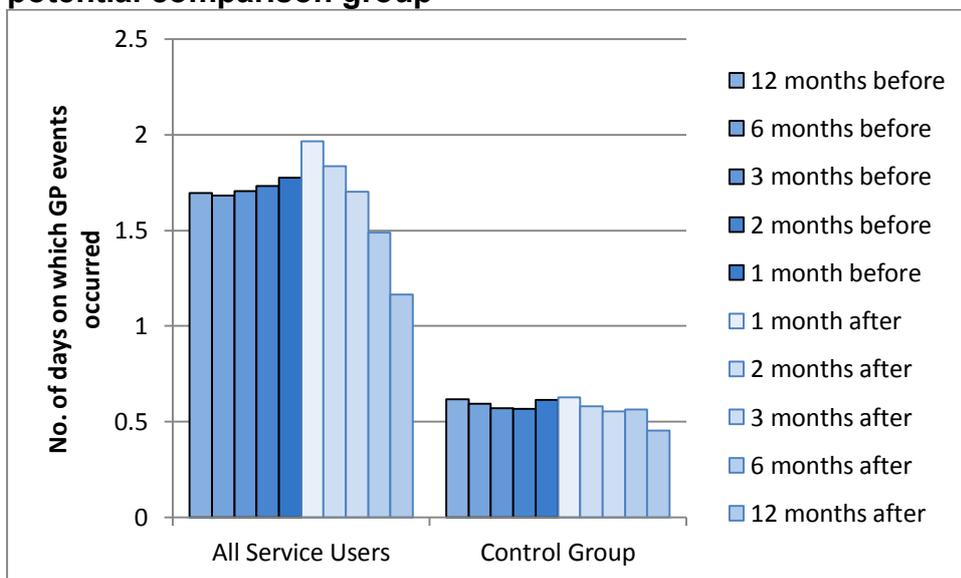
basis that these individuals were assumed to have received a longer period of support than those who 'failed to engage'. For the Feasibility Study, where small numbers were expected to be an issue, all available 'unsuccessful' or 'failed to engage' records were used in this analysis. If a full evaluation study proceeds, it is recommended that further examination is made of these records in order to, for example, remove individuals who were also 'successful' in receiving support on an occasion that falls within the two-year analysis 'window' and to exclude individuals who, despite 'leaving', nevertheless received a significant period of support (as discussed in Chapter 6, the duration cut-off point should be chosen as a result of further analysis).

- 8.13 The analysis shown in Chart 8.1 (below) is based on a control group of 572 unique individuals with 623 records. This suggests that there may be some overlap between the individuals who were 'unsuccessful' (N.B. they may have been 'unsuccessful' on more than one occasion) and 'successful' but 'failed to engage' (N.B. they may also have been 'successful' on more than one occasion. For Supporting People recipients records (including those whose 'reason for leaving' was 'failed to engage'), GP events are reported for the period before and after the support start date. For 'unsuccessful' records, where no support start date was recorded, GP events are reported before and after the 'declaration date' i.e. the date when the individual signs the referral form.
- 8.14 In interpreting Chart 8.1, it should be noted that the number of days on which GP events occurred are shown per record (i.e. per occasion 'unsuccessful'), so it can be concluded that Supporting People recipients had on average around 1 more GP event per month than the comparison group in the months before the reference date. The difference in the level of GP use may be explained by a number of factors, including, as noted above, that the controls failed to engage because they were experiencing crises that were relatively less severe than those who did engage or that the crises were so severe that people were withdrawing not only from Supporting People but also from primary care services.
- 8.15 Setting aside the level of GP events, the pattern of use leading up to the Supporting People support date is similar in both groups, with a relatively small increase in events between 2 months before and one month before and with the use of primary care peaking during the first month after (which includes the support start date for recipients). For those receiving support from Supporting People, the pattern shows:
- greater use of GPs in the period immediately after support began than in the control group; this may suggest that Supporting People was helping recipients to make more appropriate use of health services, which at the point of crisis means seeking treatment; and
 - greater decline in use between the period of 1 month after and 12 months after the reference date (an average decline of 0.8 days on which GP events occurred per service user compared with an average of 0.2 days for those who were 'unsuccessful' or 'failed to engage'); this may suggest that Supporting People was helping recipients in ways that reduced the burden on health services. Equally, however, it must be kept in mind that the reduction may to some extent be greater for recipients than controls

because, as mentioned above, the recipient group may be made up of higher risk individuals.

8.16 If a full evaluation proceeds, it is recommended, as suggested above, that further investigation is undertaken to explore the data as well as some qualitative research to learn more about the extent to which the above explanations are likely, in practice, to explain the differences observed in Chart 8.1. The acquisition of data from additional Local Authorities would provide greater numbers of records for analysis, which may allow the use of more specific categories of comparators to be explored.

Chart 8.1 Blaenau Gwent Local Authority Supporting People floating support: number of days on which GP events occurred per record in the months before and after being referred to Supporting People^a – all recipients compared with a potential comparison group^b



a For recipient records, GP events are reported before and after support start date. For 'unsuccessful' records and records where 'reason for leaving' was 'failed to engage', GP events are reported before and after 'declaration date'.

b The comparison group was made up of records where the individual was 'unsuccessful' and individuals who were provided with support but had a 'reason for leaving' of 'failed to engage'.

8.17 Using individuals who had relatively short periods of support is another option that warrants further investigation if a full evaluation study proceeds. This option relies on the assumption that there is a relatively simple 'dose-response' relationship between the provision of support and the health of recipients i.e. the longer the period of support, the greater the change we would expect to observe on average in the impact indicators. As discussed in Chapter 6, this assumption needs further investigation if a full evaluation proceeds. However, if a 'dose-response' relationship is observed, people who received shorter periods of support may provide useful comparators, since they would be eligible for support but would show what the pattern of health service use would look like in the absence of a more sustained 'dose' of the intervention. The choice of duration cut-off point would need to be established as part of the analysis. However, looking at Chapter 6 (see Table 6.1), it is likely that by aggregating data across a number of Local Authorities sufficient numbers of cases would be available for analysis, since 8% of spells of Blaenau Gwent

floating support lasted less than one month and 30% less than three months. However, it should be noted that the very fact that their support was of a shorter duration may mean that this group of recipients were different to those to whom support was provided over a longer period, perhaps being more able to 'normalise' without further intervention. Further investigation of this option is therefore recommended if a full evaluation proceeds.

- 8.18 It should also be noted that for recipient groups where all individuals tend to receive very long-term accommodation-based support, e.g. people with learning disabilities and older people, it is unlikely that sufficient controls with shorter durations would be available for analysis in the Supporting People routine administrative data. However, control groups selected from the general population based on specific health conditions may provide a suitable alternative.
- 8.19 If a full evaluation proceeds, it is recommended that a qualitative component is undertaken in parallel to the quantitative analysis of linked routine administrative data. The qualitative research could seek to explore both with practitioners and Supporting People recipients (potentially with those who were 'unsuccessful' on one occasion and 'successful' on another) the reasons why individuals may e.g. 'fail to engage' or drop out of support. This information could be used to assess how different these individuals were to people who completed their period of support and would therefore inform the analysis and provide further context for the findings.

Using additional routine Local Authority administrative records

- 8.20 Assuming that the challenges of data acquisition discussed in Chapter 4 can be overcome, the acquisition of additional routine administrative data or records from Local Authorities would allow at least two further potential comparison groups to be considered. These data sources might be particularly useful when looking for comparators for those user groups receiving long-term accommodation-based support e.g. older people and people with learning disabilities.
- 8.21 Firstly, individuals with similar 'needs' or health conditions could be identified within the adult social care data of the same Local Authorities e.g. substance misuse (drugs). These individuals may have similar risky and chaotic lifestyles and/or lack of support networks and may even, if the point at which services were first provided was recorded, be experiencing a similar 'crisis', although the crisis would presumably not be related to homelessness. It would also have to be kept in mind that the 'crisis' might be related to their health in some other way, so might affect their subsequent health service use, making them less comparable to Supporting People recipients. However, it is recommended that further work is undertaken if a full evaluation proceeds to acquire social care data for the same Local Authorities providing Supporting People records in order to explore this option further, since the similarities such individuals would have to Supporting People recipients would make comparative analysis informative.
- 8.22 Similarly, records from Local Authority 'housing options' services could be examined in order to identify individuals at risk of homelessness but who were not referred to Supporting People. As a potential comparison group, these

individuals would have the advantage of experiencing a similar, homelessness related 'crisis' but may, in not having been referred to Supporting People, by definition be different to Supporting People recipients in terms of some of their key characteristics.

- It should be noted that the Supporting People Teams of different Local Authorities in Wales fall within different departments. An exercise by the WGLA Homelessness and Supporting People Network Officer established that twelve Supporting People Teams sit within Housing, eight sit within Social Care, one sits within the Commissioning Unit and one within 'Social Wellbeing and Housing'. This may affect the way the data is collected and held and particularly the extent to which links are already made internally between Supporting People datasets and the datasets for Social Care and Housing.

8.23 Linking to adult social care and housing options data if a full evaluation proceeds may also help to identify the reasons why the Supporting People recipient groups mentioned above 'failed to engage' or 'refused further support' and whether this made them qualitatively different to individuals who received the full period of support.

Using the general population

8.24 The most basic option for creating a comparison groups is to compare individuals receiving support from Supporting People with the general population using the information already available within SAIL. This is what is being done in the experimental standardisation technique discussed in Chapter 2 and Appendix E. The advantages of this approach are that it makes use of the larger numbers of records available for comparative analysis and that it can provide some basic reassurance that the patterns observed for Supporting People recipients were not simply those observed in the general population. However, as discussed above, it also has the following limitations:

- the comparators are not likely to be similar to Supporting People recipients in terms of their risky and chaotic lifestyles or lack of support networks; and
- the comparators may not be experiencing a particular crisis around which the pattern of health service use can be compared.

8.25 A slightly more complex method that would nevertheless make use of the whole-population data available for linking in SAIL would be to attempt to identify people within the general population who were going through some of the major life events classically associated with increased stress e.g. moving house or bereavement. There are, however, limitations with this approach:

- In SAIL, the date of a house move itself is not recorded. As discussed in greater detail in Chapter 6, what is recorded is the date when the individual re-registers with a new GP practice or informs their existing practice of their change of address. This delay in address change in SAIL means that the analysis could not reliably be aligned according to the period when the 'crisis' of moving house occurred.
- For bereavement, whilst the death of a co-resident individual could be flagged in SAIL, this may occur in too few cases to individuals within a

comparable age range to provide sufficient numbers for analysis. However, further exploratory analysis could be done if a full evaluation proceeds to appraise this option further.

- 8.26 As noted above, the general population is unlikely to provide a meaningful control group for most the Supporting People recipient groups. However, for recipient groups where all individuals tend to receive very long-term accommodation-based support, e.g. people with learning disabilities and older people, the general population may be a more feasible option, since using the routine health records held in SAIL, it would be possible to identify individuals not only of the same gender and a similar age, but also to select individuals with the same health conditions and/or learning disabilities. If the numbers of individuals with some specific conditions were small, it may not be possible to identify individuals living in the same Local Authority area, but attempts could be made to identify individuals in Local Authorities that are similar in terms of being rural or urban, WIMD score etc. Within SAIL, the numbers of people living in the same household could also be investigated in order to examine whether sufficient e.g. individuals who are living alone could be identified, since individuals living with their family may be less likely to be at risk of homelessness.
- 8.27 As discussed in Chapter 4, various GP event codes also exist for 'homelessness'. The general population with a GP event of 'homelessness' (based on the approximately 65% of GP practices supplying data to SAIL when the analysis was done²⁹) consisted of around 4,000 individuals across Wales, some of whom must be excluded because they also appear in the Supporting People data. Although, it should be noted that a simple visual inspection of the data suggested that few uses of these codes relate to the period of one month before or after the Supporting People start date. It should be noted, however, that some of the uses of the GP Read codes for homelessness relate to the period before Supporting People was introduced (in some cases, the records date back to the 1960's – i.e. before electronic records were used in the NHS - so were presumably considered sufficiently salient to be recorded when paper records were being transferred into electronic records). The homelessness codes may not be used consistently by all GPs in Wales. Bearing all of the above in mind, further work would be required in order to ensure the analysis was reported using suitable caveats about the limitations of the analysis. However, the 'homeless' group identified using GP data could potentially be matched against Supporting People recipients based on their geo-demographic characteristics (age, gender and Local Authority).
- 8.28 A further set of GP Read codes that may be of interest are specifically used for 'safeguarding' purposes i.e. practices are encouraged to complete them to ensure that GP out of hours services are informed or to ensure that the information is included when patients move between practices. These codes include the following:
- family history of alcohol misuse;
 - family history of substance misuse; and

²⁹ Work by SAIL has increased this proportion to around 78% at time of writing and this figure is increasing all the time.

- substance misuse.³⁰

Misuse of each of the substances listed below is available as one or more Read codes in the GP Event data within SAIL, so the list can be treated as a menu, from which policy colleagues can choose which 'substances' to include in their definition. N.B. the Public Health Wales report on Substance Misuse (2006)³¹ included all of the following 'substances' in its definition:

- Alcohol;
- Amphetamines;
- Anti-depressants;
- Benzodiazepines;
- Cannabis;
- Cocaine;
- Crack;
- Ecstasy;
- Heroin;
- Methadone;
- Solvents;
- Steroids; and
- 'Other drugs' (this category is only used where diagnostic codes are for 'Substance misuse – other' or similar).

Although further work would be required to refine the definition and to validate the resulting estimates, this does suggest that a group of individuals with substance misuse problems could be flagged in SAIL. Groups could be defined both for individuals who had been referred to treatment centres and for those who had not. Further work could therefore be done if a full evaluation project were to proceed in order to examine the usefulness of groups flagged with this code for comparative analysis.

8.29 Further options would become available if additional data is acquired in order to improve the information available on the general population in SAIL. As discussed in Chapter 2, this could include data on criminal justice and labour market participation/benefit receipt. In particular:

- Data from the Probation Service or Home Office/Ministry of Justice could be used to construct a group in order to allow comparative analysis with the 'lead need' or 'service group' of ex-offenders; and
- Data from DWP and/or HMRC could be used to add information about socio-economic circumstances to SAIL. Given that the data would be longitudinal in nature, it would theoretically be possible to identify individuals experiencing crises such as becoming unemployed or economically inactive which, in combination with information about health conditions, might allow better comparators to be selected from the general population, particularly for those people receiving longer-term support.

³⁰[http://www2.nphs.wales.nhs.uk:8080/childprodocs.nsf/85c50756737f79ac80256f2700534ea3/abdd23b7bd37876e80257b83004eec07/\\$FILE/GP_Read_Codes_Report_amended%20May%209%202013.pdf](http://www2.nphs.wales.nhs.uk:8080/childprodocs.nsf/85c50756737f79ac80256f2700534ea3/abdd23b7bd37876e80257b83004eec07/$FILE/GP_Read_Codes_Report_amended%20May%209%202013.pdf)

³¹<http://www.wales.nhs.uk/sitesplus/922/page/49836>

As discussed in Chapter 2, the acquisition of UK datasets such as those mentioned above would be likely to take at least a year and perhaps longer, depending on whether the data provider considered that the proposed new UK legislation on data sharing was required before sharing could take place. However, if the full evaluation included an ADRN project, the UK ADS would be responsible for acquiring the relevant datasets for the project.

- 8.30 The disadvantage of using comparison groups selected even from a general population about which enhanced information was available would be that very little would be known about their risk of homelessness.
- 8.31 As discussed in more detail in Chapter 2, a further option that could be considered if a full evaluation proceeds would be to acquire data from third sector organisations working specifically with some of the recipient groups Supporting People is designed to support, e.g. women experiencing domestic violence or individuals with substance misuse issues. As noted in Chapter 2, SAIL is already working with some relevant Third Sector organisations.
- 8.32 As discussed in Chapter 2 and Appendix E, if a full evaluation proceeds, further attempts could be made to refine the calculation of standardised rates of health service use using any further information about the characteristics of the general population that could be acquired for SAIL. Although for some recipient groups the comparative analysis would be meaningful only in limited ways, reporting standardised rates would, nevertheless, provide some reassurance that the patterns observed for Supporting People recipients were not simply those observed in the general population.
- 8.33 It is therefore recommended that the option of using the general population to provide controls should be investigated further if a full evaluation proceeds.

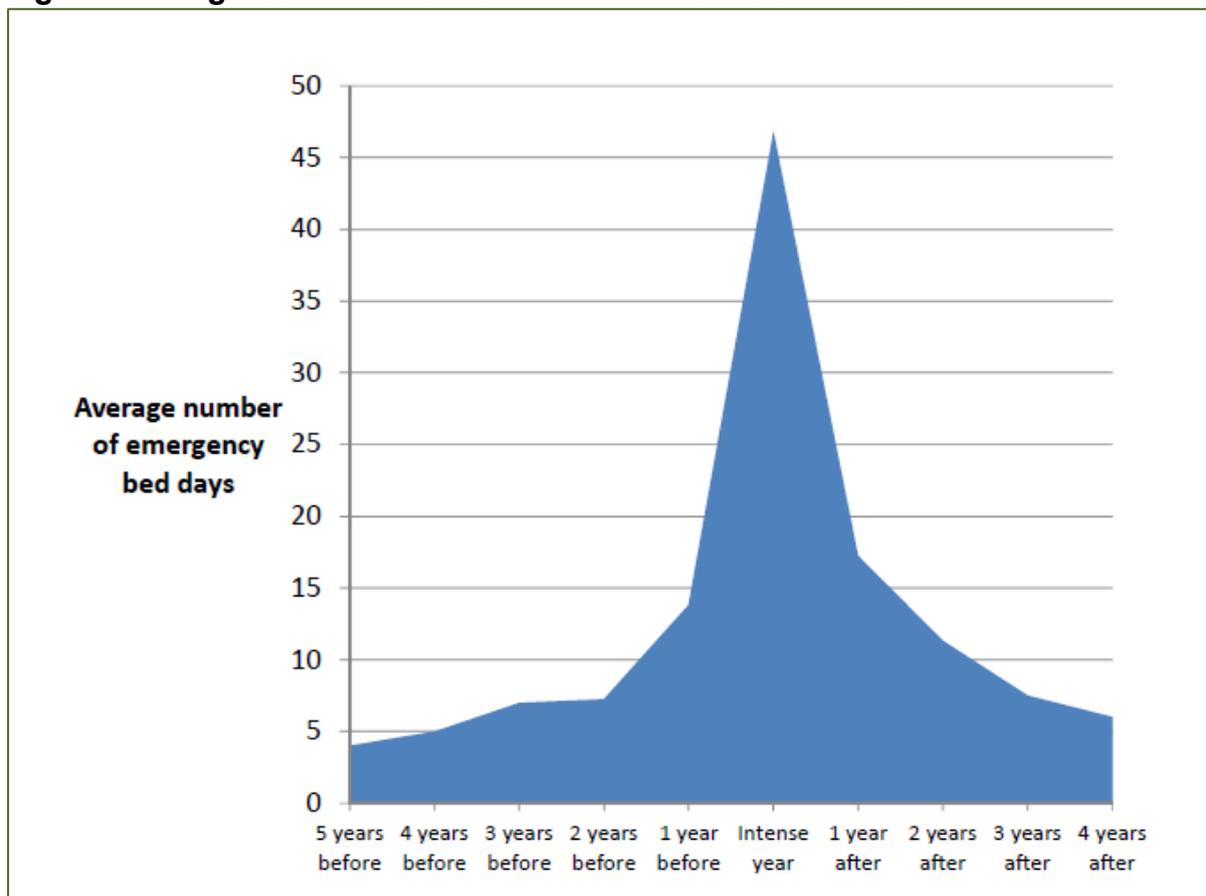
Controlling for 'regression to the mean'

- 8.34 As discussed in Chapter 2, various statistical phenomena, including 'regression to the mean' are relevant to the development of controls for the investigation of the impact of Supporting People on health service use. For Supporting People, 'regression to the mean' would be where the health service use of recipients may reduce over time even without the presence of an intervention simply because these individuals are experiencing a particularly high level of health service use at the point where support begins; this phenomenon would suggest that on average, their level of health service use may fall, whether or not they receive support. Regression to the mean could also affect Supporting People if those receiving support are being drawn from a limited pool of individuals such that, as time progresses, the pool is made up of a declining number of higher-risk individuals and an increasing proportion of lower-risk individuals. As a result, the evaluation may over-estimate the impact of the intervention because, over time, the greater improvement in the lower-risk recipients would obscure the relative lack of improvement in the higher risk recipients.
- 8.35 Evidence for 'regression to the mean' has been demonstrated particularly effectively by a 2011 evaluation by the Nuffield Trust of the impact of a range of

community-based interventions on hospital use³². The Nuffield Trust study shows that the impact on hospital use by the interventions had been exaggerated due to a failure to control for 'regression to the mean'.

- 8.36 By analysing Hospital Episode Statistics for England, the study examined a ten-year period of hospital admissions for a cohort of frequent hospital users aligned according to their most intense year of hospital use. Hospital admissions were tracked for this cohort of people for five years beforehand and five years afterwards (see Figure 8.1, below). The study concluded that the rate of hospital admissions for a group of patients chosen for an intervention based on a particularly high rate of hospital admissions would be expected to reduce over time, even in the absence of a specific intervention. This would mean that an evaluation without an appropriate control group would tend to overestimate the effectiveness of the intervention on hospital use, since some or all of the observed reductions would have happened anyway.

Figure 8.1 Regression to the mean in the absence of intervention^a



^a Analysis of English Hospital Episode Statistics data by Nuffield Trust (2011); diagram reproduced with permission.

- 8.37 The Nuffield Trust study used a number of methods to select controls from the general population based not only on their geo-demographic characteristics e.g. age, gender and geographical area, but also based on their probability of

³² http://www.nuffieldtrust.org.uk/sites/files/nuffield/an-evaluation-of-the-impact-of-community-based-interventions-on-hospital-use-full_report.pdf

having an emergency hospital admission³³. For the Supporting People evaluation, the selection of controls is complicated by the fact that the individuals for whom controls are required belong to specific user groups as well as being at risk of homelessness and by the fact that it is the level of use of different health services that is being used as the indicator of the impact of Supporting People.

8.38 Should a full evaluation proceed, it is recommended that particular attention is given to ensuring that the analysis corrects for 'regression to the mean'.

³³ http://www.nuffieldtrust.org.uk/sites/files/nuffield/an-evaluation-of-the-impact-of-community-based-interventions-on-hospital-use-full_report.pdf

Table 8.1 Appraising the options for constructing a control group

Option: Compare individuals in receipt of Supporting people with ...	Advantages	Disadvantages	Recommendation for possible full evaluation
Using Supporting People Data			
Supporting People referrals who are 'unsuccessful' (612 records for Blaenau Gwent floating support)	<ul style="list-style-type: none"> • They are eligible for Supporting People and are experiencing a crisis/at risk of homelessness. 	<ul style="list-style-type: none"> • The fact they didn't accept support may make them different to those who did. This may be either because they found a more secure situation or because their lifestyles were more chaotic than those who received services. • The use of this group is complicated by the fact that it is possible to be 'unsuccessful' on one occasion but receive support on another occasion. 	If numbers allow, this group should be included as a potential control group.
Supporting People recipients who did not complete the expected period of support i.e. 'failed to engage' and/or 'refused further support' (474 records for Blaenau Gwent floating support)	<ul style="list-style-type: none"> • They are eligible for Supporting People and are experiencing a crisis/at risk of homelessness. 	<ul style="list-style-type: none"> • The fact they dropped out may make them different to those who didn't. This may be either because they found a more secure situation or because their lifestyles were more chaotic than those who received services. • The use of this group may be complicated by the fact that it is possible to 'fail to engage' on one occasion but receive further support on another occasion. 	<ul style="list-style-type: none"> • Further work would be needed to establish the period over which support was provided. • If numbers allow, this group should be included as a potential control group, possibly combining these with the 'unsuccessful' cases.
Supporting People recipients who received services for a relatively short duration	<ul style="list-style-type: none"> • They are eligible for Supporting People and are experiencing a crisis/at risk of homelessness. 	<ul style="list-style-type: none"> • The fact they needed support for a short time makes them different to those who needed it for longer, possibly because their circumstances were less chaotic. • This option is not relevant for groups to whom support is only provided for longer periods e.g. older people or those with learning difficulties. 	Further analysis would be needed to assess whether a 'dose-response' relationship is observed for Supporting People. If so, a suitable cut-off point would need to be identified but cases with support below the threshold could be used as controls.

Using additional Local Authority routine administrative data or routine records			
Adult social care service users who have similar 'lead needs' e.g. substance misuse, domestic violence, but are not known to be at risk of homelessness	<ul style="list-style-type: none"> • Richer data available • May have similarly risky and chaotic lifestyles • By identifying the date when services were first provided, could identify whether they were experiencing a 'crisis'. • These data sources might be particularly useful when looking for controls for those user groups receiving long-term accommodation-based support e.g. older people and people with learning disabilities 	<ul style="list-style-type: none"> • Not known to be at risk of homelessness. 	Further analysis if a full evaluation proceeds may help assess how different such individuals are to Supporting People recipients and whether they should therefore be used as controls
'Housing Options' / housing referral service users who have similar needs but do not receive support from Supporting People	<ul style="list-style-type: none"> • Richer data available • We know they have similar needs to Supporting People recipients • They are at risk of homelessness • They may have similar characteristics to Supporting People recipients • These data sources might be particularly useful when looking for controls for those user groups receiving long-term accommodation-based support e.g. older people and people with learning disabilities 	<ul style="list-style-type: none"> • The fact they didn't receive support from Supporting People may make them different to those who were, possibly because their circumstances were less chaotic/perilous. However, some individuals may not receive services because there was a waiting list or their circumstances led to them not being considered high priority. 	Further analysis if a full evaluation proceeds may help assess how different such individuals are to Supporting People recipients and whether they should therefore be used as controls
Using the general population			
The general population with a GP event of 'homelessness', matched on geo-demographic and health characteristics (age, gender and Local Authority) plus propensity to use health services. This may be enhanced with additional datasets to identify service groups e.g. labour market participation,	<ul style="list-style-type: none"> • Matching can be done on (ideally, severity of) specific health conditions e.g. learning disability, stroke. • May allow the study to control for 'regression to the mean'. 	<ul style="list-style-type: none"> • Numbers of cases for analysis may be relatively small. • Level of use of health services is being used to demonstrate the impact of Supporting People so analysis would need to take this into account. 	This would be complex to achieve, particularly for some user groups, but it is recommended that this option is explored further if a full evaluation proceeds.

criminal justice etc.			
The general population matched on geo-demographic characteristics (age, gender and Local Authority), enhanced with additional datasets to identify service groups e.g. labour market participation, criminal justice etc.	<ul style="list-style-type: none"> • Absolute numbers available for analysis will be relatively high • This approach might be particularly useful when looking for controls for those user groups receiving long-term accommodation-based support e.g. older people and people with learning disabilities, particularly when combined with information about health conditions and/or learning disabilities. 	<ul style="list-style-type: none"> • It may take a long time (over a year) to acquire additional UK-level datasets and because linking to them would be a relatively innovative exercise, the complexity of the task may present challenges. • Individuals would not be known to be experiencing a 'crisis' (except job loss) and would not be known to be at risk of homelessness. They may therefore be qualitatively different from Supporting People recipients. 	It would be worth initiating negotiations for access to the data via the ADS with the expectation that further work would be required to explore the usefulness of selecting controls from an enhanced 'general population'.
The general population matched on geo-demographic characteristics (age, gender and Local Authority), and experiencing major life events associated with stress e.g. moving house, bereavement	<ul style="list-style-type: none"> • Experiencing a crisis. 	<ul style="list-style-type: none"> • Crisis may not be of same magnitude as crises being experienced by Supporting People recipients • Absolute numbers available for analysis uncertain • Delays in notification of change of address means date of house move can't be narrowed down sufficiently. 	Low comparability with Supporting People recipients makes this a relatively unsatisfactory control group so probably should not be pursued if a full evaluation proceeds.
The general population matched on geo-demographic characteristics (age, gender and Local Authority)	<ul style="list-style-type: none"> • Absolute numbers available for analysis will be relatively high. • For user groups receiving long-term accommodation-based support, where specific health conditions and/or learning disabilities could be selected, this may provide suitable controls. 	<ul style="list-style-type: none"> • Not experiencing a crisis • Not similar in terms of individual characteristics e.g. risky and chaotic lifestyles 	Useful for providing context when reporting findings similar to those presented in Chapter 7 but unlikely to provide a robust control group

Conclusions and recommendations: what are the implications for creating a control group?

- 8.39 Creating a control group will allow the most credible assessment to be made about the impact of Supporting People. A range of options for creating a control group have been proposed and the appraisal of these options leads us to conclude that although creating a robust control group may be a challenge, various potential methods are available in order to create informative comparison groups for the analysis.
- 8.40 A range of options for creating comparison groups are proposed, some of which are likely to result in more robust comparative analysis than others and some of which will require the acquisition of additional datasets.
- 8.41 If a full evaluation proceeds, it is recommended that a parallel qualitative study is undertaken in order to inform the final choice of control group(s), to inform the analysis and to provide further explanations for the kinds of patterns seen as a result of the provisional analysis provided in this Chapter.
- 8.42 Given that further information and analysis would help to refine the suggestions made in this Chapter, we recommend that further work is done during the initial stages of a full evaluation to acquire any additional datasets required and to explore the options further before a decision is made as to which control groups are used.
- 8.43 In practice, it is recommended that a full evaluation should attempt to construct control groups using as many as possible of the methods proposed and undertake sensitivity analysis to test their suitability before choosing to use one or more in the final analysis. The sensitivity analysis may also provide the basis for developing a method to create some indication of a margin of error around the comparative analysis of cases and controls; this would allow an indication to be given of the level of robustness achieved in the final analysis.
- 8.44 Even if not all options for a control group are feasible, a range of informative caveats could be provided about the robustness of the analysis and the likely extent to which any findings could be considered conclusive.

9 Findings: The Potential to Deliver a Cost Offset Model

Introduction

- 9.1 As noted in Chapter 4, the Supporting People Research and Evaluation Steering Group requested that an element of the Feasibility Study should be to assess the feasibility of creating a similar model for Wales to the Capgemini cost offset model in use in England and Northern Ireland and that had already been applied by some Local Authorities or Regional Collaborative Committees in Wales e.g. the Gwent Regional Collaborative Committee.
- 9.2 The Capgemini Model assesses the financial costs and benefits of the Supporting People Programme. The Model compares the cost of the current services provided to recipients with the cost of a range of potential 'adverse events' that might occur to clients if Supporting People services were not available.
- 9.3 The Model allows the user to apply a set of estimates at the national level to each user group at the Local Authority level. Where available, estimates calculated at a level below the national level e.g. at the Local Authority level or provider level, can be substituted.
- 9.4 The findings of the Capgemini project for England published in 2009 was that the best overall estimate of net financial benefits from the Supporting People programme was £3.41bn per annum for the client groups considered (against an overall investment of £1.61bn).³⁴ Expressed as a ratio, every £1 spent on Supporting People saved the public purse £2.11.
- 9.5 A more recent report by SITRA for the Northern Ireland Council for Voluntary Action used the financial modelling tool developed by Capgemini to analyse Supporting People contracts as at 31 March 2014. The study estimated that Supporting People was saving the public purse £125.05m per annum, compared to its 2013/14 cost of £65.6m. Expressed as a ratio, every £1 spent on Supporting People saved the public purse £1.90.³⁵
- 9.6 The question the Research and Evaluation Steering Group asked was whether a cost offset model like Capgemini could be designed in such a way that the routine Supporting People data flowing into SAIL to inform a full evaluation study could also flow into the model, so that once it was built, it would require minimal input to amend and re-run the model at the required intervals. This approach was seen as having the potential to reduce programme evaluation costs over time by reducing or eliminating the need to commission repeated modelling.
- 9.7 It should be noted that the work to create the cost offset model would need to be commissioned by Welsh Government as a separate strand of the full evaluation. The reason for this was that delivering such a cost offset model would require skills that would be unlikely to be available from the analyst employed to deliver the main evaluation, who would be recruited from among the pool of researchers already working for or with SAIL or its related networks of the Farr Institute or ADRN. The requirement to commission the cost offset model as a separate project would mean that the specification would ideally need to be phrased in relatively broad terms, outlining the deliverables that are envisaged but not providing an exhaustive description of the expected methods or approach, leaving this for potential bidders to suggest as part of the commissioning process. This would give contractors both some flexibility in how

³⁴ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/16136/1274439.pdf

³⁵ http://www.nicva.org/sites/default/files/d7content/attachments-resources/web_report.pdf

they proposed approaching the task and the ability to demonstrate their technical skill in proposing high quality, innovative solutions.

- 9.8 This Chapter therefore summarises in brief the requirements for the Capgemini tool and examines the extent to which it would be possible to build a similar tool into SAIL.

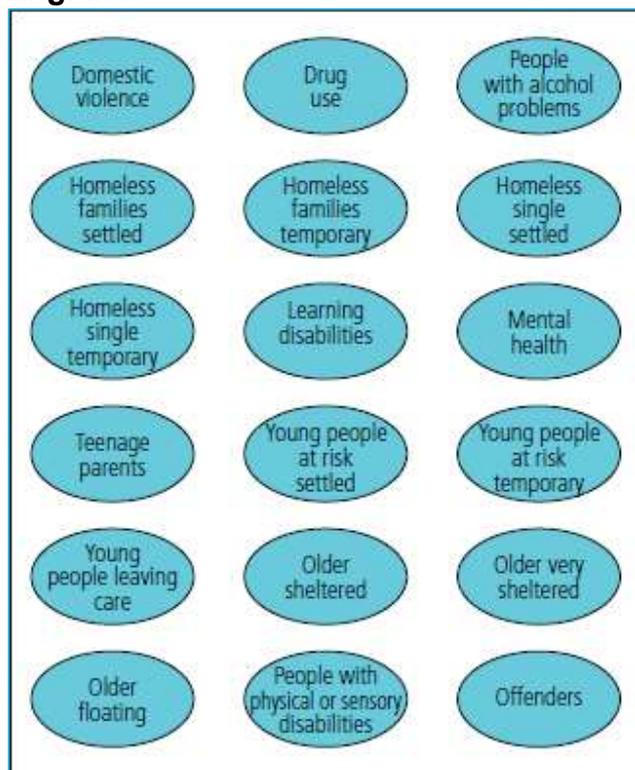
The requirements for a cost offset tool

- 9.9 As noted above, the Capgemini cost offset model compares the cost of the current services provided to recipients with those of a range of potential adverse events that might occur to clients if Supporting People services were not available. It does this by considering two alternative scenarios; a 'baseline' scenario where clients in the service group are supported with packages that include Supporting People and a 'counterfactual' scenario, where clients are supported with packages that do not involve Supporting People³⁶.
- 9.10 The guidance provided on the Capgemini model notes that because, typically, not using Supporting People services results either in the use of more expensive support packages or support packages that expose clients to risks that carry costs (such as the risk of prolonged hospitalisation), the cost of support under the baseline scenario is typically lower than that under the counterfactual scenario. The difference is the "net benefit" of the Supporting People Programme; and this is the benefit that the model calculates.
- 9.11 The Capgemini work for England was broken down into 18 different client groups (see Figure 9.1, below) and tools were provided for Local Authorities responsible for administering the Supporting People Programme to estimate the cost-savings locally. All client groups are modelled in a similar way to each other.

³⁶ CLG Supporting People financial benefits model documentation and user guide:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/8273/1275115.pdf

Figure 9.1 The service groups included in the Capgemini cost offset model for England³⁷



9.12 It should be noted, however, that the groups included in the model for England were a subset of those receiving Supporting People funding but consisted of those that accounted for the majority of the overall Supporting People funding. If a model is developed for Wales, consideration would need to be given to whether it is necessary or possible to include all client groups. It should be noted that there were practical reasons why some groups were not included – the groups not included for England were Rough Sleepers, Refugees, People with HIV/AIDS, Travellers and the ‘Generic’ client group.

9.13 A variation on the cost offset model method uses data from individual case studies³⁸. This approach is sometimes used in conjunction with the Capgemini tool. The case study approach has the advantage of being able to tell the stories of real individuals and assesses and costs the likely alternative services the individual would have received without Supporting People support. The Gwent Regional Collaborative Committee has already produced a set of case studies for Supporting People outlining the difference in costs for five case studies: a client with mental health issues, a generic floating support client, a woman experiencing domestic abuse, an older person and a care leaver. The study concluded that ‘for each £1 of spend in the Supporting People Programme, £2.38 is saved to the public purse’³⁹.

9.14 The guidance provided on the Capgemini model mentions that:

‘It is worth remembering that both (the cost offset model and case study) methods aim to quantify the financial benefits of housing support services. Reports using both

³⁷ With permission from DCLG, this diagram has been reproduced from the DCLG Supporting People financial benefits model documentation and user guide:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/8273/1275115.pdf

³⁸ Sitra, September 2010, *Prevention and personalisation: The case for housing related support* Yorkshire and Humber Housing Related Support Group www.sitra.org/prevention_and_personalisation

³⁹ <http://chcymru.org.uk/cy/view-news/gwent-supporting-people-improving-lives-preventing-costs/>

acknowledge that the housing support also provides many other, un-costed benefits like improving health and reducing social exclusion or antisocial behaviour. Other tools, like outcomes data, help to measure these other benefits.'

Examples of the un-costed benefits are as follows:

- reduced risk, in the long term, of social exclusion;
- improved educational outcomes, in the long term, for children;
- improved health and quality of life for individuals;
- increased participation in the community;
- reduced burden for carers;
- greater access to appropriate services;
- reduced fear of crime; and / or
- reduced anti-social behaviour.

9.15 The data required to drive the Capgemini cost offset model is as follows:

Support package basic cost and event cost data

- **Set of packages:** A set of alternative support packages that could be used for the client group.
- **Basic cost (for each support package):** This should be the complete household unit cost of supplying that package to a client household, but should not include the cost of chance events that will happen to a client household receiving that package. The basic package cost is the cost of the residential care plus other directly related costs such as any nursing or day care they require. These costs are allocated at the client group level and are calculated as the average cost of the package for the client group for the relevant Local Authority.
- **Event cost (for each support package):** The average (or expected) household unit cost associated with events that will happen to a client household receiving the package. These events are usually random events (such as being taken to Accident & Emergency or staying in hospital); their probability will depend on the particular package.

Scenario data

- Details of two scenarios, a baseline and a counterfactual. In each scenario, proportions of people in the base client group are allocated to the different service packages.

9.16 For Capgemini, fields for the local client numbers, local Supporting People spend figures and residential, housing and some social services and nursing care costs must be provided at the local level but for other fields the user has the choice to replace the default national-level estimates with local figures if available.

9.17 The model uses data on the costs of a range of 'events', including 'benefits and related services', crime costs, Health Service costs, homelessness, tenancy failure and housing costs, social services care and Supporting People support.

9.18 Each 'event' cost is broken up into individual cost factors. These are calculated (nationally) by answering the following questions:

- How many events per person using the service for a year? (for both the SP user group and the control group)

- What is the package impact; so how far does the SP service reduce the number of incidences of the event?
- How much does an event happening to a person cost?
- What is the reduction of event costs caused by the SP package, or a residential package, when compared with a similar package without the SP component?
- How many people per household unit?

9.19 In order to calculate the ‘events’ per person for the control group, a control group is selected (nationally) for the number of events per person in a year. This control group can be anything from the general population to the client group itself. The numbers of ‘events’ will normally be obtained from published statistics.

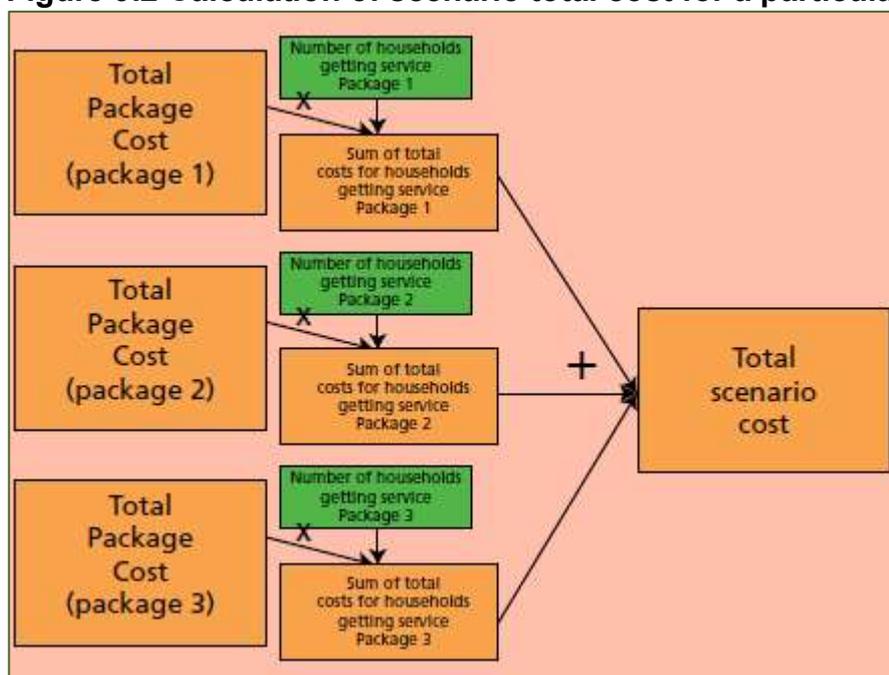
9.20 An ‘uplift’ is applied to the Control group to account for the perceived increase or decrease in likelihood of an event happening to the Client group and is generally an estimate, based on an expert’s experience of dealing with the client group. So if the client group is 5 times more likely to experience the event than the control group then the number will be 5.

9.21 The model calculates:

- the cost of a baseline scenario where 100% of clients receive the arrangement that they currently receive, i.e. a service package that includes a SP component; and
- a counterfactual scenario where clients are allocated to different support packages in a set of proportions that add to 100% but none of which involves a SP component.

The benefit is calculated as the total cost of the counterfactual scenario minus the total cost of the baseline scenario (the diagram in Figure 9.2, below, summarises the cost calculation).

Figure 9.2 Calculation of scenario total cost for a particular client group⁴⁰



⁴⁰ With permission from DCLG, this diagram has been reproduced from the DCLG Supporting People financial benefits model documentation and user guide:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/8273/1275115.pdf

9.22 As SITRA point out, even if the benefit is calculated to be negative, this does not mean that Supporting People is without benefit because there may be more qualitative benefits to the individual or household that are not amenable to quantification, including the kinds of 'un-costed' benefits listed above at Paragraph 9.14.

How could a cost offset model be created for Wales?

- 9.23 It would certainly be feasible for the Research and Evaluation Steering Group to commission a project to deliver a cost offset tool similar to that used by Capgemini as outlined above i.e. in the same way it is used in other countries.
- 9.24 However, when designing the model interface for Wales, consideration could be given to the extent to which the inputs could be populated automatically using some of the same routine data flows into SAIL that would be required to deliver the full quantitative Supporting People evaluation that is being recommended by this Study.
- 9.25 A key strength of SAIL is the fact that the database already holds vast amounts of health data for Wales. The Supporting People evaluation, if the full project proceeds, would also seek to acquire data for the Supporting People programme for all 22 Local Authorities in Wales. The creation of the UK ADRN and the ADRC-W means that a mechanism exists for Wales to acquire further datasets for linking in order to evidence both the kinds of impact indicators proposed for the evaluation and the kinds of 'events' required for the cost offset model.
- 9.26 For example, if we are interested in knowing the cost of antisocial behaviour, a first step might be to take the national-level assumptions and therefore the national-level estimate of cost and apply it at the service group level as is currently done for the Capgemini model. The option could be provided to Local Authorities to replace national-level estimates with more local estimates, if available. Over time, however, the project could seek to acquire individual-level data from the Home Office/Ministry of Justice about the antisocial behaviour of individual Supporting People recipients and this could be added into the model, allowing the actual level of recorded antisocial behaviour to be identified and costed both before and after the Supporting People intervention. It should be noted, however, that this method will only allow the level of **recorded** anti-social behaviour to be calculated.
- 9.27 A key question in assessing whether the full richness of SAIL could be used to inform a similar model to Capgemini is whether it would be possible to attach costs not only to a range of support packages provided to Supporting People recipients but also to a range of 'events' used in the cost offset model and in particular to the health events already held in SAIL.
- 9.28 Because data relating to health events is already available in SAIL, this kind of individual-level costing could potentially be achieved using existing data. A joint project currently underway between SAIL and Gesundheitsforen Leipzig, a German health insurance provider, demonstrates that the cost of health events can feasibly be applied in SAIL:
- 9.29 The health system in Germany relies on compulsory health insurance, which is managed by companies like Gesundheitsforen Leipzig in the private sector. Consequently, German health insurance companies have a very accurate picture of the cost of services provided in both primary and secondary health settings, based on real bills paid on behalf of health clients. Gesundheitsforen Leipzig have created a model of health costs that have been run on Welsh health records in SAIL. Further verification work and negotiation with Gesundheitsforen Leipzig would be required before this costing model could be made available for the Supporting People project but it is anticipated that this could be achieved in the initial stages of a full evaluation.

9.30 In the meantime, Health Resource Groups (HRGs) have been added to the secondary care data in SAIL. There is a costing template for secondary healthcare events that is widely accepted in the UK. Nominal costings for GP 'events' and A&E attendances have also been devised, so it should be possible to model the financial impact of Supporting People interventions on health services to some extent. This may be restricted to counting the extra cost that people in receipt of Supporting People services are generating in the health system, by comparing their health service usage before and after they receive support from the Supporting People Programme. If suitable control groups are identified within SAIL (see Chapter 8 for further discussion of the feasibility of creating control groups for Supporting People recipients), it would be possible to calculate comparative costs for Supporting People recipients versus individuals with no Supporting People support.

9.31 In terms of the questions proposed at Paragraph 9.18 (above), data linking would have the potential to provide improvements to the current inputs to the model as follows:

- How many events per person using the service for a year? (for both the SP user group and the control group): actual numbers of events for each recipient can potentially be calculated using the routine records held in SAIL, at least for health events; with further data acquisition, the numbers of events in areas beyond health could be calculated.
- What is the package impact; how far does the SP service reduce the number of incidences of the event?: if an appropriate counterfactual population can be identified, it may be possible to deliver more refined estimates of the numbers of events for comparable individuals and therefore the reduction in incidences that can be attributed to Supporting People, at least for health events;
- How much does an event happening to a person cost?: as discussed above, costs can be applied to health events within SAIL;
- What is the reduction of event costs caused by the SP package, or a residential package, when compared with a similar package without the SP component?: if we have the costs of events and a suitable control group, the reduction in cost can also be calculated, at least for health events; and
- How many people per household unit?: the number of individuals in a household can be calculated using the WDS in SAIL, although it should be noted that the issue of delayed GP registration discussed in Chapter 6 may have some impact on the accuracy of these figures – further work could be done as part of a full evaluation project to estimate the magnitude of the problem and to identify any solutions.

9.32 As noted above, the Capgemini model uses published statistics to estimate the 'events' per person for the control group. For Wales, the actual number of some events e.g. health service use events, could potentially be calculated within SAIL.

9.33 Where the Capgemini model calculates an 'uplift' to the Control group based on experts' experience of dealing with the client group, for some kinds of events where data is available for linking, the actual numbers of events could be identified in SAIL.

9.34 For Wales, using individual linked data, the potential therefore exists to:

- With input from Supporting People leads, automatically calculate the costs of delivering Supporting People support packages for each individual recipient based on the individual-level information provided to SAIL about support packages, duration of support etc.

- For ‘adverse health events’, calculate the numbers and costs of events that occur both for Supporting People recipients and for any chosen control or comparison group(s). The area with the greatest potential to provide improved estimates of adverse events is health, given the availability of such a broad range of routine health records in SAIL.
- Calculate both costs and benefits at the individual level rather than at the national, Local Authority or provider level, thereby allowing the estimated costs and benefits more accurately to be split by recipient group or by any other available recipient or programme characteristic e.g. ‘lead need’, scheme, or geography.
- Over time, seek to acquire additional routine administrative datasets in order to estimate the numbers of a range of additional ‘adverse events’ and either to apply high level cost estimates similar to those included in the Capgemini model or seek to develop more refined cost estimates based on additional data. For example, data from the Home Office/Ministry of Justice about antisocial behaviour events for Supporting People recipients could be added into the model, allowing specific incidents of antisocial behaviour to be costed both before and after the Supporting People intervention.
- By refining the cost of adverse events, provide an improved calculation of the net ‘benefit’ of the Supporting People Programme based on individual level information rather than national, Local Authority or provider level estimates, allowing the estimated benefits accurately to be split by Local Authority, recipient group or by any other available characteristic of recipients or of the programme e.g. ‘lead need’, scheme, or geography.
- Explore some of the un-costed ‘benefits’ mentioned above at Paragraph 9.14, such as ‘improving health’.
- If required, monitor the changes in ‘benefits’ over time i.e. over the long term.

9.35 The costs of different support packages, adverse events and benefits could be refined as further data is acquired for SAIL, improving the overall accuracy of the model over time.

9.36 if the model is built into SAIL, the calculations could be run automatically and a standard reporting template developed to allow annual reporting with minimal ongoing resource requirements.

Conclusions and recommendations

9.37 At a minimum, a cost offset model could be applied to all individual Supporting People recipients for whom data is provided to SAIL, allowing the estimated net benefits to be reported split by Local Authority, recipient group etc.

9.38 With further development work, the potential exists to refine a cost offset model based on national, Local Authority or provider level estimates by replacing those estimates with information about the real numbers and costs of the ‘adverse health events’ experienced by Supporting People recipients and for any chosen control group(s).

9.39 If additional routine administrative data is acquired, more refined estimates could be developed for adverse events of other kinds e.g. antisocial behaviour.

9.40 By refining the cost of adverse events, an improved calculation of the net ‘benefit’ of the Supporting People Programme can be provided, based on individual level information, allowing the estimated benefits accurately to be split by Local Authority, recipient group etc..

- 9.41 If the cost offset model is built into SAIL, the calculations could be run automatically and a standard reporting template developed to allow annual reporting with minimal ongoing resource requirements.
- 9.42 The use of linked routine administrative records would allow the following to be explored in addition:
- the cost of some of the un-costed 'benefits' mentioned above, including 'improving health'; and
 - if required, monitor the changes in costs and benefits over time i.e. over the long term.
- 9.43 It is therefore recommended that if a full quantitative evaluation proceeds, Welsh Government Welsh Government should consider commissioning in parallel, the development of a cost offset model using linked routine administrative data.

10 Conclusions and Recommendations

10.1 This Chapter focuses purely on the conclusions and recommendations of this Study with regard to the feasibility of delivering a full quantitative evaluation of the Supporting People Programme using linked routine administrative data. The conclusions and recommendations about ways to improve the quality of the Supporting People routine administrative data are provided in Chapter 4 and recommendations for additional development work or for the more complex analysis methods that could be undertaken if a full evaluation proceeds can be found within the individual findings chapters (please see Chapters 5 to 9).

Conclusions

- 10.2 Although challenges exist in terms of acquiring, reconciling and analysing the existing data, assuming the recommendations made below are actioned, indications are that a quantitative evaluation is deliverable, at least for those Local Authorities that hold individual-level data.
- 10.3 Although it would be time-consuming, the acquisition of additional administrative datasets to allow the reporting of further indicators of the impact of Supporting People, e.g. on the use of homelessness and social care services, can be undertaken if a full evaluation proceeds.
- 10.4 Indications are that the findings of an evaluation would be both relatively unbiased and largely generalisable to all Supporting People recipients, at least for those Local Authorities that hold individual-level data.
- 10.5 Overall, linking rates for Supporting People routine administrative data for Blaenau Gwent (floating support and accommodation-based support) and Swansea Local Authorities were generally high and the subgroups of recipients for which the linking rates were relatively lower were those where contact information would be expected to be less accurate, e.g. women experiencing domestic violence and people with a criminal offending history. If the same or similar patterns were seen for all Local Authorities in Wales, the majority of Supporting People recipient subgroups would be equally well-represented in the analysis.
- 10.6 The analysis reported in the Feasibility Study suggests that a quantitative evaluation based on linked routine administrative data would be likely to produce statistically robust substantive findings.
- 10.7 Creating a control group would allow the most credible assessment to be made of the impact of Supporting People. A range of options for creating a control group exist, some of which are likely to result in the creation of a more robust control group than others and some of which will require the acquisition of additional datasets. In practice, control groups should be constructed using as many as possible of the methods proposed and sensitivity analysis undertaken to test their suitability before choosing to use one or more in the final analysis. Even if not all options for a control group are feasible, a range of informative caveats could be provided about the robustness of the analysis and the likely extent to which any findings could be considered conclusive.
- 10.8 If a full evaluation proceeds, a parallel qualitative study would help to inform the final choice of control group(s), to inform the analysis and to provide further explanations for the observed patterns of health service use.
- 10.9 At a minimum, a cost offset model could be applied to all individual Supporting People recipients for whom data is provided to SAIL, allowing the estimated net benefits to be reported split by Local Authority, recipient group etc. With further development work:

- the potential exists to refine a cost offset model based on national, Local Authority or provider level estimates by replacing those estimates with information about the real numbers and costs of the ‘adverse health events’ experienced by Supporting People recipients and for any chosen control group(s).
 - If additional routine administrative data is acquired, more refined estimates could be developed for adverse events of other kinds e.g. antisocial behaviour.
 - By refining the cost of adverse events, an improved calculation of the net ‘benefit’ of the Supporting People Programme can be provided.
 - If the cost offset model is built into SAIL, the calculations could be run automatically and a standard reporting template developed to allow annual reporting with minimal ongoing resource requirements.
- 10.10 The use of linked routine administrative records would allow, in addition, the exploration of the cost of some of the ‘benefits’ un-costed in the Capgemini model , including ‘improving health’ and, if required, monitoring of changes in costs and benefits over time i.e. over the long term.

Recommendations

- 10.11 Welsh Government should provide funding for a full quantitative evaluation of the Supporting People Programme using linked routine administrative data. Appendix C summarises what a three-year full evaluation project might be expected to achieve.
- 10.12 In order to provide a standardised dataset for analysis that is consistent across all Local Authorities in Wales, the Welsh Government Supporting People team should:
- ensure that the redeveloped Supporting People Outcomes Data spreadsheet includes, in place of the current ‘unique identifier’, all necessary identifiers in a suitable format to allow the data to be shared with the SAIL Databank i.e. full name, data of birth, gender, full address including postcode and, if possible, National Insurance Number;
 - make an assessment of whether any other analytically necessary information contained in the routine administrative data for Supporting People is not currently included in the Outcomes Data and add this into the redeveloped Supporting People Outcomes Data spreadsheet;
 - add into the terms and conditions for Local Authorities receiving Supporting People funding as of 1st April 2016 a mandatory requirement to provide this data to SAIL for Supporting People evaluation, service planning and other research and statistical purposes; this should include the use of a suitable privacy notice for recipients and suitable data disclosure agreements between each Local Authority and both SAIL and NWIS; and
 - as part of the Supporting People Outcomes guidance, Local Authorities should be required to ensure providers collect full post codes with addresses and that they should be collected in separate columns.
- 10.13 For Local Authorities that do not hold individual-level data, options for acquiring data from providers must be explored.
- 10.14 For impact indicators relating to topics beyond health e.g. homelessness and housing, social care, crime, labour market participation and/or benefit receipt, additional routine records should be acquired for linking.
- 10.15 Welsh Government should consider commissioning, in parallel:
- the development of a cost offset model using linked routine administrative data; and

- a parallel qualitative study to inform the final choice of control group(s), to inform the analysis and to provide further explanations for the observed patterns of health service use.

10.16 It is recommended that the Research and Evaluation Steering Group continue to provide oversight and advice to the project, reviewing membership as necessary.

Appendix A Summary of Data Acquisition Challenges by Local Authority

Table A1 Data acquisition: Position of each LA

Local Authority	Detailed data acquisition progress and position going forward
BG	Data acquired for Feasibility Study for floating support and accommodation-based support. Data for Older persons more time-consuming to extract; however, anticipated to be achievable if full evaluation project goes ahead.
Swansea	Data from ILLY system acquired for Feasibility Study (covering all types of support). SPRINT data from Tenancy Support Unit to follow if a full evaluation project goes ahead (SPRINT data covers most floating support schemes).
RCT, Merthyr	Lack of postcodes in data held up acquisition process but anticipated that this could be resolved if a full evaluation project proceeds. RCT and Merthyr legal teams preferred to wait for a Service Level Agreement to be signed off between SAIL and NWIS before they proceeded to share any data. This is in progress and anticipated to be in place within the next few months.
Caerphilly	Legal team preferred to wait for a Service Level Agreement to be signed off between SAIL and NWIS before they proceeded to share any data. This is in progress and anticipated to be in place within the next few months.
NPT	Hold limited historical data on some users. Due to changes in systems used to hold data and type of data collected, SP team anticipated that it would take some considerable work, and assistance from their IT team, to extract and collate data. There is potential to revisit data acquisition if a full evaluation is commissioned.
Conwy, Newport	Not progressed sufficiently in time for feasibility. More information is required regarding data held at LA level. LA legal position in relation to sharing the data still to be ascertained.
Ceredigion	Team did not believe they could legally share data as data sharing protocols only cover SP team and providers. 'Release of information' forms only cover the sharing of SP user's information with D.E.S.H., Housing Benefits, Department for Work and Pensions, including Jobcentre Plus, Department of Social Services, Mental Health Services, Tai Ceredigion, Mid Wales Housing Ass., Police, Probation.
Denbighshire	Stated that recipients are informed that their personal data would not be passed onto any 3rd parties and believed it would therefore be 'unfair' to share data and doing so would risk breaching principle 1 of the Data Protection Act (fair and lawful).
Gwynedd	Reported issues with data sharing due to the lack of informed consent from short term recipients and due to a statement on the Exchange of Information Consent Form for long term users which states recipient information will not be shared with organisations other than the SP and housing benefit sections of the council.
Bridgend, Carmarthenshire, Monmouthshire, Pembrokeshire, Powys, Torfaen, Wrexham	Data not held at the individual level – these LAs reported that they only hold the SP outcomes data which contains unique identifier rather than full identifiable details.
Cardiff	Declined to take part due to lack of resources
Vale of Glamorgan	Underwent a restructure in April 2015 and declined to take part due to present lack of capacity in the team.
Anglesey	Level of data unknown due to lack of response to Feasibility Study
Flintshire	Due to long-term sickness of a key staff member, information could not be provided about the level of data held.

Table A2 Number of providers for LAs who reported only holding SP outcomes data

LA	Providers	Schemes	Recipients	Powers of LA to request/require data	Other comments on process of acquisition
Bridgend	21	106	998 (total of SP funded units according to 2014/15 spend plan)	None	SP providers are classed as the data owners. Process would include the LA 'contacting each service provider to find out what their fair processing notice is, whether this adequately facilitates the sharing of information with NWIS, and whether all recipients who would be included in any data processing did give consent for the sharing of their information. Unfortunately we do not have the capacity to do this at present'
Carmarthenshire	27	107	unknown	The only data the Local Authority could require from providers was specified in their contracts. The Local Authority had information about how many people each provider was supporting i.e. how many people's support they were funding. This information is on the Local Authority Out-turn statement supplied to Welsh Government.	The Local Authority expected that providers would hold some useful data but it would be held on a number of different systems. The provider databases the SP team had seen did hold quite detailed data although a few providers only held paper information.
Monmouthshire	12	25	Received service between 1/10/2014 and 31/3/2015 = 987 (not including alarm services). Individuals receiving alarm service only= 2,111	Contract with providers contains schedule: 7. Provide the Council with information on each and every Service User when required. I'm strictly sure that our contract gives us the right to enable a third party to request this information on our behalf. What I suggest I do is circulate a request to all providers saying that I could request the information and pass it on to a third party for analysis, they could help make the process more straightforward by agreeing to provide the information directly to the third party.'	LA are willing to cooperate to obtain provider data
Pembrokeshire	13	28	2,500	Right for the LA to access the data is written within the contract and from time to time they do	Provider is classed as data owner and data controller. There is a standard disclosure

				request data that we don't usually collate however they try and keep this at a minimum and the data requests are usually as a direct result of an information request from Welsh Government.'	statement but will be different depending on the individual provider
Powys	See list (23)	See list (53 including duplicates across different areas)	3,399, including 807 people receiving a community alarm service only	For the services in redesign, we also request and receive access to the number of demands the providers meet and the responses they made. We are moving to a system of locality-based support with multi-agency sharing of data per locality. The intention is for all providers to share data with the local authority and each other in this way.'	n/a
Torfaen	19	22	3626	As a local authority we could request this information from providers but only where the individual has agreed to their information being disclosed. I would need to check with our Information and Security manager when it came to actually getting the data to us and then onto yourselves via secure email etc.' However, will depend on FPAs which will vary for each provider	Potential approach to send a letter out to providers for more information. Bethan will send on contact details if we need them. She thinks this is the best way to find out more
Wrexham	20	Over 40	unknown	unknown	client numbers on any one scheme range from to 650, they have no knowledge on what data providers hold

Appendix B Making routine administrative data available for research in SAIL/the ADRC-W

Making routine administrative data available for research in SAIL

1. The NHS in Wales generates a large amount of data collected on a routine basis for the purposes of treating patients and making sure the health service runs properly. Almost none of it is collected for research or statistical purposes but it nevertheless has considerable potential to be used for research. The same is true of other public services, such as education, housing and social care. Data collected by the NHS in Wales is held complete with patient identifiers: NHS number, full name, address, postcode, date of birth and gender. Information Governance law therefore prohibits the use of data in this form for research outside the NHS.
2. To address this problem, the Welsh Government funded the creation and development of the Health Information Research Unit (HIRU) at Swansea University, from 2006. The aim of this unit was to develop a means by which routinely collected health data from many different sources could be utilised in a linked way, but in such a way that each dataset individually as well as the linked data was rendered completely anonymous. The process developed was called Secure Anonymised Information Linking (SAIL); it led to the creation of a very large collection of anonymised health and other datasets stored in Swansea University and made available for research. Each anonymised dataset is stored separately and as far as possible in the form in which it is received from the data provider. The name of 'SAIL' has become synonymous with both the large data repository and the HIRU. 'SAIL' will be used to refer to the databank at Swansea University throughout this Report.

Linking and the process of creating an Anonymised Linking Field

3. SAIL use an internationally recognised procedure for safeguarding respondent privacy during data linking. This involves a "split file" process - the separation of all identifying information i.e. name, address, date of birth, NHS number etc. from all other analytical data, whether medical, social, financial, attitudinal etc. in each source to be linked. For each source, this creates two files, the first containing a reference number or 'index' plus the identifiable information and the second containing the index plus the analytical data. For each dataset, the identifying information is sent to a 'trusted third party' that creates an anonymous linking field. Once the linking field has been created the identifying information is destroyed leaving only the linking field and the index. The index allows the anonymous linking field to be reattached to the analytical data. The analytical data can then be linked to other anonymised data sets without using any identifying variables.
4. For SAIL, the NHS Wales Information Service (NWIS) act as the 'trusted third party' organisation, routinely turning lists of personalised information into anonymised indexes. NWIS utilise the Welsh Demographic Service data as the 'population spine' or 'template' for its anonymisation process. The Welsh Demographic Service is a database of everyone registered with a GP in Wales from 1994 to the present day. It includes an anonymised residential address history – this is an index of unique numbers, one for each residence in Wales, known as the Residential Anonymised Linking Field (RALF). Individual people who have been registered with a GP in Wales, past and present, are represented in the Welsh Demographic Service data as another index of unique numbers, known as the Anonymised Linking Field (ALF). In this way, it is possible to associate RALFs with ALFs, that is: homes with residents.

How data is made available to research analysts

5. A database “view” is a structured ‘image’ of information stored in the database, including only a subset of the complete dataset. A “view can include data from more than one database, and can be restricted to include specific rows and columns. In this way, the database administrators can very closely control the data with which each researcher is allowed to work. There is, in addition, no way that a researcher can alter the underlying data table providing the “view”.
6. The database “views” are made available through a secure remote access system, the SAIL Gateway, which can be accessed securely over the internet, using a system where authorised researchers are able to log on to a dedicated computer through a password protected browser. Outputs are ‘locked down’, so that nothing can be copied and pasted out of the gateway, saved to a port or drive on the remote computer, or sent to a printer.
7. All analysts who are provided with a SAIL gateway account are given access only after both they and their line manager have signed a detailed agreement outlining the researcher’s responsibilities and the agreed usage that can be made of that account. The agreement clearly places the responsibility with the researcher to ensure that no individual could be potentially identifiable from the research outputs. However, in addition, all potential outputs are scrutinised by a SAIL administrator to ensure potentially disclosive information does not leave the secure gateway.
8. The researcher is required to carry out the analysis within the gateway, in which suitable database, statistical, spreadsheet, word processing, mapping and presentation software are available. The only outputs allowed are summarised or aggregate results. Proposed outputs are processed through the ‘request data out’ link within the gateway. This is the stage at which outputs are scrutinised by a senior research analyst in SAIL, checking for potential disclosure issues such as small numbers. The ‘data out’ process does not check that the analysis has been performed correctly and that results are correct, it merely scrutinises outputs for potentially disclosive situations.
9. It is not possible to put a process in place that would stop researchers taking photographs of a computer screen, for example, or simply writing down results and not following the ‘data out’ procedure. Given this, the researcher must be trusted to adhere to the terms of the SAIL access agreement. However, when signing the access agreement, researchers and their line managers are agreeing to abide by the statement of procedures in the National Statistics Code of Practice: Protocol on Data Access and Confidentiality, in both letter and spirit, to the maximum extent that they apply. Breaches of these rules would result in penalties and legal action. As part of the creation of the UK Administrative Data Research Network, it is anticipated that researchers accessing databases like SAIL will be required to successfully apply to be part of an official register. Abuse of the privileges of data access would then result in removal from such a register, effectively ending the perpetrator’s research career.

Information Governance Review Panel

10. All research carried out within SAIL is still managed through a rigorous control structure to ensure that confidentiality is maintained and potentially disclosive outputs are not produced.
11. One of the controls in place is a requirement for all proposals involving the analysis of linked data within SAIL to obtain approval from the Information Governance Review Panel (IGRP). The IGRP is a panel of independent specialists in informatics governance and lay people that oversees all research taking place within SAIL. An IGRP application contains an outline of the research rationale for creating the link(s), details of any new datasets that would be accessed, and precisely what variables would be required from the linked datasets. Researchers must indicate in the application that they have

considered the handling of sensitive data in the research design. Although the data sets are all held completely anonymously in SAIL, the selection of a very specific sub-group based on age and gender at small area (LSOA) level, looking at a specific condition could return small numbers. Small numbers in a published output could be put together with other local knowledge to establish who the statistic refers to. Researchers are given access to the data at the most detailed level required to complete their analysis, but need to ensure that nothing potentially identifiable is revealed in their reporting. IGRP applications must indicate how the analyst proposes to deal with small numbers (e.g. through grouping and aggregation of cases).

Making routine administrative data available for research in the ADRC

12. The UK Administrative Data Research Network (ADRN) is an ESRC-funded UK-wide partnership between universities, government departments and agencies, national statistics authorities, the third sector, funders and researchers. In Wales, it includes an Administrative Data Research Centre (ADRC) which is a collaboration between Cardiff University and SAIL at Swansea University.
13. Data linking projects taking place in Wales therefore need to be completed at the ADRC in Wales (ADRC-W) and within the information governance, information security and ethical context of the ADRN.
14. Because SAIL and the ADRC-W use the same infrastructure, as long as ADRC-W projects go through the SAIL governance process in addition to the ADRN process, the health datasets available through SAIL can also be accessed via the ADRC-W.
15. In order to be approved, ADRN projects must meet the following criteria:
 - safe projects: only projects approved by the ADRN Approvals Panel will have access to ADRN services. The panel reviews and approves all research proposals. Among other things, they make sure each project is for non-commercial research and has a clear potential public benefit;
 - safe people: only accredited researchers have access to the Network's services. The ADRN gives researchers mandatory training in how to access and use routine administrative data safely, lawfully and responsibly, and provide secure facilities where they can do their research;
 - safe data: data is de-identified – that is, researchers will not be able to see information which directly identifies any individual. All research outputs are reviewed before they are published to make sure privacy is protected;
 - secure environments: the ADRN provides a secure environment where researchers can access the data, and state-of-the-art secure information technology and procedures provide physical, hardware and software security across the whole Network. Researchers cannot take anything in or out of the room with them (including mobile phones, memory sticks or even pen and paper), and they are not able to copy, download or disseminate the data in any way;
 - the Centres that make up the Network all follow nationally recognised security standards for handling sensitive data, and all abide by the Network's information assurance and data security policies. Data will travel by an accredited, secure route from data provider to trusted third party and to the ADRC facility where the researcher will work. Research teams will work in the secure facilities and will not transfer data outside of them; and
 - no-one is allowed to share data outside the proposed research team. Analytical outputs can only be shared if they have undergone statistical disclosure control and been cleared by the Network's expert staff.
16. The ADRN Approvals Panel makes sure the process of granting access to sensitive, linked administrative data is fair, equitable and transparent. It assesses the projects

against the above criteria. In addition, projects must be approved before the data custodians make the final decision on whether to share their data. At time of writing, the panel was chaired by Professor Sir Ian Diamond, Principal and Vice Chancellor, University of Aberdeen and consisted of three representatives of data providers, three senior academics with different primary research areas, a specialist in data protection and privacy, a representative of the Network's governing board and a number of lay members.

Appendix C Summary of Administrative Datasets Available in SAIL

The Welsh Demographic Service (WDS)

1.1 The Welsh Demographic Service is a database of administrative information about individuals in Wales that use NHS services, such as address and GP practice registration history. It replaced the NHS Wales Administrative Register (NHSAR) in 2009. This dataset contains the full registration history of the population of Wales since 1990, including house moves and changes of registration to different GP practices. This is the core data that is used in linking datasets together in SAIL. Each person's week of birth is recorded and a date of death when known. All residential address information has been anonymised so that it is not possible to locate any address geographically more precisely than at the Lower Super Output Area (LSOA) level – LSOAs are a patchwork of small areas covering the UK, each one of which contains on average 1600 people.

GP Event Data

1.2 This is data extracted from all the Welsh General Practices that have signed up to SAIL - around 42% of the GP practices in Wales, which includes detailed data on primary care activity for around 47% of the population of Wales. The data is from the clinical information system the practice uses to maintain an electronic health record for each of their patients - capturing the signs, symptoms, test results, diagnoses, prescribed treatment, referrals for specialist treatment and social aspects relating to the patients home environment. The majority of the data is entered by the clinician during the patient consultation, though the data also record interaction with other members of the practice team, repeat prescribing, and some test results that are reported back from secondary care systems. The data cover the period from January 2000 to August 2012, approximately but this varies by practices. Currently about 40% of the Welsh population is included in this dataset;

Patient Episode Database for Wales (PEDW)

1.3 PEDW is an all-Wales database containing all finished consultant episodes of in-patient or day case care carried out in Wales, and treatments carried out on Welsh residents elsewhere in the UK. A finished consultant episode is defined as a completed 'unit' of care under the care of one consultant. Each episode has provision for a number of diagnosis and operative procedure codes to be recorded. Capturing data on the daily stream of patients entering and leaving hospitals throughout Wales begins with the collation of information from Hospital Patient Administration Systems. There have been very clearly defined data recording standards in place since around 1999, and all hospital activity on a day case or inpatient basis is regularly submitted into NWIS for inclusion in PEDW. Details of dates of admissions, diagnoses and operations carried out are very consistently coded in this data;

Emergency Department Dataset (EDDS)

1.4 Historically data about Accident and Emergency visits was recorded in SAIL from the All Wales Injuries and Surveillance System. From 2009 this was superseded by the Emergency Department Dataset (EDDS), which contains administrative and clinical information for all NHS Wales Accident and Emergency department attendances (approximately 750,000 per year), which now includes the (AWISS) data. The data covers the time period 2009 to the present day but recording practices vary between some of the minor and major Accident and Emergency units.

National Community Child Health Database (NCCHD)

1.5 NCCHD brings together data from local child health systems for all Wales and holds information collected throughout pregnancy, childbirth and the early years of life for all

births in Wales, details of gestation, birth weight, early life testing, and immunisations. Both the anonymised identifier of the child and the mother appear together in this dataset which is the only true familial link that can be established in the anonymised data within SAIL.

Congenital Anomalies Registration Information System (CARIS)

1.6 CARIS collects information about any foetus or baby who has or is suspected of having a congenital anomaly and whose mother is normally resident in Wales at time of birth. It includes babies in whom anomalies are diagnosed at any time from conception to the end of the first year of life. Multi source data collection methods are used to gather information from antenatal ultrasound, clinical letters, post-mortems, and laboratory results, for all babies in whom an anomaly was detected between conception and the end of their first year of life from 1998 onwards.

Education (National Pupil Database)

1.7 This dataset provides information on attendance and attainment for all pupils in schools in Wales from 2004 to 2013. Research utilising this dataset is restricted to research into the factors effecting educational outcomes. This restriction would need to be carefully considered if further work on informing the framework goes ahead.

Wales Electronic Cohort of Children (WECC)

1.8 WECC is not a single dataset, but the results of a project that combines child data from eight SAIL datasets in the creation of a total population anonymised e-cohort from eight datasets for children born or living in Wales from 1990-2008. This child cohort information is being used to study the relationship between pregnancy, birth, childhood and family exposures and health.

The SAIL Lower Super Output Area (LSOA) Data Set

1.9 SAIL has built a reference dataset where each row is an LSOA, and columns include a wide selection of measurements about the LSOA, including WIMD domain scores from all three versions of WIMD versions, Rural Urban Split and other scores like Townsend. Geographical characteristics could be added at a later date, from social services delivery catchment to number of bus stops

Home Energy Efficiency Database (HEED)

1.10 This is a database of home improvements carried out between 2000 and 2012, including those completed under various Welsh Government supported schemes to provide warm, energy efficient homes in Wales. The data has been anonymised at the household level but, through linking, the anonymised population occupying these homes can be determined. An important aspect of the data is that to be eligible for the heating system and insulation upgrades, the homes or their occupants needed to meet certain eligibility criteria, one of which related to benefits receipt, so can provide information on the socio economic status of some of the home occupants. Details of the eligibility criteria are not yet included in the database. However, if the dataset can be updated with eligibility detail, it could deliver evidence for the 'social and economic well-being' outcome⁴¹. Work would be required to link the HEED benefits data into SAIL and a further project completed to develop a method to select a representative subsample of the Wales population based on the broader socio-demographic profile of residents to ensure that findings for HEED recipients could be generalised to the population of Wales.

⁴¹ Further work will be completed as part of Welsh Government-ESRC-funded work on data linking for fuel poverty.

Appendix D Local Authority Supporting People Fair Processing Notices

This Appendix contains the Fair Processing Notices for the three Local Authorities where the notices were considered a barrier to data sharing.

Gwynedd

Those recipients who receive long term support have signed an Exchange of Information Consent Form, the statement is as follows:

* The exchange of information contained within this declaration will only be between the Supporting People and the Housing Benefit Sections of the Council. It will not be checked or shared with any other section of the Council or other organisations.

Denbighshire

The following statement is attached for the Service User to sign -

I UNDERSTAND that the information I have provided will be processed by Denbighshire County Council for the purpose of referring for housing related support services. I understand that the personal information I provide will be stored and processed in accordance with the Data Protection Act 1998 and that no third party recipients will be provided with my personal data without my consent unless required by law. I understand that I have the right to request a copy of the personal data held about me and to correct any inaccuracies.

Please tick here if you consent for your information to be used in this way.

Ceredigion

The Supporting People referral form states the following:

Data sharing Authorisation:

I agree with the information on this form and hereby give my permission for the information to be shared with the Dyfed Supporting People Teams and the organisations providing support services.

Supporting People recipients also sign a release of information form which states:

I give my consent for the Ceredigion Care Society to contact the following persons or agencies and for them to divulge any information as requested:

- D.E.S.H.
- Housing Benefits
- Dept. for Work and Pensions, including Jobcentre Plus.
- Department of Social Services
- Mental Health Services.
- Tai Ceredigion
- Mid Wales Housing Ass.
- Police
- Probation
- And other agencies/individuals as stated...[Space is left on the standard form here to name further organisations if required]

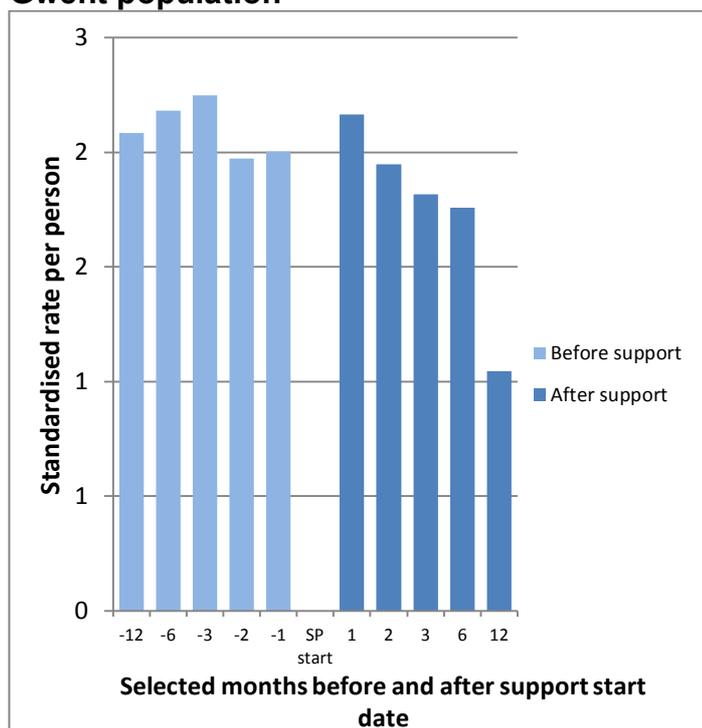
Appendix E Example experimental standardisation method

1. This Appendix provides an example standardised chart based on an experimental analysis the GP event rate for Blaenau Gwent accommodation-based support (180 people) - presenting standardised findings for the rate in the control group.
2. The experimental standardisation method presented below was complex to calculate and is difficult to explain to a non-technical audience. The method also has a number of limitations. As discussed in more detail in Chapter 8, using the general population as comparators for Supporting People recipients has some major limitations e.g. the extent to which they are at risk of homelessness and/or are experiencing a 'crisis' of a comparable severity is unknown.
3. It was therefore accepted that for the Feasibility Study, this analysis would be presented purely to provide a provisional indication of whether the pattern of health service use observed in Charts 7.1 to 7.15 in Chapter 7 remained, even when controlling for any changes in the general population.

Method and interpretation of findings

4. The number of GP events recorded in the population of the rest of Blaenau Gwent was used to create the underlying rate of GP event occurrence in Blaenau Gwent by 5 year age group.
5. By inspection of the Supporting People start date range, the date of 15.08.2013 was selected as the reference date around which to counting the monthly events for the rest of Blaenau Gwent – this was the mid point of the time range of Supporting People start dates.
6. The age specific rates were applied to the population of the Supporting People Accommodation cohort in order to calculate the number of events that would be expected to occur if the Supporting People cohort was identical to the wider Blaenau Gwent population.
7. Comparison of the actual events observed in the Supporting People accommodation-based support cohort and the expected events gives the standardised rate.
8. If the Supporting People accommodation-based support cohort was the same as the rest of the Blaenau Gwent population, the standardised rate would be 1. A standardised rate of 2 indicates that for every event generated by a 'control' Blaenau Gwent resident, 2 would be generated by the Supporting People accommodation-based support cohort.
9. The best that can be said at this point is that the pattern does appear to remain when controlling for any changes in the general population.

Chart E.1 Number of days on which GP events occurred per service user in the months before and after support start date for all Blaenau Gwent accommodation-based support recipients compared with a control group of the general Blaenau Gwent population^a



^a GP event occurrence in Blaenau Gwent by 5 year age group, matched on age group, gender and Local Authority.

Conclusion

- 10. For a full evaluation, it is recommended that further development work is done to develop a more robust, focussed standardisation technique that would more conclusively demonstrate whether the pattern identified above does remain after accounting for a more complex range of factors at work in the general population and therefore that the pattern could potentially be attributed to Supporting People.
- 11. The advantages of the standardisation approach are that it makes use of the larger population available for analysis and that it can provide some basic reassurance that the patterns observed for Supporting People recipients were not simply those observed in the general population. However, it has the key limitations that individuals in the general population are not likely to be similar to Supporting People recipients in terms of their risky and chaotic lifestyle and/or support networks and the extent to which they are at risk of homelessness and/or are experiencing a 'crisis' of a comparable severity is unknown.
- 12. As discussed in Chapter 8, comparing the pattern for people receiving support from Supporting People with that of a robust control group made up of individuals with more comparable characteristics and undergoing more comparable life events would be a key challenge for any full evaluation study.

Appendix F Margins of Error

What is a margin of error?

1. Suppose we are interested in a particular characteristic of a population; for example, the proportion of Supporting People recipients who visited their GP during a particular month - let's call this 'x'. We can estimate this proportion by drawing a sample of recipients and calculating the proportion who visited their GP (let's call this 'X') for that sample - this is referred to as a 'point estimate'. The larger the sample we select, the better the estimate X will be of x, but reporting X by itself does not tell the reader **how good** an estimate X is.
2. A margin of error or 'confidence interval' is one way to convey the uncertainty that surrounds the point estimate – it is a way to tell the reader **how good** the estimate is. They allow us to say something about how far away the point estimate of X is likely to be from the true value of x in the real world.
3. The margin of error itself is also an estimate. It is calculated making certain assumptions about how issues like sampling, interviewing, measurement and modelling contribute to the uncertainty about the relationship between the 'true' value of the figure we are estimating (x) and our estimate of that value (X). It is calculated in such a way that it does not refer to the value of x or X. The margin of error is made up of two values, one lying either side of the point estimate - between them these two values make up the confidence interval. If the interval is narrow, it gives us a small range of likely values for x and it tells the reader that the estimate is a better one than estimates where the interval is wide.
4. The larger a confidence interval for a particular estimate, the more caution is required when using the estimate. Confidence intervals are an important reminder of the limitations of the estimates.
5. Margins of error can be selected at different levels of confidence. The usual level of confidence selected for social research studies is 95% – by selecting this level of confidence, we can be confident that if we were to select 20 samples, the true value of x will lie within the confidence interval around X in 19 out of these 20 samples. This is usually considered a sufficient level of confidence.

What were the margins of error for the Feasibility Study?

6. The numbers of events analysed for this Study are, in themselves, not subject to a margin of error because they are based on a census of cases and not a survey sample as described in the text above. In other words, the data held in SAIL contains the routine health records of everyone in Wales, not just a sample of people. The concept a margin of error is therefore only relevant to this study when we are making an assessment of whether the following are statistically significant:
 - any changes observed over time;
 - any differences observed between subgroups of recipients; and
 - any differences observed between Supporting People recipients and control or comparison groups.
7. So, in brief, we have confidence in the results for the two local authority areas involved in the Feasibility Study but a full data linking evaluation study would be required before the findings could be generalised to all local authority areas and before we can conclude the extent to which observed patterns can be attributed to the Supporting People programme alone.

8. Due to the limited timescale available for the feasibility study and the fact that it was judged to be difficult for a layperson to understand the distinction described above, it was decided not to present the Charts shown in the main findings chapters of this Report showing the margin of error and to present only the two example(s) shown in Charts F1 and F2 (below).
9. Differences between the numbers of days on which GP events occurred or emergency admissions shown in Charts F1 and F2 are interpreted as being statistically significant at the 95% level where the confidence intervals do not overlap.

Chart F1 Number of days on which GP events occurred per service user in the months before and after support start date by Local Authority^a and gender – including the 95% Confidence Interval for the rate

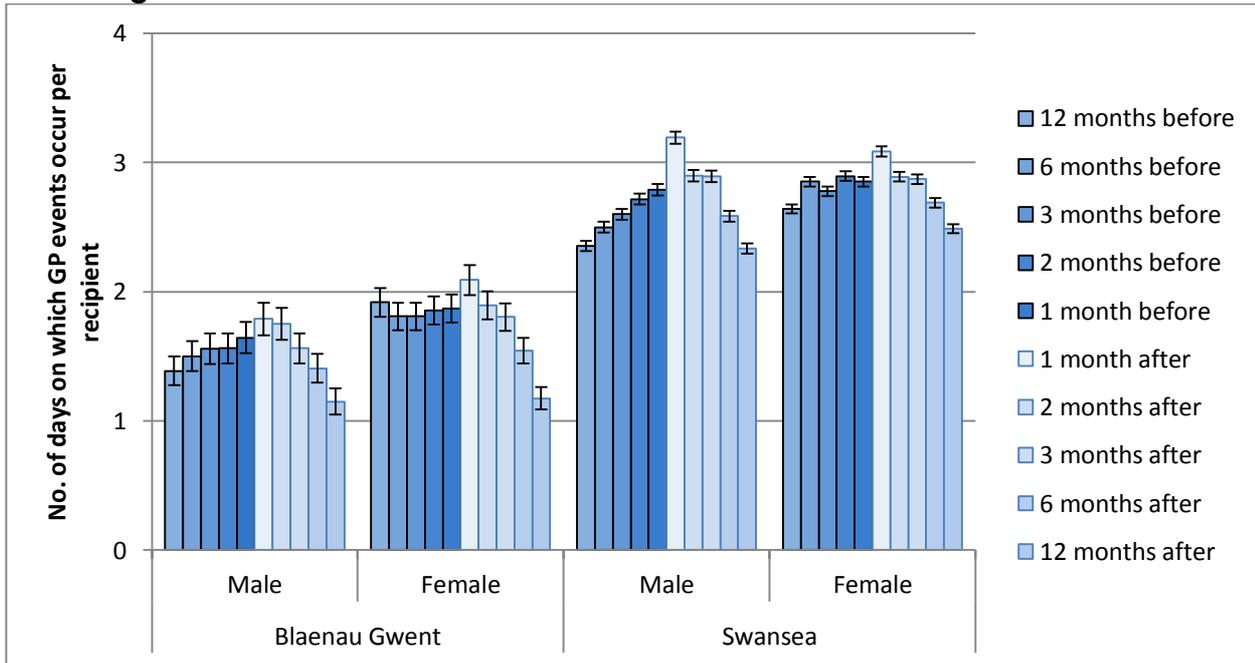
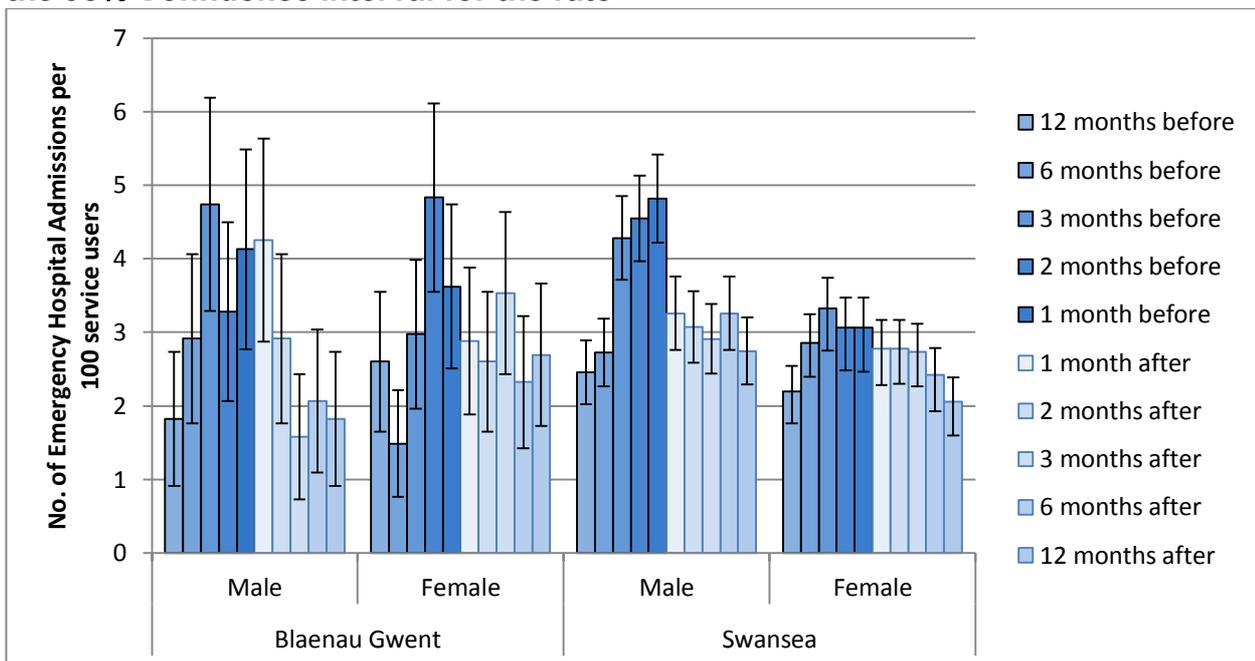


Chart F2 Number of emergency hospital admissions per 100 service users in the months before and after support start date by Local Authority and gender – including the 95% Confidence Interval for the rate



10. The margins of error shown above in Charts F1 and F2 tend to be wider for the Blaenau Gwent Local Authority findings than for the Swansea Local Authority findings. This is because records were available for fewer recipients for Blaenau Gwent Local Authority than for Swansea Local Authority and therefore the numbers of health events are smaller.
11. The margins of error also tend to be narrower for the numbers of days on which GP events occurred (i.e. in Chart F1) than for the numbers of emergency admissions (i.e. Chart F2) because Chart F1 is based on a greater number of events than Chart F2 (i.e. as would be expected, there were greater numbers of days on which GP events occurred than emergency hospital admissions).
12. The margins of error overall are relatively wide due to the small numbers of cases available for analysis at the feasibility stage. Small numbers would be less of a problem for a full quantitative evaluation. With greater numbers of recipients, margins of error would become correspondingly narrower and it would be possible to make more robust judgements about whether there are significant differences in the patterns observed in the data.
13. However, for the Feasibility Study, where numbers are small, findings where a consistent effect or trend over time is observed are nevertheless worthy of note and suggest some association between the support provided by Supporting People and levels of health service use.