



**Midlands and Lancashire  
Commissioning Support Unit  
The Strategy Unit**

## Community Fit – Primary Care Workstream Impact of Demographic Change (Pilot Practices)

March 2016

# Background

The following slides provide estimates of the impact of demographic change on primary care utilisation.

The analysis relates to three GP practices;

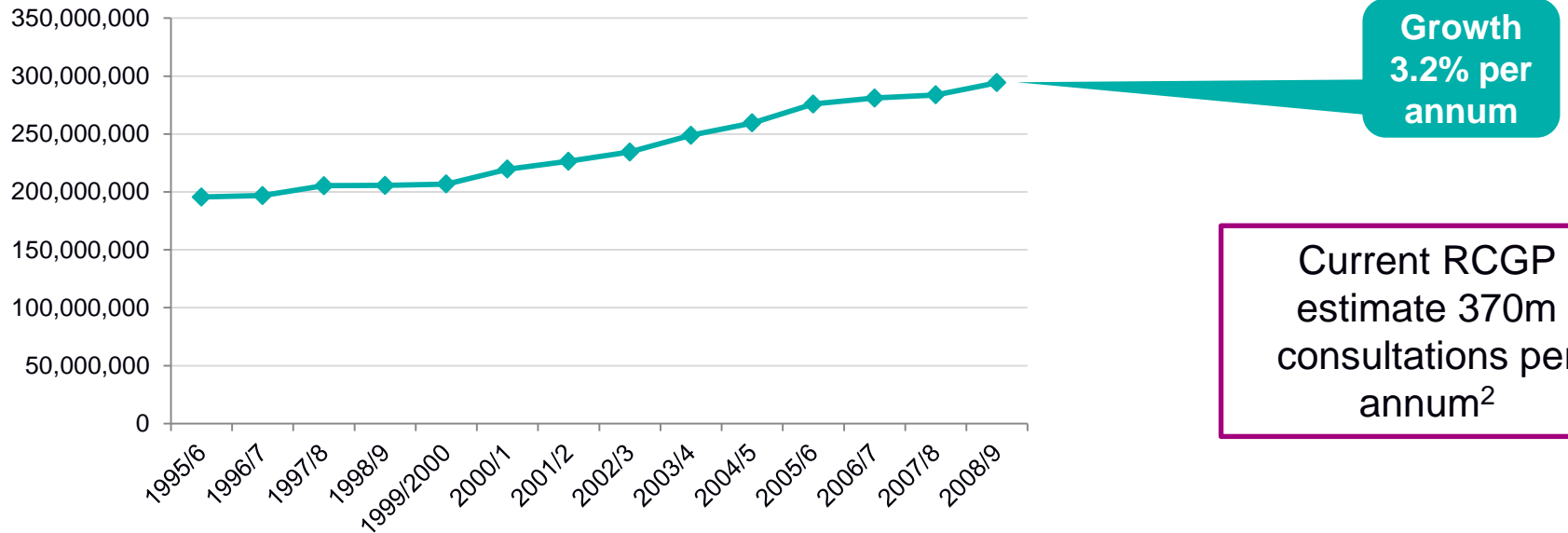
Oakengates Medical Practices (Telford & Wrekin CCG)

Stirchley Medical Practice (Telford & Wrekin CCG)

Haughmond View Medical Practice (Shropshire CCG)

# Note : Demography is not the only driver of activity growth

## Estimated Number of GP Practice Consultations in England<sup>1</sup>



### What's behind these increases?

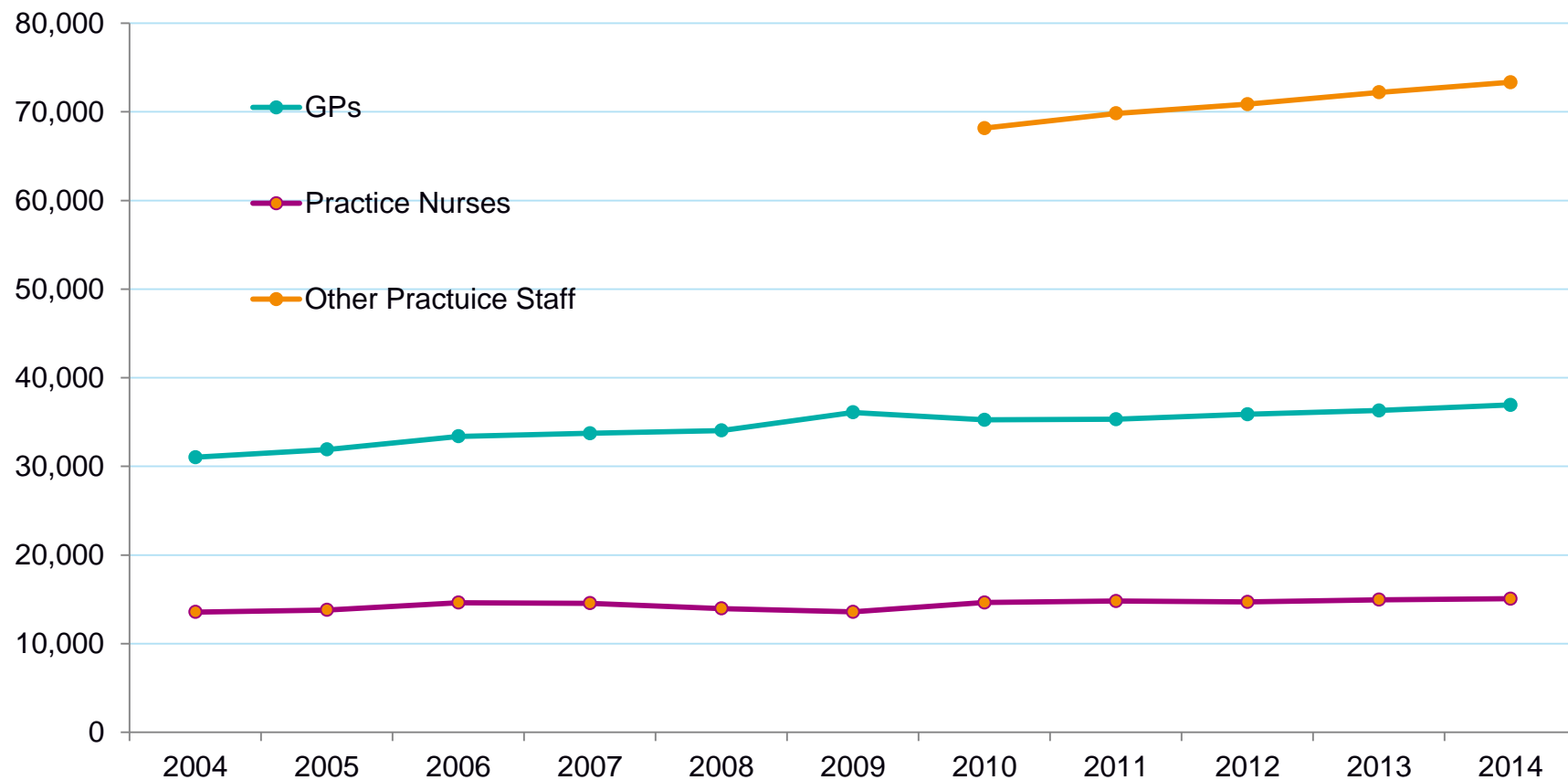
- Changes in demography
- Changes in clinical standards and guidelines
- Changes in patient expectations

1 <http://www.hscic.gov.uk/catalogue/PUB01077/tren-cons-rate-gene-prac-95-09-95-08-rep.pdf>

2 <http://www.rcgp.org.uk/news/2016/april/take-a-break-before-you-reach-breaking-point-to-keep-patients-safe-college-warns-gps.aspx>

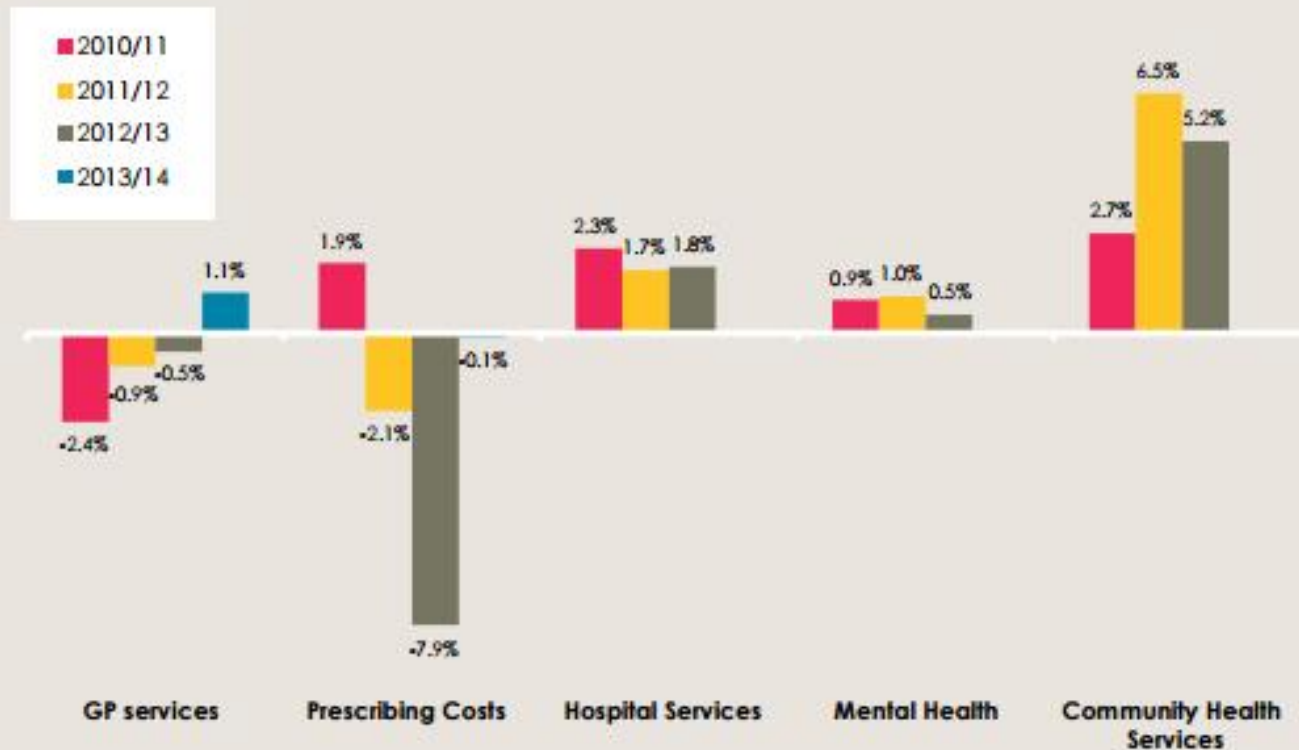
# Primary Care Workforce Trends

## Staff Trends (FTEs)<sup>1</sup>



# Real Terms Spending on Primary Care

Figure 4: Percentage change from previous year in funding for a range of service areas



**Source:** *Investment in General Practice; 2009/10 to 2013/14 England, Wales, Northern Ireland and Scotland* (HSCIC, 2014); *Department of Health annual report and accounts 2013 to 2014* (Department of Health); *PCT annual accounts 2010/11 to 2012/13*.

# Demographic Change

For this stage of analysis, we have modelled three aspects of demographic shift to predict the future use of primary care;

changes in **population size** – the impact of a growing population

changes in population **age/gender profile** – the impact of an aging population

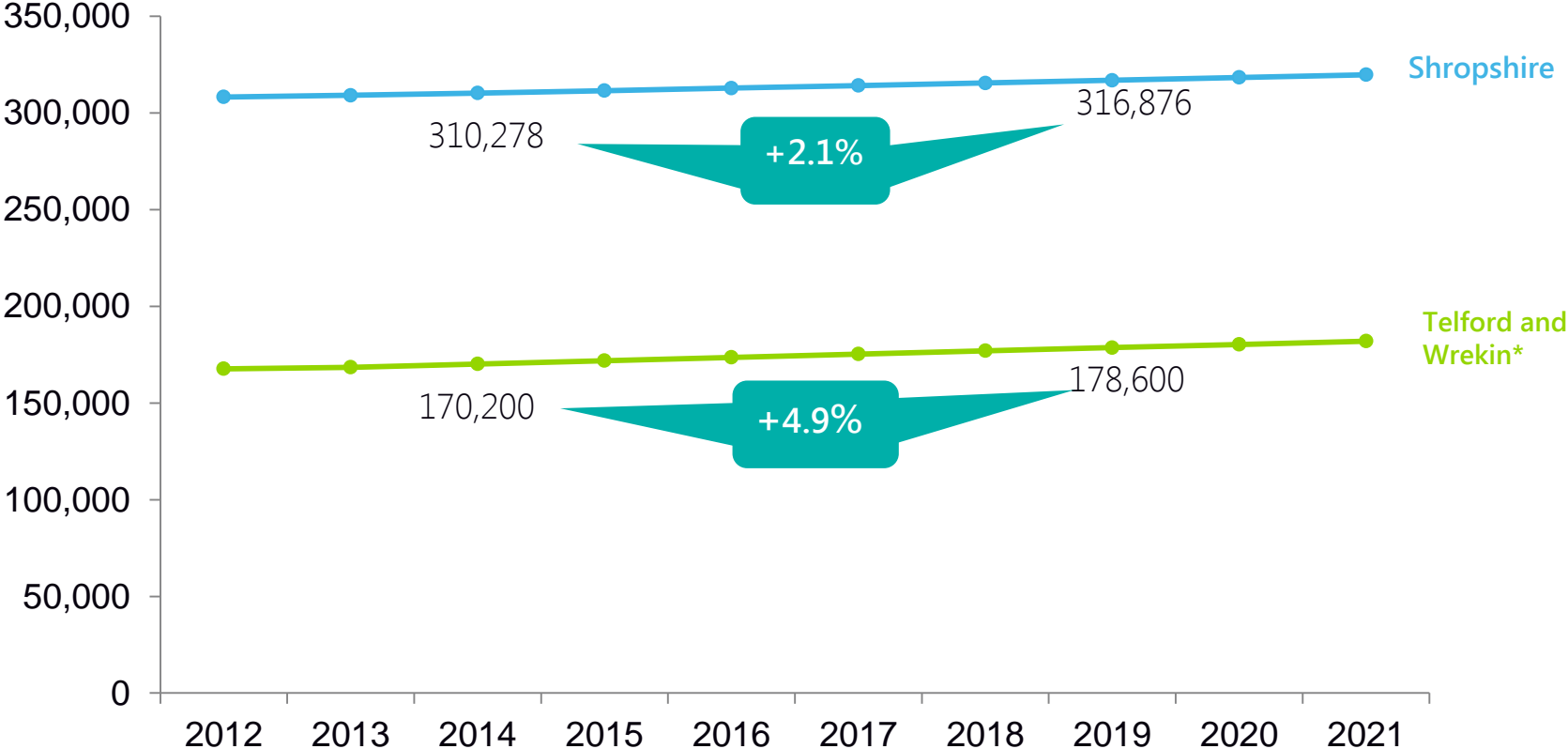
changes in age-specific **population health status** – the impact of improvements in general health

For practices located in Shropshire, estimates of the change in the size and age/sex structure of the population are taken from the ONS 2012-based sub-national populations for the Shropshire County Council area.

For practices located in Telford and Wrekin, authority-level, population projections supplied by Telford and Wrekin Council have been used.

# Population size

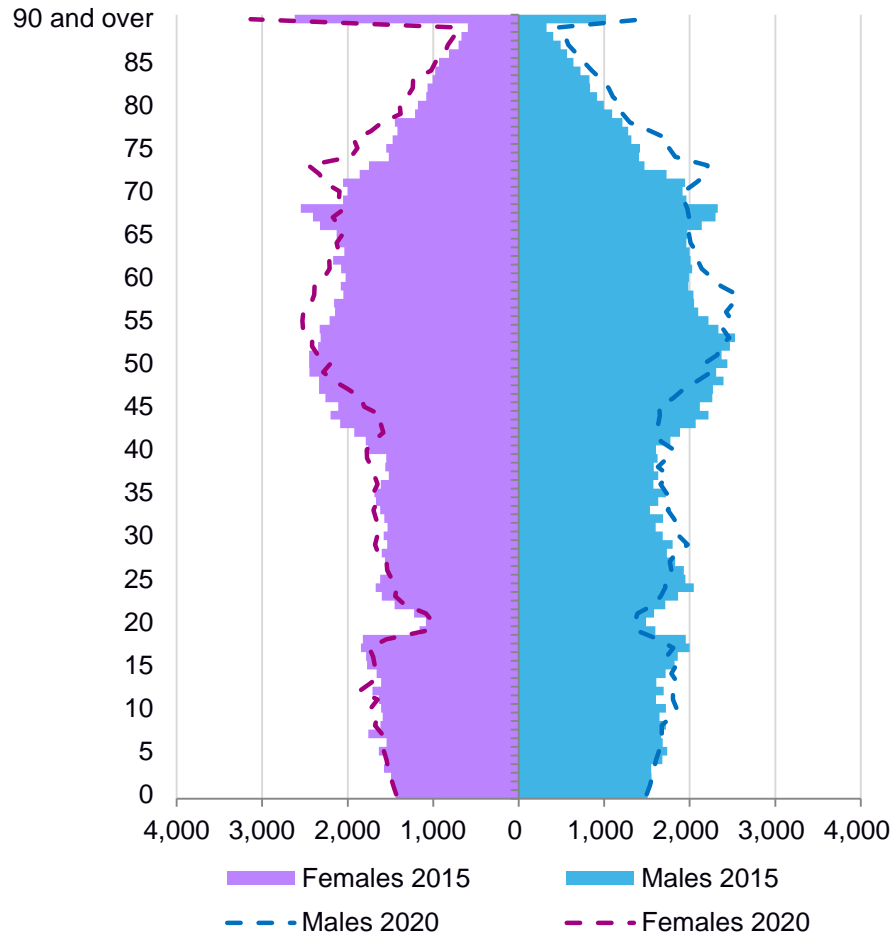
## Population growth Shropshire and Telford and Wrekin



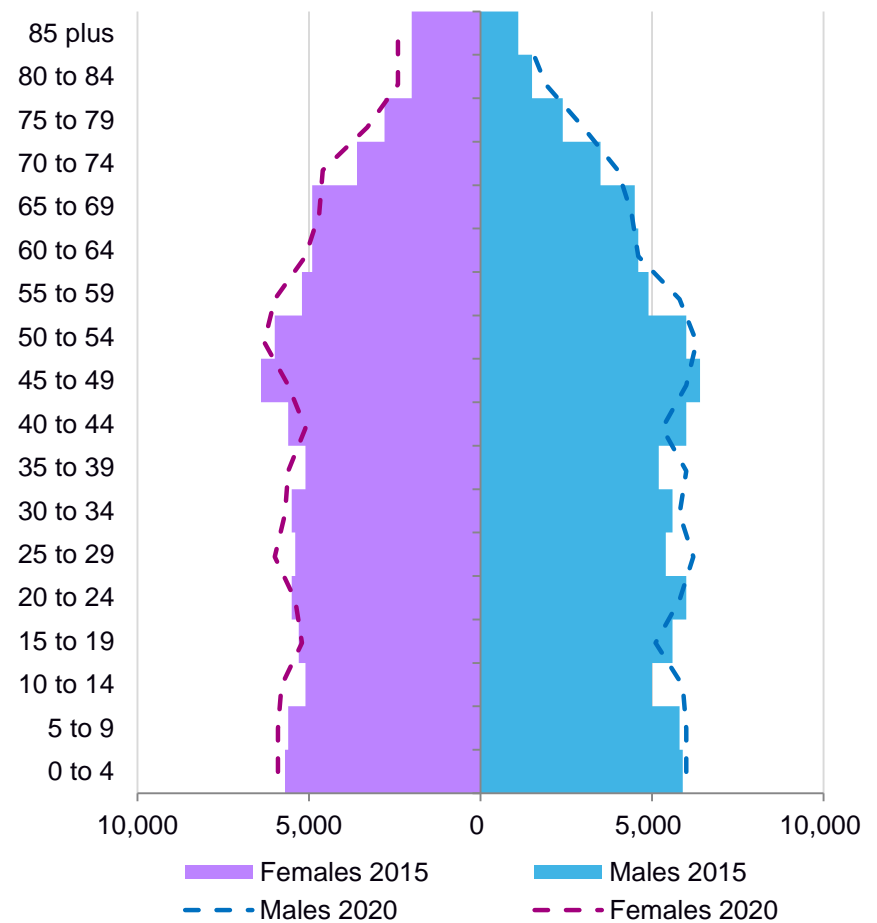
\* Telford & Wrekin population projections have been adjusted locally to account for major residential build plans. Shropshire projections are taken directly from ONS published figures

# Change in population age/gender profile: 2014 to 2019

## Shropshire

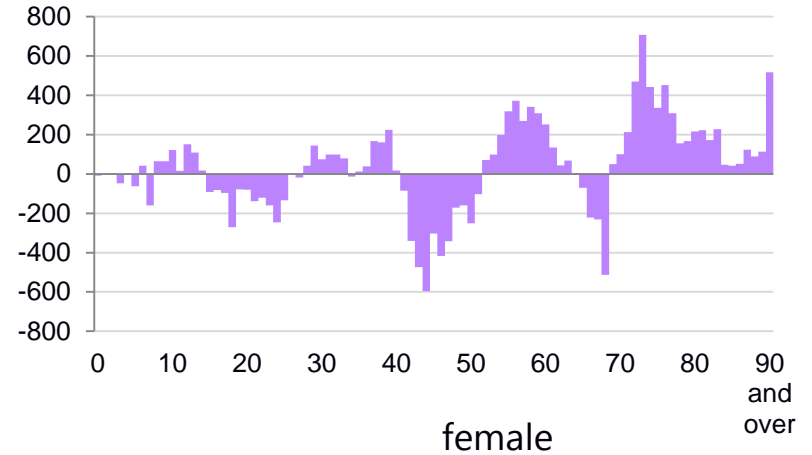
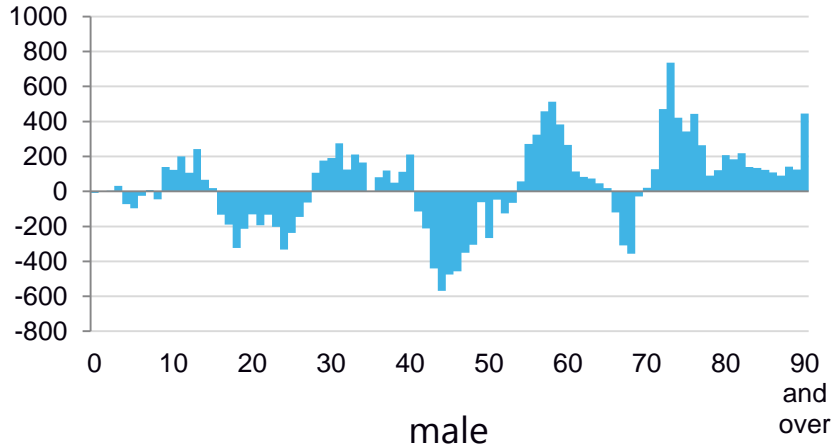


## Telford & Wrekin

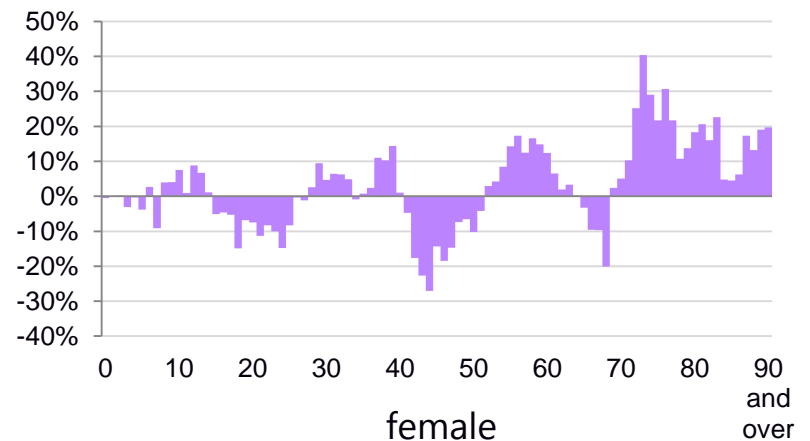
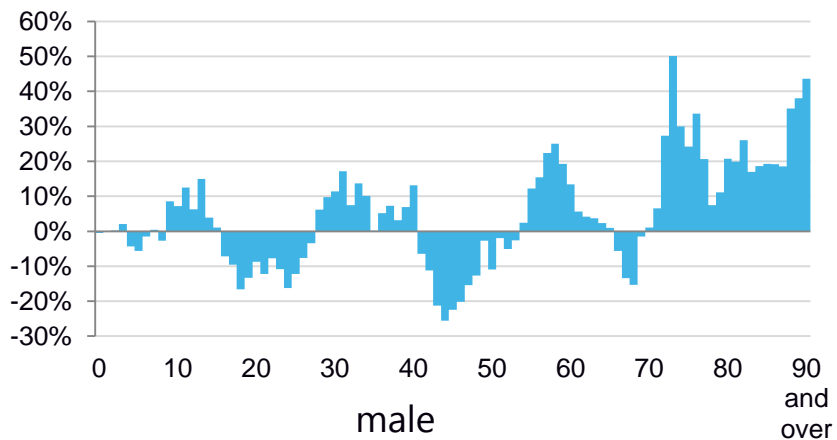




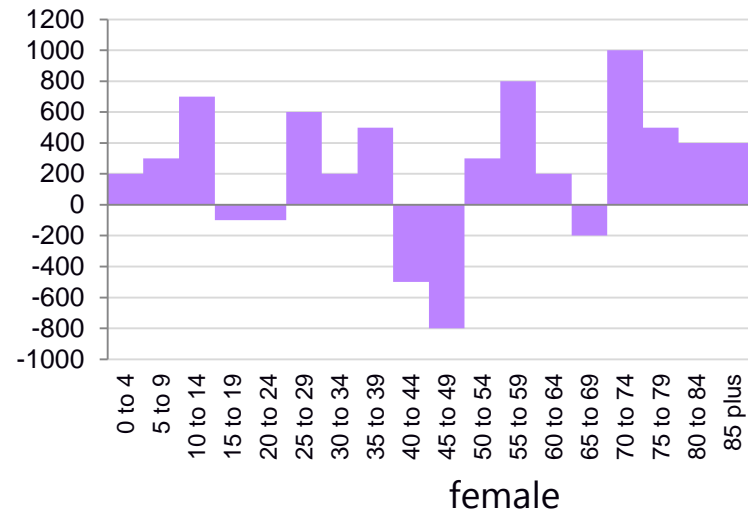
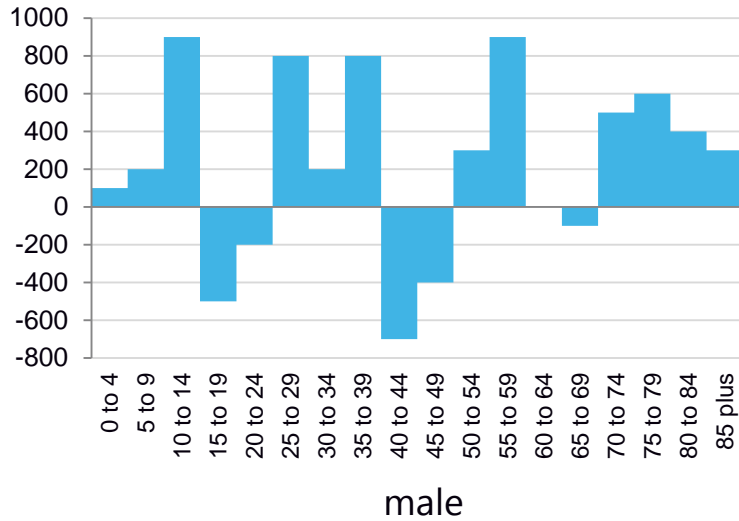
## Change in Shropshire's population 2014-2019



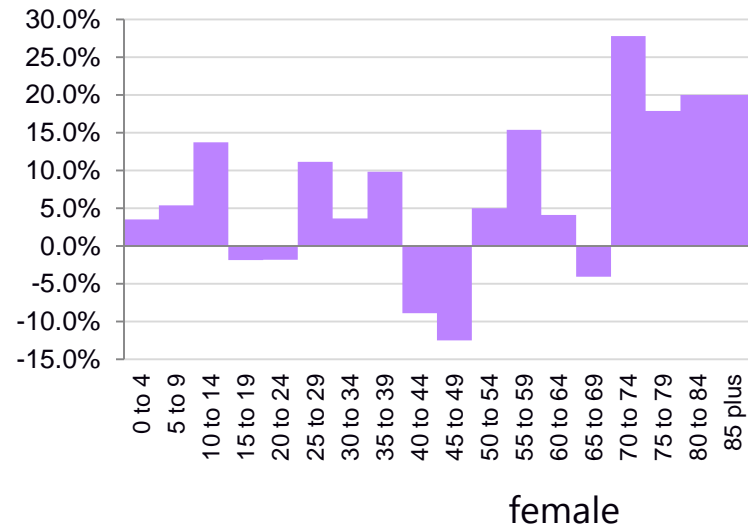
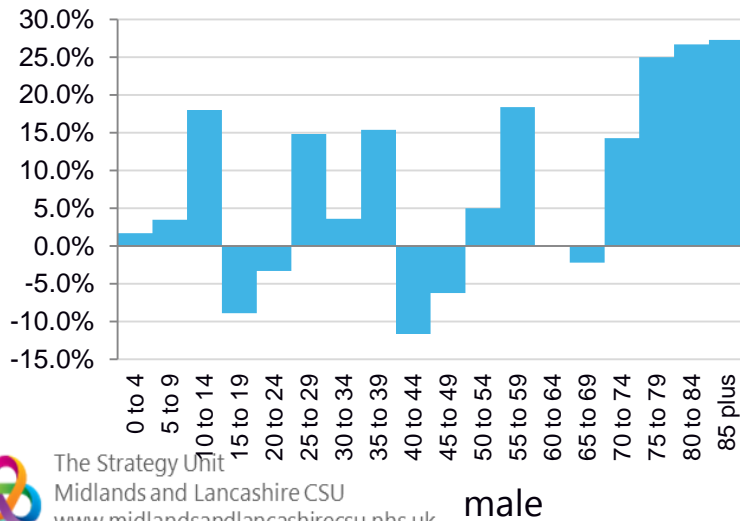
## % change in Shropshire's population 2014-2019



# Change in Telford & Wrekin's population 2014-2019

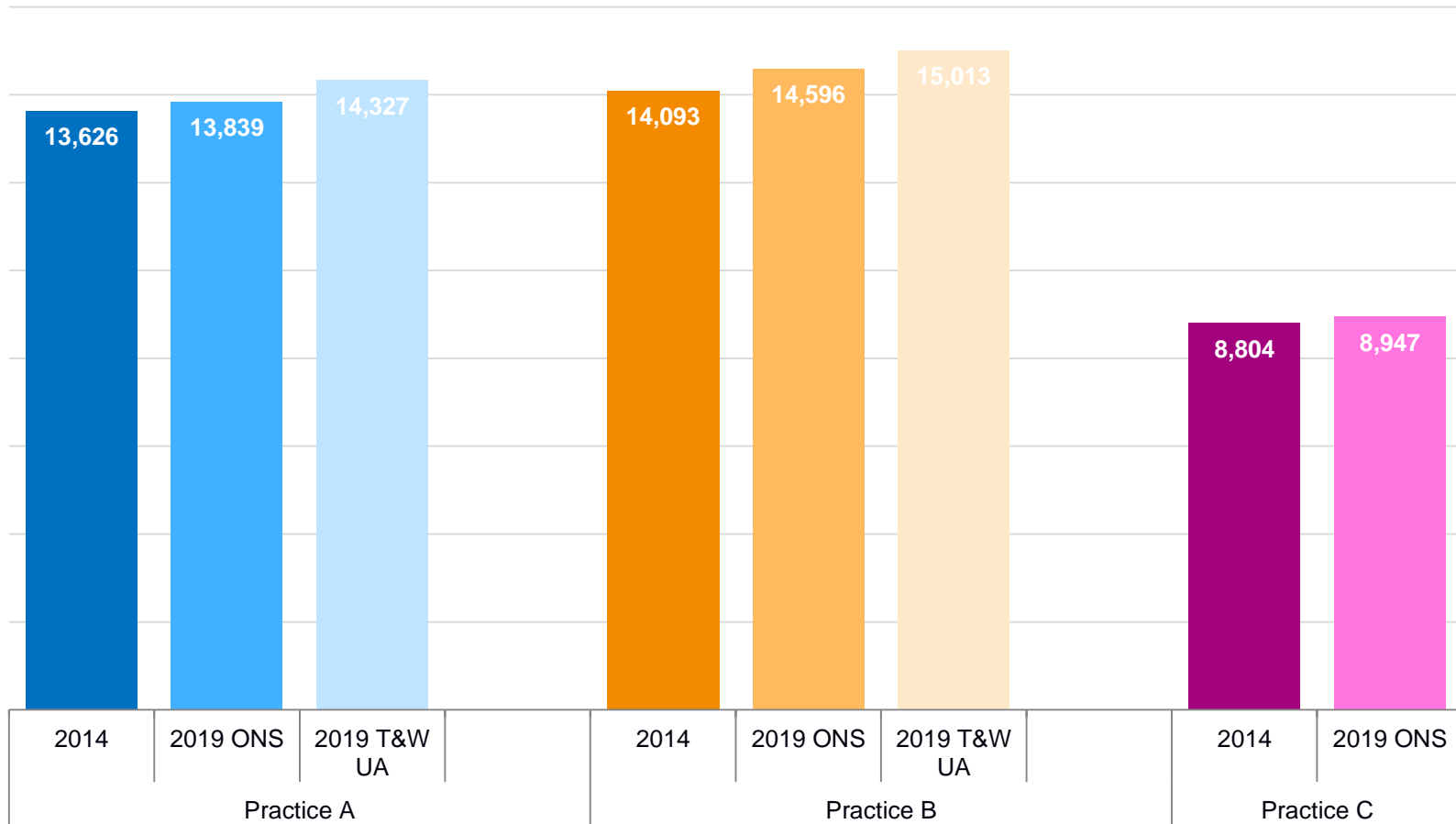


# % change in Telford & Wrekin's population 2014-2019



# Estimated Changes in Practice List Size

Note : these calculations assume that a practices list grows in line with the age / sex specific population projections for it's CCG



# Impact of Demographic Change on Consultations

	Practice A			Practice B			Practice C		
	2014 baseline	Change by 2019	% change	2014 baseline	Change by 2019	% change	2014 baseline	Change by 2019	% change
Consultations	87,227	5,233	6.0%	73,469	6,191	8.4%	44,099	1,401	3.2%
<i>by type</i>									
GP Surgery	56,138	3,477	6.2%	58,069	4,851	8.4%	32,148	1,028	3.2%
Telephone & 3rd Party	29,842	1,624	5.4%	14,405	1,201	8.3%	11,272	313	2.8%
Home Visits	1,247	132	10.5%	995	139	13.9%	679	61	8.9%
<i>by staff type</i>									
GP	44,481	2,569	5.8%				15,933	490	3.1%
Nurse	12,817	764	6.0%				7,720	283	3.7%
Other	29,929	1,906	6.4%				20,446	631	3.1%
Prescriptions	174,930	12,714	7.3%	222,170	22,282	10.0%	126,413	7,344	5.8%

Staff type data not available for Oakengates.

# Impact of Demographic Change on LTC Prevalence

	Practice A			Practice B			Practice C		
	2014 baseline	Change by 2019	% change	2014 baseline	Change by 2019	% change	2014 baseline	Change by 2019	% change
Cancer	517	44	8.6%	866	101	11.6%	382	31	8.2%
Endocrine / metabolic	1,718	118	6.9%	2,909	291	10.0%	992	61	6.2%
Mental disorders	2,627	131	5.0%	2,750	173	6.3%	1,677	40	2.4%
Nervous system	1,213	86	7.1%	1,275	124	9.7%	525	23	4.4%
Circulatory	2,068	168	8.1%	3,086	339	11.0%	1,299	98	7.6%
Respiratory	2,682	148	5.5%	2,614	185	7.1%	1,450	27	1.9%
Digestive	191	13	6.7%	264	26	9.8%	87	4	4.5%
Musculo-skeletal	1,755	146	8.3%	2,471	267	10.8%	1,094	80	7.3%

# Impact of Demographic Change on Diagnoses

	Practice A			Practice B			Practice C		
	2014 baseline	Change by 2019	% change	2014 baseline	Change by 2019	% change	2014 baseline	Change by 2019	% change
Infectious/paras diseases	1,287	69	5.3%	1,182	73	6.2%	376	3	0.9%
Neoplasms	785	56	7.2%	764	80	10.5%	160	7	4.1%
Endocrine/metabolic	3,459	237	6.9%	2,769	271	9.8%	148	7	4.9%
Blood diseases	343	27	7.7%	467	45	9.6%	36	4	9.8%
Mental disorders	4,307	196	4.5%	2,765	165	6.0%	711	6	0.9%
Nervous system/senses	3,295	209	6.3%	2,958	245	8.3%	798	22	2.7%
Circulatory system	4,394	377	8.6%	2,803	296	10.6%	541	37	6.8%
Respiratory system	5,020	314	6.2%	4,362	356	8.2%	1,021	23	2.2%
Digestive system	1,846	111	6.0%	1,555	133	8.5%	360	11	3.2%
Genito-urinary system	2,027	100	4.9%	1,613	95	5.9%	387	5	1.2%
Pregnancy/childbirth	168	11	6.5%	112	6	5.5%	77	0	0.2%
Skin/subcutaneous tissue	4,050	239	5.9%	5,135	472	9.2%	829	18	2.2%
Musculoskeletal	6,062	381	6.3%	5,436	468	8.6%	1,064	34	3.2%
Congenital anomalies	6,062	381	6.3%	5,436	468	8.6%	1,064	34	3.2%
Perinatal conditions	131	3	2.3%	74	2	3.3%	25	0	1.8%
Working diagnoses	34	1	4.3%	15	1	3.8%	9	0	-1.2%
Injury/poisoning	4,442	265	6.0%	2,457	194	7.9%	381	9	2.4%

# Impact of Demographic Change on Prescriptions

	Practice A			Practice B			Practice C		
	2014 baseline	Change by 2019	% change	2014 baseline	Change by 2019	% change	2014 baseline	Change by 2019	% change
Prescriptions	174,930	12,714	7.3%	222,170	22,282	10.0%	126,413	7,344	5.8%
<i>by ReadCode Chapter</i>									
GI	14,824	1,079	7.3%	19,017	1,950	10.3%	11,055	651	5.9%
Cardiovascular	41,119	3,738	9.1%	62,993	7,424	11.8%	32,177	2,774	8.6%
Respiratory system	14,786	1,082	7.3%	17,250	1,591	9.2%	8,344	359	4.3%
Nervous system/senses	40,494	2,445	6.0%	41,768	3,539	8.5%	29,443	1,148	3.9%
Infection	6,668	428	6.4%	9,458	811	8.6%	5,614	217	3.9%
Endocrine	14,565	1,078	7.4%	17,688	1,869	10.6%	10,676	765	7.2%
GU	5,267	308	5.8%	4,921	431	8.8%	3,668	113	3.1%
Malignant disease	665	58	8.7%	716	73	10.2%	462	22	4.8%
Blood & nutriton	4,083	320	7.8%	6,709	690	10.3%	3,675	199	5.4%
MSk	5,912	382	6.5%	7,396	683	9.2%	4,739	248	5.2%
Eye	3,389	296	8.7%	5,137	619	12.1%	2,103	152	7.2%
ENT	3,220	190	5.9%	2,967	262	8.8%	1,529	62	4.0%
Skin	8,480	539	6.4%	12,214	1,050	8.6%	5,708	190	3.3%
Vaccines	477	25	5.2%	146	9	6.1%	1,698	112	6.6%
Anaesthesia	738	43	5.9%	254	16	6.1%	190	6	3.0%
Other	27	3	12.7%	57	8	13.3%	24	2	7.9%
Dressings	2,762	214	7.7%	2,992	340	11.4%	1,024	94	9.2%
Appliances	3,843	266	6.9%	5,281	506	9.6%	2,423	127	5.3%
Incontinence appls	316	28	8.9%	517	67	12.9%	243	19	8.0%
Stoma care	467	48	10.3%	688	50	7.2%	481	25	5.2%

# Changes in Population Health Status

## Why is it important to consider changes in health status?

The use of health and social care services depends on an individual's health status. Part of the reason behind the observed association between age and healthcare need / utilisation is that morbidity increases with age. Age is a reasonable proxy for health status in the short term, but over the longer term the average health status of a cohort of a given age may plausibly be expected to change.

The possibility of "healthy ageing" was encapsulated in Fries' compression of morbidity hypothesis. Fries posited, "the amount of disability can decrease as morbidity is compressed into the shorter span between the increasing age at onset of disability and the fixed occurrence of death."(1)



The debate however is unsettled. Will the additional years of life that recent cohorts have gained (and stand to gain) be spent in good health or disability and frailty?

The three main schools of thought are:

### 1. **Compression of morbidity**

A scenario of 'healthy aging' where substantial delays in the onset of chronic disease in later life alongside increased life expectancy compress morbidity into a shorter period with reduced lifetime disability.

### 2. **Expansion of morbidity**

Expansion of morbidity thesis holds that chronic disease prevalence and disability will increase as life expectancy is increased. Gruenberg (1977) highlighted the implications for population health of the increasing life-sustaining capabilities of modern medicine in people with severe and potentially fatal chronic disease.

### 3. **Dynamic equilibrium**

Under this last thesis both length of life and healthy years of life increase in the way that the proportion of healthy years of life to the total length of life is constant.

# Healthy life expectancies

The Office for National Statistics routinely publishes data on health status from the General Lifestyle Survey: <sup>1</sup>

**Disability free life expectancy (DFLE)**, which estimates lifetime free from a limiting persistent illness or disability. This is based upon a self-rated assessment of how health limits an individual's ability to carry out day-to-day activities.<sup>2</sup>

This measure can be used to assess population health status over time.

1. The General Lifestyle Survey (GLF) is a multi-purpose continuous survey carried out by the Office for National Statistics (ONS). It collects information on a range of topics from people living in private households in Great Britain.

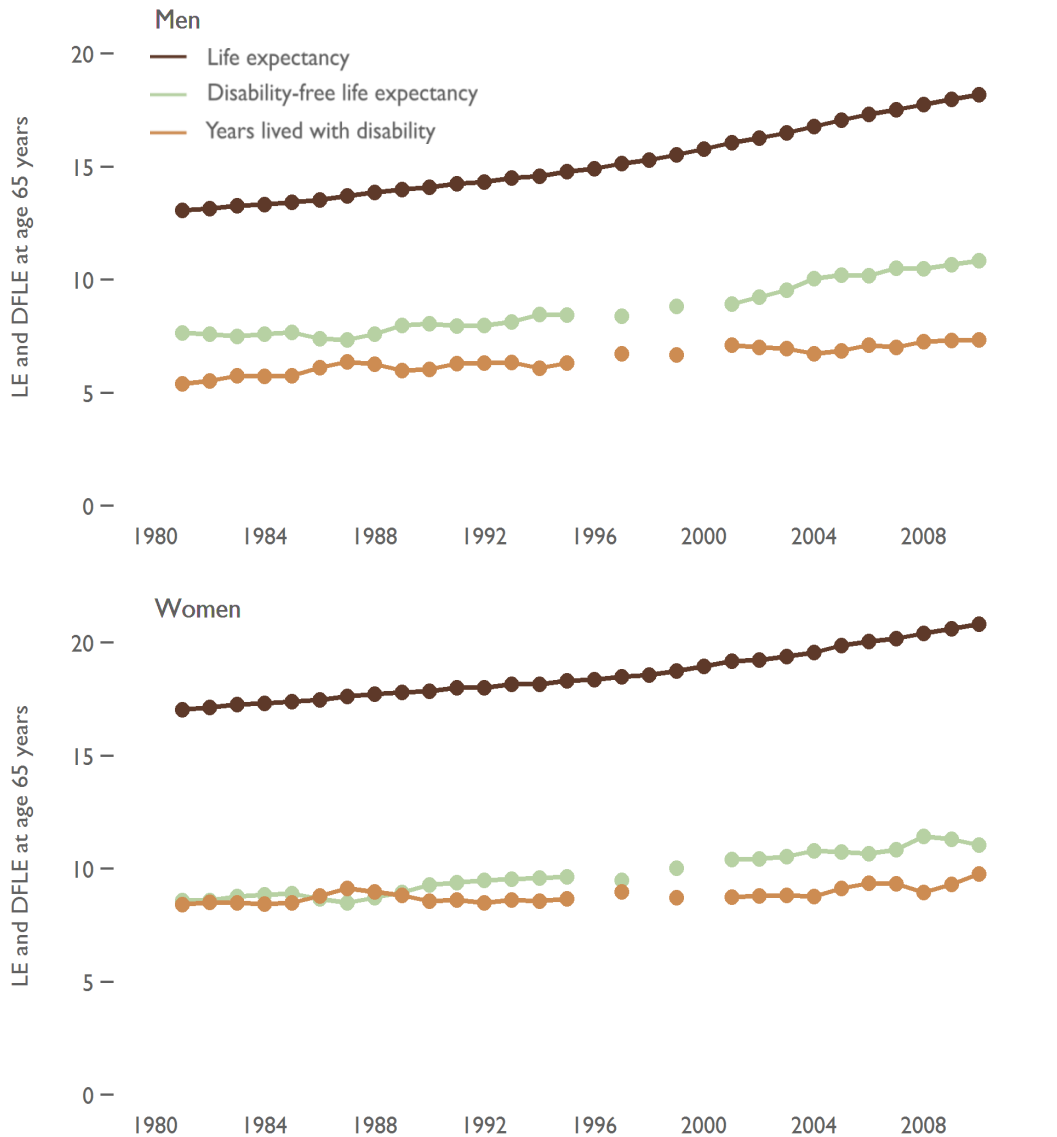
2. Do you have any long-standing illness, disability or infirmity—by long-standing I mean anything that has troubled you over a period of time or that is likely to affect you over a period of time? Yes/No.

If 'Yes' the respondent is then asked:

Does this illness or disability (Do any of these illnesses or disabilities) limit your activities in any way? Yes/No.

Respondents answering 'Yes' to both questions are considered to have a limiting long-standing illness. 18

# Long term trends in life expectancy and disability free life expectancy at age 65 years, England



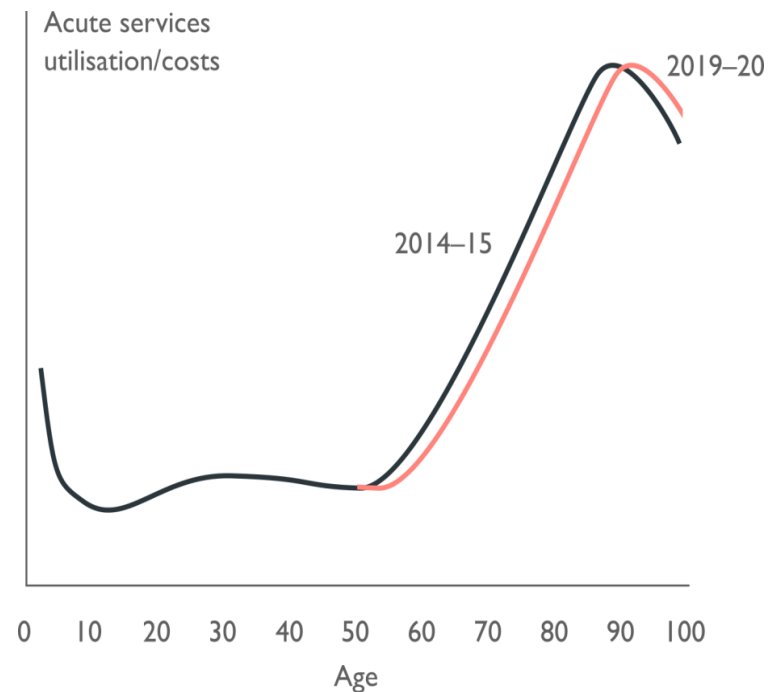
# Methods for modelling the effect of future changes in population health status on acute hospital activity

We model the relationship between age and healthcare utilisation in the baseline year by first fitting curves to observed activity. To adjust for improvements in population health status, the curves are shifted rightward so that at older ages the assumed rate of utilisation in the final year is lower than that for someone of the same age in the base year. The age specific differences between these rates are applied to the baseline data to obtain an estimate of future activity. For example, if observed rates in our base year are adjusted by a single year then we assume an eighty-five-year-old in the final year has the utilisation rate of an eighty-four-year-old in the base year.

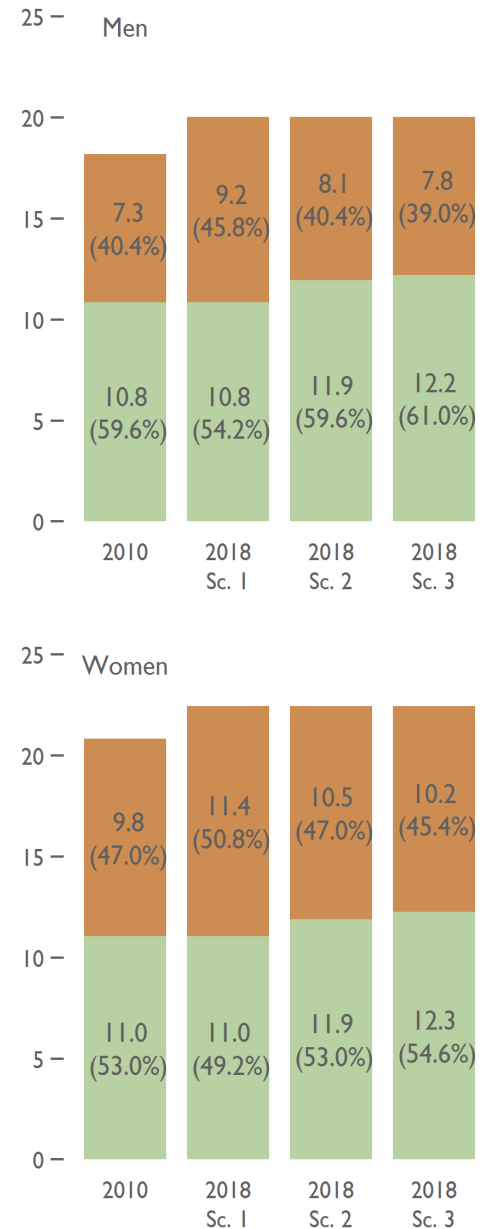
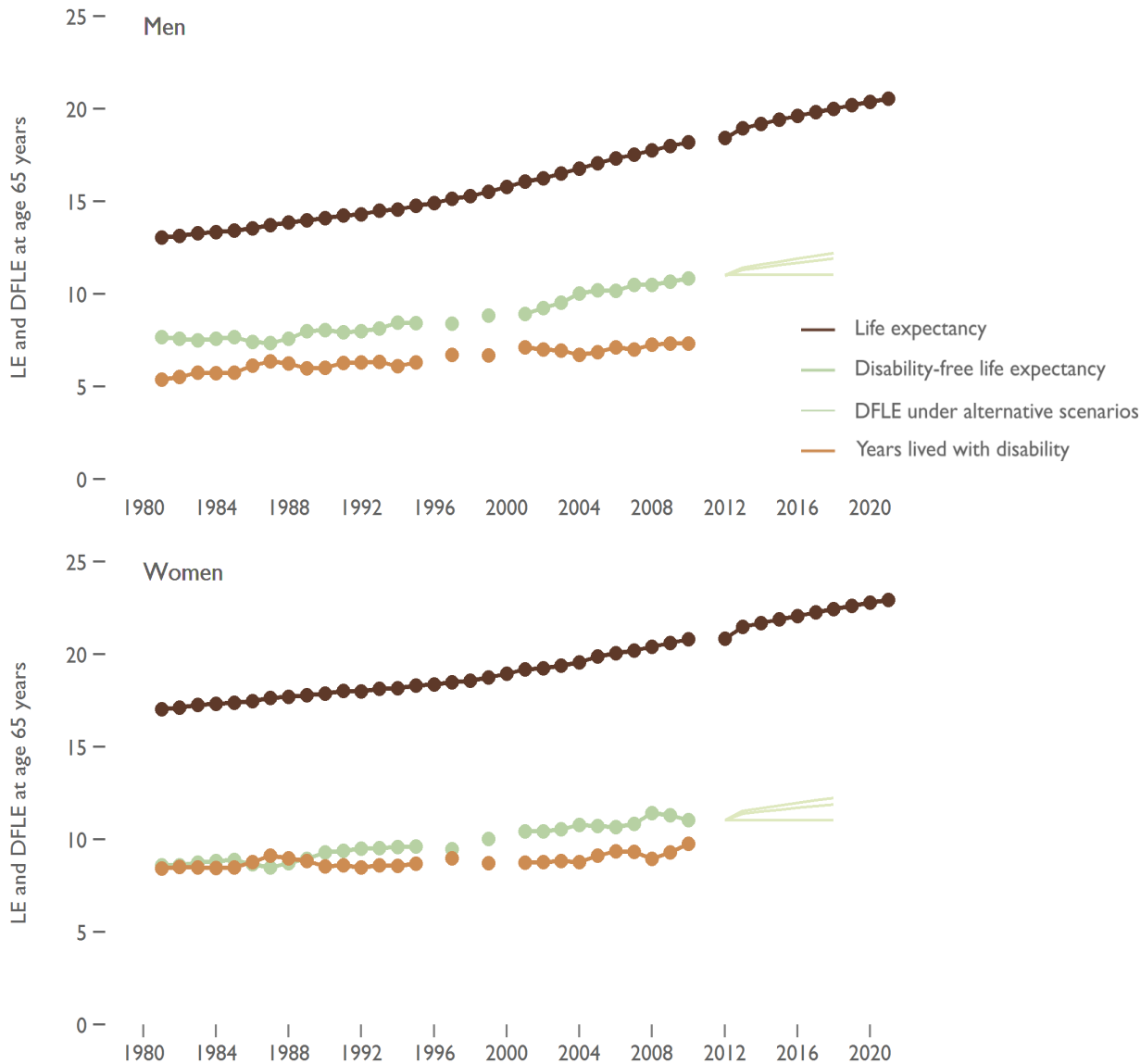
The following are three suggested modelling scenarios that are in line with the three theories.

1. **Pessimistic**—no adjustment is made for improvement in future health status. Consistent with an absolute and relative expansion of morbidity.
2. **Moderate**—moderate adjustment for improvement in future health status. Consistent with 'dynamic equilibrium'.
3. **Optimistic**—greater adjustment for improvement in future health status. Consistent with a relative compression of morbidity.

We adjust utilisation rates from age 50 years (for both men and women).



# Projections of life expectancy and scenarios for disability free life expectancy at age 65 years, England



# Impact of Demographic Change on Consultations

		Practice A			Practice B			Practice C		
		Pessimistic	Moderate	Optimistic	Pessimistic	Moderate	Optimistic	Pessimistic	Moderate	Optimistic
Consultations		6.0%	-0.6%	-0.9%	8.4%	-0.9%	-1.2%	3.2%	-0.6%	-0.8%
by type										
	GP Surgery	6.1%	-0.3%	-0.6%	8.2%	-0.2%	-0.4%	3.2%	-0.4%	-0.6%
	Telephone & 3rd Party	5.4%	-4.7%	-7.1%	8.2%	-4.2%	-6.6%	2.8%	-3.9%	-5.8%
	Home Visits	10.3%	0.0%	-0.2%	13.5%	-0.5%	-0.9%	8.8%	-0.5%	-0.7%
by staff type										
	GP	5.7%	-0.2%	-0.4%				3.1%	-0.5%	-0.7%
	Nurse	5.9%	-0.2%	-0.4%				3.6%	-0.7%	-1.0%
	Other	6.3%	-0.5%	-0.8%				3.1%	-0.4%	-0.6%

Staff type data not available for Oakengates.

# Impact of Demographic Change on LTC Prevalence

	Practice A			Practice B			Practice C		
	Pessimistic	Moderate	Optimistic	Pessimistic	Moderate	Optimistic	Pessimistic	Moderate	Optimistic
LTC Prevalence	6.7%	-1.1%	-1.4%	9.3%	-1.1%	-1.5%	4.9%	-1.1%	-1.5%
<i>by ReadCode Chapter</i>									
Cancer	8.4%	-2.0%	-3.0%	11.3%	-1.4%	-2.3%	8.1%	-2.0%	-3.0%
Endocrine / metabolic	6.8%	-0.6%	-1.0%	9.8%	-0.5%	-1.0%	6.1%	-1.1%	-1.6%
Mental disorders	5.0%	0.5%	0.5%	6.3%	0.7%	0.9%	2.4%	0.3%	0.3%
Nervous system	7.0%	-1.1%	-1.6%	9.5%	-0.8%	-1.4%	4.3%	-1.0%	-1.5%
Circulatory	8.0%	-1.4%	-2.2%	10.7%	-0.9%	-1.6%	7.5%	-1.6%	-2.4%
Respiratory	5.5%	0.0%	-0.1%	7.1%	0.2%	0.1%	1.9%	-0.1%	-0.2%
Digestive	6.6%	-0.7%	-1.1%	9.6%	-0.2%	-0.5%	4.4%	-0.5%	-0.8%
Musculo-skeletal	8.1%	-1.5%	-2.3%	10.5%	-0.6%	-1.1%	7.3%	-1.4%	-2.0%

# Impact of Demographic Change on Diagnoses

Diagnoses	Practice A			Practice B			Practice C		
	Pessimistic	Moderate	Optimistic	Pessimistic	Moderate	Optimistic	Pessimistic	Moderate	Optimistic
	6.2%	-0.7%	-0.9%	8.4%	-0.7%	-1.0%	2.6%	-0.3%	-0.3%
<i>by ReadCode Chapter</i>									
Infectious/paras diseases	5.3%	0.1%	0.1%	6.2%	0.4%	0.4%	0.9%	0.0%	-0.1%
Neoplasms	7.1%	-1.0%	-1.5%	10.2%	-1.0%	-1.6%	4.0%	-0.7%	-1.0%
Endocrine/metabolic	6.8%	-0.6%	-1.0%	9.6%	-0.3%	-0.7%	4.8%	-0.8%	-1.2%
Blood diseases	7.6%	-1.7%	-2.5%	9.4%	-1.2%	-1.9%	9.6%	-3.7%	-5.2%
Mental disorders	4.6%	0.7%	0.9%	6.0%	0.9%	1.1%	0.9%	0.6%	0.9%
Nervous system/senses	6.3%	-0.6%	-0.9%	8.2%	-0.2%	-0.5%	2.7%	-0.3%	-0.4%
Circulatory system	8.4%	-1.4%	-2.2%	10.3%	-0.8%	-1.5%	6.7%	-1.3%	-1.9%
Respiratory system	6.2%	-0.5%	-0.8%	8.1%	-0.1%	-0.4%	2.2%	-0.3%	-0.5%
Digestive system	6.0%	-0.1%	-0.2%	8.4%	0.0%	-0.2%	3.1%	-0.3%	-0.4%
Genito-urinary system	4.9%	0.1%	0.1%	6.0%	0.5%	0.6%	1.2%	-0.2%	-0.2%
Pregnancy/childbirth	6.5%	0.3%	0.3%	5.5%	0.4%	0.4%	0.2%	0.0%	0.0%
Skin/subcutaneous tissue	5.9%	-0.4%	-0.7%	9.0%	-0.4%	-0.9%	2.2%	-0.3%	-0.5%
Musculoskeletal	6.2%	-0.2%	-0.5%	8.5%	0.0%	-0.2%	3.2%	0.1%	0.1%
Congenital anomalies	6.2%	-0.2%	-0.5%	8.5%	0.0%	-0.2%	3.2%	0.1%	0.1%
Perinatal conditions	2.5%	0.1%	0.1%	3.5%	0.6%	0.7%	1.8%	0.0%	0.0%
Working diagnoses	4.4%	0.2%	0.2%	4.0%	0.3%	0.3%	-1.2%	0.1%	0.1%
Injury/poisoning	5.9%	-0.1%	-0.2%	7.8%	-0.2%	-0.5%	2.3%	0.1%	0.1%



# Impact of Demographic Change on Prescriptions

	Practice A			Practice B			Practice C		
	Pessimistic	Moderate	Optimistic	Pessimistic	Moderate	Optimistic	Pessimistic	Moderate	Optimistic
Prescriptions	7.3%	-1.7%	-2.3%	10.0%	-1.7%	-2.3%	5.8%	-1.8%	-2.4%
<i>by ReadCode Chapter</i>									
GI	7.2%	-1.3%	-1.9%	10.0%	-0.9%	-1.6%	5.8%	-1.6%	-2.3%
Cardiovascular	8.9%	-0.6%	-1.0%	11.5%	-0.5%	-0.9%	8.5%	-1.0%	-1.5%
Respiratory system	7.2%	-2.6%	-3.8%	9.1%	-1.9%	-3.0%	4.3%	-2.0%	-3.0%
Nervous system/senses	6.0%	-0.9%	-1.3%	8.4%	-0.4%	-0.8%	3.9%	-0.6%	-0.8%
Infection	6.4%	-0.6%	-1.0%	8.4%	-0.7%	-1.2%	3.8%	-1.2%	-1.7%
Endocrine	7.3%	0.6%	0.7%	10.3%	1.1%	1.4%	7.1%	-1.6%	-2.3%
GU	5.8%	-0.2%	-0.4%	8.6%	0.2%	0.1%	3.1%	-0.9%	-1.3%
Malignant disease	8.5%	-1.3%	-2.3%	10.0%	-1.8%	-3.0%	4.8%	-2.7%	-4.0%
Blood & nutrition	7.7%	-2.3%	-3.5%	10.1%	-1.3%	-2.3%	5.3%	-2.4%	-3.6%
MSK	6.4%	-0.8%	-1.4%	9.1%	-1.8%	-2.9%	5.2%	-2.0%	-3.1%
Eye	8.6%	-0.9%	-1.4%	11.7%	-0.5%	-1.0%	7.1%	-1.1%	-1.5%
ENT	5.9%	-5.9%	-8.3%	8.7%	-2.8%	-4.4%	4.0%	-3.6%	-5.1%
Skin	6.3%	-3.3%	-4.9%	8.5%	-1.7%	-2.5%	3.3%	-1.1%	-1.6%
Vaccines	5.2%	-0.9%	-1.5%	6.2%	-0.3%	-0.7%	6.5%	-0.7%	-1.1%
Anaesthesia	5.8%	-0.4%	-0.6%	6.1%	-0.2%	-0.5%	3.0%	-0.5%	-0.8%
Other	12.3%	-0.5%	-0.8%	12.9%	-0.3%	-0.6%	7.8%	-1.0%	-1.5%
Dressings	7.6%	-1.5%	-2.2%	11.1%	-0.8%	-1.4%	9.0%	-1.4%	-2.2%
Appliances	6.8%	-1.5%	-2.2%	9.4%	-0.8%	-1.3%	5.2%	-1.2%	-1.6%
Incontinence appls	8.7%	-0.6%	-1.0%	12.6%	0.1%	-0.1%	7.9%	-1.1%	-1.6%
Stoma care	10.1%	-1.2%	-1.8%	7.2%	-1.1%	-1.9%	5.2%	-2.2%	-3.2%

# Conclusions

Primary care activity has increased for several years, despite some reductions in real terms funding.

Demographic change is commonly thought to be one of the drivers of activity growth. Population projections provide estimates of the changes in the size of the population in Shropshire and Telford and its age/sex structure.

If age-specific GP consultation rates do not change and practices take their share of population growth, then population growth and changes in the age/sex structure will cause an increase in GP surgery consultations of between 3% and 8% by 2019/20 and home visits by between 9% and 14%.

Practices will experience different levels of demographic pressure depending on the age profile of their patients and current patterns of utilisation.

In recent years improvements in life expectancy have been accompanied by delays in the onset of disability. If these trends continue and increases in primary care activity associated with old age are similarly delayed, then this may be sufficient to offset demand pressures associated with changes in the population size and age profile.

Changes in clinical guidelines and patient expectations may cause activity growth over and above that caused by demographic change.

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