Prevention of Chronic Disease JSNA:

Swindon Public Health

Version 5

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primary diagnosis in 2018

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Executive Summary

1. Central Purpose and Methods of Working

The main purpose of this JSNA is to link up a number of perspectives on the health of Swindon:

- to give an overview of the burden of chronic disease in the population of Swindon

- with a focus on selected conditions

- to look at the underlying common causes of chronic diseases, as manifest in risk factors

- to assess how well the local health community is performing in using interventions from the evidence-base to prevent these conditions from occurring

- to make recommendations for future work

Standard sources of data for morbidity and mortality were used, and for risk factors Public Health England indicators and the Global Burden of Disease model were utilised. In the review of interventions for primary prevention, two topic areas were focused on, termed 'Smoking Cessation' and 'Diet-Activity-Weight'. In a set of 'Gap Analyses' the Cochrane Database of Systematic Reviews, the NICE Baseline for Smoking Cessation, and Public Health England's framework, 'What good healthy weight for all ages looks like,' were used as standards for good practice; these were then compared with the range of current primary prevention services in Swindon in order to see whether 'Full Gaps' or 'Partial Gaps' existed.

To complement this statistical work, a qualitative enquiry was also carried out. Five focus groups were conducted in a variety of settings: condition-specific groups in a local hospital setting, a group of residents in sheltered housing run by the local council, a group of people supported by community workers in a local community centre, and a group of community workers who supported people living with long-term conditions. Discussion included key events or activities in their life-course which participants believed may have affected their health and wellbeing.

2. Main Findings: The Burden of Chronic Disease

Chronic diseases (also known as Long Term Conditions) are common in the population of Swindon. In all, the Symphony model for Swindon suggests that about 70,000 people in Swindon UA had at least one chronic disease in 2015, (32.2.% of the population), while for people aged 65 years or more the corresponding figure was about 23,000 people (69.3% of the population aged 65 years or over.) These figures include mental health conditions as well as physical health conditions. It is common for people to have more than one condition and be in a state of multi-morbidity. Data from the QOF registers of disease from primary care (as at March 2019) indicate that the levels of most physical conditions in Swindon were probably broadly similar to those in England as a whole. For example, 2.77% of people (6,683) in the Swindon population, were known to have Coronary Heart Disease, 1.54% of people (3,723) in the Swindon population, were known to have Stroke/Transient Ischaemic Attack, while 1.71% of people (4,117) were known to have Chronic Obstructive Pulmonary Disease (COPD). However, in all 7.63% of people (14,486) were known to have diabetes, a slightly higher prevalence than that recorded for England as a whole. Modelled data for arthritic conditions suggested that the prevalence of osteoarthritis might be higher than in England as a whole: in all 11.1% of people (10,650) in the Swindon population aged 45+ years and 18.8% of people (18,038) aged 45+ years were estimated to have hip and knee osteoarthritis respectively, and some may have had both. It was common for people with chronic diseases to be admitted to hospital because of another type of health condition or incident, such as falls, urinary tract infections and cataracts, problems which are potentially preventable.

3. Main Findings: Risk Factors and Prevention Clusters

In terms of the major risk indicators from Public Health England, Swindon's comparative rankings (relative to similar populations) were worse for isolation within social care, self-reported satisfaction with life, smoking prevalence, and overweight and obesity. For three indicators Swindon was shown to be significantly worse than England: smoking prevalence, educational attainment, and depression. Swindon's rankings were comparatively good for deprivation, statutory homelessness, employment, and physical activity. Thus, in terms of lifestyle Swindon presented a mixed picture, comparing well on diet and exercise, and

comparing poorly on smoking and overweight/obesity. Some of the psycho-social indicators (isolation, satisfaction, depression) were also comparatively unfavourable for Swindon's population.

When examining potentially modifiable risk factors from the Global Burden of Disease model, it was difficult to make a judgement on which risk factor or cluster of risk factors might have the greatest overall detrimental influence on health in Swindon, but tobacco and high Body Mass Index (BMI) each featured prominently. Accordingly tobacco use and high BMI (which is often linked with diet and low physical activity) were taken forward as prevention clusters for further scrutiny as preventive areas in our population as 'Smoking Cessation' and 'Diet-Activity-Weight' respectively.

4. Main Findings: Gap Analysis for Smoking Cessation

Swindon has a higher prevalence of smoking, 17.7% in adults, than England as a whole. Swindon was positive overall on the NICE Baseline Assessment tool with respect to smoking cessation services, but when viewed together with the Cochrane Database of Systematic Reviews, a number of gaps and omissions were identified. These were:

- targets for quit rates (not having been met)
- the use of digital technology to support smoking cessation (although texting is currently in use as an adjunct)
- the use of material or cash incentives to support smoking cessation
- the provision of optimum follow-up services for smoking cessation when people have had a health-check
- the full use of NHS staff and NHS records to support smoking cessation
- group therapy, gradual reduction, and relapse support in smoking (not offered at present)
- services are not provided in a targeted way to some groups who are at high risk, especially those in deprived groups, although there is some degree of outreach to those with a history of mental illness

In contrast, Swindon was judged to be particularly strong in its use of pharmaceutical methods to aid in smoking cessation.

5. Main Findings: Gap Analysis for Diet-Activity-Weight

In Swindon the majority of the adult population, 63.7%, was overweight or obese, similar to the level in England as a whole. At the same time 71.6% of the Swindon adult population was physically active by the Chief Medical Officer's definition, a level better than that in England as a whole. Comparing Swindon interventions for Diet-Activity-Weight with the Cochrane Database of Systematic Reviews showed relatively few omissions, two partial gaps and one full gap. The only full gap for Diet-Activity-Weight was in multi risk-factor intervention for the prevention of Coronary Heart Disease, which corresponds to the primary care health check scheme. Currently services are not specifically targeted at people living in more deprived areas of Swindon, so this is a gap in our work.

In terms of the PHE framework, 'What good healthy weight for all ages looks like,' Swindon was not judged, on the traffic light rating, to be at green on any of the Seven Pillars. Swindon was assessed at red on systems leadership, community engagement, and a life course approach, and at amber for a health promoting environment, a focus on inequalities, and monitoring and data collection. Swindon is also at amber on a whole systems approach to obesity, in which, ideally, local agencies, organisations and stakeholders are working together in a concerted and systematic way.

6. Main Findings: Qualitative Research and Focus Groups

As one might expect, there was a range of responses from the focus groups on the topic of prevention, but there appeared to be several points across the life-course where, some (but not all) participants believed, prevention might make a difference. Common themes were:

- work, relationships, social connection and social support, education and information, and independence were important for maintaining good health
- there was a desire for better health and well-being promotion across the life course
- the nature of and length of time a person has lived with a chronic condition made a difference to its impact

- a person's attitude towards their condition had an effect, and this seemed linked to age. Interactions between physical well-being and mental well-being were believed to be important factors to be taken into consideration in primary, secondary and tertiary prevention.

7. Implications of the Findings and Further Considerations

The narrative that has emerged in the JSNA is not a straightforward one. Despite all the known associations between risk factors, and between risk factors and diseases, it was not easy to identify common strands running through all the data which seemed to account for the greater part of chronic disease in Swindon. Moreover, there was no obvious intervention which by itself seemed likely to make a significant impact on the population's health. There was little solid evidence in the literature that seemed to address directly the needs of minority groups in our population, with some possible exceptions. On a more positive note, many usable interventions and strategies for prevention were found in the literature, namely for encouraging Smoking Cessation and improving Diet-Activity-Weight. On an equally positive note, a large proportion of these interventions were being implemented in Swindon; Swindon still has much to attain in reaching the high standards of the PHE's latest framework for healthy weight, but the framework represents a highly aspirational and advanced state of health improvement, in which a whole community is working together.

The strategies and interventions needed to prevent chronic diseases have to match the complexity of the social, biological and environmental life of the population. Furthermore, this complex activity will have to include targeted interventions to reduce health inequalities; a complicating factor is that such targeted interventions are not well-covered in the literature. The common strands of prevention might lie more in public health workers engaging with points in the life-course and with sub-groups in the community rather than searching for broad spectrum interventions.

8. Abbreviated Version of Recommendations

(1) The health community should consider the gaps in its smoking cessation interventions (digital methods, support for people with a history of mental health problems, the deployment of different types of NHS staff to support smoking cessation) and find ways of remedying them.

(2) Public health workers in Swindon should keep informed of latest developments in research in the field of Diet-Activity-Weight.

(3) Swindon should consider implementing a whole systems approach by creating a system of local agencies and organisations working together in concert as a matter of course, and including full community engagement.

(4) Swindon should improve its focus on inequalities in any services commissioned or delivered; a pressing need is to improve data collection to monitor contracts in which inequalities work is a feature.

(5) The health community should recognise the importance of different approaches to promoting health at different stages of the life-course.

(6) The health community should investigate further measures to prevent hospital admissions for people with chronic diseases; many of these admissions are due to other conditions which might have been prevented or alleviated.

(7) The health community should take account of the importance of the interaction between mental well-being and promotion of physical health in terms of work, relationships, social connection and social support, education and information, and independence, at different stages of the life-course.

(8) The health community should allow for the importance of the interaction between mental well-being and promotion of physical health in terms of work, relationships, social

connection and social support, education and information, and independence, when people are experiencing chronic disease, so as to minimise their impairment and maximise their well-being.

(9) Further work should include an appraisal of all existing preventive interventions in Swindon to ensure that they are supported by strong evidence, are cost-effective, but also are working optimally in the local context. If a local intervention does not meet these criteria and there is no other good reason to maintain it, then it would be a candidate for disinvestment.

Chapter One. Introduction.

1.1. Rationale of the Prevention of Chronic Disease JSNA

The paramount importance of prevention has recently been emphasised in 'Prevention is better than cure' published in late 2018 by the Department of Health and Social Care.[1] Many chronic health conditions have common roots in that they are linked to the same or to very similar risk factors. This indicates that there is scope for considering these conditions within the same JSNA and examining the commonalities in terms of risk factors and of prevention strategies to address these risk factors. For this reason, this JSNA takes an integrated and holistic approach towards risk factors and preventive initiatives that might have a considerable impact on the health of our population. The NHS Long Term Plan[2] also lays emphasis on prevention because of the increasing pressures on the health and social care system. The plan envisages a more integrated health and social care system in which effort is made to avoid the hospitalising of patients. In particular the plan mentions smoking, obesity, alcohol, air pollution, and anti-microbial resistance and outlines initiatives for combating these. The Integrated Care System (ICS) in Swindon is taking a preventive approach to health and wellbeing and so the IC Chronic Disease Management project group is a key stakeholder in the creation of this Prevention of Chronic Disease JSNA.

1.2. Approach of this JSNA

Swindon JSNAs are a systematic way of assessing the health and healthcare needs of the population, and the services available to meet those needs. A JSNA identifies which services and interventions are working effectively, as well as pointing out scope for improvement, and drawing on best practice to provide an evidence base for comparisons with local provision. JSNAs also result in action to address gaps and improve service planning, commissioning and policy in the future. A conventional JSNA tends to focus on one health condition, measures need in the population and considers the services in place to respond to that need. It then identifies gaps or unmet need. The Prevention of Chronic Disease JSNA, however, will look at common risk factors for conditions as the 'needs' and consider

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[1] Department of Health and Social Care, *Prevention is better than cure. Our vision to help you live well for longer*. (November 2018).

[2] Department of Health and Social Care, *NHS Long Term Plan*. (January 2019). www.LongTermPlan.nhs.uk. Accessed 1st December 2019.

what is being done by way of primary prevention as the 'services'. The gaps or unmet need in tackling risk factors will be assessed and discussed.

1.3. Objectives

The objectives of this JSNA are as follows:

i. To report the burden of disease, prevalence and mortality, for a group of common chronic diseases of interest in the population of Swindon; these will be referred to as the 'selected health conditions'. To report the prevalence of the co-morbidities that co-exist with the selected health conditions.

ii. To report the levels of hospital admissions for the selected health conditions, including admissions where the selected health conditions were secondary rather than primary reasons for admission.

iii. To tabulate a set of key determinants of health, or key risk indicators, for Swindon and make comparisons with England as a whole and areas similar to Swindon. To use the Global Burden of Disease model[3] to identify and quantify the risk factors for the selected health conditions. (The Global Burden of Disease model estimates morbidity and mortality levels, and also the proportion of morbidity and mortality attributable to certain risk factors; the model does this using similar methods for populations across the globe.)

iv. To identify the risk factors which are common to the selected health conditions. To classify the risk factors pragmatically according to 'prevention clusters', i.e.

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[3] GBD Risk Factor Collaborators, *Global Burden of Disease Model.* https://vizhub.healthdata.org/gbd-compare Accessed 23rd August 2019.

GBD 2015 Risk Factor Collaborators, *"*Supplement to: GBD 2015 Risk Factors Collaborators. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015," *Lancet* 388 *(*2016): 1659–724.

GBD 2017 Risk Factor Collaborators, "Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017." *Lancet* 392 (2018): 1923–94.

grouping risk factors where they tend to occur together or are likely to be preventable together.

v.   To conduct a brief evidence review to identify the best practice relating to tackling risk factors. To do this using appropriate sources such as the Cochrane Database of Systematic Reviews[4], the NICE Baseline for Smoking Cessation[5], and Public Health England's framework, 'What Good Healthy Weight for All Ages Looks Like.'[6]

vi.   To highlight gaps in the current primary prevention services in Swindon by comparing local services with the interventions identified in the evidence review. In the course of this work, to highlight the issue of health inequalities and assess how the interventions in the evidence review address them.

vii.   To use qualitative methods in focus groups of local people with chronic diseases and of health professionals to understand their experiences and their perceptions of prevention and its possibilities.

viii.   To pursue the above objectives in relation to the population of Swindon, as represented by the Swindon Borough resident population and the Swindon CCG registered population, as appropriate.

1.4. Scope

In terms of Chronic Diseases, the JSNA will include the following as the selected health conditions:

- Cardiovascular Disease (CVD), specifically Coronary Heart Disease (CHD), stroke, heart failure, and atrial fibrillation. Stroke will include Transient Ischaemic Attack (TIA) where possible.

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[4] Cochrane Collaboration, *Cochrane Database of Systematic Reviews.*
https://www.cochranelibrary.com/cdsr/about-cdsr. Accessed 1st June 2019

[5] National Institute for Health and Care Excellence*, Baseline assessment tool for stop smoking,* www.nice.org.uk › baseline-assessment-tool-excel-4788822349. Accessed 28th August 2019.

[6] Association of Directors of Public Health, *What Good Healthy weight looks,* likehttps://www.adph.org.uk/wp-content/uploads/2019/07/What-Good-Healthy-Weight-Looks-Like.pdf. Accessed 20th September 2019.

- Respiratory disease, specifically Chronic Obstructive Pulmonary Disease (COPD), and asthma.
- Musculoskeletal (MSK) diseases specifically osteoarthritis (OA) of the knee and the hip, with rheumatoid arthritis (RA) and low back pain shown separately
- Liver disease
- Diabetes
- Chronic Kidney Disease (CKD)

We include these conditions because they are relatively common, and their overall clinical management in terms of health and care services are also currently being reviewed in Swindon. We will also be cognisant of the following disease groups: cancer, dementia, falls and the sequelae of falls. But this will only be within the risk factors chapter in relation to their aetiological profile which may overlap with those of the selected health conditions. We will consider mental or psycho-social health, hypertension (raised blood pressure) and hypercholesterolaemia as part of the causal pathways for the included conditions, not as conditions in themselves. It was agreed to exclude the following conditions from the JSNA: learning disabilities, communicable diseases, sensory impairments, genetic conditions, other neurological conditions, because their causation is notably different from that of cardiovascular disease, diabetes etc.

The JSNA will relate to adults, generally aged 15 or 16 years or more, according to the source of data being used. Also, depending on the sources of data available, figures are presented for Swindon UA (the resident population of Swindon Borough) or for Swindon CCG (the population that is registered with a Swindon CCG GP, a slightly larger pool of people mainly in Swindon and Watchfield-Shrivenham ward.) Since figures here are given for illustration of trends and patterns, rather than for exact planning, this method is not likely to result in any incongruities in practice.

Chapter Two. The Burden of Chronic Disease in Swindon

2.1. Foreword to the Burden of Chronic Disease

The 'burden' is the term conventionally used to describe the amount of chronic disease or disability experienced by a population. Figures 1, 2 and 3 give an overview of the burden of Chronic Disease in the Swindon population in the form of the proportion and number of people with Long Term Conditions (LTCs) within small age-groups in 2015, set in the context of the shape of the population itself. 'LTCs' is for all practical purposes a synonym for 'Chronic Disease'. It is common for people to have more than one condition or disease, to have co-morbidities and so to be in a state of multi-morbidity.

Figure 1: Population of Swindon UA by Age-group in 2015
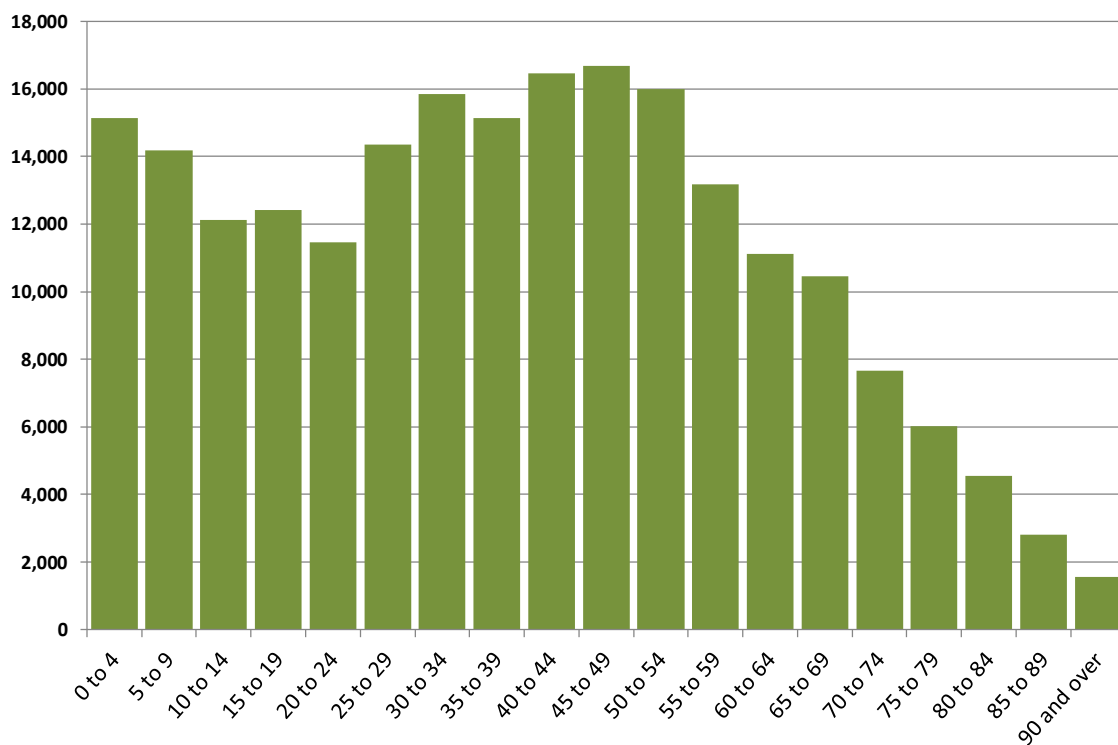
Source: ONS

There are different ways of measuring Chronic Disease in a population, but at present it is difficult to describe with exactitude the distribution of Chronic Disease in the population in terms of age, sex and other socio-demographic characteristics.

We have therefore drawn upon imputed statistics produced by applying the Symphony model to the Swindon UA population of 2015.[7] Although it is probable that the percentages have risen very slightly since 2015, the modelled prevalences can still be taken as a guide to what is happening in Swindon in 2019 and 2020. The Symphony model focuses on the main types of health condition that are recorded in the QOF primary care registers throughout England.[8] The model contains details of patterns of chronic disease in small groups in a county in south west England; we imputed (made a statistical prediction about) the distribution of Chronic Disease in Swindon by applying these patterns to similar small groups in Swindon and building up a picture for the whole population in that way.

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[7] Swindon Borough Council/Swindon Public Health. *Profile of Long Term Conditions in Swindon: Overview of Prevalence, Co-Morbidities, Costs and Deprivation*. (May 2017). www.jsna.co.uk. Accessed 19th August 2019.

[8] NHS Digital, *Quality and Outcomes Framework, Achievement, prevalence and exceptions data 2018-19 [PAS]*, https://digital.nhs.uk/data-and-information/publications/statistical/quality-and-outcomes-framework-achievement-prevalence-and-exceptions-data/2018-19-pas. Accessed 4th November 2019.

QOF data (and other public health indicators) are also available at: Public Health England, Public Health England Profiles, https://fingertips.phe.org.uk/ .

Figure 2: Prevalence of LTCs in Swindon UA in Symphony Model for 2015 Population (All Ages) As Percentage by Age-Group
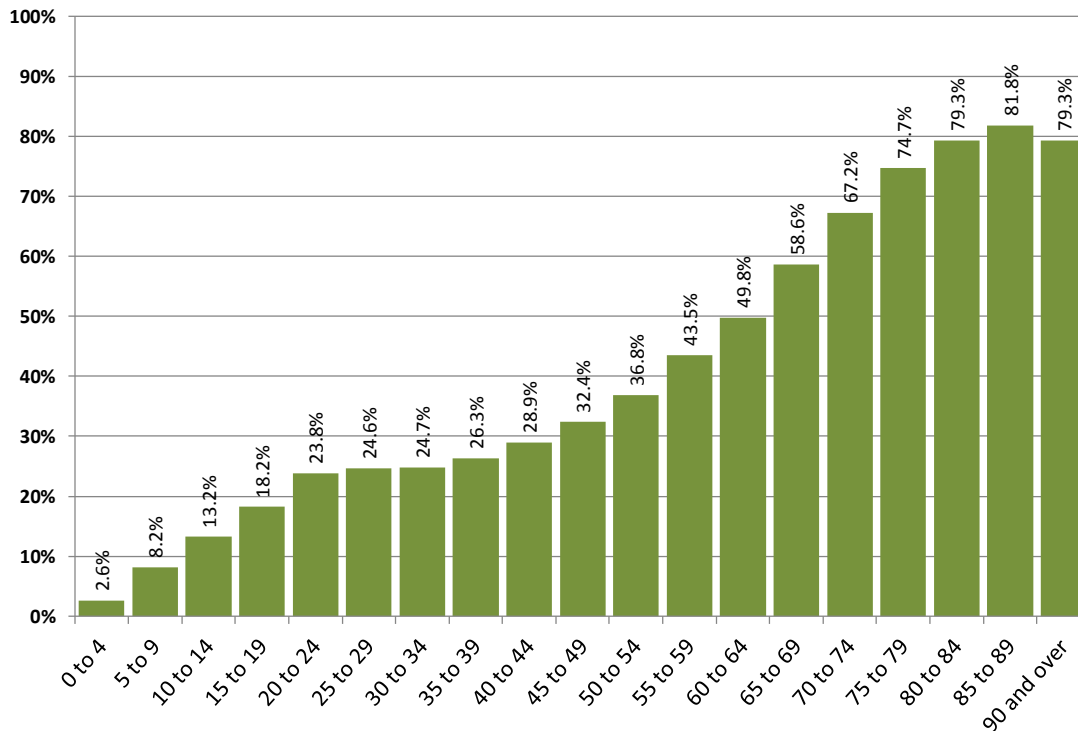
Source: Symphony Model for Swindon UA 2015

The imputed prevalence of LTCs in Swindon rises markedly with age, peaking at 81.8% in people aged 85 to 89 years (see Figure 2) but the imputed count, the number of people, is in fact highest in the middle-aged and in early old age, peaking at 6,129 people aged 65 to 69 (Figure 3). However, older people are more likely to have co-morbidities (that is to have more than one LTC) and are more likely to experience their conditions as disabling. Overall the Symphony model for Swindon suggests that overall about 70,000 people in Swindon UA had at least one LTC in 2015, (32.2.% of the population), while for people aged 65 years or more the corresponding figure was about 23,000 people (69.3% of the population aged 65 years or over.)

Figure 3: Numbers of People with LTCs in Swindon UA in Symphony Model for 2015 Population (Prevalent Cases by Age-Group)

Age-Group	Number
0 to 4	396
5 to 9	1,161
10 to 14	1,604
15 to 19	2,262
20 to 24	2,726
25 to 29	3,526
30 to 34	3,921
35 to 39	3,988
40 to 44	4,765
45 to 49	5,400
50 to 54	5,889
55 to 59	5,729
60 to 64	5,534
65 to 69	6,129
70 to 74	5,156
75 to 79	4,491
80 to 84	3,616
85 to 89	2,296
90 and over	1,228
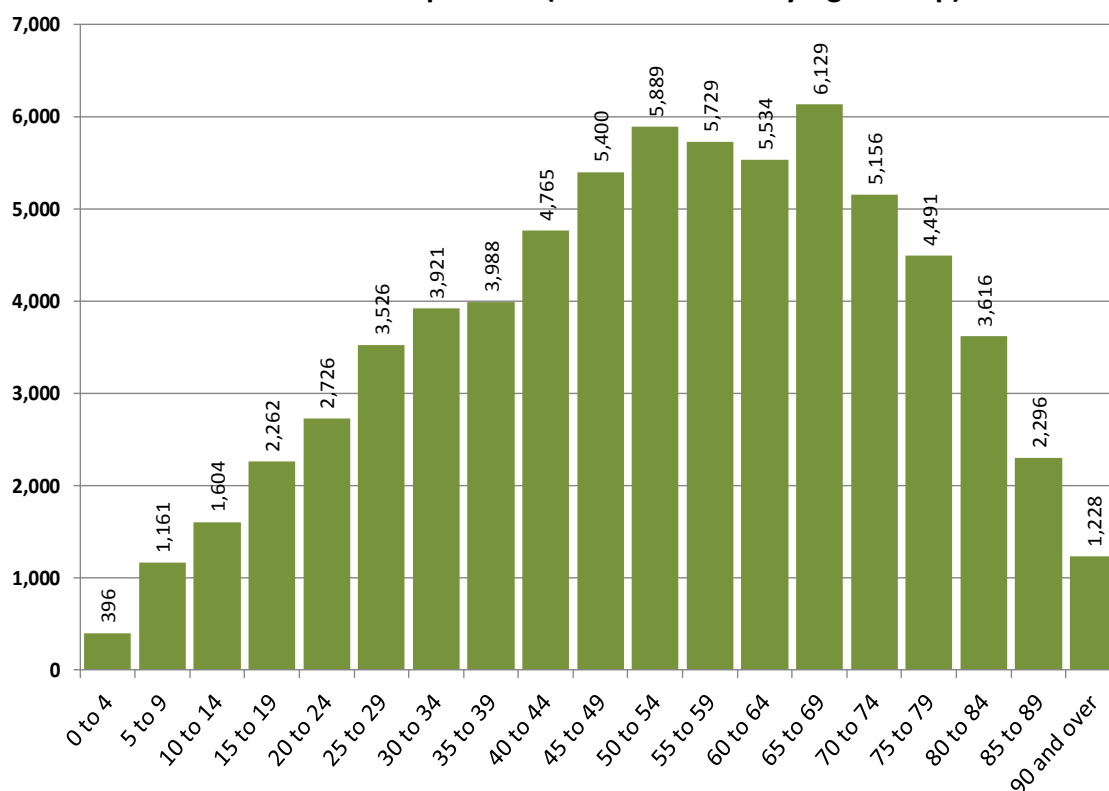
Source: Symphony Model for Swindon UA 2015

In this overview of the burden of selected health conditions, for each condition three tables and one diagram (figure) are given, where data are available. For each condition the first table summarises:

- The prevalence: *how many people have the condition and what proportion of the population are they?*

- The morbidity burden: *If we take all the records in the primary care QOF register that record disease prevalence, what percentage are accounted for by this condition?* (One person can have more than one condition and more than one QOF record. Only mental and physical illnesses are included here, so obesity and hypertension, though recorded in QOF, are excluded. The list of QOF conditions included is given in Appendix 1.)

- Trend in prevalence: *how are the population proportion and numbers changing?*

- Mortality impact: *what percentage of total deaths are caused primarily by this condition?*

- Premature mortality: *What are the rate and numbers for death from this condition before the age of 75 years?*

- Figures are for Swindon for the years shown and comparisons with England are made where possible.

- These figures are derived from the QOF Primary Care Registers, the Public Health Profiles/PHOF from Public Health England and the Global Burden of Disease Model.

For each condition the second table shows:

- Hospital admission rates: *how many people are admitted to hospital with this condition as the primary reason in one year?*

For each condition the third table shows:

- Co-morbid hospital admission rates*: how many people are admitted to hospital with this condition in one year, where another condition is actually the primary reason for admission?* Admissions data for Swindon are derived from the NHS Hospital Episodes System/SUS. Details of extraction and diagnostic codes are shown in Appendix 2.

The conditions reviewed are:

Coronary Heart Disease, stroke, heart failure, atrial fibrillation, Chronic Obstructive Pulmonary Disease, asthma, osteoarthritis of the knee and the hip, rheumatoid arthritis, low back pain, liver disease, diabetes and Chronic Kidney Disease.

2.2. Coronary Heart Disease (All ages and for Swindon CCG unless shown.)

Table 1. Morbidity and Mortality for CHD in Swindon

MEASURE	SOURCE AND YEAR	ESTIMATE FOR SWINDON	NUMBERS FOR SWINDON	ESTIMATE FOR ENGLAND	SWINDON RELATIVE TO ENGLAND
Prevalence Rate	QOF, 2019	2.77%	6,683 people	3.10%	Slightly lower
Percentage of QOF Morbidity Burden	QOF, 2019	7.1% of total	6,683/94,531	7.6% of total	Slightly lower
Trend in Prevalence Rate and Numbers for Swindon 2014 to 2019	QOF, 2014 to 2019	2.7% to 2.8% 6,294 to 6,683 people, so 389 more people Little Change in rate			Similar
Mortality Impact (All Ages)*	GBD, 2017	13.9% of total	Estimated at 249 deaths p.a.	14.14% of total	Not significantly different
Premature Mortality Rate (< 75 years only, standardised)	PUBLIC HEALTH PROFILES, 2015-17	34.4 deaths per 100,000	_	38.7 deaths per 100,000	Not significantly different

*Figures for Swindon UA given.

Table 2. Hospital admissions for Swindon & Watchfield-Shrivenham residents with CHD as primary diagnosis in 2018.

Primary Diagnosis	*Count*			*Per 1,000 pop*		
	15 to 64	*65+*	*Total*	*15 to 64*	*65+*	*Total*
CHD	394	555	949	2.67	15.58	5.18
All Selected Conditions	2,817	3,240	6,057	19.08	90.93	33.05
CHD as percentage of All Selected	14.0%	17.1%	15.7%	14.0%	17.1%	15.7%

Source: Hospital Episode System/SUS

Table 3: Hospital admissions by Primary Diagnosis for Swindon & Watchfield-Shrivenham residents who had CHD as secondary diagnosis in 2018, by ten most common primary diagnoses.

Primary Diagnosis	Count
Acute subendocardial myocardial infarction	215
Atherosclerotic heart disease	200
Cataract, unspecified	185
Chest pain, unspecified	165
No diagnosis Recorded	165
Congestive heart failure	115
Lobar pneumonia, unspecified	110
Sepsis, unspecified	110
Tendency to fall, not elsewhere classified	80
Urinary tract infection, site not specified	75

Source: Hospital Episode System/SUS. Figures have been rounded to the nearest 5, or suppressed if non-zero and under 8 in accordance with NHS confidentiality practice.

Commentary on Coronary Heart Disease

In all 2.77% of people (6,683) in the Swindon population, are known to have CHD (Table 1), a slightly lower prevalence than in England as a whole. In Swindon this is 7.1% of the burden of QOF conditions. The prevalence has risen since 2014, but only by a fraction of a percentage, though as the population has increased, there are now more people living with CHD in Swindon. The Global Burden of Disease model calculates 13.9% of mortality in Swindon to be due to CHD. The Public Health Profiles from PHE indicate a premature mortality rate of 34.4 per 100,000 each year.

With regard to hospital admissions (Tables 2 and 3) CHD accounted for 15.7% of admissions for our selected conditions. The most common primary diagnoses where CHD was also involved were myocardial infarction and atherosclerotic heart disease; these are so closely related to CHD that these diagnoses can be regarded as not providing any extra information for our purposes.

2.3. Stroke/TIA (All ages and for Swindon CCG unless shown.)

Table 4. Morbidity and Mortality for Stroke/TIA in Swindon.

Measure	Source and Year	Estimate for Swindon	Numbers for Swindon	Estimate for England	Swindon relative to England
Prevalence Rate	QOF, 2019	1.54%	3,723	1.77%	Slightly lower
Percentage of Morbidity Burden	QOF, 2019	3.93% of Total	3,723/94,531	4.33%	Slightly lower
Trend in Prevalence Rate and Numbers for Swindon 2014 to 2018	QOF, 2014 to 2019	1.4 % to 1.5% 3,321 to 3,723 people, so 402 more Little change in rate			Similar
Mortality Impact* (All Ages)	GBD, 2017	6.38% of total	Estimated at 114	7.53% of total	Significantly different (lower)
Mortality Rate (< 75 years, standardised)	Public Health Profiles 2015-17	10.9 deaths per 100,000	-	13.1 deaths per 100,000	Not significantly different

*Figures for Swindon UA given.

Table 5. Hospital admissions for Swindon & Watchfield-Shrivenham residents with Stroke/TIA as primary diagnosis in 2018.

Primary Diagnosis	Count			Per 1,000 pop		
	15 to 64	65+	Total	15 to 64	65+	Total
Stroke/TIA	174	454	628	1.18	12.74	3.43
All Selected Conditions	2817	3420	6057	19.08	90.93	33.05
Stroke/TIA as percentage of All Selected	6.2%	13.3%	10.4%	6.2%	14.0%	10.4%

Source: Hospital Episode System/SUS

Table 6. Hospital admissions by Primary Diagnosis for Swindon & Watchfield-Shrivenham residents who had Stroke/TIA as secondary diagnosis in 2018, by ten most common primary diagnoses.

Primary Diagnosis	Count
Cerebral infarction, unspecified	150
Sepsis, unspecified	30
Tendency to fall, not elsewhere classified	25
Lobar pneumonia, unspecified	25
Transient cerebral ischaemic attack, unspecified	20
Other and unspecified convulsions	20
Stroke, not specified as haemorrhage or infarction	20
No Diagnosis Recorded	20
Urinary tract infection, site not specified	20
Intracerebral haemorrhage, unspecified	20

Source: Hospital Episode System/SUS. Figures have been rounded to the nearest 5, or suppressed if non-zero and under 8 in accordance with NHS confidentiality practice.

Commentary on Stroke/TIA

In all 1.54% of people (3,723) in the Swindon population, are known to have Stroke/TIA (Table 4), a slightly lower prevalence than in England as a whole. In Swindon this is 3.93% of the burden of QOF conditions. The prevalence has risen since 2014, but only by a fraction of a percentage, though as the population has increased, there are now more people living with stroke/TIA in Swindon. Although the prevalence of strokes is relatively low, the impact can be considerable, both on individuals and on the health and care system. The Global Burden of Disease model calculates 6.38% of mortality in Swindon to be due to stroke/TIA. The Public Health Profiles from PHE indicate a premature mortality rate of 10.9 per 100,000 each year.

With regard to hospital admissions (Tables 5 and 6) stroke/TIA accounted for 10.4% of admissions for our selected conditions. The most common primary diagnoses where stroke/TIA was also involved were cerebral infarction (a sub-category of stroke), sepsis and tendency to fall.

2.4. Heart Failure (All ages and for Swindon CCG unless shown.)

Table 7. Morbidity and Mortality for Heart Failure in Swindon

MEASURE	SOURCE AND YEAR	ESTIMATE FOR SWINDON	NUMBERS FOR SWINDON	ESTIMATE FOR ENGLAND	SWINDON RELATIVE TO ENGLAND
Prevalence Rate	QOF, 2019	0.81%	1,953	0.93%	Slightly lower
Percentage of Morbidity Burden	QOF, 2019	2.07%	1,953/94,531	2.28%	Slightly lower
Trend in Prevalence Rate and Numbers for Swindon 2014 to 2019	QOF 2014 to 2019	0.54% to 0.82% 1,217 to 1,953 people, so 736 more Rate has increased			Similar
Mortality Impact* (All Ages)	GBD, 2017	0.69% of Total (Cardiomyopathy etc. used as proxy)	Estimated as 13	0.7% of Total (Cardiomyop. etc. used as proxy)	Not significantly different
Premature Mortality Rate* (< 75 years, standardised)	Public Health Profiles 2015-17	Not available		Not available	

*Figures for Swindon UA given.

Table 8. Hospital admissions for Swindon & Watchfield-Shrivenham residents with Heart

Primary Diagnosis	Count			Per 1,000 pop		
	15 to 64	65+	Total	15 to 64	65+	Total
Heart Failure	69	353	422	0.47	9.91	2.30
All Selected Conditions	2,817	3,240	6,057	19.08	90.93	33.05
Heart failure as percentage of All Selected	2.4%	10.9%	7.0%	2.5%	10.9%	7.0%

Failure as primary diagnosis in 2018.

Source: Hospital Episode System/SUS

Table 9. Hospital admissions by Primary Diagnosis for Swindon & Watchfield-Shrivenham residents who had Heart Failure as secondary diagnosis in 2018, by ten most common primary diagnoses.

Primary Diagnosis	Count
Congestive heart failure	200
No Diagnosis Recorded	110
Lobar pneumonia, unspecified	95
Pneumonia, unspecified	70
Sepsis, unspecified	65
Acute subendocardial myocardial infarction	50
Tendency to fall, not elsewhere classified	45
Chronic obstructive pulmonary disease with acute lower respiratory infection	45
Unspecified acute lower respiratory infection	40
Acute renal failure, unspecified	40

Source: Hospital Episode System/SUS. Figures have been rounded to the nearest 5, or suppressed if non-zero and under 8 in accordance with NHS confidentiality practice.

Commentary on Heart Failure

In all 0.81% of people (1,953) in the Swindon population, are known to have heart failure (Table 7), a slightly lower prevalence than in England as a whole. In Swindon this is 2.07% of the burden of QOF conditions. The prevalence has risen since 2014 and there are now more people living with heart failure in Swindon. The Global Burden of Disease model calculates 0.69% of mortality in Swindon to be due to cardiomyopathy which we use here as a proxy for heart failure.

With regard to hospital admissions (Tables 8 and 9) heart failure accounted for 7.0% of admissions for our selected conditions. The most common primary diagnoses where heart failure was also involved were congestive heart failure (virtually a synonym for heart failure), and pneumonia. This suggests in terms of preventing hospital admissions that reducing the risk of pneumonia is important, through preventive work such as promotion of immunisation, affordable warmth schemes, and so on.

2.5. Atrial Fibrillation (All ages and for Swindon CCG unless shown.)

Table 10. Morbidity and Mortality for Atrial Fibrillation in Swindon.

Measure	Source and Year	Estimate for Swindon	Numbers for Swindon	Estimate for England	Swindon relative to England
Prevalence Rate	QOF, 2019	1.82%	4,401	1.98%	Slightly lower
Percentage of Morbidity Burden	QOF, 2019	4.66% of Total	4,401/94,531	4.84%%	Slightly lower
Trend in Prevalence Rate and Numbers for Swindon 2014 to 2019	QOF, 2014 to 2019	1.4 % to 1.8 % 3,179 to 4,401 people, so 1,222 more Rate has increased			Similar
Mortality Impact* (All Ages)	GBD, 2017	1.53% of Total	Estimated at 27	1.5% of Total	
Premature Mortality Rate* (< 75 years, standardised)	Public Health Profiles 2015-17	Not Available	Not Available	Not Available	

*Figures for Swindon UA given.

Table 11. Hospital admissions for Swindon & Watchfield-Shrivenham residents with Atrial Fibrillation as primary diagnosis in 2018.

Primary Diagnosis	Count			Per 1,000 pop		
	15 to 64	65+	Total	15 to 64	65+	Total
Atrial Fibrillation	138	314	452	0.93	8.81	2.47
All Selected Conditions	2,817	3,240	3,240	19.08	90.93	33.05
Percentage of All Selected	4.9%	9.7%	14.0%	4.9%	9.7%	7.5%

Source: Hospital Episode System/SUS

Table 12. Hospital admissions by Primary Diagnosis for Swindon & Watchfield-Shrivenham residents who had Atrial Fibrillation as secondary diagnosis in 2018, by ten most common primary diagnoses.

Primary Diagnosis	Count
No Diagnosis Recorded	165
Lobar pneumonia, unspecified	160
Congestive heart failure	155
Sepsis, unspecified	130
Cataract, unspecified	110
Tendency to fall, not elsewhere classified	105
Pneumonia, unspecified	100
Urinary tract infection, site not specified	95
Cerebral infarction, unspecified	85
Fracture of neck of femur: closed	60
Chronic obstructive pulmonary disease with acute lower respiratory infection	60

Source: Hospital Episode System/SUS. Figures have been rounded to the nearest 5, or suppressed if non-zero and under 8 in accordance with NHS confidentiality practice.

Commentary on Atrial Fibrillation

In all 1.82% of people (4,401) in the Swindon population, are known to have atrial fibrillation (Table 10), a slightly lower prevalence than in England as a whole. In Swindon this is 4.66% of the burden of QOF conditions. The prevalence has risen since 2014 and there are now more people living with atrial fibrillation in Swindon. The Global Burden of Disease model calculates 1.53% of mortality in Swindon to be due to atrial fibrillation.

With regard to hospital admissions (Tables 11 and 12) atrial fibrillation accounted for 14% of the admissions from our selected conditions. The most common primary diagnoses where atrial fibrillation was also involved were pneumonia, congestive heart failure and sepsis. The admissions due to cataract are probably not directly linked to atrial fibrillation, but are more likely to be a result of aspects of ageing, though are possibly also to high blood pressure.

2.6. Chronic Obstructive Pulmonary Disease (All ages and for Swindon CCG unless shown.)

Table 13. Morbidity and Mortality for COPD in Swindon.

MEASURE	SOURCE AND YEAR	ESTIMATE FOR SWINDON	NUMBERS FOR SWINDON	ESTIMATE FOR ENGLAND	SWINDON RELATIVE TO ENGLAND
Prevalence Rate	QOF, 2019	1.71%	4,117	1.93%	Slightly lower
Percentage of Morbidity Burden	QOF, 2019	4.36% of Total	4,117/94,531	4.71%	Slightly lower
Trend in Prevalence Rate and Numbers for Swindon 2014 to 2019	QOF, 2014 to 2019	1.6% to 1.7% 3,715 to 4,117 people, so 402 more people Little change in rate			England increasing
Mortality Impact* (All Ages)	GBD, 2017	6.44% of total	Estimated at 115	6.48% of total	Not significantly different
Mortality Rate* (Standardised, All Ages)	Public Health Profiles 2016-18	53.6 per 100,000		51.7 per 100,00	Not significantly different

*Figures for Swindon UA given.

Table 14. Hospital admissions for Swindon & Watchfield-Shrivenham residents with COPD as primary diagnosis in 2018.

Primary Diagnosis	Count			Per 1,000 pop		
	15 to 64	65+	Total	15 to 64	65+	Total
COPD	130	335	465	0.88	9.40	2.54
All Selected Conditions	2,817	3,240	6,057	19.08	90.93	33.05
Percentage of All Selected	4.6%	10.3%	7.7%	4.6%	10.3%	7.7%

Source: Hospital Episode System/SUS

Table 15. Hospital admissions by Primary Diagnosis for Swindon & Watchfield-Shrivenham residents who had COPD as a secondary diagnosis in 2018 , by ten most common primary diagnoses.

Primary Diagnosis	Count
Chronic obstructive pulmonary disease with acute lower respiratory infection	165
Lobar pneumonia, unspecified	160
Cataract, unspecified	110
Malignant neoplasm: Bronchus or lung, unspecified	105
No Diagnosis Recorded	105
Sepsis, unspecified	95
Pneumonia, unspecified	90
Congestive heart failure	60
Urinary tract infection, site not specified	55
Multiple myeloma	50

Source: Hospital Episode System/SUS

Commentary on COPD

In all 1.71% of people (4,117) in the Swindon population, are known to have COPD (Table 13), a slightly lower prevalence than in England as a whole. In Swindon this is 4.36% of the burden of QOF conditions. The prevalence has risen since 2014, but only by a fraction of a percentage, though as the population has increased, there are now more people living with COPD in Swindon. The Global Burden of Disease model calculates 6.44% of mortality in Swindon to be due to COPD. The Public Health Profiles from PHE indicate a premature mortality rate of 53.6 per 100,000 each year.

With regard to hospital admissions (Tables 14 and 15) COPD accounted for 7.7% of admissions from our selected conditions. The most common primary diagnoses where COPD was also involved were acute lower respiratory infection, pneumonia and cataract. The admissions due to cataract are probably not directly linked to COPD, but are more likely to be a result of aspects of ageing, though are possibly also due to smoking.

2.7. Asthma (All ages and for Swindon CCG unless shown.)

Table 16. Morbidity and Mortality for Asthma in Swindon.

MEASURE	SOURCE AND YEAR	ESTIMATE FOR SWINDON	NUMBERS FOR SWINDON	ESTIMATE FOR ENGLAND	SWINDON RELATIVE TO ENGLAND
Prevalence Rate	QOF, 2019	6.53%	15,771	6.05%	Slightly higher
Percentage of Morbidity Burden	QOF, 2019	16.68%	15,771/94,531	14.78%	Slightly higher
Trend in Prevalence Rate and Numbers for Swindon 2014 to 2019	QOF, 2014 to 2019	6.4% to 6.5% 14,482 to 15,771 people, so 1,289 more Little change in rate			Similar
Mortality Impact* (All Ages)	GBD, 2017	0.2% of total	Estimated at 4	0.2% of total	Not significantly different
Mortality Rate*	Public Health Profiles 2015-17	Not Available			

*Figures for Swindon UA given.

Table 17. Hospital admissions for Swindon & Watchfield-Shrivenham residents with Asthma as primary diagnosis in 2018.

Primary Diagnosis	Count			Per 1,000 pop		
	15 to 64	65+	Total	15 to 64	65+	Total
Asthma	480	94	574	3.25	2.64	3.13
All Selected Conditions	2,817	3,240	6,057	19.08	90.93	33.05
Percentage of All Selected	17.0%	2.9%	9.5%	17.0%	2.9%	9.5%

Source: Hospital Episode System/SUS

Table 18. Hospital admissions by Primary Diagnosis for Swindon & Watchfield-Shrivenham residents who had asthma as secondary diagnosis in 2018, by ten most common primary diagnoses.

Primary Diagnosis	Count
No Diagnosis Recorded	105
Cataract, unspecified	100
Asthma, unspecified	80
Sepsis, unspecified	75
Malignant neoplasm: Breast, unspecified	65
Chest pain, unspecified	60
Urinary tract infection, site not specified	60
Lobar pneumonia, unspecified	55
Other and unspecified abdominal pain	50
Cellulitis of other parts of limb	50

Source: Hospital Episode System/SUS

Commentary on Asthma

In all 6.53% of people (15,771) in the Swindon population, are known to have asthma (Table 16), a slightly higher prevalence than in England as a whole. In Swindon this is 16.68% of the burden of QOF conditions. The prevalence has risen since 2014, but only by a fraction of a percentage, though as the population has increased, there are now many more people living with asthma in Swindon. The Global Burden of Disease model calculates 0.2% of mortality in Swindon to be due to asthma.

With regard to hospital admissions (Tables 17 and 18) asthma accounted for 9.5% of admissions from selected conditions. The most common primary diagnoses where asthma was also involved were cataract and sepsis.   The admissions due to cataract are probably not directly linked to asthma but are more likely to be a result of aspects of ageing, though are possibly also to smoking. Asthma was also recorded for 65 admissions where breast cancer was the primary reason for admission. It is not clear why asthma should be associated statistically with such a serious diagnosis.

2.8. Osteoarthritis of Hip and Knee (Aged 45+ years, Swindon CCG)

Table 19. Morbidity and Mortality for Osteoarthritis of Hip and Knee in Swindon.

Measure	Source and Year	Estimate for Swindon	Numbers for Swindon	Estimate for England	Swindon relative to England
Prevalence Rates (All OA)	Arthritis UK, for 2017	Hip 11.1%, Knee 18.8%,	Hip 10,650, Knee 18,038	Hip 10.9% Knee 18.2%	Slightly higher
Prevalence Rates (Severe OA)	Arthritis UK, for 2017	Hip 3.4% Knee 6.7%	Hip 3,262 Knee 6,429	Hip 3.2% Knee 6.1%	Slightly higher
Mortality Impact (All Ages)		Not Applicable	Not Applicable	Not Applicable	Not Applicable
Mortality Rate		Not Applicable	Not Applicable	Not Applicable	Not Applicable

Table 20. Hospital admissions for Swindon & Watchfield-Shrivenham residents with Hip OA as primary diagnosis in 2018.

Primary Diagnosis	Count			Per 1,000 pop		
	15 to 64	65+	Total	15 to 64	65+	Total
Osteoarthritis of Hip	86	229	315	0.58	6.43	1.72
All Selected Conditions	2,817	3,240	6,057	19.08	90.93	33.05
Percentage of All Selected	3.1%	7.1%	5.2%	3.0%	7.1%	5.2%

Source: Hospital Episode System/SUS

Table 21. Hospital admissions by Primary Diagnosis for Swindon & Watchfield-Shrivenham residents who had Hip OA as secondary diagnosis in 2018, by ten most common primary diagnoses.

Primary Diagnosis	Count
Tendency to fall, not elsewhere classified	10
Pain in joint: Pelvic region and thigh	<8
Urinary tract infection, site not specified	<8
Coxarthrosis, unspecified	<8
Chronic obstructive pulmonary disease with acute lower respiratory infection	<8
Anaemia, unspecified	<8
Influenza with other respiratory manifestations, other influenza virus identified	<8

Source: Hospital Episode System/SUS. Figures have been rounded to the nearest 5, or suppressed if non-zero and under 8 in accordance with NHS confidentiality practice. Coxarthrosis is commonly used as virtually a synonym for osteoarthritis of the hip.

Table 22. Hospital admissions for Swindon & Watchfield-Shrivenham residents with Knee OA as primary diagnosis in 2018.

Primary Diagnosis	Count			Per 1,000 pop		
	15 to 64	65+	Total	15 to 64	65+	Total
Osteoarthritis of Knee	191	249	440	1.29	6.99	2.40
All Selected Conditions	2,817	3,240	6,057	19.08	90.93	33.05
Percentage of All Selected	6.8%	7.7%	7.3%	6.8%	7.7%	7.3%

Source: Hospital Episode System/SUS

Table 23. Hospital admissions by Primary Diagnosis for Swindon & Watchfield-Shrivenham residents who had Knee OA as secondary diagnosis in 2018, by ten most common primary diagnoses.

Primary Diagnosis	Count
Gonarthrosis, unspecified	30
Tendency to fall, not elsewhere classified	15
Derangement of meniscus due to old tear or injury: Posterior cruciate ligament or Posterior horn of medial meniscus	10
Sepsis, unspecified	10
No Diagnosis Recorded	10
Cataract, unspecified	10
Urinary tract infection, site not specified	10
Other specified soft tissue disorders: Lower leg	10
Acute myeloblastic leukaemia [AML]	10
Derangement of meniscus due to old tear or injury: Multiple sites	<8
Derangement of meniscus due to old tear or injury: Medial collateral ligament or Other and unspecified medial meniscus	<8

Source: Hospital Episode System/SUS. Table 23 Comment: Figures have been rounded to the nearest 5, or suppressed if non-zero and under 8 in accordance with NHS confidentiality practice. Gonarthrosis is commonly used as virtually a synonym for osteoarthritis of the knee.

Commentary on Osteoarthritis

In all 11.1% of people (10,650) in the Swindon population aged 45+ years and 18.8% of people (18,038) in the Swindon population aged 45+ years are estimated to have hip and knee osteoarthritis respectively (although some may have both, Table 19), a slightly higher prevalence than in England as a whole.

With regard to hospital admissions (Tables 20 and 21) hip osteoarthritis accounted for 5.2% of admissions from selected conditions. The most common primary diagnoses where hip osteoarthritis was also involved were tendency to fall and pain in a joint.

With regard to hospital admissions (Tables 22 and 23) knee osteoarthritis accounted for 7.3% of admissions from selected conditions. The most common primary diagnoses where knee osteoarthritis was also involved were gonarthrosis (a synonym for knee arthritis) and tendency to fall**.**

2.9. Other Arthropathies: Back Pain (All ages, for Swindon CCG)

Table 24. Morbidity and Mortality for Back Pain in Swindon

Measure	Source and Year	Estimate for Swindon	Numbers for Swindon	Estimate for England	Swindon relative to England
Prevalence Rate (All Back Pain, 3 months or more)	ARTHRITIS UK, 2017	17%	38,482	16.9%	Similar
Prevalence Rate (Severe Back Pain, 3 months or more)	ARTHRITIS UK, 2017	10.4%	23,542	10.2%	Similar
Mortality Impact (All Ages)		Not Applicable	Not Applicable	Not Applicable	Not Applicable
Mortality Rate		Not Applicable	Not Applicable	Not Applicable	Not Applicable

*Modelled estimates for Swindon UA.

Table 25. Hospital admissions for Swindon & Watchfield-Shrivenham residents with Back Pain as primary diagnosis in 2018.

Primary Diagnosis	Count			Per 1,000 pop		
	15 to 64	65+	Total	15 to 64	65+	Total
Chronic Back Problems	504	210	714	3.41	5.89	3.90
All Selected Conditions	2,817	3,240	6,057	19.08	90.93	33.05
Percentage of All Selected	17.9%	6.5%	11.8%	17.9%	6.5%	11.8%

Source: Hospital Episode System/SUS

Table 26. Hospital admissions by Primary Diagnosis for Swindon & Watchfield-Shrivenham residents who had Back pain as secondary diagnosis in 2018, by ten most common primary diagnoses.

Primary Diagnosis	Count
No Diagnosis Recorded	35
Tendency to fall, not elsewhere classified	30
Cataract, unspecified	30
Low back pain	30
Spinal stenosis: Lumbar region	20
Sepsis, unspecified	20
Pain localized to other parts of lower abdomen	20
Urinary tract infection, site not specified	20
Dorsalgia, unspecified	20
Other and unspecified abdominal pain	15
Chest pain, unspecified	15

Source: Hospital Episode System/SUS. Figures have been rounded to the nearest 5, or suppressed if non-zero and under 8 in accordance with NHS confidentiality practice.

Commentary on Back Pain

In all 17% of people (38,482) in the Swindon population (Table 24) were estimated to have back pain lasting three months or more, a slightly higher prevalence than in England as a whole. With regard to hospital admissions (Tables 25 and 26) chronic back problems accounted for 11.8% of admissions from selected conditions. The most common primary diagnoses where chronic back problems were also involved were tendency to fall, cataract and low back pain.

2.10. Other Arthropathies: Rheumatoid Arthritis (All ages and for Swindon CCG unless shown.)

Table 27. Morbidity and Mortality for Rheumatoid Arthritis in Swindon.

Measure	Source and Year	Estimate for Swindon	Numbers for Swindon	Estimate for England	Swindon relative to England
Prevalence Rate 16+ years	QOF, 2019	0.71%	1,371	0.76%	Slightly lower
Percentage of Morbidity Burden	QOF, 2019	1.5%	1,371/94,531	1.6%	Similar
Trend in Prevalence Rate and Numbers for Swindon 2014 to 2018	QOF, 2014 to 2019	0.67% to 0.71 % 1,211 to 1,371 people, so 160 more Small rise in rate			Similar
Mortality Impact (All Ages)		Not Applicable	Not Applicable	Not Applicable	Not Applicable
Mortality Rate		Not Applicable	Not Applicable	Not Applicable	Not Applicable

Table 28. Hospital admissions for Swindon & Watchfield-Shrivenham residents with RA as primary diagnosis in 2018.

Primary Diagnosis	Count			Per 1,000 pop		
	15 to 64	65+	Total	15 to 64	65+	Total
Rheumatoid Arthritis	112	101	213	0.76	2.83	1.16
All Selected Conditions	2,817	2,817	6,057	19.08	19.08	33.05
Percentage of Selected Conditions	4.0%	3.6%	3.5	4.0%	14.8%	3.5%

Source: Hospital Episode System/SUS

Table 29. Hospital admissions by primary diagnosis for Swindon & Watchfield-Shrivenham residents who had RA as secondary diagnosis in 2018, by ten most common primary diagnoses.

Primary Diagnosis	Count
No Diagnosis Recorded	20
Urinary tract infection, site not specified	15
Gonarthrosis, unspecified	15
Lobar pneumonia, unspecified	15
Sepsis, unspecified	15
Fracture of neck of femur: closed	15
Chronic obstructive pulmonary disease with acute lower respiratory infection	10
Unspecified acute lower respiratory infection	10
Chest pain, unspecified	10
Cataract, unspecified	10

Source: Hospital Episode System/SUS. Figures have been rounded to the nearest 5, or suppressed if non-zero and under 8 in accordance with NHS confidentiality practice. Gonarthrosis is commonly used as virtually a synonym for osteoarthritis of the knee.

Commentary on Rheumatoid Arthritis

In all 0.71% of people (1,371) in the Swindon population, are known to have Rheumatoid Arthritis (Table 27), a slightly lower prevalence than in England as a whole. In Swindon this is 1.5% of the burden of QOF conditions. The prevalence has risen since 2014, but only by a fraction of a percentage.

With regard to hospital admissions (Tables 28 and 29) Rheumatoid Arthritis accounted for 3.5% of admissions from selected conditions. The most common primary diagnoses where Rheumatoid Arthritis was also recorded as a diagnosis were urinary tract infection, gonarthrosis and lobar pneumonia.

2.11. Liver Disease (All ages and for Swindon UA unless shown.)

Table 30. Morbidity and Mortality for Liver Disease in Swindon.

Measure	Source and Year	Estimate for Swindon	Numbers for Swindon	Estimate for England	Swindon relative to England
Hospital Admissions (as Proxy Prevalence Rate)	PUBLIC HEALTH PROFILES, 2016/17	144.0 per 100,000	290	131.2 per 100,00	Swindon is higher
Trend in Proxy Prevalence Rate and Numbers for Swindon 2010/11 to 2016/17	PUBLIC HEALTH PROFILES	86.1 per 100K to 144.0 per 100K 154 to 290 people, so 136 more Rate has increased			Swindon has drawn closer to England
Mortality Impact (All Ages)	GBD, 2017	1.36% of total	Estimated at 24	1.47 % of total	Not statistically significant
Mortality Rate <75 years 2015-17	Public Health Profiles, 2015-18	16.2 per 100,000		18.5 per 100,000	Similar

Table 31. Hospital admissions for Swindon & Watchfield-Shrivenham residents with Liver Disease as primary diagnosis in 2018.

Primary Diagnosis	Count			Per 1,000 pop		
	15 to 64	65+	Total	15 to 64	65+	Total
Chronic Liver Disease	154	64	218	1.04	1.80	1.19
All Selected Conditions	2,817	3,240	6,057	19.08	90.93	33.05
Percentage of All Selected	5.5%	2.0%	3.6%	5.5%	2.0%	3.6%

Source: Hospital Episode System/SUS

Table 32. Hospital admissions by primary diagnosis for Swindon & Watchfield-Shrivenham residents who had Liver Disease as secondary diagnosis in 2018, by ten most common primary diagnoses.

Primary Diagnosis	Count
Oesophageal varices without bleeding	45
Ascites	35
No Diagnosis Recorded	30
Mental and behavioural disorders due to use of alcohol: Withdrawal state	20
Alcoholic cirrhosis of liver	20
Sepsis, unspecified	20
Alcoholic liver disease, unspecified	15
Other specified diseases of stomach and duodenum	15
Other and unspecified abdominal pain	15
Urinary tract infection, site not specified	15
Pain localized to upper abdomen	15

Source: Hospital Episode System/SUS. Figures have been rounded to the nearest 5, or suppressed if non-zero and under 8 in accordance with NHS confidentiality practice. Oesophageal varices are enlarged veins in the oesophagus, usually caused by liver disease; ascites is a building up of fluid in the abdomen, usually caused by liver disease.

Commentary on Liver Disease

In all, 290 people in Swindon were admitted to hospital with liver disease in 2016/2017 (Table 30), more than we might have expected, judging by the rate in England as a whole. The admission rate in Swindon rose in the period 2010/2011 to 2016/2017. The Global Burden of Disease model calculates 1.36% of mortality in Swindon to be due to liver cirrhosis and other chronic liver disease.

With regard to hospital admissions (Tables 31 and 32) liver disease accounted for 3.6% of admissions from selected conditions. The most common primary diagnoses where liver disease was also involved were oesophageal varices and ascites, both closely linked to liver disease.

2.12. Diabetes (All ages and for Swindon CCG unless shown.)

Table 33. Morbidity and Mortality for Diabetes in Swindon.

Measure	Source and Year	Estimate for Swindon	Numbers for Swindon	Estimate for England	Swindon relative to England
Prevalence Rate, 17+ years	QOF, 2019	7.63%	14,486	6.93%	Slightly higher
Percentage of Morbidity Burden	QOF, 2019	15.32%	14,486/94,531	13.66%	Slightly higher
Trend in Prevalence Rate and Numbers for Swindon 2014 to 2019	QOF, 2014 to 2019	6.9% to 7.63% 11,665 to 14,486, so 2,821 more Rate has increased			Similar
Mortality Impact* (All Ages)	GBD, 2017	0.94% of total	Estimated at 17	0.87% of total	Not statistically significant
Additional Mortality risk for people with diabetes (2012/2014 cohorts)	Public Health Profiles, 2019	21.3% over one year		21.8% over one year	Similar

*Figures for Swindon UA given.

Table 34. Hospital admissions for Swindon & Watchfield-Shrivenham residents with Diabetes as primary diagnosis.

Primary Diagnosis	Count			Per 1,000 pop		
	15 to 64	65+	Total	15 to 64	65+	Total
Diabetes Mellitus	194	105	299	1.31	2.95	1.63
All Selected Conditions	2,817	3,240	6,057	19.08	90.93	33.05
Percentage of All Selected	6.9%	3.2%	4.9%	6.9%	3.2%	4.9%

Source: Hospital Episode System/SUS

Table 35. Hospital admissions by primary diagnosis for Swindon & Watchfield-Shrivenham residents who had Diabetes as secondary diagnosis in 2018, by ten most common primary diagnoses.

Primary Diagnosis	Count
Cataract, unspecified	340
No Diagnosis Recorded	300
Sepsis, unspecified	155
Urinary tract infection, site not specified	140
Cellulitis of other parts of limb	140
Lobar pneumonia, unspecified	115
Tendency to fall, not elsewhere classified	105
Congestive heart failure	105
Malignant neoplasm: Breast, unspecified	100
Chest pain, unspecified	95

Source: Hospital Episode System/SUS. Figures have been rounded to the nearest 5, or suppressed if non-zero and under 8 in accordance with NHS confidentiality practice.

Commentary on Diabetes

In all 7.63% of people (14,486) in the Swindon population, are known to have diabetes (Table 33), a slightly higher prevalence than in England as a whole. In Swindon this is 15.32% of the burden of QOF conditions. The prevalence has risen since 2014, there are now many more people living with diabetes in Swindon. The Global Burden of Disease model calculates 0.94% of mortality in Swindon to be directly due to diabetes. With regard to hospital admissions (Tables 34 and 35) diabetes accounted for 4.9% of admissions from selected conditions. The most common primary diagnoses where diabetes was also involved were cataract and sepsis. Diabetes is known to be one of a number of risk factors for the development of cataracts.[9]

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[9] The NHS website, *Cataracts,* https://www.nhs.uk/conditions/cataracts/ . Accessed 27th January 2020.

2.13. Chronic Kidney Disease (All ages and for Swindon CCG unless shown.)

Table 36. Morbidity and Mortality for Chronic Kidney Disease in Swindon.

Measure	Source and Year	Estimate for Swindon	Numbers for Swindon	Estimate for England	Swindon relative to England
Prevalence Rate, 18+ years	QOF, 2019	3.54%	6,629	4.09%	Swindon slightly lower
Percentage of Morbidity Burden	QOF, 2019	7.0% of Total	6,629/94,531	7.96% of Total	Swindon slightly lower
Trend in Prevalence Rate and Numbers for Swindon 2014 to 2019	QOF, 2014 to 2019	2.4% to 3.54% 4,223 to 6,629 people, so 2,406 more Rate has increased			Similar
Mortality Impact (All Ages)*	GBD, 2017	1.02% of Total	Estimated at 18	1.08% of Total	Not Statistically Significant
Mortality Rate <75 years 2015-17	Public Health Profiles 2015-17	Not Available	-	Not Available	-

*Figures for Swindon UA given.

Table 37. Hospital admissions for Swindon & Watchfield-Shrivenham residents with CKD as primary diagnosis in 2018.

Primary Diagnosis	Count			Per 1,000 pop		
	15 to 64	65+	Total	15 to 64	65+	Total
Chronic Kidney Disease	191	177	368	1.29	4.97	2.01
All Selected Conditions	2,817	3,240	6,057	19.08	90.93	33.05
Percentage of All Selected	6.8%	5.5%	6.1%	6.8%	5.5%	6.1%

Source: Hospital Episode System/SUS

Table 38. Hospital admissions by primary diagnosis for Swindon & Watchfield-Shrivenham residents who had CKD as secondary diagnosis in 2018, by ten most common primary diagnoses.

Primary Diagnosis	Count
No Diagnosis Recorded	285
Sepsis, unspecified	200
Lobar pneumonia, unspecified	140
Congestive heart failure	130
Urinary tract infection, site not specified	131
Acute renal failure, unspecified	130
Pneumonia, unspecified	105
Tendency to fall, not elsewhere classified	80
Myelodysplastic syndrome, unspecified	75
Cellulitis of other parts of limb	60

Source: Hospital Episode System/SUS. Figures have been rounded to the nearest 5, or suppressed if non-zero and under 8 in accordance with NHS confidentiality practice.

Commentary on Chronic Kidney Disease

In all 3.54% of people (6,629) in the Swindon population, are known to have Chronic Kidney Disease (Table 36), a slightly lower prevalence than in England as a whole. In Swindon this is 7.0% of the burden of QOF conditions. The recorded prevalence has risen since 2014, and so there are now many more people now known to be living with Chronic Kidney Disease in Swindon. The Global Burden of Disease model calculates 1.02% of mortality in Swindon to be directly due to Chronic Kidney Disease. With regard to hospital admissions (Tables 37 and 38) CKD accounted for 6.1% of admissions from selected conditions. The most common primary diagnoses where CKD was also involved were sepsis and pneumonia.

2.14. Concluding Summary to The Burden of Chronic Disease

- Chronic diseases (also known as Long Term Conditions) are common in the population of Swindon.

- The prevalence of chronic diseases in Swindon rises markedly with age, but the actual number of people with chronic diseases is likely to be highest in the middle-aged and in early old age, (because these are populous groups) peaking at 6,129 in the group of people aged 65 to 69. However, older people are more likely to have co-morbidities (that is to have more than one condition) and are more likely to experience their conditions as disabling.

- Overall the Symphony model for Swindon suggests that about 70,000 people in Swindon UA had at least one chronic disease in 2015, (32.2.% of the population), while for people aged 65 years or more the corresponding figure was about 23,000 people (69.3% of the population aged 65 years or over peaking at 81.8% in people aged 85 to 89 years). These figures include mental health conditions as well as physical health conditions.

- Data from the QOF registers of disease from primary care (as at March 2019) indicate that the level of most physical conditions in Swindon are probably broadly similar to those in England as a whole. For example, 2.77% of people (6,683) in the Swindon population, are known to have CHD, 1.54% of people (3,723) in the Swindon population, are known to have Stroke/TIA while 1.71% of people (4,117) in the Swindon population, are known to have COPD.

- However, in all 7.63% of people (14,486) in the Swindon population, are known to have diabetes a slightly higher prevalence than that recorded for England as a whole.

- Modelled data for arthritic conditions suggest that the prevalence of osteoarthritis might be higher than in England as a whole: in all 11.1% of people (10,650) in the Swindon population aged 45+ years and 18.8% of people (18,038) in the Swindon population aged 45+ years are estimated to have hip and knee osteoarthritis respectively, and some may have both. In all 17% of people (38,482) in the Swindon population were calculated to have back pain lasting for three months or longer, also a slightly higher prevalence than in England as a whole.

- The data showing the primary diagnoses on admission to hospital for patients who have our selected conditions as secondary diagnoses do not reveal a distinct and unequivocal pattern of commonalities that we can draw upon. A number of linkages and associations do emerge, however. The tables show that strokes and arthritis were often background factors when people were admitted to hospital primarily because of a fall; diabetes is often a background factor when people are admitted to hospital with cataract; most of our selected conditions appeared as secondary diagnoses when infections, such as urinary tract infections and pneumonia were the primary reason for admissions.

- Thus, prevention of one condition may also prevent the occurrence of further types of illness or adverse health events. Furthermore, some of the adverse health events that people experienced, such as infections, while suffering from another condition, are amenable to prevention.

Chapter Three. Risk Factors and Prevention Clusters.

3.1. Foreword to Risk Factors and Prevention Clusters

In this chapter we open with an overview in which we survey the determinants of health in Swindon by tabulating a set of major (but potentially modifiable) risk indicators (from the Public Health Profiles published by Public Health England), and making comparisons with England as a whole and areas similar to Swindon. We then go on to use the Global Burden of Disease model to identify and quantify the risk factors for the selected health conditions and identify the risk factors which are common to the health conditions selected for this present report. We then classify the risk factors pragmatically according to 'prevention clusters', i.e. grouping risk factors where they tend to occur together and are likely to be preventable together.

3.2. Major Risk Indicators in the Swindon population

Table 39 encompasses risk factors likely to influence the health of a population and gauges their level by using a set of specific major risk indicators for Swindon, for Swindon's statistical neighbours and for England as a whole. These indicators have been derived from the PHE Public Health Profiles on the Fingertips website. We have excluded the following possible risk factors, as these are regarded as having a low level of influence on the common chronic diseases: drug misuse, sexual health, inherited and unmodifiable conditions. The table compares the Swindon level for each indicator with the level for England as a whole and states where the Swindon level is similar, better or worse than the level for England; for all indicators except one (statutory homelessness) the comparison has been graded according to a test of statistical significance at the 5% level denoted respectively by Amber (for Swindon being similar to England), Green (for Swindon being better) and Red (for Swindon being worse). Also, Swindon is compared with its 15 CIPFA (Chartered Institute of Public Finance and Accountancy) statistical neighbours, areas of a similar socio-demographic make-up; for each indicator Swindon is given a ranking as a member of the group of 16 statistical neighbours, with the high rankings (1^{s,t} 2nd, 3rd and so on) denoting the more unfavourable comparisons.

Table 39. Key Risk Indicators in Swindon UA population as compared with England and showing Swindon's ranking among its CIPFA statistical neighbours.

Indicator	Year	Swindon UA	England	Swindon as compared with England (shown where stat sig)	Swindon Ranking among 16 Statistical Neighbours (high ranks, 1st to 8th are more unfavourable)
Isolation: social care users with enough contact	2017-2018	41.4%	46.0%	SIMILAR	2ND
Self-Reported high Life Satisfaction (Adults)	2015-2016	81.1%	81.2%	SIMILAR	3RD
Smoking: prevalence aged 18+ (APS)	2018	17.7%	14.4%	WORSE	4TH
Overweight/obese (Adults)	2017-2018	63.7%	62.0%	SIMILAR	5TH
Air: Mortality due to air particulates	2017	5.4%	5.1%	SIMILAR	6TH
Education: Attainment 8 Average Score (Key Stage 4)	2017-2018	45	46.7	WORSE	6TH
Self-Reported high happiness score (Adults)	2017-2018	74.2%	74.7%	SIMILAR	6TH
Depression: GP QOF prevalence (All Ages)	2018-2019	11.0%	10.7%	WORSE	10TH
Alcohol: consumption 14+ units per week	2011-2014	20.5%	25.7%	SIMILAR	12TH
Indices of Deprivation 2019 Score	2019	18.6	22.9*	SLIGHTLY BETTER (NOT GRADED)	13TH
Diet: five fruit and veg per day (Adults)	2017-2018	56.3%	54.8%	SIMILAR	14TH
Statutory homeless households per 1,000 households	2017-2018	1.1%	2.4%	BETTER (NOT GRADED)	14TH
Employment 16-64 years	2018-2019	79.2%	75.6%	BETTER	15TH
Physically Active: Chief Medical Officer's definition (19+ yrs)	2017-2018	71.7%	66.3%	BETTER	16TH

Source: PHE Public Health Profiles. Jan 2020.

*England score shown here is an average of the average scores for all Upper Tier Local Authorities in England. A higher score indicates higher deprivation.

In comparison with its statistical neighbours, Swindon's rankings are particularly unfavourable for isolation within social care (lack of social contact, 2nd), self-reported satisfaction with life (3rd), smoking prevalence (4th), and overweight and obesity (5th). However, for three indicators (smoking prevalence, educational attainment, and depression recorded in primary care) Swindon is shown as worse (at Red) than England as a whole at a statistically significant level. In terms of overall deprivation as measured by the Indices of Deprivation 2019, Swindon's score is slightly better (less deprived) than the average for England as a whole. Swindon lies in the second least deprived quintile group (fifth) of local authorities in England and in terms of its statistical neighbours, ranks favourably as 13th out of 16. Swindon's rankings are also comparatively good for statutory homelessness, employment, and physical activity, with the latter two indicators being better (at Green) than England as a whole at a statistically significant level.

Swindon has, therefore, an overall socio-economic advantage in not being highly deprived, in having high employment and in having a low level of homelessness, but in terms of lifestyle Swindon presents a mixed picture, comparing well on diet and exercise, and comparing poorly on smoking and overweight/obesity. Moreover some of the psycho-social indicators (isolation, satisfaction, depression) also sit towards the top of the table and so reflect unfavourably on Swindon.

3.3. Matrices linking Risk Factors to Health Conditions

Drawing on outputs from the Global Burden of Disease model for Swindon UA, Matrix 1 shows the relationships between mortality in each of the selected conditions (shown as rows) and an array of potentially modifiable risk factors (shown as columns). For example, if we read across the first row, for CHD, we can see the fractions or proportions of CHD mortality in Swindon which the GBD model attributes to each risk factor. The GBD model attributes 13.5% of CHD mortality to smoking (or any tobacco consumption), 65.2% to poor diet, 21.2% to high Body Mass Index (BMI), 12% to low physical activity, and 9.2% to environmental or occupational causes. The GBD model estimates that 92% of CHD is potentially preventable, although the individual risk elements do not sum to 92% exactly, as mortality can be attributed to more than one cause, or causes can interact. (We have not

shown metabolic factors from the GBD such as raised blood pressure, raised LDL cholesterol and raised fasting glucose levels in the matrices, because these are difficult to interpret in the present context; these metabolic measurements overlap and interact in complex ways with lifestyle factors and so it is difficult to separate the two categories using data from the model.)

Thus, in this reckoning for CHD, poor diet is the most important negative factor, with 65.2% of CHD mortality being attributed to it; overall, the model estimates that 92% of CHD mortality in Swindon is preventable. In addition, the model indicates that consumption of alcohol might have a positive, protective effect in Swindon, preventing an additional 12% of CHD mortality over and above the mortality that occurred, and a similar protective effect of alcohol is estimated for diabetes mortality. This must be compared, however, with the detrimental effects that alcohol is shown as having on four other conditions in the model.

Matrix 1. Selected Health Conditions and Risk Factors in Swindon UA 2017: Attributable Mortality Fractions (unadjusted). Approximate Percentages of Mortality Burden associated with Preventable Risk Factors. Protective effects also denoted.

Risk Factors → ↓ Selected Conditions	Alcohol	Tobacco	Dietary Risks	High BMI	Low Physical Activity	Environmental/ Occupational	All Risks
CHD	Protective 12.0%	13.5%	**65.2%**	21.1%	12.0%	9.2%	92.0%
Stroke	1.6%	7.9%	**31%**	14.9%	6.7%	6.0%	76%
Heart Failure*	**17.0%**	0	3.1%	0	0	0.4%	37.2%
Atrial Fibrillation	10.2%	2.9%	5.0%	**26.4%**	0	0.6%	49%
COPD	0	**42%**	0	0	0	26.3%	57.1%
Asthma	0	10.3%	0	**30.4%**	0	3.1%	39.1%
Liver Disease	**25%**	0	0	0	0	0	38.7%
Diabetes	Protective 10.4%	8.2%	26.4%	**36%**	3.4%	18.3%	Notional 100%**
Kidney Disease	0	0	8.2%	**32.0%**	0	1.0%	Notional 100%**

Source: Global Burden of Disease Model, 2017. Highest fraction for each condition is in bold and underlined. ***Cardiomyopathy figures are used as a proxy for heart failure.** ****The GBD model describes diabetes and kidney disease as 100% preventable, as the model includes certain metabolic, as well as lifestyle factors, in the calculations, which we have not shown here.

The GBD model also estimates that most stroke mortality in Swindon is potentially preventable (76% in all) with diet a prominent causative factor. This is also true of much of COPD mortality (57% in all) for which tobacco consumption is the main preventable factor. Diabetes and chronic kidney disease are notionally 100% preventable in the model, but this is because of the way the model calculates factors other than lifestyle factors such as metabolic factors which as in the case of glucose levels, for example , can be almost equivalent to pre-existing disease. That said, the proportion of diabetes mortality in Swindon which is due to preventable factors is probably on a par with that for CHD.

Cancer is not displayed in Matrix 1, as cancer is not among the selected conditions, but the model estimates that 82% of lung cancer mortality in Swindon is preventable, as is 58.1% of colon and rectal cancer and 33.4% of breast cancer. The prominent attributable fractions for mortality are smoking for lung cancer, poor diet for both colon and rectal cancer, and alcohol, poor diet and low physical exercise for breast cancer.

Matrix 2. Health Conditions and Risk Factors in Swindon UA 2017: Years Living with Disability: Burden (unadjusted) of Musculoskeletal conditions attributed to preventable risk factors, with dementia also illustrated.

Risk Factors → ↓ Selected Conditions	Alcohol	Tobacco	Dietary Risks	High BMI	Low Physical Activity	Environ mental/ Occupational	All Risks
Rheumatoid Arthritis (RA)	0	**9.4%**	**0**	0	0	0	9.4%
Low Back Pain	0	15.6%	**0**	6.7%	0	**24.5%**	40.1%
Osteoarthritis (OA)	0	0	0	**21.2%**	0	0	21.2%
Dementia*	0	11.0%	0	**17.8%**	0	0	34.0%

Source: Global Burden of Disease Model, 2017.

*High fasting glucose also attributed in the GBD model as a fraction of 9.8% for dementia years living with disability

Drawing further on outputs from the Global Burden of Disease model for Swindon UA, Matrix 2 shows the relationships between disability (Years Living with Disability for Rheumatoid Arthritis (RA), Back Pain and Osteoarthritis), and an array of risk factors, which are implicated in engendering these years of disability. Overall the model estimates that, in terms of time spent with disability from RA, from back pain and from osteoarthritis, 9.4%, 40.1% and 21.2% respectively of these periods of disability can be attributed to preventable causes. Environmental/occupational factors are important for back pain, while high Body Mass Index is important for osteoarthritis. Smoking is implicated in RA but only for 9.4% of disability years. Although Alzheimer's disease and other forms of dementia are not selected conditions in this JSNA, because of the importance of dementia as a public health topic we have included it in Matrix 2. The GBD model predicts that 34% of years with disability from dementia is preventable, with high BMI being the most salient risk factor (17.8% of years

living with disability). The Swindon JSNA for dementia also underlines that the risk factors for cardiovascular diseases such as CHD and stroke are applicable to dementia.[10]

The GBD model does not report on psycho-social factors such as stress, anxiety and depression or lack of social connection. The importance of these as contributory factors to general health outcomes is clear from other sources, however. With respect to serious mental Illness, for example, Chang and colleagues have estimated a substantial reduction in life expectancy for people with severe psychiatric conditions.[11] The greatest reductions were found for men with schizophrenia (an average of 14.6 years lost) and for women with schizo-affective disorders (an average of 17.5 years lost). In the case of depression Gilman and colleagues have found a heightened risk of mortality in people who have experienced depression, and this is especially marked in men.[12]

In the case of loneliness, or lack of social contact and connection, having good social support and contacts, might be as beneficial, in approximate terms at least, as exercising or maintaining a healthy weight.[8,13,] People who tend to be lonely might have a risk of death 26% greater than that in people who tend not to be lonely.[14] People who are socially isolated or who feel lonely might be a third more likely to suffer from heart disease or

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[10] *Swindon Dementia JSNA 2017*, www.jsna.co.uk. Accessed 2nd February 2020.

[11] Chang C-K, Hayes R.D, Perera G, Broadbent MTM, Fernandes AC, Lee WE, *et al.* "Life Expectancy at Birth for People with Serious Mental Illness and Other Major Disorders from a Secondary Mental Health Care Case Register in London." *PLoS ONE* 6 (5): (2011) e19590. https://doi.org/10.1371/journal.pone.0019590.

[12] Gilman Stephen E., Sucha Ewa, Kingsbury Mila, Horton Nicholas J., Murphy Jane M. and Colman Ian. "Depression and mortality in a longitudinal study: 1952–2011." *CMAJ* 189 (42) (October 2017) E1304-E1310; DOI: https://doi.org/10.1503/cmaj.170125

[13] Holt-Lunstad J, Smith TB, Layton JB. "Social Relationships and Mortality Risk: A Meta-analytic Review." *PLoS Med* 7(7): (2010) e1000316. doi:10.1371.

[14] Holt-Lunstad J, Smith T, Baker M, Harris T, Stephenson D, "Loneliness and Social Isolation as Risk Factors for Mortality: A Meta-Analytic Review." *Perspectives on Psychological Science* 10, (2015) 227–237. (This is an update of Holt-Lunstad, 2010).

stroke as people without isolation or loneliness.[15] Social contact might help slow down the cognitive decline which is common in older adults.[16] Although the literature on loneliness and poor health is substantial, it is in practice difficult to differentiate loneliness completely, in an epidemiological sense, as a cause of poor health from other closely allied social factors such as losing a job, being widowed or being geographically isolated. Nevertheless, these research findings may be taken as indicative of the cogent influence of social patterns on the health of the population.

3.4. Next Steps based on Risk Factors and Prevention Clusters

Although the estimates from the GBD model have thus provided helpful insights into the health of Swindon, it was difficult to make a judgement on which risk factors might have the greatest overall effect, in a negative way, on the health of our population and so warrant special consideration.   Environmental and occupational factors were implicated for nine of the selected conditions in Matrices 1 and 2. Tobacco was also implicated for nine conditions and at the same time had the highest proportion for two conditions. In a similar vein, high BMI was implicated for nine conditions and had the highest proportion for six conditions; closely allied to high BMI, diet was implicated for six conditions and low physical activity was implicated for three conditions.

On balance, we decided that it was most appropriate to take forward tobacco and high BMI as risk factors for further scrutiny as prevention clusters in the context of the population of Swindon. Although tobacco use is not, strictly speaking, a cluster of risk factors, high BMI has obvious links with diet and low physical activity. In accord with the positive tenor of health improvement, we decided to refer to these prevention clusters in our work as 'Smoking Cessation' and 'Diet-Activity-Weight' (DAW).

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[15] Valtorta N, Kanaan M, Gilbody S, Ronzi S, Hanratty S and B, "Loneliness and social isolation as risk factors for coronary heart disease and stroke: systematic review and meta-analysis of longitudinal observational studies." *Heart*. (2016) DOI: 10.1136/heartjnl-2015-308790.

[16] James B, Wilson R, Barnes L, & Bennett D, "Late-Life Social Activity and Cognitive Decline in Old Age**."** *J Int Neuropsychol Soc*. 17: (2011) 998–1005.

3.5. Concluding Summary for Risk Factors and Prevention Clusters

- In terms of major risk indicators used by PHE, Swindon's comparative rankings are particularly unfavourable for isolation within social care, self-reported satisfaction with life, smoking prevalence, and overweight and obesity.

- For three indicators Swindon is shown as worse than England as a whole at a statistically significant level, smoking prevalence, educational attainment, and depression. In terms of overall deprivation as measured by the Indices of Deprivation 2019, Swindon's score is slightly better (less deprived) than the average for England as a whole. Swindon's rankings are also comparatively good for statutory homelessness, employment, and physical activity.

- Thus, in terms of lifestyle Swindon presents a mixed picture, comparing well on diet and exercise, and comparing poorly on smoking and overweight/obesity. Moreover, some of the psycho-social indicators (isolation, satisfaction, depression) also reflect unfavourably on Swindon.

- Outputs from the Global Burden of Disease model for Swindon highlight the importance of alcohol, tobacco, diet, low physical activity and environmental factors as risk factors for chronic disease.

- Based on outputs from the GBD model, it is difficult to make a judgement on which risk factor might have the greatest overall effect, in a negative way, on health in Swindon, but tobacco and high BMI each feature prominently. The GBD model is not useful for estimating the possible effects of psycho-social risk factors, however.

- As a pragmatic conclusion to this exercise, we decided to take forward tobacco use and high BMI (which is linked with diet and low physical activity) as prevention clusters for further analysis in the context of the population of Swindon as 'Smoking Cessation' and 'Diet-Activity-Weight'.

Chapter Four. Gap Analyses for Smoking Cessation

4.1. Foreword to Gap Analyses for Smoking Cessation

The objective of the 'Gap Analyses' for smoking cessation was to identify interventions for smoking cessation which are supported in the evidence-base of formal literature and compare them with activities or interventions delivered by Swindon Public Health and the health community in Swindon. Any disparities were designated as 'Full Gaps' or 'Partial Gaps' in the sense that this was something which needed to go to a further stage of management consideration and review. This was done in two ways. Firstly we searched the Cochrane Database of Systematic Reviews to find relevant systematic reviews relating to tobacco/smoking and determined where a similar intervention was being delivered in Swindon; if we could not identify a similar intervention, we recorded this as a 'Full Gap' or as a 'Partial Gap' for Swindon. Secondly we completed the NICE baseline assessment for tobacco control as a means of highlighting where Swindon might have gaps in its practice. We recorded a YES or a NO for activity in Swindon against the NICE checklist, and if NO added 'Full Gap' or 'Partial Gap'.

To sum up, this exercise is a gap or exception analysis using standards from the evidence-based literature. The intention was not to audit Swindon's close adherence to a specific intervention, but to gain a broad picture of how evidence-based Swindon's practice is and to highlight topics for more detailed investigation and discussion. The Gap Analysis judgement was finalised by the Public Health professional in Swindon responsible for Public Health-led smoking cessation services.

4.2. Gap Analysis of Smoking Cessation based on the Cochrane Database of Systematic Reviews (CDSR)

We accessed the Cochrane Database of Systematic Reviews as at 01.06.2019 searching for the word 'smoking' in any of the fields of *Title, Abstract, Keyword.*[17] We only included reviews which dealt with adults and encompassed primary prevention, though elements of

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[17] Cochrane Collaboration, *Cochrane Database of Systematic Reviews.*
https://www.cochranelibrary.com/cdsr/about-cdsr. Accessed 1st June 2019

secondary prevention were admissible in addition to the primary work. We excluded reviews which were clearly not relevant to this kind of health improvement work in Swindon (e.g. for some reason did not present results relating in some way to smoking, were based solely on genetic considerations or were only capable of national implementation), which were described by the review authors as of low quality, or which showed an intervention to be largely ineffective or to have indeterminate effects. Generally, CDSR reviews accept tobacco abstinence of six months or more as an indicator of an effective intervention.

The literature search produced 45 reviews on smoking cessation from CDSR which met our inclusion criteria, but on closer examination we excluded 16 of these reviews because of relevance or quality issues. This left a final set of 29 reviews for the full Gap Analysis. Brief details of the 29 reviews are given in Table 40. The ID number was assigned at the time of extraction for use within this present report. In addition we also assigned a 'Typology' label as a way of categorising the intervention reviewed. The reviews are grouped in Table 40 by typology and our Gap Judgement is shown in the final column, with 'Full Gap' or 'Partial Gap' reviews displayed in shaded rows.

Table 40. Gap Analysis for Smoking Cessation in Swindon based on the CDSR

IDNumber	CDSR Title	Short Authorship	Year	Typology	Swindon Situation: Gap Judgement
SMOKE_CDSR_14	Telephone counselling for smoking cessation	Matkin et al.	2019	**DIGITAL**	**FULL GAP**
SMOKE_CDSR_21	Mobile-phone-based interventions for smoking cessation	Whittaker et al.	2016	**DIGITAL**	**FULL GAP**
SMOKE_CDSR_32	Mobile phone messaging for preventive health care	Vodopivec-Jamsek et al.	2012	**DIGITAL**	**PARTIAL GAP**
SMOKE_CDSR_40	Internet-based interventions for smoking cessation	Taylor et al.	2017	**DIGITAL**	**FULL GAP**
SMOKE_CDSR_31	Incentives for smoking cessation	Cahill K et al.	2015	**INCENTIVES**	**FULL GAP**
SMOKE_CDSR_20	Multiple risk factor interventions for primary prevention of coronary heart disease	Ebrahim et al.	2011	**MULTI-RISKFACTOR**	**PARTIAL GAP**
SMOKE_CDSR_19	Training health professionals in smoking cessation	Carson et al.	2012	**NHSSTAFF**	**NO GAP**
SMOKE_CDSR_29	Use of electronic health records to support smoking cessation	Boyle et al.	2014	**NHSSTAFF**	**FULL GAP**
SMOKE_CDSR_41	Physician advice for smoking cessation	Stead et al.	2013	**NHSSTAFF**	**NO GAP**
SMOKE_CDSR_42	Interventions for tobacco cessation in the dental setting	Carr et al.	2012	**NHSSTAFF**	**FULL GAP**
SMOKE_CDSR_44	Nursing interventions for smoking cessation	Rice et al.	2017	**NHSSTAFF**	**FULL GAP**
SMOKE_CDSR_23	Reduction versus abrupt cessation in smokers who want to quit	Lindson-Hawley et al.	2012	**OTHERMETHOD**	**FULL GAP**
SMOKE_CDSR_24	Individual behavioural counselling for smoking cessation	Lancaster et al.	2017	**OTHERMETHOD**	**NO GAP**
SMOKE_CDSR_45	Group behaviour therapy programmes for smoking cessation	Stead et al.	2005	**OTHERMETHOD**	**PARTIAL GAP**

Table 40. Gap Analysis for Smoking Cessation in Swindon based on the CDSR (continued)

IDNumber	CDSR Title	Short Authorship	Year	Typology	Gap Judgement
SMOKE_CDSR_2	Nicotine replacement therapy versus control for smoking cessation	Hartmann-Boyce et al.	2018	**PHARMA**	**NO GAP**
SMOKE_CDSR_10	Nicotine receptor partial agonists for smoking cessation	Cahill et al.	2016	**PHARMA**	**NO GAP**
SMOKE_CDSR_15	Different doses, durations and modes of delivery of nicotine replacement therapy for smoking cessation	Lindson et al.	2019	**PHARMA**	**NO GAP**
SMOKE_CDSR_25	Combined pharmacotherapy and behavioural interventions for smoking cessation	Stead et al.	2016	**PHARMA**	**NO GAP**
SMOKE_CDSR_28	Additional behavioural support as an adjunct to pharmacotherapy for smoking cessation	Stead et al.	2015	**PHARMA**	**NO GAP**
SMOKE_CDSR_30	Pharmacological interventions for smoking cessation: an overview and network meta-analysis	Cahill et al.	2013	**PHARMA**	**NO GAP**
SMOKE_CDSR_36	Antidepressants for smoking cessation	Hughes et al.	2014	**PHARMA**	**NO GAP**
SMOKE_CDSR_7	Relapse prevention interventions for smoking cessation	Livingstone-Banks et al.	2019	**RELAPSE**	**NO GAP**
SMOKE_CDSR_1	Print-based self-help interventions for smoking cessation	Livingstone-Banks et al.	2019	**SELFHELP**	**NO GAP**
SMOKE_CDSR_5	Interventions for preoperative smoking cessation	Thomsen et al.	2014	**SPECIALGROUP**	**NO GAP**
SMOKE_CDSR_9	Interventions for smoking cessation in hospitalised patients	Rigotti et al	2012	**SPECIALGROUP**	**PARTIAL GAP**
SMOKE_CDSR_11	Smoking cessation interventions for smokers with current or past depression	van der Meer et al.	2013	**SPECIALGROUP**	**PARTIAL GAP**
SMOKE_CDSR_39	Psychosocial interventions for supporting women to stop smoking in pregnancy	Chamberlain et al.	2017	**SPECIALGROUP**	**NO GAP**
SMOKE_CDSR_43	Interventions for smoking cessation and reduction in individuals with schizophrenia	Tsoi et al.	2013	**SPECIALGROUP**	**PARTIAL GAP**
SMOKE_CDSR_37	Workplace interventions for smoking cessation	Cahill et al.	2014	**WORKPLACE**	**FULL GAP**

Overall

In total 15 of the 29 reviews in the final set, about half overall, were judged to represent Full Gaps or Partial Gaps, in that we could not identify a current or planned intervention that was similar to the evidence-based intervention described in a review in CDSR.

Digital

We classified four reviews as 'Digital' in terms of typology, because these involved interventions using mobile phones, text messaging and the internet. We judged that all four were Full Gaps or Partial Gaps because, with one exception we could not find any interventions in Swindon which were similar to these and exploited digital technology for the purpose of smoking cessation. The exception was the use of texts and messaging which is used as an adjunct to other methods by the SBC in-house service, but is not used routinely in other services in Swindon so we recorded this as a Partial Gap.

Incentives

One review was classified as 'Incentives', covering interventions which offered material or cash rewards for stopping smoking, a method not used in Swindon and so a Full Gap.

Multi-Risk Factor

One review was classed as 'Multi-risk Factor' and involved counselling for a number of risk factors for CVD including smoking and had a resemblance to the health checks in primary care: we judged this to be a Partial Gap because we do not have the evidence to confirm that people who wish to give up smoking are necessarily given optimum support after a health check, even though a range of stop-smoking services is available in Swindon.

NHS Staff

We classified five reviews as 'NHS staff' because these interventions were characterised by the type of NHS staff involved or by specific tasks performed by NHS staff as part of their routine work. Three reviews were judged as Full Gaps: these were the systematic use of electronic health records to record smoking status, smoking cessation work conducted by dental staff and smoking interventions delivered by nurses. There were No Gaps for simple

advice provided by doctors and for ensuring that health professionals in smoking cessation are appropriately trained.

Other Method

Of the three 'Other Method' one was a Full Gap, one a Partial Gap and one was a No Gap: gradual reduction in smoking is not offered in Swindon (Full Gap), group therapy is not consistently offered in Swindon (Partial Gap), while the value of individual counselling is fully recognised and utilised in Swindon (No Gap).

Pharma (Pharmacological methods)

Pharmacological approaches to smoking cessation were a feature of seven reviews: all of these specified pharmaceutical products for assisting in smoking cessation are routinely prescribed in Swindon, so there were No Gaps. The most common product specified and used was Nicotine Replacement Therapy (NRT).

Relapse

Relapse was a feature of one review but was a No Gap, as services in Swindon aim to prevent relapse in smokers.

Self-Help

Self-help was a feature of one review, but was a No Gap as a full range of printed materials are available for would-be quitters in Swindon if they prefer to attempt abstinence without the use of other services.

Special Groups (Of People)

Five reviews covered 'Special Groups', people with mental health conditions (or a history of these) and people with a current or planned admissions to hospital (not necessarily with smoking-related conditions: one review dealt with people with a history of depression and one with people with a history of schizophrenia, but although Swindon's services are open to people with these medical histories, tailored and targeted services do not exist for them, so we judged these to be Partial Gaps. One review described an array of smoking

interventions for people admitted to hospital, but this type of service is only partially available in Swindon at present, so is a Partial Gap; however, in accord with one review, a stop-smoking service is available for people due to have surgery in secondary care in Swindon, while support for women smokers in pregnancy is well-established locally, so these are both No Gaps.

Workplace

One review covered stop-smoking interventions delivered in the 'Workplace', a location not currently routinely used in Swindon (except in-house by Swindon Borough Council and Great Western Hospital) so this was a Full Gap.

4.3. NICE baseline for work in Swindon Gap Analysis

The National Institute for Health and Clinical Excellence (NICE) has developed a tool to enable health communities to assess their smoking cessation activities, the Baseline Assessment tool.[18] We utilised the Baseline Assessment tool to assess whether smoking cessation activities in Swindon (as at 01.09.2019) were meeting the standards stipulated by NICE. This can be seen as complementary to the assessment we had performed using the CDSR, although the Baseline Assessment tool is composed more of relatively broad recommendations that relate to the entire ethos and strategic orientation of a health community rather than to detailed methods of intervention. For each of the 41 items in the tool we judged whether Swindon was fully meeting the requirement or whether there appeared to be a Full Gap or a Partial Gap against that item. The Gap Analysis judgement was finalised by the Public Health professional in Swindon responsible for Public Health-led smoking cessation services. A simplified version of the tool is given in Table 41, together with the Gap judgements. Gaps or Partial Gaps are highlighted by shaded rows.

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[18] National Institute for Health and Care Excellence, *Baseline assessment tool for stop smoking,* www.nice.org.uk › baseline-assessment-tool-excel-4788822349. Accessed 28th August 2019.

Table 41. Gap Analysis for Swindon as measured by NICE Baseline for Smoking Cessation

Baseline Item. Does Swindon…	Swindon Response	GAP/NO GAP
1.1. Commissioning to meet local needs		**NO GAP**
Use planning/plans?	YES	**NO GAP**
Use prevalence profiles?	YES	**NO GAP**
Prioritise high risk groups?	NO	**PARTIAL GAP**
		NO GAP
1.1. Monitoring stop smoking services		**NO GAP**
Set targets/achieve quit rates?	NO	**FULL GAP**
Check abstinence?	YES	**NO GAP**
Monitor performance data?	YES	**NO GAP**
		NO GAP
1.2. Evidence Based Interventions		**NO GAP**
Ensure evidence-based Interventions available?	YES	**NO GAP**
Use text-messaging as adjunct?	YES	**NO GAP**
Use Varenicline as per guidance?	YES	**NO GAP**
Give prescriptions before people stop smoking?	YES	**NO GAP**
Agree quit date early on with drug treatment?	YES	**NO GAP**
Agree quit date early on with NRT?	YES	**NO GAP**
Give behavioural support from trained staff?	YES	**NO GAP**
Give brief advice as per brief advice guidance?	YES	**NO GAP**
		NO GAP
1.3. Engaging with people who smoke		**NO GAP**
Ask people if they smoke and provide appropriate means?	YES	**NO GAP**
Encourage people prior to surgery to stop smoking?	YES	**NO GAP**
Discuss any aids used before?	YES	**NO GAP**
Offer advice on NRT?	YES	**NO GAP**
		NO GAP
1.5. Advice on E cigarettes		**NO GAP**
Explain knowledge of E cigarettes.	YES	**NO GAP**
		NO GAP
1.6. If a person who smokes wants to quit		**NO GAP**
Refer people to local support?	YES	**NO GAP**
Discuss methods?	YES	**NO GAP**
Set out pharmaceutical and behavioural options?	YES	**NO GAP**
Explain the combination treatment that is most likely to work?	YES	**NO GAP**
Refer to other professional, if Stop Smoking Service is refused?	YES	**NO GAP**
Agree the approach that best suits a person?	YES	**NO GAP**
		NO GAP
1.7. If a person who smokes is not ready to quit		**NO GAP**
Share the effects of smoking, aim at harm reduction, make records?	YES	**NO GAP**

Table 41. Gap Analysis for Swindon as measured by NICE Baseline for Smoking Cessation. (Continued).

Baseline Item. Does Swindon…	Swindon Response	GAP/NO GAP
1.8. Telephone quitlines		**NO GAP**
Provide telephone helplines with varied languages?	YES	**NO GAP**
Ensure all staff have training?	YES	**NO GAP**
Ensure staff trained to top standard?	YES	**NO GAP**
		NO GAP
1.9. Education training		**NO GAP**
Provide CPD for all stop smoking staff?	YES	**NO GAP**
Ensure training is to top standard?	YES	**NO GAP**
Ensure all frontline staff trained to offer some advice?	YES	**NO GAP**
Put stop smoking in undergraduate and postgraduate curriculum?	YES	**NO GAP**
Give training for people working with special groups. E.g. pregnant women, people with mental health problems?	YES	**NO GAP**
Ensure staff trained to ask about smoking and secondhand smoke?	YES	**NO GAP**
		NO GAP
1.10. Campaigns to promote awareness		**NO GAP**
Promote awareness of services?	YES	**NO GAP**
Have communications strategy and targeting?	YES	**NO GAP**
Campaigns that are part of national initiatives?	YES	**NO GAP**
		NO GAP
1.11. Closed Institutions		**NO GAP**
Provide appropriate services for mental health institutions	Partially	**PARTIAL GAP**
		NO GAP
1.12. Employers		**NO GAP**
Instate workplace policies at Swindon Borough Council and GWH?	YES	**NO GAP**
Implement NICE guidelines for employees at SBC and GWH?	YES	**NO GAP**

Commentary

The Baseline Assessment tool proved to be less challenging than the Cochrane Database of Systematic Reviews. In all, Swindon only had gaps on the Baseline Assessment tool for 3 out of the 41 items, and only one was a Full Gap. We were able to confirm that certain evidence-based interventions were in place and that the health community was, broadly speaking, reaching out to its population with campaigns, education and training,

helplines and advice, and was able to guide smokers who wished to quit to appropriate modes of support. However, Swindon has not been achieving its quit rates (heading 1.2). In terms of commissioning (heading 1.1) we could not say that Swindon was prioritising high-risk groups, in terms of people who are part of deprived communities, Gypsy/Traveller communities, LGBT communities or who are on probation. With regard to people with a history of mental illness (heading 1.11) Swindon does not offer bespoke services to people with a history of depression or schizophrenia, despite the high rates of smoking in these groups. (This has also been highlighted in the CDSR gap analysis.) Efforts are made, however, to guide people in the community with a history of mental illness to the general stop-smoking services in their communities, while Avon and Wiltshire Partnership (NHS Mental Health Trust) operates a 'no smoking' policy in its hospital buildings. It should be noted that workplace policies are in place in Swindon Borough Council and the Great Western Hospital (thus resulting in No Gaps on heading 1.12), but smoking cessation is not routinely promoted in all workplaces in Swindon. However, it should be borne in mind that with limited financial resources available, if gaps in services are to be addressed, financial resources might have to be diverted from elsewhere. Moreover, Swindon was judged to be particularly strong in its full use of the pharmaceutical methods which are available to aid in smoking cessation.

4.4. Concluding Summary to Gap Analyses for Smoking Cessation

- Swindon has a higher prevalence of smoking, 17.7% in adults, than England as a whole, (see Chapter Three). Tobacco use is linked to cardiovascular diseases, respiratory diseases and cancer. The performance of our smoking cessation services is of especial importance. However, the prevalence of smoking has been declining in Swindon and e-cigarettes represent a new alternative to conventional tobacco.

- Swindon made an overall positive showing on the NICE Baseline Assessment tool with respect to smoking cessation services; when viewed together with the CDSR, Swindon had Full Gaps or Partial Gaps in the following areas…

- Targets for quit rates not having not been met

- The use of digital technology to support smoking cessation (although texting is used as an adjunct)

- The use of material or cash incentives to support smoking cessation

- The provision of optimum follow-up services for smoking cessation when people have had a health-check

- The full use of NHS staff and NHS records to support smoking cessation

- Group therapy, gradual reduction, and relapse support in smoking are not offered

- Services are not provided in a targeted way to some groups who are at high risk, especially those in deprived groups, although there is some degree of outreach those with a history of mental illness

- In contrast, Swindon was judged to be particularly strong in its full use of the pharmaceutical methods which are available to aid in smoking cessation.

- If gaps in services are to be addressed, financial resources might have to be transferred from elsewhere.

Chapter Five. Gap Analyses for Diet-Activity-Weight (DAW)

5.1. Foreword to Gap Analyses for Diet-Activity-Weight

The objective of the 'Gap Analyses' was to identify interventions for Diet, Activity and Weight which are supported in the evidence-base and to compare them with activities or interventions delivered by Swindon Public Health and the health community in Swindon. This was done in two ways. Firstly we searched the Cochrane Database of Systematic Reviews to find relevant systematic reviews relating to Diet or Activity or Weight (or two of these or all three) and determined where a similar intervention was being delivered in Swindon; if we could not identify a similar intervention, we recorded this as a 'Full Gap' or as a 'Partial Gap' for Swindon. Any disparities were deemed to qualify for further management review. Secondly we referred to PHE's framework 'What good healthy weight for all ages looks like' as a means of highlighting where Swindon might have gaps in local practices.

5.2. Gap Analysis of Diet, Activity and Weight based on the Cochrane Database of Systematic Reviews (CDSR)

We accessed the Cochrane Database of Systematic Reviews as at 01.06.2019 searching for any of the words 'diet', 'obesity', 'overweight', 'weight-loss', 'BMI', 'physical activity', 'exercise', 'activity', 'nutrition' in any of the fields of *Title, Abstract, Keyword.*[19] We only included reviews which dealt with adults and encompassed primary prevention, though elements of secondary prevention were admissible in addition to the primary work. We excluded reviews which were clearly not relevant to this kind of health improvement work in Swindon (e.g. for some reason did not present results relating in some way to diet, activity or weight, were based solely on genetic considerations or were only capable of national implementation), which were described by the review authors as of low quality, or which showed an intervention to be largely ineffective or to have indeterminate effects. The Gap Analysis judgement was finalised by the Public Health professional in Swindon responsible for Public Health-led diet, activity and weight services.

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[19] Cochrane Collaboration, *Cochrane Database of Systematic Reviews.*
https://www.cochranelibrary.com/cdsr/about-cdsr. Accessed 1st June 2019

The literature search produced 23 reviews on diet, activity, weight from CDSR which met our inclusion criteria, but on closer examination we excluded 3 of these reviews because of relevance or quality issues. This left a final set of 20 reviews for the full Gap Analysis. Brief details of the 20 reviews are given in Table 42. The ID number was assigned at the time of extraction for use within this present report. In addition we also assigned a 'Typology' label as a way of categorising the intervention reviewed, though diet, activity and weight as types tended to overlap. The reviews are grouped in Table 42 by typology and our Gap Judgement is shown in the final column, with 'Full Gap' or 'Partial Gap' reviews displayed in lightly shaded rows.

Table 42. Gap Analysis for DAW in Swindon based on the CDSR

IDNumber	Title	Short Authorship	Year	Main Typology	Gap Judgement
DAW_CDSR_6	Face to face interventions for promoting physical activity	Richards J et al.	2013	**ACTIVITY**	**NO GAP**
DAW_CDSR_5	Diet, physical activity or both for prevention or delay of type 2 diabetes mellitus and its associated complications in people at increased risk of developing type 2 diabetes mellitus	Hemmingsen B et al.	2017	**ACTIVITY/DIET**	**NO GAP**
DAW_CDSR_7	Remote and web 2.0 interventions for promoting physical activity	Foster C et al.	2013	**ACTIVITY/DIGITAL**	**NO GAP**
DAW_CDSR_2	Home versus center based physical activity programs in older adults	Ashworth NL et al.	2005	**ACTIVITY/MIDDLE-OLDAGE**	**PARTIAL GAP**
DAW_CDSR_1	Progressive resistance strength training for improving physical function in older adults	Liu CJ et al.	2009	**ACTIVITY/OLDAGE**	**NO GAP**
DAW_CDSR_4	Exercise for overweight or obesity	Shaw KA et al.	2006	**ACTIVITY/WEIGHT**	**NO GAP**
DAW_CDSR_10	Effects of low sodium diet versus high sodium diet on blood pressure, renin, aldosterone, catecholamines, cholesterol, and triglyceride	Graudal NA et al.	2017	**DIET**	**NO GAP**
DAW_CDSR_12	Reduction in saturated fat intake for cardiovascular disease	Hooper L et al.	2015	**DIET**	**NO GAP**
DAW_CDSR_19	Advice to reduce dietary salt for prevention of cardiovascular disease	Hooper L et al.	2004	**DIET**	**NO GAP**
DAW_CDSR_20	Portion, package or tableware size for changing selection and consumption of food, alcohol and tobacco	Hollands GJ	2015	**DIET**	**PARTIAL GAP**
DAW_CDSR_21	Polyunsaturated fatty acids for the primary and secondary prevention of cardiovascular disease	Abdelhamid AS	2018	**DIET**	**NO GAP**

Table 42. Continued. Gap Analysis for DAW in Swindon based on the CDSR

DAW_CDSR_22	Dietary advice for reducing cardiovascular risk	Rees K	2013	**DIET**	**NO GAP**
DAW_CDSR_23	Mediterranean-style diet for the primary and secondary prevention of cardiovascular disease	Rees K et al.	2019	**DIET**	**NO GAP**
DAW_CDSR_18	Multiple risk factor interventions for primary prevention of coronary heart disease	Ebrahim S et al.	2011	**DIET/ACTIVITY/WEIGHT**	**FULL GAP**
DAW_CDSR_9	Effects of total fat intake on body weight	Hooper L et al.	2015	**DIET/WEIGHT**	**NO GAP**
DAW_CDSR_14	Long term effects of weight-reducing diets in people with hypertension	Semlitsch T et al.	2016	**DIET/WEIGHT**	**NO GAP**
DAW_CDSR_17	Low glycaemic index or low glycaemic load diets for overweight and obesity	Thomas D et al.	2007	**DIET/WEIGHT**	**NO GAP**
DAW_CDSR_3	Long term non pharmacological weight loss interventions for adults with prediabetes	Norris SL et al.	2005	**WEIGHT**	**NO GAP**
DAW_CDSR_13	Interactive computer-based interventions for weight loss or weight maintenance in overweight or obese people	Wieland LS et al.	2012	**WEIGHT/DIGITAL**	**NO GAP**
DAW_CDSR_16	Surgery for weight loss in adults	Colquitt JL et al.	2014	**WEIGHT/SURGERY**	**NO GAP**

Overall

Within this exercise we identified two Partial Gaps and one Full Gap, leaving 17 No Gaps, the overwhelming majority of the CDSR set of 20 reviews. Swindon was strong in the breadth of the advice given in services, the adherence to the best information in the literature and its readiness to use digital methods.

Partial Gaps

The first Partial Gap was for home versus centre-based exercise programmes, here given as a type of Activity/Middle-OldAge, as we do not necessarily support people in long-term exercise programmes at home which might be beneficial. The second Partial Gap (given here as a type of diet) was for making portion sizes smaller by use of smaller sizes of

crockery and tableware; portion control could take place in private homes, workplaces, restaurants, hospitals. As we do not intervene in any way in Swindon to make portions smaller outside hospitals, this was judged as a Partial Gap.

Gaps

The only Full Gap for Diet-Activity-Weight, was Multi risk factor intervention for the prevention of Coronary Heart Disease. The authors reported that this intervention, of which the NHS primary care health check is a version, appears only to have benefit for people at raised risk, with high blood pressure and raised sugar levels. We interpreted this in our local situation by observing that people living in deprived areas will tend to have a higher level of risk factors. Since we do not make any special efforts to target people in more deprived areas to access a health-check, we recorded this as a Full Gap in our work.

Two reviews described digital interventions that make use of the internet and these are provided for people in Swindon. It was not the case as with smoking digital interventions that these were not available to people in Swindon.

5.3. The Seven Pillars from the 'What Good Healthy Weight Looks Like…' framework used as a checklist

The 'What good looks like' programme, developed by Public Health England, aims to facilitate the collective efforts of local organisations, the local community and of society as a whole (all together regarded as 'the whole system') towards improvements in their population health outcomes. It was developed collaboratively through the combining of existing evidence from the literature, with examples of best practice, practitioners' experiences and consensus expert opinions. It is intended to serve as a guide that will be updated when new evidence and insights emerge. Table 43 sets out a self-assessment framework taken from the Public Health England framework 'What good healthy weight for all ages looks like', published in July 2019.[20] (The results in Table 43 extend over four pages.) The vision pervading the framework is as follows:

'*We want current and future generations to live in a local environment that promotes a healthier weight and wellbeing as the norm. This makes it easier for everyone, regardless of age, background, circumstance or where they live, to access healthier food, eat healthier diets and live active lifestyles, and ensures that support is available for people with excess weight. We achieve this through collective action across the system, in partnership with local communities.'*

The following assessment is based on the 'Seven Pillars'. We have referred to the Seven Pillars and completed this framework for all healthy weight work across the Swindon Borough Council area, including programmes undertaken by Swindon Borough Council and work by all other stakeholders in Swindon.   We have graded work in Swindon in accord with the Red, Amber or Green schema of the framework, Red denoting the lowest level of achievement, with work being in development or happening in an isolated way, Amber denoting some useful work being delivered across the system, and Green denoting strong system-wide activity of evidence-based and recommended practice.   The Gap Analysis

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[20] Association of Directors of Public Health, *What Good Healthy weight looks,* likehttps://www.adph.org.uk/wp-content/uploads/2019/07/What-Good-Healthy-Weight-Looks-Like.pdf. Accessed 20th September 2019.

judgement was finalised by the Public Health professional in Swindon responsible for Public Health-led diet, activity and weight services.

Table 43 shows for Red, Amber and Green levels the type of scenario that might be expected to be observed in a system achieving these respective levels. Where we have selected a level of current achievement (Red, Amber or Green) for Swindon, we have also added brief notes to the PHE rubric to explain the local situation, the local narrative being shown in small capital letters, thus, LOCAL SITUATION.

Table 43. What good healthy weight for all ages looks like - Self assessment Framework with the Seven Pillars, July 2019.

Priority Areas shown as Seven Pillars	RED: We are Developing in Swindon – but we need to improve the consistency of essential functions	AMBER: We are Delivering in Swindon – essential functions are being delivered but the system is not fully 'joined-up'	GREEN: We have Strength– we have a robust, system-wide approach to achieving progress
1. Systems Leadership	There is some engagement of leaders in the healthy weight agenda across the local system, but the effort is not 'joined-up' between (and sometimes within) organisations. -There is a 'Get Swindon Active' Partnership that oversees implementation of the Swindon Healthy Weight strategy and Physical activity strategy.-	Leaders promote healthy weight within their own organisations. Promoting healthy weight is embedded in the priorities of the Council, NHS and other key stakeholder organisations. There is some 'joined-up' working across organisational boundaries.	Promoting healthy weight is a clear, long-term system-wide priority with leaders engaged across the local system. This is linked in with wider system objectives, including national policy and strategy, Sustainability and Trans-formation, Partnerships/ Integrated Care Systems and the Diabetes Prevention Programme.
2. A whole systems approach	Different stakeholders in the local system are delivering services to promote healthy weight, but independently.	Stakeholders are in the early stages of developing a whole systems approach. Parts of the system are working together in an aligned way. Some key stakeholders are not yet engaged and activity is not formally coordinated. -In Swindon a range of stakeholders are working together on the initial stages of a systems wide approach, including SBC (transport, planning, education, environmental health, parks, communications and Public Health), the Wiltshire and Swindon sports partnership, Swindon Sports Alliance, GLL (leisure centres), the fire service, Age UK and Healthwatch. But we need to develop a more systematic approach to implementing a whole systems approach and include more whole system stakeholders.-	A long term, whole-systems approach is in place locally, with clear leadership and which encompasses all local sectors. The network of stakeholders regularly reviews and refreshes system-wide actions, and sets targets. Actions include changes in the food environment, the role of sugar, as well as direct support for individuals, and tackling of inequalities. Approaches use behavioural insights plus technology and involve local communities.

3. A health-promoting environment	Some attention is focused on the health impacts of the physical, food and built environment, but there is limited strategic integration between planning, transport and NHS estate and health.	Local levers are being used to promote a healthier food and built environment, for example, through local planning and licensing processes, using Government Buying Standard for Food, and Healthy Catering guidelines. This tends to occur on an ad-hoc basis. Local data are used to develop services and approaches. -IN SWINDON, THE PUBLIC HEALTH AND THE PLANNING DEPARTMENT WORK CLOSELY TOGETHER, USING LOCAL DATA TO DEVELOP SERVICES AND APPROACHES, WITH AN AIM TO ENSURE THAT THE BUILT ENVIRONMENT SUPPORTS AN ACTIVE LIFESTYLE AND A HEALTHY FOOD ENVIRONMENT. THIS WORK HAS INCLUDED LOCAL GUIDANCE ON FAST FOOD BUSINESSES, AND RECOMMENDATIONS ON LOCAL DEVELOPMENTS TO SUPPORT A MORE ACTIVE ENVIRONMENT. -	There is an area-wide, long-term strategy for improving the local environment to address the drivers of obesity. This includes embedding the strategy in the local plan. Action includes the NHS, transport, local public health, local business and third sector. There is a well-used Health Impact Assessment process for licensing applications. Evidence and data on a wide range of environmental determinants, including food outlets, are fully utilised.
4. Community engagement	There is some, albeit inconsistent, engagement of communities in the local obesity prevention and treatment approach and local community assets are not being fully used. -IN SWINDON, THE PUBLIC HEALTH DEPARTMENT HAS CARRIED OUT COMMUNITY CONSULTATION EVENTS RELATED TO DEVELOPMENT OF FUNDING BIDS FOR ACTIVITIES WITH OLDER PEOPLE AND THE POLICE HAVE CARRIED OUT CONSULTATION WITH YOUNG PEOPLE. WE GET FEEDBACK FROM PARTICIPANTS ON SERVICE PROVISION.-	Community's leaders and organisations are consulted on their needs regarding obesity and healthy. This is informing healthy weight actions that are being delivered by the local authority. Elements of community asset-based approaches are also in place.	Communities are consistently engaged partners in the local obesity agenda, working collaboratively on the planning and evaluation of programmes. Community assets are fully used to support local obesity initiatives.

5. Focus on inequalities	There is limited interpretation of the local data on inequalities in obesity. Some focus is paid to inequalities and inequity in relation to tackling obesity and its causes, but not systematically.	Inequalities within the local obesity system are well understood and acknowledged. Elements of the obesity system target most at risk populations, based on ethnicity, deprivation, disabilities and/or other key characteristics. Our local needs assessments and strategies include analysis on inequalities related to obesity. -WE HAVE BUILT INTO OUR LOCAL PROVIDER CONTRACTS IN SWINDON THE REQUIREMENT TO TARGET THOSE WITH THE GREATEST NEED, INCLUDING THOSE LIVING IN DEPRIVATION AND THOSE WITH DISABILITIES-	Tackling inequalities relating to obesity and its causes are a central part of the local obesity strategy, with specific plans and goals intended to address inequality levels. This work involves a range of system partners, including, for example, social care, schools and mental health services. The collection and use of equality data is routinely performed Some programmes are universal, some are targeted.
6. A life course approach	Actions are in place to support different life stages, for example, for primary school children and pregnant women. The approach is not present across the life course and there are key gaps in action -IN SWINDON WE ARE WORKING TOWARDS 'AMBER' AS WE HAVE PROVISION IN PLACE TO SUPPORT DIFFERENT GROUPS ACROSS THE LIFE COURSE (FOR MATERNITY, EARLY YEARS, SCHOOLS, ADULTS AND OLDER PEOPLE). WE ARE NOT LINKING SERVICES TOGETHER AND ACROSS ORGANISATIONAL BOUNDARIES.-	The local obesity system involves a range of services working with local people at different life stages across the life course. There is coordination of planning and programming linking services together and across organisational boundaries.	Coordinated and sustained actions are in place that benefit local communities across the life course. People working with people at different life stages, including maternity, early years, children's services, schools and further education, workplaces and older people's services, are actively involved in the local obesity agenda. Evidence and data are used across the system. Services are coordinated and work together. The importance of obesity within families is recognised.

7. Monitoring, evidence, evaluation and innovation	There is some use of data and intelligence (including NCMP) in planning and delivery. Some evaluation is carried out and used internally.	Data and intelligence (including NCMP data) are consistently used, where available, to support the delivery of services. This includes data on wider determinants, obesity risk factors, obesity rates, and obesity-related health challenges. Innovative practice, together with evaluation is being encouraged and a culture of learning is in place. -IN SWINDON WE ARE WORKING TOWARDS 'GREEN' WITH OUR SERVICES BEING REGULARLY REVIEWED, SUPPORTED BY DATA AND INTELLIGENCE. TO ACHIEVE 'GREEN' WE NEED TO DEVELOP A SHARED LEARNING CULTURE ACROSS THE SYSTEM.-	The range of services and approaches is continually reviewed, supported by data and intelligence. This is informed by a wide range of data including NCMP data, wider determinants, lifestyles, risk factors, obesity rates at community and smaller group level. Local leaders support evidence-based and innovative approaches, technology and local research. Evaluation and learning is part of a shared culture across the system

Swindon has three Reds; with regard to Systems leadership, we have a 'Get Swindon Active' partnership board, but this could not be described as supporting a co-ordinated approach within or between organisations; regarding Community engagement, we carry out consultations with the community but this work and engagement is not consistent and ongoing; as regards a life-course approach, we address different age-groups in the population so we could be said to be on the edge of achieving Amber.

Swindon has four Ambers: for a whole systems approach, in Swindon a range of stakeholders are working together on the initial stages of a systems wide approach, including SBC (transport, planning, education, environmental health, parks, communications and Public Health), the Wiltshire and Swindon sports partnership, Swindon Sports Alliance, GLL (leisure centres), the fire service, Age UK and Healthwatch, but the working together cannot be said to be in concert and systematic; for a health promoting environment, this work has included local guidance on fast food businesses, and recommendations on local developments to support a more active environment, but falls short of a long-term and all-embracing strategy. For focus on inequalities, we have built into our local provider contracts in Swindon the requirement to target those with the greatest need, including those living in deprivation and those with disabilities, but this is not yet

supported by routine, embedded data collection; likewise for monitoring In Swindon we are working towards Green with our services being regularly reviewed, supported by data and intelligence. To achieve Green we need to develop a shared learning culture across the system. We have not judged Swindon to be at Green on any of the Seven Pillars.

This gap analysis demonstrates that although we in Swindon offer a range of advice, interventions (including working with planning on the built environment) or programmes, (including prevention programmes like the Healthy Schools programme), most of them are not fully implemented and the numbers of people participating are small. The exception to this is 'Beat the Street' for which over 31,000 Swindon people signed up in 2018 and which we ran again in September 2019, although it only operated for limited periods of time. The possible reasons for people not taking up healthy weight interventions include: people being unaware of what programmes are available, people believing that what is available is not appropriate for themselves, people feeling that lifestyle change is too difficult or that it is not necessary for them. We also recognise, meanwhile, that many people lose weight or become more active independently, without any statutory or community programme or support. One of our main target groups is composed of those with the highest levels of excess weight, inactivity and poor diet; many of these live in deprived area and do not readily engage with health improvement services. Another important point is that we do not provide weight management and physical activity interventions for people who can afford them, since programmes that meet NICE standards are widely available to the general public.

5.4. Further Consideration of the Whole Systems Approach to Obesity (WSO)

There is no single individual, group or organisation that can transform the situation in a community by itself and it is not likely that many communities in England have reached the Green level with regard to their healthy weight programmes. The Green level represents a 'Whole Systems' scenario in which all stakeholders are working harmoniously together in pursuit of this aim and this is very difficult to achieve. Therefore PHE is working with the Local Government Association (LGA) and the Association of Directors of Public Health

(ADPH) to develop an exemplary 'Whole Systems' programme.[21] Leeds Beckett University has been commissioned to work with four pilot areas, with the aim of learning from local practices and creating practical, tried-and-tested guidance that could be used by any local authority in England. Three years into the programme, researchers at Leeds Beckett University are now sharing some of the experience from these pilot areas.

The researchers have produced a step-by-step process to support local authorities in tackling obesity. This 'route map', in six phases, with a set of supportive resources, thus forms the basis of a definitive guide to implementing a 'Whole System Approach' to promoting healthy weight. The initial phase is centred on taking stock of the local obesity picture in terms of prevalence, environment and services. The later phases are all about collective working; stakeholders from across the system are brought together to create a common map of the local causes of obesity in their area and identify and prioritise areas of action. The latter stages of the process focus on taking actions forward as a unified group, continuously monitoring and revising them and reflecting on how things can be improved.The final guide and supporting resources were published in summer 2019, alongside a full evaluation to support the approach.[22]

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[21] Guidance: Whole Systems Approach to Obesity. Accessed 10th February 2020.
https://www.gov.uk/government/publications/whole-systems-approach-to-obesity

[22] Leeds Beckett University, *A Whole Systems Approach.*
https://www.leedsbeckett.ac.uk/wholesystemsobesity/practical-guidance/. Accessed 2nd August 2019.

5.5. Concluding Summary to Gap Analyses for Diet-Activity-Weight

- In Swindon 63.7% of the adult population are overweight or obese; this is similar to the level in England as a whole but is still the majority of the Swindon adult population (see Chapter Three).

- In Swindon 56.3% of the adult population eat fruit and/or vegetables five times a day, a similar level to England as a whole, while 71.6% of the Swindon adult population are physically active by the Chief Medical Officer's definition, a level better than that in England as a whole (see Chapter Three).

- Swindon has a Partial Gap in its activities in that we do not provide home-based exercise programmes.

- Swindon has a second Partial Gap, as we do not intervene in any way in Swindon to make portions smaller by use of smaller sizes of crockery and tableware.

- The only Full Gap for Diet-Activity-Weight, as measured against the evidence-base, was in multi risk factor intervention for the prevention of Coronary Heart Disease. Since we do not make any special efforts to target people in more deprived areas, for who this intervention might be beneficial, we recorded this as a Full Gap in our work.

- In Swindon we do provide interventions for Diet-Activity-Weight through the internet, so it is not the case as with smoking digital interventions that digital interventions are not available to people in Swindon.

- In terms of the PHE framework, 'What good healthy weight looks like,' we have not judged Swindon to be at Green on any of the Seven Pillars. Swindon has three Reds and four Ambers.

- Swindon is at Red on Systems Leadership: we have a 'Get Swindon Active' partnership board, but this needs to go further in supporting a co-ordinated approach within or between organisations.

- Swindon is at Red on Community engagement: we carry out consultations with the community but this work and engagement is not consistent and ongoing.

- Swindon is at Red on a life course approach, but nearly Amber, as we address different age-groups in the population.

- Swindon is at Amber on a whole systems approach: local agencies, organisations and stakeholders on the initial stages of a system-wide approach, but the working together cannot be said to be in concert and systematic.

- Swindon is at Amber for a health promoting environment: this work has included local guidance on fast food businesses and local developments , but falls short of a long-term and all-embracing strategy.

- Swindon is at Amber on a focus on inequalities: we have built into our local provider contracts in Swindon the requirement to target those with the greatest need, but this is not yet supported by routine, embedded data collection.

- Swindon is at Amber monitoring and data collection, but we are working towards Green.

- The PHE framework has exacting standard and it is unlikely that many local authorities have yet achieved many or any Greens.

Chapter Six. Prevention across the life course: views of Swindon residents living with chronic conditions

6.1. Foreword to views of Swindon residents with chronic conditions

In the previous chapters we have examined the burden of chronic disease in our population, described the levels of risk factors, identified two important risk clusters for further work, set out the recommended preventive interventions and strategies for those clusters and assessed how current preventive activity in Swindon matches up to those recommendations and strategies. The approach in these foregoing chapters has been comprehensive, but in a statistical and analytical manner. In the present chapter, therefore, we turn to the experience of local people living with chronic diseases. To obtain a better understanding of an issue, it is paramount to take into account the views of the people affected. In particular, to understand preventive potential we need to understand the bigger picture in terms of what it means to be living with a chronic condition and how people believe it has become part of the course of their life. This chapter reports insights which we obtained by using qualitative research methods into the views of Swindon residents who are living with one or more chronic conditions.

We conducted five focus groups in a variety of settings: there were two condition-specific groups in a local hospital setting, a group of residents in sheltered housing run by the local council, a group of people supported by community workers in a local community centre, and a group of community workers who support people living with long-term conditions. The key lines of enquiry which we pursued, centring on the two main topics of impact and prevention, are listed in the box below. In total 32 people participated and shared their views with us. Data were analysed using the Grounded Theory approach, a widely-used research method concerned with generating theory from systematically collected and thematically analysed data.[23] Two researchers examined the focus group transcripts and identified themes from the conversations; they then compared and refined those themes. The results are detailed below with themes highlighted in bold type (e.g. **relationships**). In

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[23] Glaser B & Strauss A, *The Discovery of Grounded Theory: Strategies for Qualitative Research,* (1967) Chicago: Aldine Publishing Company.

addition, verbatim quotes in italics from the participants are given throughout to give a more direct sense of what was expressed in the sessions (e.g. *'Concentration is worse...'*)

Box 1: Key Lines of Enquiry pursued in the Focus Groups

1. **Conditions and their impact:**
   - What chronic conditions participants were living with and whether they had more than one (known as co-morbidities)

   - How long participants had had their condition/been diagnosed with their condition and what impact this had on their lives over time, in terms of:
     - daily living
     - employment
     - education
     - mobility
     - social connections
     - living environment
     - lifestyle and wellbeing

2. **Making a difference:**
   - Whether there were any key events or activities in their life that participants felt may have affected their health and wellbeing

   - If there was a point before diagnosis when participants felt something could have made a difference in improving their health or lifestyle, what that might be and why

   - If there was a point after diagnosis when participants felt something could have made a difference in improving their health or lifestyle, what that might be and why

6.2. Characteristics and Conditions

Characteristics of the 32 participants are shown in Table 44. Participants were living with various and often multiple chronic conditions (multi-morbidity). Figure 4 shows in the form of a 'word cloud' the various conditions named by participants in the discussions. Two out of twenty-three participants living with a chronic condition said that their main condition was mental health-related. The majority of participants said their main condition was physical, although they also spoke of the impact their chronic condition had on their mental state.

The community workers, however, felt that many of the people they support had mental health needs in addition to their physical health needs. Many of the conditions are associated with old age, for example, Parkinson's disease and the consequences of falls. This reflects the older age (65 years and over) of the majority of participants; older adults were over-represented in the research due to the nature of the groups accessed.

Table 44. Characteristics of participants in the focus groups

Setting	Group One. Condition-specific hospital group	Group Two. Condition-specific hospital group	Group Three. Sheltered residential home	Group Four. Community Centre	Group Five. Community workers	Total
Total no. of participants	8	6	7	2	9	**32**
No. of males	4	4	0	1	2	**11**
No. of females	4	2	7	1	7	**21**
Age range	65+ years	65+ years	88 to 92 years	46 to 59 years	18+ years*	-

Age range refers to the adults supported by community workers, not the community workers themselves

Figure 4. The various chronic conditions with which participants said they were living, displayed as a 'word cloud'

6.3. The Impact of Chronic Conditions

The impact on participants' lives varied greatly depending on a number of factors, including:

a) the nature and severity of the condition, i.e. whether it was progressive
b) whether there were complications as a result of that condition
c) how long the person had had the condition
d) how long it took to obtain a diagnosis
e) the individual's attitude towards their condition

It was evident that in some cases, participant's lives had been profoundly affected by their condition:

'There are some things I will never be able to do as well as I used to, like multi-tasking. Concentration is much worse than it used to be. It just broke irreparably.'

'Those things that you did without thinking, you don't do anymore.'

'It stops everything.'

Whereas for others, the impact was less acute or fluctuated from day to day:

'Some days are better than others: some days you can do it, and some days you can't do anything.'

'It doesn't stop me doing anything. It just takes a lot longer to do it.'

Some participants were able to complete daily living tasks (e.g. self-care, maintaining the home, shopping) independently. Their ability to take part in **leisure activities,** such as playing cards or knitting, might be affected but in these instances, having appropriate support (from friends, family, neighbours, groups or support workers) helped to overcome this:

'There's always help…people are very kind.'

'It's [social group] *been an absolute joy…everyone is so supportive of one another.'*

Some conditions make completing **daily living tasks** more difficult. Things like climbing stairs could be 'painful', lifting things 'problematic', and dressing oneself 'difficult.' In some cases, working age participants had even had to take long periods of **time off work** on their GP's advice before they were able to return to work.

One participant talked about **not being able to leave the house** because of the way they felt some days, whilst others had difficulty getting out and about due to mobility issues. One participant found using a public toilet challenging and 'embarrassing' which meant he felt unable to go out. Still others had fears around their safety going out due to memory or sight issues, showing a loss of independence:

'I can't go anywhere on my own, so I'm stuck.'

Relationships also appear to be affected by living with a chronic condition in some cases; this was evidently a source of unhappiness:

'I'd like to do more with the grandchildren, but I can't.'

'I suppose it can be quite isolating…can get stuck in a loop of: don't want to be involved with other people; don't want to socialise; don't want to go out of the house.'

Another participant spoke of their fears that others might think of them as a 'misery' to be around, increasing their sense of **isolation**. However, in other instances, relationships, especially partners and family members, were an important source of support:

'My husband is an absolute star.'

'If I hadn't met [friends], *I don't think I'd have pulled out of this.'*

Dependence on partners in particular was to such an extent that, in the case of older participants, their spouse's death resulted in having to move into residential care/supported living, showing that chronic conditions affect others indirectly, and highlighting a difference in impact dependent on **age**.

6.4. Chronic Conditions and Mental Health and Well-being

The community workers felt strongly that '**mental health goes hand in hand with long term conditions'.** They observed that sometimes those they supported had mental health needs (especially anxiety and depression) and in some cases addiction issues, too. However, they felt that their mental health needs could be overlooked: the referrals the community workers received from GPs tended to list multiple conditions, and often mental health was

at the bottom of the list. For many people, it was difficult to identify what their 'main' condition was.

Participants talked about the effects of having a long term condition on their mental state, but articulated this in different terms. When they were unable to complete daily living tasks independently, one participant said it 'makes you feel useless.' Frustration was a sentiment common amongst the groups:

'You get cross with yourself if you can't do it.'

A lot of participants commented on the **length of time it took to get a diagnosis**. One said that their condition had come on so gradually that they did not know what was going on at the time. For others, it took a significant event, for example a fall, or what they termed as having a 'nervous breakdown,' before they sought medical help. The length of time it took to be diagnosed ranged greatly, from as long as three, and up to twenty years. For some participants, this led to a sense of frustration with health services.

In addition, **the point of diagnosis** itself seemed to be a crucial point. Some people viewed diagnosis as positive: symbolising health professionals validating their experience, and enabling them to get the appropriate support they needed to live their lives:

'Is [the illness] *really there or am I just imagining it?'*

Whereas for others, diagnosis was not positive. The community workers saw that some people held beliefs about their own perceived lack of capacity, i.e. 'I can't do *x* because of my condition,' which prevented them from taking steps to improve their wellbeing. This was felt to be more noticeable for people who had lived with their condition for a longer period of time. The impact of living with a chronic condition seemed very much linked to an individual's attitude towards their condition: community workers used the analogy of driving a car to explain the link between attitude and impact, in that it was up to the individual as to whether the person or the condition was in the driver's seat.

There was great variation across and within the groups in terms of attitudes towards chronic conditions. Some participants exhibited a level of **psychological resilience** in terms of coping with their condition, using positive language and joking to make the group laugh:

After listing their ailments*: '…but other than that, I'm alright!'*

'I am fine really – we manage quite well.'

'…gets a bit more difficult as we get older.'

'I'm quite happy.'

Many expressed resolve to manage their condition and improve their health:

'…just a case of getting over it.'

'…but all these things [healthy behaviour changes]*, it's not easy.
I have to tell myself 'I must do it.''*

For some, this meant re-inventing their sense of identity to align with living with the condition:

'I had to adjust. I had to find a new version of my best self.'

For others, it meant not letting their condition define them:

'I think… not to write us off. We've come through a lot, we've still got stuff to offer.'

In some cases, the language used revealed some of the difficulties accepting living with a long term condition. When asked about their health, one participant said they had a 'sort of depression.' They then went on to say:

'Sometimes it's hard to admit you got a mental problem. It's not easy to say: 'I got this.'

It is important to note that the majority of participants were aged 65 years or older. Positive attitudes in older participants might signify a level of acceptance around the perceived inevitability of getting ill as one gets older:

'You die of old age but you're not going to die of arthritis in your legs, are you?'

'It's just old age…'

It is possible that younger adults might feel differently about living with a chronic condition.

6.5. What makes a difference in preventing chronic conditions?

There were many points across the life course which came up in discussion as being key influences on health and wellbeing, as depicted in Figure 5. These can be seen as comprising two themes which were common across the groups, firstly social relationships, in terms of family upbringing, children leaving home, and bereavement, and secondly work, in terms of education, university, unemployment, employer support, work-life balance and retirement.

Figure 5. Key activities or events across the life course identified by participants as having an impact on their wellbeing

One participant felt that their **childhood experience** as an evacuee in the second world war prepared them for 'knocks' later on in life. Conversely, community workers said it was common for people they supported to disclose experiencing adverse childhood experiences, sometimes termed as 'ACEs' by health professionals.[24] Community workers felt that someone's family background, especially their parenting role models and socioeconomic status, had a profound effect on their ability to cope with a chronic condition. Participants themselves did not comment on this.

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[24] Felitti V *et al*, "Relationship of Childhood Abuse and Household Dysfunction to many of the leading causes of death in adults", *American Journal of Preventive Medicine,* 14, (1998), 245-258.

Leaving home for the first time and going to **university** was cited by one participant as a major contributing factor in their first mental breakdown, necessitating contact with psychiatric services.

Furthermore, **work** was a common theme among the groups but in different ways. For some, poor work-life balance and a lack of employer support were felt to have had a negative impact on their mental health and wellbeing. For others, the nature of their previous occupation, e.g. working in a heavy industry such as the railway industry, was a concern. Equally, not having work was identified as detrimental to wellbeing, both in terms of long periods of unemployment and retirement:

> [On retirement] *'I wish I hadn't. I was perfectly healthy before that.'*

Again, **relationships** also seemed significant. A parent identified their **children** growing up and leaving the family home as a major life event which affected their health. Another participant spoke of their health deteriorating after losing their son to cancer and their husband to 'heart trouble.'

The community workers also spoke of the impact of **bereavement,** especially for long-term carers who 'put their lives and their own physical health on hold,' losing their sense of purpose with the loss of a loved one, often dealing with financial loss, e.g. of carers benefit and the support of carers networks (as they are no longer carers). At this point their own physical health becomes can become a concern or deteriorate. The emphasis on social connection and support being important was apparent throughout conversations around both work and relationships.

When asked if there was anything they could think of that might have made a difference to their health and wellbeing, participants found it hard to identify interventions or lifestyle changes prior to diagnosis which might have prevented their condition. Several participants said they would have wanted more **information,** for example on healthy lifestyle, health risks, what to look out for, and greater awareness of their condition:

> *'Because what I know now, if I knew ten years ago or before, I wouldn't be here.'*

> *'It's everything, down to what you do, what you eat,*
> *can you go on this walk on your own safely?'*

However, it was acknowledged that prior to diagnosis such information would have had limited salience:

'I think the problem is you don't think about it…you don't realise until you've done it.'

'You don't think about it, you just go and do it! Then it's too late.'

Community workers felt that often people's circumstances were so complicated that their basic needs, like finances, food and shelter, had to be met before they could successfully make positive behaviour changes:

'People are often too wrapped up in their lives and daily priorities to think of making changes before their diagnosis.'

Despite this, many participants felt they would have wanted to make changes earlier on in their life course:

'If they started these classes [tai chi] for younger people…'

Furthermore, community workers pointed out that often the **social groups** which people attend post-diagnosis are not condition-specific, therefore people could benefit from attending before their health worsens, perhaps even protecting them e.g. from isolation-related health conditions such as depression.

Community workers suggested a **health check** for younger adults which covered physical and mental health, in which questions could be asked around resilience when facing disease e.g. 'How would you feel if you were to develop a long-term condition?'

Many older participants felt that they had always been active (walking, gardening, 'plenty of exercise') and could not identify any health behaviours prior to diagnosis which might have contributed to their ill health. Community workers and younger participants aged 40 years plus were more easily able to pick out what they felt were contributing factors, such as excessive work pressures, and what one participant described as 'bad' i.e. unhealthy eating and lifestyle habits:

'Finish work, have a glass of wine or whisky, bite to eat then go to bed… I think I just became lazy actually. That was my downfall.'

This difference in views as a result of **age** might imply an assumption that getting ill as one gets older is inevitable. However, this might also indicate a lack of awareness around the impact of diet and lifestyle on health conditions. One participant even felt that they *had* tried increasing their exercise levels, eating properly, drinking lots of water and taking time out, but 'it never helped.'

6.6. What makes a difference in being resilient with chronic conditions?

Participants were much more easily able to discuss positive changes they had made as a result of being diagnosed with a chronic condition, measures which helped them manage their condition and prevent deterioration. Information about their condition, home aids and adaptations, keeping active including daily home exercises, reading self-help books, meditation, activities and social groups, were all identified as having a positive impact on health and wellbeing.

[On meditation] *'It relaxes you and I got a lot of awareness now'*

Notably, **stigma around health services** was raised by both community workers and those living with chronic conditions. There was a feeling that services were for 'people more ill than me,' which prevented or delayed people accessing support. There was a lot of positive feedback for the various social and condition-specific groups that participants attended; clearly these were highly valued. However, it was also raised that while group settings may be beneficial for some, they are not always accessible for everyone, for example for someone with anxiety, highlighting the value of one-to-one support.

Participant's suggestions of preventive measures are summarised in Table 45 below. Primary preventive measures, (i.e. those which focus on the maintenance of good health and prevention of ill health), are listed in the first column. Secondary and tertiary preventive measures, shown in the second column, are those which might help prevent another health crisis from occurring and help maintain well-being with a chronic condition.

Table 45. Summary of suggested preventive measures from the focus groups which might support health and wellbeing

Pre-diagnosis 'Primary' Prevention	Post-diagnosis 'Secondary/Tertiary' Prevention
Views of people with Chronic Conditions: ▪ Better work-life balance and increased employer support ▪ Better promotion of local services and resources, including social groups, e.g. advertising on local buses, targeting adults of working age ▪ Placing emphasis on wellbeing earlier on in the life course	**Views of people with Chronic Conditions:** ▪ More information at point of diagnosis ▪ Access to social groups and activities (including transport) ▪ Daily exercises to do at home ▪ Home adaptations ▪ Meditation ▪ Address the stigma surrounding services
Views of Community workers: ▪ Proactive schools – in terms of physical activity *and* mental health awareness ▪ Mental *and* physical health 'MOT' at 40+, asking questions around resilience, e.g. 'how would you feel if you were to develop a long term condition?' ▪ Greater clarity around what services are offering and their suitability ▪ Promoting the benefits of local volunteering opportunities ▪ Counterbalancing fears around safety when going out, to raise awareness of the 'dangers' of sedentary lifestyle ▪ Promoting healthy diet and exercise	**Views of Community workers:** ▪ Ensuring basic needs are met to enable an individual to work towards social connection, leisure, physical activity and independence ▪ Promoting healthy diet and exercise

6.7. Further Considerations

The participants who took part in this research were already accessing health services or living in supported housing. Their views may not be representative of adults with chronic conditions who are not currently accessing health services. This may be particularly pertinent when considering the impact of living with long term conditions on loneliness and social isolation. Similarly, because these participants volunteered to take part in the research, this may indicate that they were more highly motivated around health and wellbeing, which again may not be representative of everyone.

Although most participants showed some awareness of healthy lifestyle factors, such as the issues of smoking, drinking, diet and exercise, their lifestyle behaviours pre- and post-diagnosis were not measured, therefore any links to their lifestyle cannot be assumed.

Owing to the nature of the groups accessed, many of the participants were older adults. Their views reflect the findings of previous research involving older Swindon residents,[25] and it is likely that the views of younger adults may differ. For example, the effect of living with a long term condition on work may be more apparent in younger people, as many of the participants in these focus groups were retired.

Nevertheless, speaking to both those living with and those supporting people living with chronic conditions gave richer insight into the topic. In many ways, the views of community workers corroborated the views of participants, but often added greater perspective on issues like socioeconomic status, which complicated the effects of living with chronic conditions and highlighted health inequities to be addressed.

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[25] Swindon Borough Council, *Ageing Well JSNA,* available from
http://www.swindonjsna.co.uk/dna/ageing-well (23.10.19)

6.8. Concluding Summary to Qualitative Research

- Although there was not unanimity in responses across the groups and within groups, there appear to be several points across the life course where, some participants believed, prevention might make a difference; however some participants believed that when they were younger, health improvement would not have appealed to them.

- Prevention might be seen either in terms of maintaining good health and preventing ill health (primary prevention), or coping well with a condition and preventing a condition from deteriorating (secondary and tertiary prevention).

- Common themes were that work, relationships, social connection and social support, education and information, and independence are important, as is a desire for better health and wellbeing promotion across the life course.

- Interactions between physical well-being and mental well-being are important and should be taken into consideration in primary, secondary and tertiary prevention.

- The nature of and length of time a person has lived with a chronic condition makes a difference to the impact it has.

- Similarly, a person's attitude towards their condition(s) has an effect, and this seems linked to age.

Chapter Seven: Summation of the JSNA, Further Discussion and Recommendations

7.1. The Ground covered in the 'Prevention of CD JSNA'

In this 'Prevention of Chronic Disease JSNA' we have reported the burden of disease, the prevalence and mortality for a group of common chronic diseases in the adult population of Swindon. We have identified a set of major risk indicators for Swindon and made comparisons with England as a whole and populations similar to Swindon. We have used the Global Burden of Disease model to quantify the risk factors for the selected health conditions in our population, and chosen as a focus two areas of risk, tobacco use and issues with overweight. Thus, we concentrated on interventions for primary prevention relating to these two areas which we termed 'Smoking Cessation' and 'Diet-Activity-Weight'. In a set of Gap Analyses we used the Cochrane Database of Systematic Reviews, the NICE Baseline for Smoking Cessation, and Public Health England's framework, 'What good healthy weight for all ages looks like' as standards of good practice and we compared the range of current primary prevention services in Swindon with these to see if 'Full Gaps' or 'Partial Gaps' existed in Swindon.

To complement this quantitative, statistical work, we also carried out a qualitative enquiry. We conducted five focus groups in a variety of settings: there were two condition-specific groups in a local hospital setting, a group of residents in sheltered housing run by the local council, a group of people supported by community workers in a local community centre, and a group of community workers who supported people living with long-term conditions. Amongst our questions, we wished to find out whether there were any key events or activities in their life that participants felt may have affected their health and wellbeing, whether there was a point before diagnosis when participants felt something could have made a difference in improving their health or lifestyle, what that might be and why, and whether there was a point after diagnosis when participants felt something could have made a difference in improving their health or lifestyle, what that might be and why.

7.2. Main Findings of the 'Prevention of Chronic Disease JSNA'

The Burden of Chronic Disease

Chronic diseases (also known as Long Term Conditions) are common in the population of Swindon. The prevalence (as a percentage) of chronic diseases in Swindon rises markedly with age, culminating at 81.8% in people aged 85 to 89 years, but the actual number of people, is highest in the middle-aged and in early old age, peaking at 6,129 people aged 65 to 69 years (2015 figures). However, older people are more likely to have co-morbidities (that is to have more than one condition) and are more likely to experience their conditions as disabling. Overall the Symphony model for Swindon suggests that about 70,000 people in Swindon UA had at least one chronic disease in 2015, (32.2.% of the population), while for people aged 65 years or more the corresponding figure was about 23,000 people (69.3% of the population aged 65 years or over.) These figures include mental health conditions as well as physical health conditions.

Data from the QOF registers of disease from primary care (as at March 2019) indicate that the level of most physical conditions in Swindon are probably broadly similar to those in England as a whole. For example, 2.77% of people (6,683) in the Swindon population, are known to have CHD, 1.54% of people (3,723) in the Swindon population, are known to have Stroke/TIA while 1.71% of people (4,117) in the Swindon population, are known to have COPD. However, in all 7.63% of people (14,486) in the Swindon population, are known to have diabetes, a slightly higher prevalence than that recorded for England as a whole. Modelled data for arthritic conditions suggest that the prevalence of osteoarthritis might be higher than in England as a whole: in all 11.1% of people (10,650) in the Swindon population aged 45+ years and 18.8% of people (18,038) in the Swindon population aged 45+ years are estimated to have hip and knee osteoarthritis respectively, and some may have both. In all 17% of people (38,482) in the Swindon population were calculated to have back pain lasting for three months or longer, also a slightly higher prevalence than in England as a whole.

Risk factors and Prevention Clusters

In terms of the major risk indicators from Public Health England which we examined, Swindon's comparative rankings were particularly unfavourable for feelings of isolation

within social care, self-reported satisfaction with life, smoking prevalence, and overweight and obesity. For three indicators Swindon was shown as significantly worse than England, smoking prevalence, educational attainment, and depression. In terms of overall deprivation as measured by the Indices of Deprivation 2019, Swindon's score was slightly better (less deprived) than the average for other local authorities in England. Swindon's rankings were also comparatively good for statutory homelessness, employment, and physical activity. Thus, in terms of lifestyle Swindon presents a mixed picture, comparing well on diet and exercise, and comparing poorly on smoking and overweight/obesity.

In an additional examination of risk factors, we analysed outputs from the Global Burden of Disease model. It was difficult to make a judgement on which risk factor or cluster of risk factors might have the greatest overall detrimental influence on health in Swindon, but tobacco and high BMI each featured prominently. Accordingly we decided to take forward tobacco use and high BMI (which is linked with diet and low physical activity) as prevention clusters for further analysis in the context of the population of Swindon. We decided to describe these prevention clusters as 'Smoking Cessation' and 'Diet-Activity-Weight'.

Gap Analyses for Smoking Cessation

As Swindon has a higher prevalence of smoking, 17.7% in adults, than England as a whole, the performance of our smoking cessation services is of particular importance. Swindon made an overall positive showing on the NICE Baseline Assessment tool with respect to smoking cessation services, but when viewed together with the Cochrane Database of Systematic Reviews, a number of gaps became more pronounced in the picture. Swindon had omissions, Full Gaps or Partial Gaps, in the following areas: targets for quit rates not having been met; the use of digital technology to support smoking cessation (although texting is currently in use as an adjunct); the use of material or cash incentives to support smoking cessation; the provision of optimum follow-up services for smoking cessation when people have had a health-check; the full use of NHS staff and NHS records to support smoking cessation; group therapy, gradual reduction, and relapse support in smoking are not offered at present; services are not provided in a targeted way to some groups who are at high risk, especially those in deprived groups, although there is some degree of outreach

to those with a history of mental illness. In contrast, Swindon was judged to be particularly strong in its comprehensive use of the pharmaceutical methods which are available to aid in smoking cessation.

Gap Analyses for Diet-Activity-Weight

In Swindon the majority of the adult population, 63.7%, is overweight or obese, similar to the level in England as a whole. At the same time 71.6% of the Swindon adult population is physically active by the Chief Medical Officer's definition, a level better than that in England as a whole. When we compared Swindon interventions for Diet-Activity-Weight with the Cochrane Database of Systematic Reviews we discovered relatively few omissions. Swindon had a Partial Gap in its activities in that we do not provide home-based exercise programmes; Swindon had a second Partial Gap, as we do not intervene to make portions smaller by use of smaller sizes of crockery and tableware. The only Full Gap for Diet-Activity-Weight was in Multi risk factor intervention for the prevention of Coronary Heart Disease, which corresponds to the NHS primary care health check scheme. Since we do not make any special efforts to target people in more deprived areas, who have most to gain from this approach, we recorded this as a Full Gap in our work. In Swindon we do provide interventions for Diet-Activity-Weight through the internet, so it is not the case as with smoking digital interventions that digital interventions are not available to people in Swindon.

In terms of the PHE framework, 'What healthy weight for all ages looks like', we did not judge Swindon to be at Green on any of the Seven Pillars. Swindon has three Reds and four Ambers. Swindon is at Red on Systems Leadership: we have a 'Get Swindon Active' partnership board, but this needs to go further in supporting a co-ordinated approach within or between organisations. Swindon is at Red on Community engagement: we carry out consultations with the community but this work and engagement is not consistent and ongoing. Swindon is at Red on a life course approach, (but nearly Amber), as we address different age-groups in the population. Swindon is at Amber on a whole systems approach: local agencies, organisations and stakeholders on the initial stages of a system-wide approach, but the working together cannot be said to be in concert and systematic. Swindon

is at Amber for a health promoting environment: this work has included local guidance on fast food businesses and local developments, but falls short of a long-term and all-embracing strategy. Swindon is at Amber on a focus on inequalities: we have built into our local provider contracts in Swindon the requirement to target those with the greatest need, but this is not yet supported by routine, embedded data collection. Swindon is at Amber for monitoring and data collection, but we are working towards Green. It is clear that there is more work to be done, but the Seven Pillars framework is a very demanding standard, so it is not probable that many public health teams in England are currently performing well against it.

Qualitative Research and Focus Groups

Prevention might be seen either in terms of maintaining good health and preventing ill health (primary prevention), or coping well with a condition and preventing a condition from deteriorating (secondary and tertiary prevention).

As one might expect, there was a range of responses from the focus groups on the topic of prevention, but there appeared to be several points across the life course where, some (but not all) participants believed, prevention might make a difference. Common themes were that work, relationships, social connection and social support, education and information, and independence were important for maintaining good health, as was a desire for better health and wellbeing promotion across the life course; the nature of and length of time a person has lived with a chronic condition makes a difference to the impact it has; similarly, a person's attitude towards their condition(s) has an effect, and this seems linked to age.

Interactions between physical well-being and mental well-being were believed to be important factors to be taken into consideration in primary, secondary and tertiary prevention.

7.3. Strengths and Weaknesses of the JSNA

The present JSNA has strengths in its comprehensive approach, combining a number of sources of statistical data, examining epidemiological impact and impact on the health service, as well as investigating the roots of ill-health and the preventive possibilities that

exist. The standards which we selected, the yardsticks against which we measured the performance of Swindon in preventive activities, such as the Cochrane Database of Systematic Reviews, are well-respected. The NICE guidelines, tools and baseline assessments are commissioned by central government and are pivotal to the delivery of health care, health improvement and health protection in England. 'What good healthy weight for all ages looks like,' and the 'Whole Systems Obesity' approach are being advocated by Public Health England as new ways of thinking about the weight issue by public health practitioners in England. The statistical work of the present JSNA has been complemented by qualitative work with focus groups in which the experiences and perceptions of people with chronic diseases and of some of the health professionals who care for them, have been recorded.

Yet the JSNA also has certain limitations. The CDSR is well-respected but in some ways, it is actually impaired by its global reach. Catering for an international audience, the CDSR might not provide interventions which are best suited for our population and it is relatively weak in terms of looking at ways of helping people from different sectors of society, for example, relatively deprived people or people from ethnic minorities. A similar limitation might be seen in our qualitative work, which might have reached only relatively high functioning, articulate people with chronic diseases, and not people with poor levels of well-being, or limited mobility or who come from different cultural groups.

Indeed, this could be seen as a significant problem with this current work, in which one of our aspirations was to identify interventions which might diminish health inequalities. The JSNA has not tackled issues in minority groups well, people who with a few exceptions, will tend to experience poorer levels of health and more disability. This is due to a large degree, as we have implied, to the nature of the health literature which has an emphasis more on evidence-based health interventions supported by high quality research, and less on the application of research to the people who might be most in need of it. On the qualitative side, the practicalities of convening focus groups also led to limitations in the diversity of the participants.

A more technical critique could be brought against the use of the Global Burden of Diseases Model. It is likely that many epidemiologists would take issue with the aetiological calculations of the GBD, present their own estimates, and point out that the GBD works with a very simplified view of risk factors; the GBD does not do justice to the complications of causal pathways and the interactions and overlapping between factors. We would acknowledge this: we have made use of the GBD as a convenient platform from which to start discussion of how disease can be prevented and to illustrate the importance of risk factors.   In its defence, the GBD has a comprehensive and thoroughgoing approach, supported by a leading medical journal (The Lancet) and so helped us to avoid conducting lengthy literature searches on a variety of aetiological factors, many of which are, in any case, still a matter of debate in the literature.

7.4. Applying the Findings

It must also be stressed that this JSNA represents a starting point for further discussions, rather than an endpoint, and is not a ready-made agenda for implementation. For example, there appear to be a number of interventions for smoking cessation which are not yet delivered in Swindon, but these need to be considered and fully discussed.   The interventions in the Cochrane database require different levels of financial resources, differ greatly in terms of their ease of implementation and have different levels of benefit. In their cost-benefits differ and it was beyond the scope of this JSNA to identify the cost-benefits in the literature or seek to calculate them.

7.5. Further Considerations

Alternative Approaches

In this report we have used certain methodologies to further our objectives, but alternative approaches are available and three are considered briefly here. These are: viewing health interventions as part of all early intervention work taking place within the local authority; assessing public health work against Public Health England's Menu of Interventions which is largely an economic approach; reappraisal of existing public health prevention activities, which adopts the reverse approach to that which we have used in the foregoing chapters

and appraises the interventions that are extant in Swindon to see if they are effective and giving value for money.

Preventive Health work as part of all Early Preventive Work in the Local Authority

This approach was suggested in a report produced for SBC in 2019, 'Early Intervention and Prevention'.[26] This looked at a range of local authority functions, including but not limited to, health-related activities and made a number of over-arching recommendations. These included a recommendation that different services are commissioned to work together to deliver on multiple outcomes whilst keeping their specialism; for example, drug and alcohol services should also work on housing issues, mental wellbeing and anger management. Another recommendation in the 2019 report was to develop data and insight to improve targeting of programmes, and to understand why the completion level of some programmes is low. Furthermore, the case was made to investigate areas of duplication in services, to ensure that all services are monitored for their outcomes and for the difference they are making to service users, to ensure that all preventative and early intervention services are monitored to assess their impact on delaying or preventing escalation, to develop improvement plans for low performing services or to decommission them.

Menu of Interventions

The Menu of Interventions, published in 2016 by Public Health England[27] outlines evidence-based, preventive public health interventions that can help improve the health of the population and reduce health and care service demand in the short to medium term. The Menu is designed to help local decision-makers consider evidence-based public health and preventative interventions as they seek options to address local challenges. But as this resource is focused on contributing strategically to the Five Year Forward View, it does not cover the full breadth of interventions that can help prevent ill-health, particularly over longer time periods. For the Menu to be useful in supporting local decisions, it also needs to be complemented by local expertise and viewed in the local context.

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[26] Burton C, *Early Intervention and Prevention.* Swindon BC (2019).
[27] Public Health England, *Local Health and Care Planning: Menu of Preventative Interventions.* Public Health England, (November 2016).

The Menu has a structure of 14 topic areas, (including alcohol, tobacco, diet and obesity, health and work, physical activity); each topic area has an overview section with evidence of the problem and a selection of up to five interventions for consideration; two of the latter are then presented in more detail with clinical and operational advice, clinical and cost-effectiveness evidence, and indicators for monitoring progress. The emphasis on cost-effectiveness in the Menu puts the focus on the financial benefits of implementing these interventions. The Menu is currently being used in Swindon, though the results are not reported in this JSNA.

Reappraisal and Disinvestment

A third option would make a logical sequel to the work of this JSNA. It involves engaging with the issues from the opposite direction and appraising all existing preventive interventions in Swindon to ensure that they are supported by strong evidence, are cost-effective, but also are working optimally in the local context. If a local intervention does not meet these criteria and there is no other good reason to maintain it, then it would be a candidate for disinvestment. The resources freed up could then be used for a more promising intervention. There is no single way to evaluate a health intervention and a number of useful standard texts are available.[28] In addition an anthology of guidance documents, the 'Evaluation in Health and Well-being' collection, has been produced by the Department of Health.[29]

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[28] Harris M, *Evaluating Public and Community Health Programs*, 2nd Edition, Jossey-Bass, (2016).

Dickinson H, *Evaluating Outcomes in Health and Social Care. Better Partnership Working.* Policy Press. (2008.)

[29] Evaluation in Health and Wellbeing. https://www.gov.uk/government/collections/evaluation-in-health-and-wellbeing. Accessed 24th January 2020.

7.6. Concluding Observations and Recommendations

What we aspired to…

The central purpose of this JSNA has been to give an overview of the burden of chronic disease in the population of Swindon, then to look at the underlying common causes of chronic diseases, and assess how well the health community is performing in using interventions from the evidence-base to prevent these conditions from occurring. We also worked with focus groups in order to better understand the experience of people with chronic diseases. Overall, our aspiration was to find a small number of important common strands running through the findings which might help us simplify and optimise our preventive strategies.

What we found…

Yet the narrative that has emerged is not a straightforward one. Although it has been relatively easy to present data on the prevalence of and mortality from chronic disease, it has been less easy to establish priority clusters of factors which are responsible for the causation of ill-health, (even though many life-style factors are inter-related and can cause more than one disease). Moreover, we did not find a small number of interventions which are likely, by themselves to make a significant impact on the population's health. We did not find anything resembling a public health 'magic bullet' or 'panacea', in other words. Perhaps this was not entirely surprising. More unexpectedly, we found very little solid evidence in our sources that seemed to address the needs of minority groups in our population, with the possible exception of smoking interventions for people with a history of mental illness.

On a more positive note, we found many usable interventions for prevention in the literature, and a large proportion of these were being implemented in Swindon. Swindon did not perform well on the new PHE framework for healthy weight, but the framework is composed of challenging standards, which most local health communities will take many years to achieve. For the sake of being honest and transparent, we have been open about identifying gaps in our local work rather than seeking to document and emphasise local achievements.

It became clear that prevention has to be considered on at least two levels, e.g. a broad strategy to promote smoking cessation and a suite of interventions to achieve this. This will have to be repeated for many health topics (each with its suite of interventions). Although there are certainly overlaps between trees of health topics and their associated branches of interventions (e.g. health checks can in theory address smoking and diet simultaneously), the findings of the JSNA have not provided a way to simplify conventional public health approaches to improving the health of a population. The strategies and interventions needed to prevent chronic diseases have to match the complexity of the social, biological and environmental life of the population. Furthermore, this complex activity will have to include targeted interventions for minority groups, and there is a sense in which everyone in the population is potentially a member of a minority group of some sort.

What we conclude…

We concluded that the strategies and interventions needed to prevent chronic diseases have to match the complexity of the social, biological and environmental life of the population. Furthermore, this complex activity will have to include targeted interventions for minority groups; a complicating factor is that such targeted interventions are not well-covered in the literature. If pressed to offer an over-arching view of public health locally, we would suggest that the common strands of prevention might lie more in public health workers engaging with points in the life-course of the population and with sub-groups in the community rather than searching for broad spectrum interventions.

What we recommend…

Therefore at the close of this JSNA, we make the following recommendations:

(1) The JSNA should inform work across the Integrated Care System and in particular workstreams around Ageing Well and Prevention across BANES-Swindon-Wilts (BSW) CCG.

(2) Public Health should consider the gaps in its smoking cessation interventions (digital methods, support for people with a history of mental health problems, the deployment of different types of NHS staff to support smoking cessation) when commissioning or developing services to ensure that local implementation of services is evidence-based.

(3) Using the evidence base as outlined in this JSNA should be standard practice when developing new services or in service redesign.

(4) Swindon should consider implementing a whole systems approach to obesity by creating a system of local agencies and organisations working together including full community engagement. This would be led by the Get Swindon Active and Healthy Weight partnership.

(5) Commissioners should ensure that all services have a strong focus on reducing inequalities; this includes improving data collection to monitor contracts to understand the impact on inequalities and vulnerable groups.

(6) Public health should promote a lifecourse approach to health including the importance of different approaches to promoting health at different stages of the life-course. This should be informed by knowledge about the trigger points to poor health or increased need such as bereavement, diagnosis or change in work circumstances.

(7) The Swindon IC Chronic Disease Management Group should investigate further measures to prevent hospital admissions for people with chronic diseases; many of these

admissions are due to other conditions which might have been prevented or alleviated such as falls or urinary tract infections.

(8) Further work is needed to embed an understanding of the importance of the interaction between mental well-being and promotion of physical health in terms of work, relationships, social connection and social support, education and information, and independence, at different stages of the life-course. This may be an area that could be considered across BSW.

(9) Further work should include an appraisal of all existing preventive interventions in Swindon to ensure that they are supported by strong evidence, are cost-effective, but also are working optimally in the local context. If a local intervention does not meet these criteria and there is no other good reason to maintain it, then it would be a candidate for disinvestment.

Appendix One. Conditions from QOF Primary Care Registers included in Burden of Morbidity calculation

Atrial fibrillation
Coronary Heart Disease
Heart failure
Peripheral arterial disease
Stroke/Transient ischaemic attack
Asthma
Chronic Obstructive Pulmonary Disease
Cancer
Chronic kidney disease
Diabetes
Palliative care
Dementia
Depression
Epilepsy
Learning disability
Mental health
Osteoporosis
Rheumatoid arthritis

Appendix Two. ICD-10 codes for hospital admissions

- The hospital admission tables contain HES (Hospital Episode System) outputs for admissions for Swindon & Watchfield-Shrivenham patients for calendar year 2018.
- These are residents of Swindon and Watchfield-Shrivenham and are not necessarily registered with a Swindon CCG GP.
- The populations used for calculations are from ONS for midyear 2017, although the Elm Tree practice population is used as the Watchfield-Shrivenham base population.
- Figures have been rounded to the nearest 5, or suppressed if non-zero and under 8.
- The ICD codes used are given in the table below.
- The data were analysed by Sally Cherrington of Swindon CCG.

Condition	ICD 10 Codes from CB
Coronary Heart Disease	I20 to I25
Stroke/TIA	I60 to I69 plus G45
Diabetes Mellitus	E10 to E14
Heart Failure	I50
Atrial Fibrillation	I48
Chronic Kidney Disease	N17 to N19
COPD	J41 to J44
Asthma	J45 to J46
Osteoarthritis of Knee	M17
Osteoarthritis of Hip	M16
Chronic Back problems (acquired, not congenital)	M50 to M54
Rheumatoid Arthritis	M05 to M06
Chronic Liver Disease	K70 to K77

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