

Economic Impact of NHS Spending in the Black Country

A report produced for the Black Country and West
Birmingham STP by the Strategy Unit, in association with
ICF Consulting Limited and Cambridge Econometrics

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Part A: ECONOMIC IMPACT OF NHS SPENDING IN THE BLACK COUNTRY

Key findings from the economic analysis

Expenditure

In the Black Country, four Clinical Commissioning Groups (CCGs) undertook expenditure in the Black Country: Dudley, Sandwell and West Birmingham, Walsall and Wolverhampton. However, other CCGs also funded the treatment of patients in the Black Country (where patients from outside the Black Country were treated at NHS Trusts within the Black Country).

In addition to the expenditure by CCGs, seven NHS Trusts provide expenditure in the Black Country:

- The Black Country Partnership (BCP) NHS Foundation Trust;
- Dudley and Walsall Mental Health Partnership (DWMHP) NHS Trust;
- Dudley Group (DG) NHS Foundation Trust;
- Royal Wolverhampton (RW) NHS Trust;
- Sandwell and West Birmingham Hospitals (SWH) NHS Trust;
- Walsall Healthcare (WHT) NHS Trust; and
- West Midlands Ambulance Service (WMAS) NHS Foundation Trust.

NHS expenditure funds the provision of primary care in the Black Country. However, the total NHS expenditure in the Black Country is not simply a sum of the total expenditure of all these organisations. This is for three main reasons:

- The CCGs provide funding for the treatment of patients who reside in their area. This includes paying for the treatment of Black Country residents who are treated outside the Black Country ('leakage' in economic terms). Therefore a percentage of Black Country CCG expenditure is not spent in the Black Country. At the same time the Black Country receives expenditure (an 'injection') from non-Black Country NHS organisations for care of non-Black Country residents in the Black Country.
- One CCG (Sandwell and West Birmingham) and two NHS Trusts (SWH and WMAS) operate both within and outside the Black Country. Therefore, the proportion of their spending which falls outside the Black Country also had to be removed.
- The CCGs provide funding to NHS Trusts to provide care to Black Country residents. Therefore, in order to avoid double counting, the value of Black Country CCG expenditure to Black Country NHS trusts had to be accounted for.

The analysis of expenditure by NHS organisations in the Black Country identified an annual spend of some £2 billion in 2014/15, adjusting to avoid double-counting and leakage. The majority of this expenditure (over £1 billion, 52%) was on employee benefits (wages, pensions, other benefits). The remainder was used to purchase goods and services.

Gross Value Added

Gross Value Added (GVA) is the value of wages plus the value of profits generated. It represents a measure of the economic impact defined as the additional income to an area from economic activity. Direct GVA relates to the surplus and jobs directly supported. Indirect GVA is also generated through the effects of NHS purchasing of goods and services supplied by the Black Country value chain. Further GVA is 'induced' by the spending of household incomes in the Black Country. Indirect and induced GVA is defined as the 'multiplier' effect associated with the direct impact.

The value of the GVA directly resulting from NHS spending in the Black Country is the value of wages plus the value of profit (or operating surplus). In 2014/15 in the Black Country, direct GVA was nearly £1.1 billion.

The annual accounts of NHS Trusts were investigated. Based on the annual accounts of NHS Trusts and information on pay rates and the number of individuals employed by the NHS in the Black Country indicates a gross wage bill of £1.05 billion in 2014/15. In addition six of the seven NHS Trusts operating in the Black Country ran an operating surplus in 2014/15, which totalled £23 million.

This level of direct 'NHS' supported GVA represents 5.5% of the overall GVA of the Black Country.

Including the multiplier effect resulting from NHS spending of £961m on the purchase of goods and services. The multiplier effect (1.43 of the direct effect) adds a further £457m, generating a total GVA of £1.5 billion (7.9% of total Black Country GVA)

Employment

The NHS directly employed nearly 29,000 people in 24,200 FTE (full-time equivalent) jobs in 2014/2015 in the Black Country. This does not include any agency staff used by the NHS. The highest proportion of these roles are support staff and nurses and midwives.

In addition another 4,400 FTE jobs were directly funded as Bank staff (staff not permanently employed but who NHS organisations bring in to cover shifts without resorting to agency staff), and an additional 2,100 Agency jobs were supported but employed by non-NHS organisations. A total of 30,800 FTE jobs were directly supported by NHS spending on workers. This represents 6.3% of the Black Country workforce.

This estimate excludes the employment indirectly supported by the purchase of goods and services by the NHS, and the spending of the wages paid by the NHS. This multiplier effect (1.32 of the direct effect) adds up to a further 10,000 FTE jobs. Total employment (40,800 FTE) represents 8.3% of the Black Country workforce.

The average annual gross wage (including value of pensions) for NHS staff in the Black Country was estimated to be £34,100. The gross weekly wage paid to the NHS funded workforce is some 26% higher than the average weekly earnings of the Black Country workforce.

Patient demographics

The resident population of the Black Country (1.2m persons) was estimated to have over nine million contacts (GP appointments, outpatient appointments, day cases, inpatient admissions and Accident and Emergency episodes) in 2014/15. The vast majority of these contacts (96%) took place in the Black Country. Over three quarters of the contacts were estimated to take place in primary care. There were 180,000 admitted patients in secondary care, which resulted in 735,000 bed days. Some 44% of NHS contacts were estimated to be for the non-working population (children, retired individuals and unemployed and inactive people aged less than 16 and over 64 years).

Informal care

In the Black Country, 84% of the population (800,000) do not report providing any informal care. Of those that do provide care, the majority provide between one and 19 hours of informal care. The majority of individuals that provide more than 50 hours of care per week are economically inactive. The value of unpaid informal care in the Black Country in 2015 was estimated to be £38 million per week (3,900 hours per week) or £2 billion annually. This

value of informal care provided in the Black Country is broadly similar in scale to the expenditure by the NHS in the Black Country.

1 Introduction

The NHS is not often considered as an economic actor. Yet the choices it makes in allocating its budgets and arranging its services have an economic impact. This exploratory study was therefore commissioned for the Black Country Sustainability and Transformation Plan (STP) area, which – in seeking to maximise links between the priorities of the NHS and those of Local Authorities – wanted to understand the nature and scale of NHS impacts on the Black Country economy.

ICF Consulting (ICF), working in partnership with The Strategy Unit (SU), was therefore commissioned to provide:

1. An indicative assessment of the economic impacts in the Black Country, that flow from spending by the NHS on health services; and,
2. To provide a framework for assessing the wider impacts of changes in the scale / type of health services spending.

This part of the report presents an analysis of the levels of annual expenditure made by the NHS and associated economic impacts. It also includes an analysis of the patient population.

1.1 Structure of this part of the report

This part of the report is structured as follows:

- Section 2: provides an overview of the method of approach for the study, and a brief profile of the Black Country economy;
- Section 3: analysis of NHS expenditure and associated Gross Value Added (GVA) in the Black Country;
- Section 4: analysis of the scale and occupations of the NHS workforce in the Black Country;
- Section 5: analysis of the NHS estate in the Black Country;
- Section 6: analysis of the patient population in the Black Country;
- Section 7: analysis of informal care in the Black Country;

The report is completed with a number of Annexes, which are as follows:

- Annex 1: Input output categories.
- Annex 2: Additional regional economic data.
- Annex 3: Additional earnings and wages data.
- Annex 4: Land valuation estimates.

2 Approach of the study

2.1 Definitions

- Black Country – the local authority districts of Dudley, Sandwell, Walsall, and Wolverhampton. Depending on data sources this may also include wards in West Birmingham;
- Health services – services funded by the NHS, including services carried out by non-NHS bodies (such as employment agencies and private medical services);
- Health service spending – annual expenditure on employment benefits and the purchase of goods and services (including capital goods) for use in the delivery of health services;
- Economic impacts – levels of output (measured as gross value added (GVA)), and employment associated with NHS spending;
- Primary care – healthcare provided in community settings, for example at a GP practice; and
- Secondary care – medical care provided at a specialist facility, typically an acute hospital, usually following referral from primary care.

2.2 General framework for the study

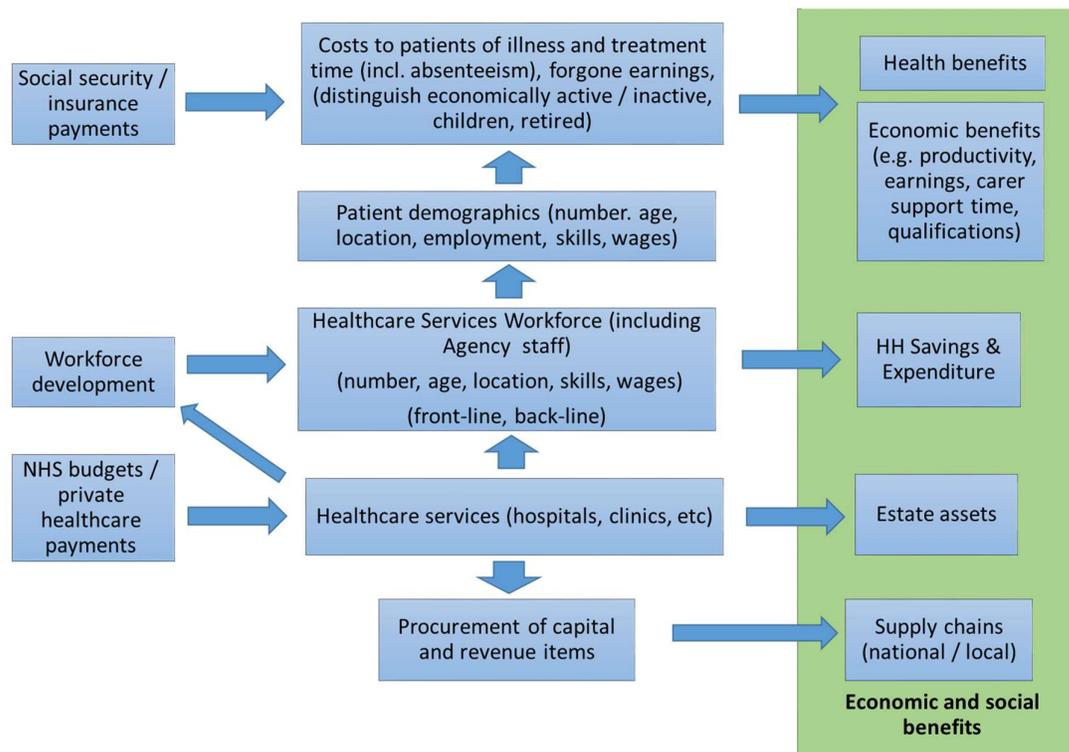
The general approach adopts a standard economic impact analysis methodology based on tracking expenditure and the subsequent effects on the demand for goods and services (through procurement) and labour (skills and wages).

To this we have added the economic impacts associated with treating the population, especially, the working age population; with subsequent effects on levels of labour market output and productivity.

In both cases the focus is on the patients, health sector workforce and procurement located in the Black Country.

This is summarised in Figure 2.1.

Figure 2.1 Broad outline of the approach to assessing the economic impacts of health service spending



2.3 Methodology

Reflecting the general approach the methodology has three basic steps:

- Analysis of health service budgets identifying expenditure on wages and on the procurement of goods and services, and the NHS land and property estate;
- Analysis of workforce data to estimate employment levels; and
- Use of national input-output tables to define the nature of purchases and the scale of multiplier effects.

In addition, there is an initial description of the patient population. To this has been added a brief analysis of services that have the potential to have significant economic impacts; informal care, infant care / mortality and mental health services. The second part of the study will build upon this, examine possible approaches to influencing the economic impacts from NHS spending, taking existing service activity as a baseline.

The sources of data are summarised below.

2.3.1 Data on NHS expenditure

Table 2.1 presents the organisations which are involved in commissioning and providing NHS services in the Black Country. Information was collected on the annual expenditure of these organisations from publicly available annual accounts for 2013/4 and 2014/15.

This has provided the data needed to estimate spending on employees, and operating and capital expenditure on goods and services. It also indicates operating surpluses and deficits.

Table 2.1 Organisations involved in commissioning and providing NHS services in the Black Country

Organisation
Dudley Clinical Commissioning Group (CCG)
Sandwell and West Birmingham CCG
Walsall CCG
Wolverhampton CCG
Black Country Partnership NHS Foundation Trust
The Dudley Group NHS Foundation Trust
Dudley and Walsall Mental Health Partnership
Royal Wolverhampton NHS Trust
Sandwell and West Birmingham Hospitals NHS Trust
Walsall Healthcare NHS Trust
West Midlands Ambulance Service
NHS England

When using this data, adjustments are made for the transfer of funding from Clinical Commissioning Groups (CCGs) to Trusts to avoid double-counting.

2.3.2 Input-output analysis

As the basis of estimating the economic multiplier effects of NHS funded expenditure, the required breakdown of expenditure on specific goods and services is based on the defined health sector spending by category, taken from the UK Input-Output Tables: Industries' intermediate consumption (2013) published by the Office for National Statistics (ONS). The standard categories are presented in Annex 1.

2.3.3 Workforce analysis

Workforce data from the Health and social Care Information Centre (HSCIC) was used to estimate the full impact of health service spending on wages in the Black Country. This provided information on the number of FTE posts funded by the NHS and wage levels.

To estimate the share of the NHS funded workforce that is resident in the Black Country it was intended that data be used from the HSCIC or NHS Trusts but this data could not be accessed (the HSCIC do not hold the information centrally). Therefore, census information on travel to work patterns (disaggregated by occupation and Ns-SEC group) has been used to estimate the resident workforce. Specifically, data disaggregated by occupation and Ns-SEC group is provided on:

- The proportion of workers who live in the Black Country and work in the Black Country;
- The proportion of workers who live in the Black Country and work outside the Black Country; and

- The proportion of workers who live outside the Black Country and work in the Black Country.

2.3.4 NHS estate data

To estimate the size and value of the NHS estate in the Black Country the ERIC, SHAPE and NHS property databases were examined to provide:

- Data on the location of NHS properties in the Black Country; and
- Information on the size (floorspace / land area) and tenure (freehold/leasehold) of NHS properties.

Land and property valuations are based on data from the Department for Communities and Local Government (2015) Land value estimates for policy appraisal.

2.3.5 Hospital Activity data

For the second part of the study data from the Secondary Uses Service (SUS) could be used to estimate the potential impact of changes in NHS spending. We propose examining the HES data, examining data for Black Country provision for patients from outside the area; provision in other locations for Black Country patients; and provision in Black Country for Black Country patients.

The following data were collected and analysed:

- Number of A&E admissions - broken down by Age and Gender;
- Number of outpatient appointments – by area of treatment (condition), age and gender;
- Number of inpatient day cases - broken down by Diagnosis, Age and Gender;
- Number of inpatient admissions - broken down by Diagnosis, Age and Gender; and
- Total number of bed-days - broken down by Diagnosis, Age and Gender.

2.3.6 Other economic data for the Black Country

To place the scale of NHS funded impacts in context, and to assist with the second half of the study, the following published data was collected:

- Population (from the ONS Mid-year population estimates);
- The level of employment, broken down by part-time /full-time, sector and gender (from the Annual Population Survey);
- Employment rate in each Local Authority, broken down by gender and age (from the Annual Population Survey);
- Earnings by Local Authority (from the Annual Survey of Hours and Earnings);
- GVA generated in each Local Authority (ONS Regional GVA reference tables); and
- Productivity per job in each Local Authority.

A summary of this data is provided below.

2.4 Brief economic profile of the Black Country

This section provides a brief profile of the economy of the Black Country. Further employment details are provided in Annex 2.

2.4.1 Population

The population of the Black Country has increased by 3% since 2010 to a total population of nearly 1.2 million in 2015 (see Table 2.2). Sandwell now has the largest population in the Black Country with just under 320,000 residents, having grown by 4.3% since 2010. Previously Dudley had been the largest local authority area but has had the lowest population growth (1.4%) of all the Black Country areas. The working population has, since 2010 increased by 1.2% to over 720,000 (Table 2.3).

The overall population growth disguises differences in the changing age profile of the local authority areas. The increase in the working age population in Sandwell (3.3%) has been much higher than in the other Black Country areas and the working age population in Dudley has decreased by 1.2% since 2010. The growth in individuals aged under 16 is also highest in Sandwell (7.8%) and lowest in Dudley (1.5%), whereas the growth rate of individuals aged over 65 has been highest in Dudley (9.5%) and lowest in Sandwell (3.8%). There are now more people aged over 65 than under 16 in Dudley (Table 2.4).

Table 2.2 Total population of the Black Country (000), 2010-2015

Area	2010	2011	2012	2013	2014	2015
Dudley	312	313	314	314	316	317
Sandwell	306	309	311	314	317	320
Walsall	267	270	271	272	274	276
Wolverhampton	248	250	251	252	253	254
Black Country	1,133	1,142	1,147	1,153	1,160	1,167

ONS Local Authority population estimates, 2010 to 2015

Table 2.3 Working age population of the Black Country (age 16-64) (000), 2010-15

Area	2010	2011	2012	2013	2014	2015
Dudley	195	195	194	193	193	193
Sandwell	194	196	196	198	199	200
Walsall	166	167	167	167	168	169
Wolverhampton	158	160	160	159	159	160
Black Country	713	718	717	718	719	722

ONS Local Authority population estimates, 2010 to 2015

Table 2.4 Age profile of the population of the Black Country, 2015

Area	0-15		16-64		65+	
	Number (000)	%	Number (000)	%	Number (000)	%
Dudley	60	19%	193	61%	63	20%
Sandwell	71	22%	200	63%	49	15%
Walsall	58	21%	169	61%	49	18%
Wolverhampton	52	20%	160	63%	43	17%
Black Country	230	21%	722	62%	204	17%

ONS Local Authority population estimates, 2015

2.4.2 Employment

The number of people employed in the Black Country has increased by over 7% since 2010, despite a slight dip in 2013 (Table 2.5). The largest growth in the number of people employed has been in Sandwell with an increase of over 14%, whereas the lowest growth rate has been in Dudley (2%). The rate of employment in the Black Country local authority areas has generally increased since 2010, although there was a slight decrease in 2015. However, the employment rate in the Black Country is still below the average for England (Table 2.6).

Table 2.5 Number of people employed in the Black Country (000), 2010-15

Area	2010	2011	2012	2013	2014	2015
Dudley	137	141	143	140	144	140
Sandwell	118	128	130	129	126	134
Walsall	106	110	110	106	116	110
Wolverhampton	96	99	103	102	103	106
Black Country	457	478	486	476	488	491

Annual Population Survey, Employment by age (2015)

Table 2.6 Employment rate in the Black Country, 2010-15

Area	2010	2011	2012	2013	2014	2015
Dudley	54%	56%	57%	56%	58%	55%
Sandwell	48%	53%	53%	53%	52%	54%
Walsall	51%	52%	52%	49%	54%	51%
Wolverhampton	48%	48%	50%	50%	50%	50%
Black Country	50%	52%	53%	52%	54%	53%

Annual Population Survey, Employment by age (2015)

2.4.3 Earnings

The gross weekly earnings of full-time workers in the Black Country is presented in Table 2.7. This data has been taken from the Annual Survey for Hours and Earnings and adjusted for inflation using GDP deflators. This shows that earnings in the Black Country are below the national average, and have been for the entire period analysed. Earnings in real terms are still well below 2010 levels, following the national trend, with a slight increase in earnings in 2015.

Table 2.7 Gross weekly wages (£) for full-time workers in the Black Country, 2010-15

Area	2010 (£)	2011 (£)	2012 (£)	2013 (£)	2014 (£)	2015 (£)
Dudley	451	454	433	424	431	472
Sandwell	479	468	465	483	459	460
Walsall	475	477	473	495	484	491
Wolverhampton	524	484	510	480	462	461
Black Country	480	469	467	468	458	470
England	559	541	542	540	532	533

Annual Survey of Hours and Earnings, 2010-2015

2.4.4 GVA

Regional economic performance can be measured through the value of GVA generated in each area. Table 2.8 presents this for the Black Country. The GVA generated in the Black Country has increased by 12% between 2010 and 2014 to over £19 billion. The largest growth has been in Walsall and Sandwell. However, this level of growth is lower than the average for England (16%).

Table 2.8 GVA generated in the Black Country at current prices, (£m), 2010-2015

Area	2010 (£m)	2011 (£m)	2012 (£m)	2013 (£m)	2014 (£m)	2015 (£m)
Dudley	4,368	4,441	4,508	4,622	4,731	4,368
Sandwell	4,918	4,898	5,322	5,446	5,614	4,918
Walsall	3,790	3,959	4,064	4,268	4,378	3,790
Wolverhampton	4,308	4,404	4,588	4,573	4,658	4,308
Black Country	17,384	17,702	18,482	18,909	19,381	17,384
England	1,184,511	1,221,796	1,264,238	1,317,754	1,377,851	1,184,511

ONS Regional Gross Value Added (Income Approach) reference tables (2015)

2.4.5 Productivity

The level of productivity of the workforce is measured through the value of GVA generated per hour worked. Table 2.9 presents the level of productivity in the Black Country. This shows that productivity has been increasing in all areas of the Black Country since 2010, with the highest growth in Walsall (18%). All areas in the Black Country experienced higher levels of productivity growth than the average for England, however the level of productivity in the Black Country is still lower than the English average.

Table 2.9 Smoothed nominal GVA per hour worked in the Black Country (five year weighted average), 2010-2015

Area	2010 (£)	2011 (£)	2012 (£)	2013 (£)	2014 (£)	2015 (£)
Dudley	20.2	21.1	21.9	22.7	22.9	20.2
Sandwell	22.2	23.1	23.4	23.8	23.9	22.2
Walsall	20.9	22.1	23.0	24.0	24.6	20.9
Wolverhampton	19.2	19.8	20.6	21.5	22.0	19.2
Black Country	20.7	21.6	22.3	23.0	23.4	20.7
England	25.9	26.4	26.6	27.3	27.7	25.9

ONS Sub regional productivity (2015) – table J3

3 NHS expenditure in the Black Country

3.1 National levels of expenditure on health services

3.1.1 National expenditure on the NHS

The expenditure of all organisations can be split into two separate accounting groups – operating expenditure (Opex) and capital expenditure (Capex). These are standard financial accounting definitions:

- Opex: The ongoing costs for running a business or organisation. These costs include wages and employee benefits, utilities, insurance and leasing commissions; and
- Capex: An expense where the benefit continues over a long period (multiple years) rather than a single financial year. This expenditure is non-recurring. Capex can include the purchase of land or buildings or industrial (or medical) equipment.

The NHS annual accounts used in this analysis provide data on the level of expenditure for standard groups. These are:

- Employee benefits: this category includes wages paid to NHS employees and agency staff, bonuses, social security payments, annual leave benefits carried forward into the next financial year, termination payments and pension payments;
- Healthcare from NHS bodies: Payments to buy healthcare services from NHS bodies, such as NHS Trusts and Foundation Trusts;
- Healthcare from non-NHS bodies: Payments to buy healthcare from organisations outside the NHS, such as private and voluntary sector providers;
- Dental: Payments for general and personal NHS dental services;
- Primary care: Payments to primary care organisations; and
- Other expenditure: This category covers all expenditure outside the categories above. It is a category created for this analysis, as the NHS accounts provide more detailed breakdowns, of which some have small monetary values. This category includes spending on prescriptions and pharmaceutical services; audit, supplies (general and clinical), payments for premises, research and development and education.

The total operating expenditure for NHS England is presented in Table 3.1. This shows that in 2014/15, operating expenditure by NHS England was nearly £98 billion. The majority of expenditure was for purchasing services from healthcare bodies.

Table 3.1 Total operating expenditure in England, NHS England, 2014/15 and 2013/14

Type of cost	2014/15		2013/14	
	£m	%	£m	%
Healthcare from NHS bodies	62,571	64%	60,810	64%
Healthcare from non-NHS bodies	11,578	12%	10,187	11%
Dental	3,114	3%	3,080	3%
Primary Care	7,687	8%	7,590	8%
Other expenditure	13,045	13%	12,861	14%
Total	97,994	100%	94,528	100%

NHS England Annual Accounts, 2014-15

It is not possible to accurately disaggregate this data to estimate expenditure on wages, as NHS England does not pay front line healthcare workers. Individual Trusts are responsible for employing frontline and support staff.

In addition to the operating expenditure, NHS England spent £189 million on capital expenditure in 2014/15.

3.1.2 Total health service spending in the UK

The ONS produce annual reports on healthcare spending for the UK. This includes estimates of government spending on healthcare, and private expenditure on health insurance, private out of pocket expenses and financing schemes. Private health care spending in these accounts includes household spending on healthcare and pharmaceutical products, not just spending on private health providers.

The data indicates total UK expenditure by government and the private sector totalled £179 billion in 2013/14 (Table 3.2), of which 80% is government funded.

NHS expenditure in England represents 55% of total healthcare spending, and 69% of UK government healthcare spending.

Table 3.2 Total expenditure on healthcare by type of expenditure in the UK, (£m), 2013/14

Type of expenditure	£m	%
Government-financed expenditure	142,626	79.5%
Private-financed expenditure: of which	11,750	20.5%
<i>Private - Compulsory insurance schemes</i>	180	0.1%
<i>Private - Voluntary health insurance schemes</i>	6,394	3.6%
<i>Private - Non-profit institutions serving households financing schemes</i>	2,791	1.6%
<i>Private - Enterprise financing schemes</i>	990	0.6%
<i>Private - Out-of-pocket payments</i>	26,469	14.8%
Total	179,450	

ONS (2015) UK Health Accounts 2014, Table 1

3.2 Total annual NHS expenditure in the Black Country

3.2.1 Overview

This section provides a summary breakdown of expenditure by NHS organisations in the Black Country. Total expenditure in 2014/15 was around £2 billion.

Table 3.3 below presents a summary of NHS spending in the Black Country in 2014/15. Total expenditure on employee benefits was £1.05 billion. After adjusting to avoid double-counting, operating and capital expenditure excluding employee benefits was £961 million.

A detailed analysis is provided in the following sections.

Table 3.3 Summary of NHS expenditure in the Black Country (£m), 2014/15

NHS organisation	Employee benefits (£m)	Operating expenditure					Capital expd.* (£m)	Total expd.* (£m)
		Healthcare from NHS bodies (£m)	Healthcare from non-NHS bodies (£m)	Primary Care (£m)	Other spend (£m)	Total operating expd* (£m)		
Dudley CCG	4	229	27	2	61	320	0	320
Sandwell and W Birmingham CCG	4	236	27	2	57	322	0	322
Walsall CCG	4	205	41	5	54	304	0	304
Wolverhampton CCG	4	198	24	3	51	276	0	276
Other CCGs**	0	368	0	0	0	368	0	368
<i>Expenditure by CCGs – Sub-total</i>	16	1,236	118	12	223	1,589	0	1,589
<i>Expenditure by CCGs – adjusted to avoid double counting</i>	16	0	118	0	223	342	0	342
Black Country	79	1	2	0	18	21	5	26
Dudley and Walsall Mental Health Trust	49	0	0	0	14	14	2	16
Dudley Group	190	0	1	0	130	131	1	132
Royal Wolverhampton	270	4	3	0	170	177	44	221
Sandwell and W B'ham Hospitals	143	9	1	0	60	70	8	78
Walsall Hospitals	163	2	1	0	81	84	11	95
West Midlands Ambulance Service	32	0	0	0	14	14	2	16
<i>Expenditure by Trusts – Sub-total</i>	926	16	7	0	487	510	73	584
Primary Care	108	0	0	0	36	36	0	36
Total	1,050	1,252	126	12	746	2,136	73	2,209
Total (excl. CCG purchases of healthcare from NHS bodies and payments to primary care)	1,050	16	126	0	746	888	73	961

Clinical Commissioning Groups Accounts, available at <https://www.england.nhs.uk/resources/resources-for-ccgs/#ccg-accounts>; Annual NHS Trust Accounts 2014/15; HSCIC NHS Payments to General Practice, England, 2014/15

*excluding employee benefits

**payments for Black Country services from non-Black Country CCGs

3.2.2 Expenditure by CCGs

The majority of funding for NHS services in the Black Country is provided through CCGs. There are four CCGs operating in the Black Country. These cover:

- Dudley;
- Sandwell and West Birmingham;
- Walsall; and
- Wolverhampton.

Annual accounts of each of these organisations is available from which to estimate the financial expenditure by the NHS in the Black Country.

Some of this expenditure is subsequently made to healthcare providers located outside the Black Country. The Black Country also receives expenditure from CCGs located outside the Black Country but paid to providers in the Black Country for treatments for non-Black Country residents. Adjustments are made for these flows in the analysis below.

When combining the NHS expenditure from CCGs and NHS Trusts in the Black Country it is important to avoid double counting expenditure. The CCGs in the Black Country are responsible for funding NHS Trusts to provide health services to Black Country residents. Therefore, CCG spending on healthcare services from NHS organisations are included in the discussion in section 3.4 to show the level of CCG spending in the Black Country. However when combining the CCG spending with NHS Trust spending this category is excluded. Payments to Primary Care are also excluded for the same reason. Remaining CCG spending is included in the combined analysis.

3.2.2.1 Total expenditure by Black Country based NHS organisations

The total expenditure of the four CCGs for the financial year 2014/15 is presented in Table 3.5. This shows a total expenditure of over £1.7 billion for the financial year, with Sandwell and West Birmingham CCG having the largest expenditure. The CCGs had no capital expenditure in 2014/15.

Table 3.4 Total expenditure by Black Country CCGs (£m), 2014/15

Expenditure by CCG	Total (£m)	%
Dudley CCG	381	32%
Sandwell & West Birmingham CCG	642	55%
Walsall CCG	364	31%
Wolverhampton CCG	330	28%
Total	1,716	100%

Clinical Commissioning Groups Accounts, available at

<https://www.england.nhs.uk/resources/resources-for-ccgs/#ccg-accounts>

The majority of the budget for all four CCGs was used for purchasing healthcare, mainly from NHS organisations (Trusts) but also non-NHS, private organisations (see Table 3.5).

Table 3.5 Expenditure by Black Country CCGs (£m), 2014/15

Type of expenditure	Dudley CCG		Sandwell and W Birmingham CCG		Walsall CCG		Wolverhampton CCG		Total	
	£m	%	£m	%	£m	%	£m	%	£m	%
Employee benefits	4	1%	7	1%	4	1%	4	1%	18	1%
Healthcare from NHS bodies	281	74%	482	75%	251	69%	243	74%	1,257	73%
Healthcare from non-NHS bodies	33	9%	55	9%	50	14%	29	9%	167	10%
Primary Care	2	1%	3	0%	5	1%	3	1%	13	1%
Other expenditure	61	16%	94	15%	54	15%	51	15%	261	15%
Total	381		642		364		330		1,716	

Clinical Commissioning Groups Accounts, available at

<https://www.england.nhs.uk/resources/resources-for-ccgs/#ccg-accounts>

3.2.2.2 'Leakage' of NHS expenditure from the Black Country

The expenditure by the four CCGs is not entirely spent within the Black Country Districts. In the case of Sandwell and West Birmingham expenditure is also made directly to service providers located outside the Black Country. Additionally, payments are made for services provided outside the Black Country to treat Black Country residents.

Organisations operating across areas

Sandwell and West Birmingham operates across the Black Country and Birmingham. Therefore not all the expenditure from the CCG is spent in the Black Country. It has been assumed, from examining the number of residents in Sandwell and West Birmingham, that 60% of the CCGs expenditure is spent in the Black Country. Under this assumption, the revised level of NHS expenditure in the Black Country is estimated to be £1,460 million, with Sandwell and West Birmingham having the highest share of expenditure (see Table 3.7).

Table 3.6 Total expenditure by Black Country CCGs (£m) less expenditure in W Birmingham, 2014/15

Expenditure by CCG	Total (£m)	%
Dudley CCG	381	26%
Sandwell & West Birmingham CCG	385	26%
Walsall CCG	364	25%
Wolverhampton CCG	330	23%
Total	1,460	100%

Clinical Commissioning Groups Accounts, available at

<https://www.england.nhs.uk/resources/resources-for-ccgs/#ccg-accounts>; SUS Statistics (2016), analysed and provided by The Strategy Unit

Table 3.7 Expenditure by Black Country CCGs less expenditure in W Birmingham, 2014/15

Type of expenditure	Dudley CCG		Sandwell and W Birmingham CCG		Walsall CCG		Wolverhampton CCG		Total	
	£m	%	£m	%	£m	%	£m	%	£m	%
Employee benefits	4	1%	4	1%	4	1%	4	1%	16	1%
Healthcare from NHS bodies	281	74%	289	75%	251	69%	243	74%	1,064	73%
Healthcare from non-NHS bodies	33	9%	33	9%	50	14%	29	9%	145	10%
Primary Care	2	1%	2	0%	5	1%	3	1%	12	1%
Other expenditure	61	16%	57	15%	54	15%	51	15%	223	15%
Total	381		385		364		330		1,460	

Clinical Commissioning Groups Accounts, available at

<https://www.england.nhs.uk/resources/resources-for-ccgs/#ccg-accounts>; Sandwell and West Birmingham practice list size (the proportion of registered patients who live in Sandwell and West Birmingham)

Black Country residents treated outside the Black Country

The CCGs are responsible for paying for the treatment of patients registered to General Practitioners in their area, regardless of where the treatment takes place. Therefore, a proportion of the expenditure is spent on NHS trusts outside the Black Country.

Data from SUS was used to estimate the number of Black Country residents who were treated outside the Black Country. A total of 395,000 NHS contacts (day cases, admissions, outpatient appointments and A&E episodes) were funded. This represents 18% of all Black Country residents who were treated.

Based on this estimate it has been assumed that 18% of the total CCG spending on healthcare from NHS bodies 'leaks out' of the Black Country health economy. We have also assumed that 18% of the expenditure for non-NHS bodies is also spent outside the Black Country. Under these assumptions, a total of £223 million of expenditure is spent outside the Black Country (£196 million of NHS bodies and £27 million of non-NHS spending).

Table 3.9 indicates the value of NHS spending in the Black Country excluding expenditure by the CCGs outside the Black Country, with Table 3.10 showing the breakdown of expenditure by each CCG.

Table 3.8 Total expenditure by Black Country CCGs (£m) less payments to Trusts outside the Black Country, 2014/15

Expenditure by CCG	Total (£m)	%
Dudley CCG	323	26%
Sandwell & West Birmingham CCG	326	26%
Walsall CCG	308	25%
Wolverhampton CCG	280	23%
Total	1,237	100%

Clinical Commissioning Groups Accounts, available at <https://www.england.nhs.uk/resources/resources-for-ccgs/#ccg-accounts>; SUS Statistics (2016), analysed and provided by The Strategy Unit

Table 3.9 Expenditure by Black Country CCGs (£m) in the Black Country, less payments to Trusts outside the Black Country, 2014/15

Type of expenditure	Dudley CCG		Sandwell and W Birmingham CCG		Walsall CCG		Wolverhampton CCG		Total	
	£m	%	£m	%	£m	%	£m	%	£m	%
Employee benefits	4	1%	4	1%	4	1%	4	1%	16	1%
Healthcare from NHS bodies	229	71%	236	73%	205	67%	198	71%	868	70%
Healthcare from non-NHS bodies	27	8%	27	8%	41	13%	24	9%	118	10%
Primary Care	2	1%	2	1%	5	2%	3	1%	12	1%
Other expenditure	61	19%	57	17%	54	18%	51	18%	223	18%
Total	323		326		308		280		1,237	

Clinical Commissioning Groups Accounts, available at <https://www.england.nhs.uk/resources/resources-for-ccgs/#ccg-accounts>; SUS Statistics (2016), analysed and provided by The Strategy Unit

3.2.2.3 Expenditure received in the Black Country from NHS organisations located outside the Black Country

The Black Country exports healthcare services. More non-Black Country residents are treated in the Black Country than Black Country residents are treated outside the Black Country). In other words the Black Country receives additional income for healthcare services.

Nearly 700,000 secondary care contacts and over 250,000 bed days are provided in the Black Country for patients from elsewhere, paid for by CCGs/NHS Trusts located outside the Black Country.

This is over 290,000 contacts and 135,000 bed days more than other areas provide for Black Country residents outside the Black Country. Therefore, other NHS organisations purchase services from Black Country providers. We have estimated this level of purchase using assumptions on the value of expenditure Black Country CCGs spend on patients being treated elsewhere. We have estimated that 395,000

patients contacts costs £212 million – or nearly £550 per contact (this includes transactions for private healthcare payments).

Using this assumption, the value of other CCGs purchasing services from Black Country Trusts is £368 million.

Table 3.10 Exports and imports of healthcare expenditure to the Black Country (£m), 2014/15

Healthcare expenditure	Secondary Care Contact Days	Bed days	Total Expenditure (£m)
Expenditure received from NHS outside the Black Country	700,000	250,000	368
Expenditure by Black Country NHS outside the Black Country	410,000	115,000	223
Net expenditure received	290,000	135,000	145

Source: Annual NHS Trust Accounts 2014-15; Sandwell and West Birmingham <http://www.swbh.nhs.uk/about-us/trust-publications/2015-2/> safe staffing levels March 2015, employment by site; SUS Statistics (2016), analysed and provided by The Strategy Unit

3.2.2.4 Total NHS expenditure by CCGs received in the Black Country

The total value of NHS spending received in the Black Country from CCGs is the total expenditure by Black Country CCGs (adjusted for expenditure in West Birmingham), less the expenditure paid to service providers outside the Black Country, plus the expenditure received from non-Black Country CCGs. The total net expenditure by the NHS to Black Country service providers was £1,605 million in 2014/15 (Table 3.11).

Table 3.11 Total NHS expenditure in the Black Country, 2014/15

NHS Expenditure	Expenditure (£m)
Expenditure by Black Country CCGs	1,716
Expenditure by Black Country CCGs for BC residents	1,460
LESS Expenditure for BC residents treatment outside the Black Country	223
PLUS Expenditure in the Black Country by non-BC NHS for non BC residents	368
NHS Expenditure in the Black Country	1,605

Clinical Commissioning Groups Accounts, available at <https://www.england.nhs.uk/resources/resources-for-ccgs/#ccg-accounts>; SUS Statistics (2016), analysed and provided by The Strategy Unit

Of the expenditure received, the largest proportion of NHS CCG spending (74%) is for the purchase of health services from NHS bodies (Table 3.12).

Table 3.12 Total NHS expenditure by CCGs in the Black Country, 2014/15

Type of expenditure	Expenditure (£m)	%
Employee benefits	16	1%
Healthcare from NHS bodies	1,192	74%
Healthcare from non-NHS bodies	163	10%
Primary Care*	12	1%
Other expenditure	223	14%
Total	1,605	100%

Clinical Commissioning Groups Accounts, available at

<https://www.england.nhs.uk/resources/resources-for-ccgs/#ccg-accounts>; *SUS Statistics (2016), analysed and provided by The Strategy Unit*

**Up until April 2015 (the entire period covered in this analysis), NHS England commissioned all GP services. CCGs have been encouraged to take on more responsibility in this area through changes in the NHS Five Year Forward View, and from 2015/16 financial year will co-commission primary care services with NHS England. This helps to explain the expenditure on primary care by the CCGs.*

3.2.3 Total annual expenditure by Black Country NHS Trusts

NHS Trusts and Foundation Trusts are responsible for providing healthcare to patients, mainly through secondary care. Seven Trusts operate in the Black Country, which are:

- The Black Country Partnership (BCP) NHS Foundation Trust;
- Dudley and Walsall Mental Health Partnership (DWMHP) NHS Trust;
- Dudley Group (DG) NHS Foundation Trust;
- Royal Wolverhampton (RW) NHS Trust;
- Sandwell and West Birmingham Hospitals (SWH) NHS Trust;
- Walsall Healthcare (WHT) NHS Trust; and
- West Midlands Ambulance Service (WMAS) NHS Foundation Trust.

The annual accounts of each of these Trusts has been examined to collect data on income, operating expenditure, capital expenditure and surpluses or deficits.

3.2.3.1 NHS Trust income

A summary of the income for each NHS Trust is presented in Table 3.13. NHS Trusts operating in the Black Country had a total income of nearly £1.9 billion in 2014/2015. The Royal Wolverhampton Trust has the largest income, closely followed by the Sandwell and West Birmingham Hospitals NHS Trust.

Table 3.13 Income for Trusts operating in the Black Country, 2014/15

Trust	Income (£000)	%
Black Country Partnership	100,984	5%
Dudley and Walsall Mental Health Trust	64,800	3%
Dudley Group	326,396	17%
Royal Wolverhampton	461,810	25%
Sandwell and West Birmingham	446,590	24%
Walsall Healthcare Trust	239,491	13%
West Midlands Ambulance Service	234,838	13%
Total	1,874,909	100%

Annual NHS Trust Accounts 2014/15

The accounts allow an analysis of income by source of income, which is presented in Table 3.14. This shows that the majority of income comes from CCGs or NHS England (87%). The next largest income group is “other income”, which includes education, training and research, non-patient care services and charitable donations.

However, as with the analysis of CCG spending, some of the NHS Trusts operate both inside and outside the Black Country area, therefore there is some leakage income outside the Black Country region. The following assumptions have been used to assess leakage:

- 49% of the income for Sandwell and West Birmingham Hospitals Trust is generated in the Black Country (Sandwell), which is based on an examination of nursing levels in Sandwell and West Birmingham hospitals;
- 20% of West Midlands Ambulance Service (WMAS) income is for services in the Black Country.

Under these assumptions, the total income of NHS organisations in the Black Country is £1.5 billion (see Table 3.15).

3.2.3.2 Reconciliation of income analysis between CCG data and Trust data

In approximate terms the annual NHS expenditure by CCGs for NHS services in the Black Country as estimated using the CCG accounts (£1.2 billion) is similar to the income from CCGs and NHS England estimated from NHS Trust accounts adjusted for services outside the Black Country (£1.3 billion). Unfortunately, not all NHS Trust accounts disaggregate the income source between NHS England and CCGs. However, where they do approximately 90% of income is from CCGs. This provides an estimate of £1.14 billion income from CCGs, which is close to the estimate of £1.24 billion of CCG spending from Table 3.12.

Table 3.14 Income of Black Country Trusts by type of income (£m), 2014/15

Sources of income	BCP		DWMHT		DG		RW		SWBH		WHT		WMAS		Total	
	£m	%	£m	%	£m	%	£m	%	£m	%	£m	%	£m	%	£m	%
NHS England and CCGs	87	86%	60	93%	298	91%	376	82%	398	89%	212	88%	206	88%	1,636	87%
Other NHS Trusts	1	1%	0	0%	2	1%	3	1%	3	1%	0	0%	14	6%	23	1%
Other NHS and DoH	0	0%	0	0%	0	0%	2	0%	1	0%	0	0%	0	0%	3	0%
Local Authority	9	8%	5	7%	2	1%	7	2%	0	0%	8	3%	0	0%	30	2%
Other patient related	0	0%	0	0%	1	0%	2	1%	2	0%	1	0%	1	0%	8	0%
Other income	4	4%	0	0%	23	7%	71	15%	43	10%	19	8%	14	6%	175	9%
Total	101	100%	65	100%	326	100%	462	100%	447	100%	239	100%	235	100%	1,875	100%

Annual NHS Trust Accounts 2014/15; Sandwell and West Birmingham <http://www.swbh.nhs.uk/about-us/trust-publications/2015-2/> safe staffing levels March 2015, employment by site; SUS Statistics (2016), analysed and provided by The Strategy Unit

Table 3.15 Income of Black Country Trusts by type of income (£000), less income generated outside the Black Country, 2014/15

Sources of income	BCP		DWMHT		DG		RW		SWBH		WHT		WMAS		Total	
	£m	%	£m	%	£m	%	£m	%	£m	%	£m	%	£m	%	£m	%
NHS England and CCGs	87	86%	60	93%	298	91%	376	82%	195	89%	212	88%	41	88%	1,269	85%
Other NHS Trusts	1	1%	0	0%	2	1%	3	1%	1	1%	0	0%	3	6%	11	1%
Other NHS and DoH	0	0%	0	0%	0	0%	2	0%	1	0%	0	0%	0	0%	2	0%
Local Authority	9	8%	5	7%	2	1%	7	2%	0	0%	8	3%	0	0%	30	2%
Other patient related	0	0%	0	0%	1	0%	2	1%	1	0%	1	0%	0	0%	8	1%
Other income	4	4%	0	0%	23	7%	71	15%	21	10%	19	8%	3	6%	175	12%
Total	101	100%	65	100%	326	100%	462	100%	219	100%	239	100%	47	100%	1,495	100%

Annual NHS Trust Accounts 2014/15; Sandwell and West Birmingham <http://www.swbh.nhs.uk/about-us/trust-publications/2015-2/> safe staffing levels March 2015, employment by site; SUS Statistics (2016), analysed and provided by The Strategy Unit

3.2.3.3 Operating and Capital Expenditure by Black Country NHS Trusts (excluding expenditure outside the Black Country)

This Trusts operating in the Black Country had a total operating expenditure of £1.4 billion in 2014/15, with Royal Wolverhampton and Sandwell and West Birmingham Hospital Trusts having the highest operating expenditure (Table 3.16). The capital expenditure of the NHS Trusts operating in the Black Country was £74 million, with more than half of this expenditure being by the Royal Wolverhampton Trust.

Table 3.16 Operating expenditure of Trusts operating in the Black Country less expenditure outside the Black Country, (£m), 2014/15

Trust	Opex (£m)	%
Black Country Partnership	100	7%
Dudley and Walsall Mental Health Trust	63	4%
Dudley Group	321	22%
Royal Wolverhampton	447	31%
Sandwell and West Birmingham	213	15%
Walsall Healthcare Trust	247	17%
West Midlands Ambulance Service	46	3%
Total	1,436	100%

Annual NHS Trust Accounts 2014/15

Table 3.17 Capital expenditure of Trusts operating in the Black Country less expenditure outside the Black Country, (£m), 2014/15

Trust	Capex (£m)	%
Black Country Partnership	5	7%
Dudley and Walsall Mental Health Trust	2	2%
Dudley Group	1	1%
Royal Wolverhampton	44	60%
Sandwell and West Birmingham	9	12%
Walsall Healthcare Trust	11	15%
West Midlands Ambulance Service	2	3%
Total	74	100%

Annual NHS Trust Accounts 2014/15

Table 3.18 Operating expenditure by Black Country Trusts, less spending outside the Black Country, (£m), 2014/15

Type of cost	Total operating expenditure	
	£m	%
Employee benefits	926	65%
Healthcare from NHS bodies	16	1%
Healthcare from non-NHS bodies	7	0%
Other expenditure	487	34%
Total	1,432	100%

Annual NHS Trust Accounts 2014-15; Sandwell and West Birmingham <http://www.swbh.nhs.uk/about-us/trust-publications/2015-2/> safe staffing levels March 2015, employment by site; SUS Statistics (2016), analysed and provided by The Strategy Unit

Table 3.19 Operating expenditure by Black Country Trusts, less spending outside the Black Country, £m, 2014/15

Type of cost	BCP		DWMHT		DG		RW		SWBH		WHT		WMAS		Total	
	£m	%	£m	%												
NHS England and CCGs	79	79%	49	77%	190	59%	270	60%	143	67%	163	66%	32	70%	926	65%
Other NHS Trusts	1	1%	0	0%	0	0%	4	1%	9	4%	2	1%	0	0%	16	1%
Other NHS and DoH	2	2%	0	0%	1	0%	3	1%	1	0%	1	0%	0	0%	7	0%
Local Authority	18	18%	14	23%	130	40%	170	38%	60	28%	81	33%	14	30%	487	34%
Other patient related	100	100%	63	100%	321	100%	447	100%	213	100%	247	100%	46	100%	1,436	100%
Other income	79	79%	49	77%	190	59%	270	60%	143	67%	163	66%	32	70%	926	65%
Total	1	1%	0	0%	0	0%	4	1%	9	4%	2	1%	0	0%	16	1%

Annual NHS Trust Accounts 2014-15; Sandwell and West Birmingham <http://www.swbh.nhs.uk/about-us/trust-publications/2015-2/> safe staffing levels March 2015, employment by site; SUS Statistics (2016), analysed and provided by The Strategy Unit

3.3 Primary Care analysis

Primary Care in England is largely funded directly by NHS England. Data for NHS England payments to General Practices is collected by the HSCIC. In total in England £7.2 billion of NHS funding was paid to General Practices. The payments to Practices by CCG area are presented in Table 3.20, which shows a total of £177 million paid to GP practices in the four CCG areas.

However, some of the GP practices in the Sandwell and West Birmingham CCG area are not in the Black Country. The expenditure is provided at a practice level, allowing the payments to practices in West Birmingham to be excluded. Payments to Practices in the Black Country totalled £145 million in 2014-15.

Table 3.20 NHS England payments to General Practices (£m), 2014/15

Trust	Payments to Practices (£m)	%
Dudley CCG	36	20%
Sandwell & West Birmingham CCG	72	41%
Walsall CCG	38	21%
Wolverhampton CCG	31	18%
Total	177	100%

HSCIC NHS Payments to General Practice, England, 2014/15

Table 3.21 NHS England payments to General Practices (£m), less payments to practices in Birmingham, 2014/15

Trust	Payments to Practices (£m)	%
Dudley CCG	36	25%
Sandwell & West Birmingham CCG	40	28%
Walsall CCG	38	26%
Wolverhampton CCG	31	22%
Total	145	100%

HSCIC NHS Payments to General Practice, England, 2014-15

The dataset provides estimates of how the payments to GP practices are spent, which is presented in Table 3.22. GP partners pay represents 38% of payments, slightly higher than payments to other members of staff (37%). Earnings represent nearly three quarters of expenditure.

Table 3.22 Payments to GP practices in the Black Country by type of expenditure (£m), 2014/15

Type of cost	Dudley CCG	Sandwell and W Birmingham CCG	Walsall CCG	Wolverhampton CCG	Total (£m)	%
GP earnings	14	15	14	12	56	38%

Type of cost	Dudley CCG	Sandwell and W Birmingham CCG	Walsall CCG	Wolverhampton CCG	Total (£m)	%
Other employee earnings	13	15	14	11	53	37%
Office and General Business	2	2	2	2	8	6%
Premises	3	3	3	3	12	9%
Other	4	4	4	3	16	11%
Total	36	40	38	31	145	100%

HSCIC NHS Payments to General Practice, England, 2014/15

3.4 NHS expenditure in context

The value of NHS spending in the Black Country was estimated to be £2 billion in 2014/15 (Table 3.3). In 2015, the population of the Black Country was estimated to be 1,166,500. NHS expenditure in the Black Country is equivalent to £1,720 per capita. This compares to the NHS expenditure per capita for England of £1,800¹.

Alternatively, the £2 billion of NHS expenditure in the Black Country residents represents 2.0% of the total NHS England expenditure (£98 billion). This compares with the share of the total English population resident in the Black Country of 2.1%, meaning that per capita NHS expenditure in the Black Country is comparable to the national average.

However, this analysis compares NHS spending in the Black Country to NHS spending nationally. The Black Country is a net importer of patients, therefore this spend includes spending on patients from outside the Black Country. An alternative way of comparing the Black Country spend to the national spend is to examine the spending on purchasing healthcare² by NHS England and by the CCGs for Black Country residents. These represent the largest proportion of the total expenditure and are directly comparable. They exclude the additional types of expenditure made by NHS England. The expenditure per capita for purchasing healthcare services is £990 in the Black Country (using £1.01 billion expenditure from Table 3.7), compared to £1,350 for England. Per capita NHS expenditure in the Black Country for purchasing healthcare is 73% of that for England.

Some of the per capita difference can be explained by the way NHS payments are made. Services which have a national tariff are subject to local variations and modifications. For example, the NHS has a Market Forces Factor (MFF) adjustment for standard tariffs for NHS treatments. The average MFF value for Black Country organisations is 1.037 compared to a national average of 1.082. However, this does not explain the full difference. Section 6.2 provides details of the number of hospital episodes in the Black Country, which shows that Black Country residents on average have fewer hospital episodes than the English average and the average length of stay in hospital is shorter. This could help to explain the difference in expenditure.

Although spending on Black Country residents for acute care is lower than the national average, the total expenditure by the NHS in the Black Country is comparable with national averages. This is because NHS Trusts in Black Country receives payments from organisations to treat patients from outside the area (and

¹ Based on NHS England expenditure (£98 billion) and total population of England (55 million). This over-estimates the comparable per capita spend, including payments for primary care, public health and dental care

² From both NHS bodies and non-NHS bodies

this is higher than the proportion of patients from the Black Country being treated elsewhere in England), and organisations in the Black Country spend a higher proportion of their expenditure on “other expenditure” than the national average.

3.5 Estimates of GVA

The usual economic indicator of the impacts of economic activity at sub-national levels is Gross Value added (GVA). This approximates to GDP at the national level. GVA is a measure of the income received by the economy as a result of economic activity. This income is approximated as the sum of profits and wages.

3.5.1 Profits

The level of profits made in the NHS in 2014/15 have been taken from comparing the income and expenditure of Trusts. Three different comparisons are presented in the annual accounts for the Trusts:

- Operating surplus / deficit: the difference between income and the operating expenditure;
- Retained surplus / deficit: the operating surplus / deficit minus financial obligations (such as repayments and dividends) plus investment revenue; and
- Adjusted surplus / deficit: the retained surplus with accounting adjustments.

These three surplus / deficits are presented by Trust in Table 3.23 for the total for each Trust operating in the Black Country, and in Table 3.24 for the expenditure and income within the Black Country. This shows that all but one Trust made an operating surplus in 2014-15, and the total operating surplus for Trusts operating in the Black Country was over £32 million (£23 million net of leakage). However, the Trusts in the Black Country had a retained deficit in 2014-15 of £12 million (£17 million net). Walsall Healthcare Trust had an operating deficit and the largest retained deficit.

Table 3.23 Surplus / deficit of Trusts operating in the Black Country (£000), 2014/15

Trust	Operating surplus / deficit	Retained surplus / deficit	Adjusted surplus / deficit
Black Country Partnership	1,341	-476	-1,001
Dudley and Walsall Mental Health Trust	1,573	484	484
Dudley Group	5,160	-8,128	-8,055
Royal Wolverhampton	15,101	3,120	3,663
Sandwell and W Birmingham	12,022	4,585	4,653
Walsall Healthcare Trust	-7,073	-15,434	-12,861
WMAS	4,070	3,538	3,538
Total	32,194	-12,311	-9,579

Annual NHS Trust Accounts 2014/15

Table 3.24 Surplus / deficit of Trusts operating in the Black Country less expenditure outside the Black Country less expenditure and income outside the Black Country (£000), 2014/15

Trust	Operating surplus / deficit	Retained surplus / deficit	Adjusted surplus / deficit
Black Country Partnership	1,341	-476	-1,001

Trust	Operating surplus / deficit	Retained surplus / deficit	Adjusted surplus / deficit
Dudley and Walsall Mental Health Trust	1,573	484	484
Dudley Group	5,160	-8,128	-8,055
Royal Wolverhampton	15,101	3,120	3,663
Sandwell and W Birmingham	5,891	2,247	2,280
Walsall Healthcare Trust	-7,073	-15,434	-12,861
WMAS	814	708	708
Total	22,807	-17,479	-14,782

Annual NHS Trust Accounts 2014-15; Sandwell and West Birmingham <http://www.swbh.nhs.uk/about-us/trust-publications/2015-2/> safe staffing levels March 2015, employment by site.

For the purposes of estimating GVA, the operating surplus/deficit (the gross difference between income and expenditure has been used). This assumes that the retentions and adjustments are reflected in the levels of expenditure achieved.

3.5.2 Wages

The biggest item of NHS expenditure is wages. From Table 3.12 (CCGs), Table 3.19 (NHS Trusts) and Table 3.22 (GPs), the total value of expenditure on employee benefits in the Black Country can be calculated. This includes wages and pension payments to permanent and agency staff. The total annual value of payments to staff by NHS organisations in the Black Country is estimated to be £1.05 billion.

Table 3.25 Payments for NHS employee benefits (£m), 2014/15

Source of employment	Employee benefits (£m)	%
CCGs	16	1%
NHS Trusts	926	88%
General Practices	108	10%
Total	1,050	100%

Tables 3.12, 3.19, 3.22

Three of the seven NHS Trusts provide information on the spending on Agency staff, or the number of Agency/Bank staff employed.³ In these organisations between 2.5% and 7.6% of total employee benefit expenditure is for Agency staff. An average value for these three organisations is 3.8% of total employee benefit expenditure being for Agency staff. If this percentage is applied to employee benefits from all Trusts, then the Trusts cumulatively spent £40 million on Agency staff in 2014/15.

3.5.3 GVA

The estimate of GVA derived from the provision of NHS healthcare services in the Black Country is the sum of profits (operating surplus) and wages. GVA is very largely comprised of wages (Table 3.26). Total annual GVA in the Black Country is estimated at £1.1 billion, in 2014/15.

³ These are specific entries in the accounts, not payments split between “permanent” and “other” staff.

Table 3.26 Annual GVA from NHS expenditure in the Black Country, (£m), 2014/15

Source of GVA	GVA (£m)	%
Operating surplus	23	2%
Wages	1,050	98%
Total	1,073	100%

Tables 3.24, 3.25

3.6 Purchases of goods and services

The estimated expenditure on the purchase of items other than wages, is taken from the preceding expenditure analysis, and is effectively the difference between total expenditure and expenditure on wages, assuming that the operating surpluses are not reflected in the total expenditure analysis. Operating expenditure for CCGs is adjusted to avoid double counting.

The estimated level of annual expenditure on purchases in 2014/15 is £961m (Table 3.27).

Table 3.27 Annual NHS expenditure in the Black Country on purchases, (£m), 2014/15

Source of purchases	Purchases (£m)	%
NHS CCGs – Operating expenditure	342	34%
NHS Trusts – Operating expenditure	510	53%
NHS Trusts – Capital expenditure	73	8%
Primary care expenditure	36	4%
Total	961	100%

Tables 3.12, 3.17, 3.19, 3.22

The pattern of expenditure and a detailed breakdown of the items purchased is not available from local accounts. Given that this pattern is unlikely to differ much locally, compared to nationally, we have applied the national breakdown of expenditure as reported in UK input-output tables.

Applying the pattern of purchases of goods and services by the health sector in the UK in 2013 to the estimated total purchases in the Black Country, in 2014/15 is summarised in Table 3.28.

Table 3.28 Summary of NHS health services sector expenditure in the Black Country on purchases of goods and services (£m), 2014/15

Goods and services purchased (Top 12)	Value of purchases (£m)	Share of total (%)	Cumulative share (%)
Basic pharmaceutical products and pharmaceutical preparations	228	24%	24%
Human health services	166	17%	41%
Computer, electronic and optical products	112	12%	53%
Employment services	32	3%	56%
Scientific research and development services	31	3%	59%

Goods and services purchased (Top 12)	Value of purchases (£m)	Share of total (%)	Cumulative share (%)
Architectural and engineering services; technical testing and analysis services	26	3%	62%
Legal services	24	2%	64%
Land transport services and transport services via pipelines, excluding rail transport	22	2%	67%
Real estate services, excluding on a fee or contract basis and imputed rent	21	2%	69%
Residential Care & Social Work Activities	20	2%	71%
Computer programming, consultancy and related services	18	2%	73%
Waste collection, treatment and disposal services; materials recovery services	16	2%	74%
Other	261	24%	100%

Input-Output Tables: Industries' intermediate consumption, 2013: The 'Combined Use' matrix, ONS

3.7 Economic multipliers of GVA

The economic benefits from economic activity arise from the income directly resulting from the economic activity. This includes but is not limited to the *direct* GVA estimated in the previous section.

Income is also generated as a result of the economic activity resulting from the spending on the purchase of goods and services. If producers of these goods and services are located in the Black Country, they will also secure income and employ related staff. This effect is defined as the *indirect* economic impact.

In addition, those directly and indirectly employed receive wages, a proportion of which is spent in the Black Country. This spending again supports further economic activity, which generates income for Black Country workers and residents. This effect is defined as the *induced* economic impact.

Because there are successive rounds of purchasing, income generation and further purchasing, the total indirect and induced effects are calculated as the multiple of the initial direct impact. This multiple (defined as the multiplier) is calculated using the national input-output tables that define the economic sectors that gain sales from additional spending and purchasing. At a local level the multiplier also takes into account the local economic structure of the Black Country and the propensity for purchasing activity to be sourced outside the Black Country in which case expenditure 'leaks' out with no related income, or is retained and therefore contributes further income.

Separate multipliers of GVA are calculated for the indirect effect (Type I multiplier) and the induced effect (Type II multiplier, which calculates the combined impact and from which the indirect impact can be subtracted)).

Both GVA multipliers have been calculated for the Black Country⁴ based on the direct levels of GVA and level of and type of purchases estimated in the previous section. Multipliers for employment based on the same principles are also calculated and reported in the next Section.

⁴ The multiplier calculation has been undertaken by Cambridge Econometrics

The results are summarised in Table 3.29, which indicate that the total impact on Black Country GVA of NHS expenditure is £1.5 billion per year.

Table 3.29 GVA multiplier effects

Source of purchases	Multiplier (£m)	GVA (£m)
Direct impact		1,073
Indirect impact	(Type I) 1.22	237
Induced impact		220
Total impact	(Type II) 1.43	1,530

Data reported on Direct GVA (Section 3.5) and Purchases (Section 3.6). Estimation by Cambridge Econometrics

4 NHS workforce in the Black Country

4.1.1 National NHS workforce

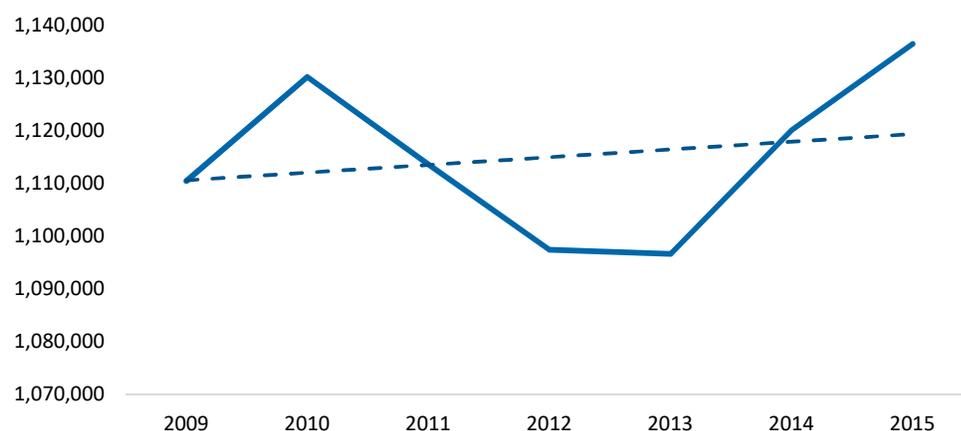
The NHS is the largest employer in England employing 1.1 million FTE employees, and an estimated headcount of 1.3 million (Table 4.1). This does not include agency staff. The largest proportion of the staff are nurses and midwives and support staff. The majority of staff work in secondary care (75%), with 14% working in infrastructure and management and 11% working in primary care. Figure 4.1 shows the trend in NHS employment since 2004. This shows that employment has been increasing, and is currently at its highest level (following a previous peak in 2010).

Table 4.1 Total NHS Workforce England, FTE, 2015

Staff Group	Total FTE (000)	% of FTE	Headcount (000)	% of headcount
All Doctors	104	9%	111	8%
Nurses and midwives	302	27%	340	26%
Allied Health Professionals	128	11%	147	11%
Ambulance Service	18	2%	19	1%
Support staff	299	26%	350	27%
Infrastructure and managers	158	14%	182	14%
Primary care – GP	35	3%	42	3%
Primary Care – nurses	15	1%	23	2%
Primary care – Direct Patient Care	9	1%	14	1%
Primary Care – admin	64	6%	93	7%
Other	4	0%	4	0%
Total	1,137	100%	1,318	100%

HSCIC NHS Hospital & Community Health Service (HCHS) and General Practice workforce as at 30 September each specified year

Figure 4.1 Trend in total NHS workforce England, FTE, 2009-2015



HSCIC, 2015 General and Personal Medical Services in England 2005-2015; Provisional Experimental Statistics.

4.2 NHS workforce in the Black Country

4.2.1 Directly employed workforce by NHS organisations

NHS organisations operating in the Black Country provided nearly 31,000 FTE jobs, employing 35,000 people (Table 4.2) and broken down by Staff Group (Table 4.3). The largest employer is the Royal Wolverhampton NHS Trust. Nearly 90% of the posts are in secondary care trusts or the ambulance service.

However, these figures include workers employed outside the Black Country, as three organisations operate both inside and outside the Black Country.⁵

Table 4.2 NHS jobs by organisation, March 2015

Organisation	FTE roles	%	Headcount	%
NHS Dudley CCG	66	0.2%	72	0.2%
NHS Sandwell and West Birmingham CCG	144	0.5%	155	0.4%
NHS Walsall CCG	77	0.3%	81	0.2%
NHS Wolverhampton CCG	67	0.2%	76	0.2%
Black Country Partnership NHS Foundation Trust	1,814	5.9%	2,005	5.7%
Dudley and Walsall Mental Health Partnership NHS Trust	925	3.0%	1,002	2.9%
Dudley Group NHS Foundation Trust	4,129	13.4%	4,630	13.2%
Royal Wolverhampton NHS Trust	6,834	22.2%	7,796	22.2%
Sandwell and West Birmingham Hospitals NHS Trust	6,189	20.1%	6,934	19.8%
Walsall Healthcare NHS Trust	3,745	12.2%	4,301	12.3%
West Midlands Ambulance Service NHS Foundation Trust	4,206	13.7%	4,415	12.6%
Primary Care	2,605	8.5%	3,615	10.3%
Total	30,800	100%	35,082	100%

HSCIC NHS workforce statistics, collected by The Strategy Unit; General and Personal Medical Services dataset (2015)

⁵ NHS Sandwell and West Birmingham CCG; Sandwell and West Birmingham Hospitals NHS Trust; and West Midlands Ambulance Service NHS Foundation Trust

Table 4.3 NHS jobs by staff group for organisations based in the Black Country, March 2015

Staff Group	Total number in Black Country	% of Black Country staff
All Doctors	2,441	8%
Nurses and midwives	7,638	25%
Allied Health Professionals	2,937	10%
Ambulance Service	2,188	7%
Support staff	9,012	29%
Infrastructure and managers	3,979	13%
Primary care – GP	719	2%
Primary Care - nurses	340	1%
Primary care – Direct Patient Care	143	0%
Primary Care - admin	1,403	5%
Total	30,800	100%

HSCIC NHS workforce statistics, collected by The Strategy Unit; General and Personal Medical Services dataset (2015)

Using the same assumptions as used in section 3.2.2.2,⁶ there were almost 25,000 FTE roles based in the Black Country, employing nearly 29,000 workers in 2015 (Table 4.4). The breakdown by Staff Group is provided in Table 4.5, indicating that the largest staff groups are support staff and nurses and midwives, which represent over half of the FTE roles in the Black Country (13,500).

This represents 6% of the total employment in the Black Country, and 2.1% of NHS jobs in England. This percentage of the national NHS workforce is in line with the proportion of the population of England living in the Black Country.

⁶ 60% of staff working for NHS Sandwell and West Birmingham CCG and 49% of staff working for Sandwell and West Birmingham Hospitals NHS Trust are employed in the Black Country, and 20% of the West Midlands Ambulance Service NHS Foundation Trust workforce is based in the Black Country.

Table 4.4 NHS jobs based in the Black Country by organisation, March 2015

Organisation	FTE oles	%	Headcount	%
NHS Dudley CCG	66	0.3%	78	0.3%
NHS Sandwell and West Birmingham CCG	86	0.4%	104	0.4%
NHS Walsall CCG	77	0.3%	86	0.3%
NHS Wolverhampton CCG	67	0.3%	74	0.3%
Black Country Partnership NHS Foundation Trust	1,814	7.5%	2,039	7.2%
Dudley and Walsall Mental Health Partnership NHS Trust	925	3.8%	1,022	3.6%
Dudley Group NHS Foundation Trust	4,129	17.0%	4,713	16.6%
Royal Wolverhampton NHS Trust	6,834	28.2%	7,937	28.0%
Sandwell and West Birmingham Hospitals NHS Trust	3,033	12.5%	3,439	12.1%
Walsall Healthcare NHS Trust	3,745	15.5%	4,375	15.4%
West Midlands Ambulance Service NHS Foundation Trust	841	3.5%	892	3.1%
Primary Care	2,605	10.8%	3,615	12.7%
Total	24,206	100%	28,373	100%

HSCIC NHS workforce statistics, collected by The Strategy Unit; General and Personal Medical Services dataset (2015)

Table 4.5 NHS jobs based in the Black Country, March 2015

Staff Group	Total number in Black Country	% of Black Country staff
All Doctors	2,073	9%
Nurses and midwives	6,636	27%
Allied Health Professionals	2,526	10%
Ambulance Service	438	2%
Support staff	6,849	28%
Infrastructure and managers	3,094	13%
Primary care – GP	719	3%
Primary Care - nurses	340	1%
Primary care – Direct Patient Care	143	1%
Primary Care - admin	1,403	6%
Total	24,221	100%

HSCIC NHS workforce statistics, collected by The Strategy Unit; General and Personal Medical Services dataset (2015)

4.2.2 Employment supported by NHS funding but not directly employed

NHS organisations can employ additional staff through agency staff and through bank staff (staff not permanently employed but who NHS organisations bring in to cover shifts without resorting to agency staff).

It has been estimated that the NHS spent approximately 7% of the wage bill on Agency staff.⁷ The remaining gap between the earnings of directly employed staff and the wage bill is assumed to be due to the employment of bank staff.

We have estimated the number of jobs in non-NHS organisations by using the share of the total wage cost (excluding pension and termination costs, £950 million)

⁷ This estimate comes from discussions with individuals modelling agency staffing for the STP group strategy.

associated with NHS organisations (estimated below) and assuming that the distribution of employment by staff group and the average earnings by staff group of people employed in NHS funded but non-NHS organisations is the same.

Table 4.6 presents the results of this analysis. It shows that in total there are nearly 31,000 FTE roles in the NHS in the Black Country. Over 4,000 of these roles are bank staff roles and over 2,000 agency staff roles.

Table 4.6 Staff working at NHS organisations by type of employment contract

Type of staff	Percentage of wage bill	Number of FTEs directly employed	Number of staff
Directly employed staff	78.7%	24,221	24,221
Bank staff	14.3%		4,403
Agency staff	7.0%		2,155
Total	100.0%		30,779

HSCIC NHS workforce statistics, collected by The Strategy Unit; General and Personal Medical Services dataset (2015); Annual NHS Trust Accounts 2014/15

4.2.3 Total employment supported by NHS expenditure

The total number of FTE jobs supported by NHS expenditure in the Black Country comprises those employed directly in NHS organisations (24,200) plus Bank staff (4,400) plus those employed in NHS funded but non-NHS organisations (2,200) equals, 30,800 FTE jobs.

4.3 Wages of the Black Country NHS workforce

The expenditure on wages estimated in Section 3 was based on the reported expenditure on wages funded by the NHS through NHS organisations and other non-NHS organisations, including private sector providers and Agency. Expenditure includes bonuses, social security payments, annual leave benefits carried forward into the next financial year, termination payments and pension payments.

Based on the estimated number of FTE jobs directly employed by NHS organisations and estimates of the earnings for different staff groups, it has been possible to estimate the gross wages (salaries and National Insurance) paid by the NHS in the Black Country. This is presented in Table 4.7. The NHS expenditure on wages is estimated to be £748 million in 2015. The largest staff group by the size of the wage bill is nurses and midwives. Secondary care staff take up the majority of the wage bill (72%) Primary care roles represent 16% of the wage bill, and infrastructure and management roles represent 12%.

Table 4.7 Wage costs for NHS jobs in the Black Country, 2015

Staff Group	Number of FTE jobs	Annual earnings (£)	Wage costs (£m)	% wage costs
All Doctors	2,073	59,100	123	16%
Nurses and midwives	6,636	31,000	206	27%

Staff Group	Number of FTE jobs	Annual earnings (£)	Wage costs (£m)	% wage costs
Allied Health Professionals	2,526	34,500	87	12%
Ambulance Service	438	27,000	12	2%
Support staff	6,849	18,600	127	17%
Infrastructure and managers	3,094	28,700	89	12%
Primary care – GP	850	89,700	64	9%
Primary Care - nurses	410	30,700	10	1%
Primary care – Direct Patient Care	179	30,700	4	1%
Primary Care - admin	1,625	18,400	26	3%
Total	24,221	30,900	748	100%

HSCIC NHS workforce statistics, collected by The Strategy Unit; General and Personal Medical Services dataset (2015); GP earnings and expenditure, 2013-2014, Annex 3 Table 1d; HSCIC, Provisional NHS Staff Earnings Estimates, Table 2a - Mean annual basic pay per FTE by Staff Group, England

The estimated wage bill of £748m is some 71% of the total expenditure on employees of £1.05bn.

4.4 Resident Black Country NHS workforce

The staff employed by NHS organisations based in the Black Country do not all live within the Black Country. Some will live in neighbouring areas and commute to work. Data on the home address of staff is not available. Therefore, in order to assess the residential location of staff who work in the Black Country data was taken from the census, which allows an analysis of where people live and work by Socio-economic Classification. Table 4.8 presents the percentage of the workforce that work in the Black Country.

Table 4.8 Working population of the Black Country by area of residence and Ns-SEC

Socio-economic classification	% Living in the BC	% Living outside the BC
Higher managerial and administrative occupations	53.5%	46.5%
Higher professional occupations	51.8%	48.2%
Lower professional and higher technical occupations	66.9%	33.1%
Lower managerial and administrative occupations	63.1%	36.9%
Higher supervisory occupations	74.4%	25.6%
Intermediate occupations	78.8%	21.2%
Employers in small organisations	66.9%	33.1%
Own account workers	76.5%	23.5%
Lower supervisory occupations	81.0%	19.0%
Lower technical occupations	73.7%	26.3%
Semi-routine occupations	86.3%	13.7%
Routine occupations	84.5%	15.5%

UK Census, 2011⁸

Using the data from the census (Table 4.8 above), an estimate was made of the number of NHS funded workers who live in the Black Country (Table 4.9). This indicates that over 16,000 FTE roles, or nearly 19,000 individuals employed by NHS organisations in the Black Country are Black Country residents. This is 67% of the workforce in NHS organisations in the Black Country. Table 4.10 presents the number of FTE roles taken by Black Country residents by job role. Additionally, 5,000 of 6,600 agency and bank staff are estimated to live in the Black Country.

⁸ VML agrees that the figures and descriptions of results in the attached document may be published. This does not imply ONS' acceptance of the validity of the methods used to obtain these figures, or of any analysis of the results.

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Table 4.9 NHS staff in the Black Country who live in the Black Country

NHS organisation	FTE roles for Black Country residents	Headcount of Black Country residents
NHS Dudley CCG	44	52
NHS Sandwell and West Birmingham CCG	54	65
NHS Walsall CCG	45	50
NHS Wolverhampton CCG	41	46
Black Country Partnership NHS Foundation Trust	1,223	1,374
Dudley and Walsall Mental Health Partnership NHS Trust	668	738
Dudley Group NHS Foundation Trust	2,942	3,358
Royal Wolverhampton NHS Trust	4,371	5,077
Sandwell and West Birmingham Hospitals NHS Trust	2,033	2,306
Walsall Healthcare NHS Trust	2,351	2,746
West Midlands Ambulance Service NHS Foundation Trust	617	654
Primary Care	1,803	2,502
Total	16,192	18,968

UK Census, 2011; HSCIC NHS workforce statistics, collected by The Strategy Unit; General and Personal Medical Services dataset (2015)

Table 4.10 NHS staff in the Black Country who are resident in the Black Country by role

Role	FTE roles for Black Country residents
All Doctors	1,076
Nurses and midwives	4,451
Allied Health Professionals	1,690
Ambulance Service	345
Support staff	4,583
Infrastructure and managers	2,243
Primary care – GP	373
Primary Care – nurses	228
Primary care – Direct Patient Care	96
Primary Care – admin	1,106
Total	16,192

UK Census, 2011; HSCIC NHS workforce statistics, collected by The Strategy Unit; General and Personal Medical Services dataset (2015)

Table 4.11 shows the level of pay for NHS employees resident in the Black Country. This shows that although 67% of NHS workers employed in the Black Country live in the Black Country, only 60% of the expenditure on wages remains in the Black Country (£626 million). This is because higher paid members of staff are more likely to live outside the Black Country than lower paid staff. The analysis shows that workers employed by NHS organisations in the Black Country who live in the Black Country represent 4% of the total Black Country workforce.

Table 4.11 NHS staff in the Black Country who are resident in the Black Country and earnings

Role	FTE roles for Black Country residents	Annual earnings (£)	Wage costs (£m)
All Doctors	1,076	59,200	64
Nurses and midwives	4,451	31,000	138
Allied Health Professionals	1,690	34,500	58
Ambulance Service	345	27,000	9
Support staff	4,583	18,600	85
Infrastructure and managers	2,243	27,000	61
Primary care – GP	373	89,700	33
Primary Care – nurses	228	30,700	7
Primary care – Direct Patient Care	96	30,700	3
Primary Care – admin	1,106	18,400	20
Agency staff	1,628	29,712	58
Bank staff	3,326	29,712	99
Total	21,145	29,600	626

UK Census, 2011; HSCIC NHS workforce statistics, collected by The Strategy Unit; General and Personal Medical Services dataset (2015); GP earnings and expenditure, 2013-2014, Annex 3 Table 1d; HSCIC, Provisional NHS Staff Earnings Estimates, Table 2a - Mean annual basic pay per FTE by Staff Group, England

4.5 Employment multipliers

Separate employment multipliers are calculated for the indirect effect (Type I multiplier) and the induced effect (Type II multiplier, which calculates the combined impact and from which the indirect impact can be subtracted)).

Both employment multipliers have been calculated for the Black Country⁹ based on the direct levels of employment, wages and level of and type of purchases estimated in Section 3.

The results are summarised in Table 4.7, which indicate that the total impact on Black Country employment of NHS expenditure is 40,100 FTE jobs per year. This represents 8.3% of the total Black Country workforce.

Table 4.12 Employment (workplace based) multiplier effects

Source of purchases	Multiplier (£m)	Employment (FTE)
Direct impact		30,800
Indirect impact	(Type I) 1.16	5,000
Induced impact		5,000
Total impact	(Type II) 1.32	40,800

Source: Data reported on Direct Employment (Section 4.2) and Purchases (Section 3.6). Estimation by Cambridge Econometrics

⁹ The multiplier calculation has been undertaken by Cambridge Econometrics

5 Land use and Premises of the NHS in the Black Country

5.1 National statistics on the NHS estate in England

5.1.1 Definition of the NHS Estate

Data for NHS acute properties (providing secondary care) are collected through the Estates Return Information Collection (ERIC) database. The database holds information for sites in England. Table 5.1 shows that there are over 1,200 acute sites in England, with the largest number of sites in Midlands and East of England and the North of England. Unfortunately the ERIC database does not include information on whether the site is owned by the NHS or rented from a private landlord.

Table 5.1 Number of NHS acute properties by area team

Area team	Number of properties	% of properties
London	155	12%
Midlands and East of England	373	30%
North of England	360	29%
South of England	363	29%
Total	1,251	100%

Estates Return Information Collection database, 2016, data provided by The Strategy Unit

The ERIC database includes fields which allow the analysis of the size of properties. We have analysed the size of the land the acute sites occupy (the land that is included in each sites estate), the size of the building footprint (the space the building occupies) and the size of the occupied floorspace (the internal space used by the site). This is presented in Table 5.2. This shows that the North of England has the largest estate size, representing over a third of the total estate of the NHS in all three measures.

Table 5.2 Size of NHS acute sites

Area team	Site land area		Building footprint		Occupied floorspace	
	Hectare	%	Million m ²	%	Million m ²	%
London	1,002	15%	1.7	13%	4.3	15%
Midlands and East of England	1,840	28%	3.9	30%	6.6	28%
North of England	2,238	34%	4.5	35%	8.1	34%
South of England	1,438	22%	2.9	22%	5.4	22%
Total	6,518	100%	13.0	100%	24.3	100%

Estates Return Information Collection database, 2016, data provided by The Strategy Unit

The value of the land the NHS acute sites occupy has been estimated using the site land area and an estimate of land value (see Annex 4). The estimates are presented in Table 5.3, which shows that despite London having the smallest estate size it has the highest estate value, due to the high level of land prices.

The estimates of value of NHS sites was calculated using data from the ERIC database on the size of the site and multiplying the size by estimates of land value

for residential properties from the Department for Communities and Local Government.

Table 5.3 Estimated value of NHS premises, 2015

Area team	Value (£bn)	%
London	£29	74%
Midlands and East of England	£3	8%
North of England	£3	8%
South of England	£4	10%
Total	£39	100%

Estates Return Information Collection database, 2016, data provided by The Strategy Unit; Department for Communities and Local Government Land value estimates for policy appraisal

5.2 The NHS Estate in the Black Country

5.2.1 Definitions

Data for primary care sites has been collected from the NHS Property Service. This database provides slightly different information to the ERIC database. The site land area is still provided, but the other fields which measure the size of the premises are gross building space and net occupied building space. The definition for the size of the land area and net occupied building space are closely aligned to the site land area and occupied floorspace fields from the ERIC database.

5.2.2 Acute care

The data for acute care estates in the Black Country comes from the ERIC database. The analysis allowed the sites to be disaggregated by NHS Trust. In total, there were 23 sites in the Black Country. The sites covered over 125 hectares of land and occupies over 500 billion square metres of floorspace (see Table 5.6). The Royal Wolverhampton Trust is the largest estate, with over a quarter of the land and one third of the occupied floorspace.

Table 5.4 Size of NHS acute sites

Trust	Site land area		Building footprint		Occupied floorspace	
	Hectare	%	Million m ²	%	Million m ²	%
Black Country Partnership NHS Foundation Trust	15.2	12%	24,374	8%	31,764	6%
Dudley And Walsall Mental Health Partnership NHS Trust	11.4	9%	21,394	7%	26,156	5%
Sandwell And West Birmingham Hospitals NHS Trust	11.3	9%	33,638	11%	64,021	13%
The Dudley Group NHS Foundation Trust	27.8	22%	33,958	12%	91,556	18%
The Royal Wolverhampton NHS Trust	33.6	27%	86,095	30%	172,933	34%
Walsall Healthcare NHS Trust	15.8	13%	59,632	20%	90,457	18%
West Midlands Ambulance Service NHS Foundation Trust	10.4	8%	30,000	10%	34,548	7%
Total	125.4	100%	28,091	100%	511,435	100%

Estates Return Information Collection database, 2016, data provided by The Strategy Unit.

The value of the land occupied by NHS acute services in the Black Country is presented in Table 5.5, with the total value estimated at £188 million. The estimated value has been calculated in the same way as described for the national estimates. The only difference is that estimated land values for the four Local Authority areas have been used instead of regional valuations. The Royal Wolverhampton Trust has the highest value estate.

Table 5.5 Estimated value of NHS premises in the Black Country, 2015

Trust	Value (£m)	%
Black Country Partnership NHS Foundation Trust	23	12%
Dudley And Walsall Mental Health Partnership NHS Trust	17	9%
Sandwell And West Birmingham Hospitals NHS Trust	17	9%
The Dudley Group NHS Foundation Trust	42	22%
The Royal Wolverhampton NHS Trust	50	27%
Walsall Healthcare NHS Trust	24	13%
West Midlands Ambulance Service NHS Foundation Trust	16	8%
Total	188	

Estates Return Information Collection database, 2016, data provided by The Strategy Unit; Department for Communities and Local Government Land value estimates for policy appraisal

5.2.3 Primary care

The data for the primary care estate has been taken from NHS properties database. Although this database does provide information on the size of primary care estates, completion of the database is not compulsory. Therefore many primary care estates

had no information about the size of the estate. Out of 251 GP practices with information¹⁰, 53 had at least one entry about the size of the estate (21%).

In order to estimate the size of the primary care estate, several assumptions were used. These were:

- If data was available for at least one of the size fields, the average ratio of that field to other fields was used to estimate the value of the other size fields. This average ratio was calculated from the sum of fields from estates which provided every field. This was calculated separately for each local authority area.
- If no size data was available for any field, an average size per patient was calculated from the sites that provided size information and the registered list size from the General and Personal Medical Services data from the HSCIC. This average size per patient was then multiplied by the list size for the estates where no information was provided.
- Where there was no information on list size, the estate was excluded from the analysis.

Table 5.6 presents the results of this analysis. A total of 61 hectares of land were occupied by primary care organisations, and over 179 billion square metres of occupied floorspace. GP practices in Walsall had the largest estate by site land area and occupied building space. This is despite Sandwell having the largest number of primary care practices in the Black Country.

Table 5.6 Size of primary care sites in the Black Country, 2015

Local Authority	Site land area		Building footprint		Occupied floorspace	
	Hectare	%	Million m ²	%	Million m ²	%
Dudley	11.2	18%	39,500	16%	30,800	17%
Sandwell	15.3	25%	100,000	41%	58,100	32%
Walsall	19.2	32%	74,000	31%	66,100	37%
Wolverhampton	15.1	25%	28,100	12%	24,400	14%
Total	60.7	100%	241,100	100%	179,300	100%

NHS Property services (2016), data provided by The Strategy Unit; HSCIC General and Personal Medical Services, England, 2005-2015

The value of the sites primary care practices occupy in the Black Country has been estimated using the same valuation methodology as described above. The NHS Property database included fields for the type of ownership arrangement for each property (freehold, leasehold, rented). However, given the coverage of the data it was not deemed appropriate to use this information as part of the analysis. Table 5.7 presents the estimated value of the primary care estate in the Black Country, with a total value of over £70 million.

Table 5.7 Estimated value of primary care sites, 2015

Local Authority	Value (£m)	%
Dudley	13	19%

¹⁰ This includes GP practices in West Birmingham

Local Authority	Value (£m)	%
Sandwell	23	32%
Walsall	17	24%
Wolverhampton	18	26%
Total	70	100%

NHS Property services (2016), data provided by The Strategy Unit; HSCIC General and Personal Medical Services, England, 2005-2015; Department for Communities and Local Government Land value estimates for policy appraisal

6 Summary of the NHS patient population in the Black Country

6.1 Summary of the services provided by the NHS in England

This section of the report provides information about different patient contacts with the NHS. These types of contact are:

- Primary care
 - GP consultations – these are contacts with a GP or practice nurse. This can be at the GP surgery, in the home or over the telephone.
- Secondary care¹¹
 - Admitted patients – episodes where a patient is admitted for further treatment, requiring a hospital bed;
 - Day case – Inpatients who are treated in hospital for a single day;
 - Outpatient appointment – patients who attend hospital to see a consultant or member of their team, and does not require a hospital bed for recovery;
 - A&E episode – Patients attending Accident and Emergency departments for treatment;
- Patient contacts – any interaction between a healthcare professional and a patient – the collective term for all of the above.

The number of patient contacts with the NHS is presented in Table 6.1. The data for secondary care episodes is for 2014-15. No official statistics which estimate the number of GP consultations have been collected since 2008, therefore the estimate taken is from research extrapolating the estimates from 2008¹². This data covers the period up to 2013-14, and the estimate for 2013-14 has been used here in the absence of any other data.

Table 6.1 shows that there were nearly half a billion patient contacts with the NHS in England. The majority of these were consultations in primary care with General Practitioners or practice nurses. There were just over 12 million cases where a patient was admitted to secondary care, which resulted in over 48 million bed days, an average of four bed days per admission.

¹¹ The analysis does not include community or mental health service activities. This is because there is no dataset available which presents the level of activity in community or mental health services. These services are included in the financial and workforce analysis, presented in sections **Error! Reference source not found.** and **Error! Reference source not found.** of this report.

¹² *University of York Centre for Health Economics (2016) Productivity of the English NHS: 2013/14 Update*

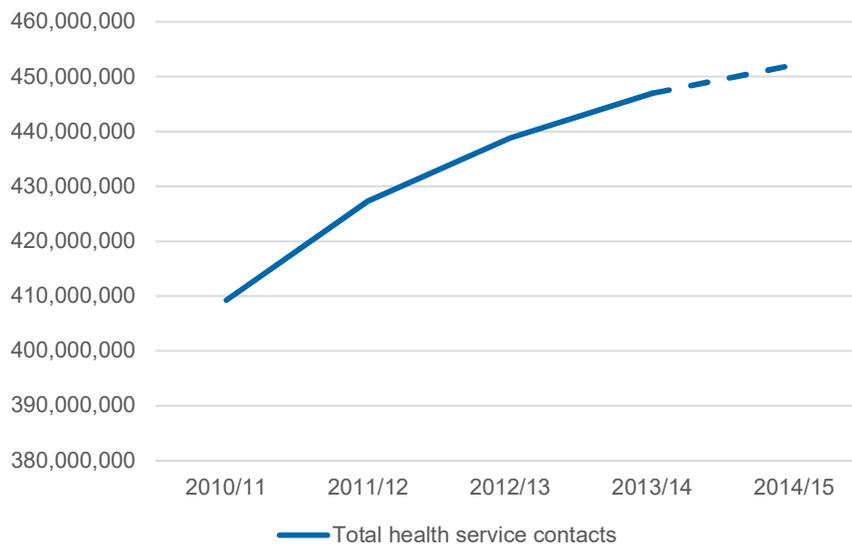
Table 6.1 NHS health service contacts in England, 2014-15

Type of contact	Number (million)	% of contacts
Secondary care - admitted patients	12	3%
<i>Inpatient bed days</i>	48	
Secondary care – day cases	7	1%
Secondary care – outpatient appointments	86	18%
Secondary care – A&E episodes	20	4%
Primary care – GP consultations	328	73%
Total	447	

HSCIC Main specialty by age group for all outpatient attendances 2014-15; NHS Accident and Emergency Attendances, 2014-15; SUS Statistics by primary diagnosis, 2014-15; University of York Centre for Health Economics (2016) Productivity of the English NHS: 2013/14 Update

The number of NHS contacts has been increasing over the past five years (see Figure 6.1), from 410 million in 2010/11 to over 450 million in 2014-15. The dashed line is to indicate that GP consultations have been held constant between 2013-14 and 2014-15 due to the lack of data. All types of contact have increased over this time, however, the number of bed days has decreased. GP consultations and outpatient appointments have been increasing at a faster rate than population growth, meaning the increase in demand is being driven by factors other than the size of the population. Table 6.2 shows this in terms of contacts per capita.

Figure 6.1 Health Service contacts in England, 2010/11 to 2014/15



HSCIC Main specialty by age group for all outpatient attendances 2010-11 to 2014-15; NHS Accident and Emergency Attendances, 2010-11 to 2014-15; SUS Statistics by primary diagnosis, 2010-11 to 2014-15; University of York Centre for Health Economics (2016) Productivity of the English NHS: 2013/14 Update

Table 6.2 Number of treatments per capita, 2010/11 to 2014/15

Type of contact	2010/11	2011/12	2012/13	2013/14	2014/15
Secondary care - admitted patients	0.2	0.2	0.2	0.2	0.2
<i>Inpatient bed days</i>	1.0	0.9	0.9	0.9	0.9
Secondary care – day cases	0.1	0.1	0.1	0.1	0.1
Secondary care – outpatient appointments	1.3	1.4	1.4	1.5	1.6
Secondary care – A&E episodes	0.3	0.3	0.3	0.3	0.4
Primary care – GP consultations	5.8	6.0	6.1	6.1	6.0
Total	7.8	8.0	8.2	8.3	8.3

HSCIC Main specialty by age group for all outpatient attendances; NHS Accident and Emergency Attendances, 2014-15; SUS Statistics by primary diagnosis, 2014-15; University of York Centre for Health Economics (2016) Productivity of the English NHS: 2013/14 Update; ONS population estimates, 2010-2015

6.2 Numbers of Black Country residents treated by the NHS each year

6.2.1 Total annual patient population

The number of NHS contacts by Black Country residents is presented in Table 6.3. The data for secondary care has been extracted from Secondary User Service databases and is actual observations of contacts for Black Country residents. The primary care data has been estimated by multiplying the percentage of the population of England who live in the Black Country (2.1%) by the estimated total number of GP consultations in England.

It is estimated that Black Country residents received over 9 million NHS contacts in 2014/15, with the vast majority (over 95% - assuming all primary care appointments for Black Country residents took place in the Black Country) taking place within the Black Country.

Table 6.3 Black Country residents treated by NHS, ('000), 2014/15

Type of treatment	Treated in Black Country		Treated outside Black Country		Total ('000)
	('000)	%	('000)	%	
Admitted patient	151	84%	29	16%	180
<i>Inpatient bed day</i>	618	84%	117	16%	735
Day case	92	78%	25	22%	117
Outpatient	1,203	81%	276	19%	1,480
A&E	307	83%	64	17%	371
Secondary Care	1,753	82%	394	18%	2,147
Primary Care	6,988	100%	-		6,988
Total	8,741	96%	395	4%	9,136

HSCIC Main specialty by age group for all outpatient attendances; NHS Accident and Emergency Attendances, 2014-15; SUS Statistics by primary diagnosis, 2014-15; All data provided by Strategy Unit; University of York Centre for Health Economics (2016) Productivity of the English NHS: 2013/14 Update; ONS population estimates, 2010-2015

Table 6.4 and Table 6.5 show the breakdown of NHS contacts by gender and age. This shows that females have more NHS contacts than males (58% of the total contacts). This is true for all types of contact, except for Accident and Emergency episodes, where males have a slightly higher number of episodes (51% of total episode). The proportion of contacts for females compared to males is linked to females living longer than males, and older people using healthcare resources more intensely than younger people (see below).

The disaggregation by age shows that individuals aged 65 and over had over three million contacts with NHS services in 2014-15, which is one third of the total contacts. This shows that older people use health services more intensely than younger people, as individuals aged 65 and over represent 17% of the Black Country population.

The table also shows that not only are older individuals more likely to have an NHS contact, that contact is likely to be more serious than for younger individuals. The 65 and over age range required over 400,000 bed days, which is nearly two thirds of the total bed days provided to Black Country residents.

Table 6.4 Treatment of Black Country residents by gender, ('000), 2015

Type of treatment	Treated in Black Country (000)		Treated outside Black Country (000)		Total (000)	
	Male	Female	Male	Female	Male	Female
Admitted patient	66	85	13	16	79	101
<i>Inpatient bed day</i>	280	339	54	62	334	401
Day case	42	49	11	14	54	64
Outpatient	566	638	123	153	689	791
A&E	156	151	33	31	189	182
Secondary Care	1,110	1,262	234	276	1,345	1,539
Primary Care	2,766	4,222	-	-	2,766	4,222
Total	3,876	5,484	235	277	4,111	5,761

HSCIC Main specialty by age group for all outpatient attendances; NHS Accident and Emergency Attendances, 2014-15; SUS Statistics by primary diagnosis, 2014-15; All data provided by Strategy Unit; University of York Centre for Health Economics (2016) Productivity of the English NHS: 2013/14 Update; ONS population estimates, 2010-2015

Table 6.5 Treatment of Black Country residents by age, ('000), 2015

Type of treatment	Treated in Black Country (000)			Treated outside Black Country (000)			Total (000)		
	0-15	16-64	65+	0-15	16-64	65+	0-15	16-64	65+
Admitted patient	20	71	60	2	18	9	22	89	69
<i>Inpatient bed day</i>	22	178	418	3	54	60	25	232	478
Day case	4	48	40	1	16	9	4	64	49
Outpatient	111	583	510	45	142	89	156	725	599
A&E	61	174	72	14	40	10	76	213	83
Secondary Care	218	1,054	1,100	65	270	177	283	1,323	1,278
Primary Care	808	4,192	1,987	-	-	-	808	4,192	1,987
Total	1,026	5,246	3,087	65	269	178	1,091	5,515	3,265

HSCIC Main specialty by age group for all outpatient attendances; NHS Accident and Emergency Attendances, 2014-15; SUS Statistics by primary diagnosis, 2014-15; All data provided by Strategy Unit; University of York Centre for Health Economics (2016) Productivity of the English NHS: 2013/14 Update; ONS population estimates, 2010-2015

Using data from the Annual Population Survey, it was possible to estimate the proportion of NHS contacts which were for the working and non-working population. All contacts for patients under 16 are allocated to the non-working category. The calculation assumes that working and non-working individuals are equally likely to attend a health service appointment, therefore the number of contacts in each age range has been multiplied by the employment rate in the Black Country.

Table 6.6 shows that the majority of contacts are for the non-working population, and that the percentage of bed days taken by the non-working population is higher than for any other category. This is expected from the Table 6.5 above, as individuals aged 65 and over (the majority of whom are not working) used two thirds of the bed days in the Black Country.

Table 6.6 Estimated treatments by working / non-working population in Black Country, ('000), 2015

Type of treatment	Working		Non-working	
	('000)	%	('000)	%
Admitted patient	64	36%	116	65%
<i>Inpatient bed day</i>	186	25%	549	75%
Day case	46	39%	71	61%
Outpatient	523	35%	957	65%
A&E	148	40%	224	60%
Secondary Care	967	34%	1,917	66%
Primary Care	2,925	42%	4,063	58%
Total	3,892	39%	5,980	61%

HSCIC Main specialty by age group for all outpatient attendances; NHS Accident and Emergency Attendances, 2014-15; SUS Statistics by primary diagnosis, 2014-15; All data provided by Strategy Unit; University of York Centre for Health Economics (2016) Productivity of the English NHS: 2013/14 Update; ONS population estimates, 2010-2015; Annual Population Survey, Employment rate by age

The number of NHS contacts per capita in the Black Country is presented in Table 6.7. This shows that in 2015, there was an average of nearly eight NHS contacts per person in the Black Country, and the majority of these took place in the Black Country. This is a lower number of appointments than the average for England, presented in Table 6.2. There are fewer secondary care contacts in the Black Country than England as a whole for all types of secondary care, and the average number of bed days per capita is much lower (0.6 per capita in the Black Country compared to 0.9 per capita for England as a whole).

Table 6.7 Treatments per capita in the Black Country, ('000), 2015

Type of treatment	Treated in Black Country	Treated outside Black Country	Total
Admitted patient	0.1	0.0	0.1
<i>Inpatient bed day</i>	0.5	0.1	0.6
Day case	0.1	0.0	0.2
Outpatient	1.0	0.2	1.3
A&E	0.3	0.1	0.3
Primary Care	6.0	-	6.0
Total	7.5	0.3	7.8

HSCIC Main specialty by age group for all outpatient attendances; NHS Accident and Emergency Attendances, 2014-15; SUS Statistics by primary diagnosis, 2014-15; All data provided by Strategy Unit; University of York Centre for Health Economics (2016) Productivity of the English NHS: 2013/14 Update; ONS population estimates, 2010-2015

6.2.2 Treatment types

The data for patient contacts in secondary care has been disaggregated by treatment groups, using programme budgeting groups, and is presented in Table 6.8. Problems of the gastro-intestinal system and cancers had the highest number of day cases (over 20,000 each), whereas respiratory and neurological problems had the highest number of admitted patients. Patients admitted to hospital with cancer or mental health problems had the longest average stay in hospital (over 6 bed days per admission).

Table 6.8 Black Country residents day cases, admitted patients and bed days by condition, 2015

Treatment group	Day cases		Admitted patients		Bed days		Bed days /admittance
	No.	%	No.	%	No.	%	
Infectious diseases	162	0.1%	4,685	2.6%	14,665	2.0%	3.1
Cancers and Tumours	20,394	17.4%	8,622	4.8%	55,987	7.6%	6.5
Disorders of the blood	4,352	3.7%	1,669	0.9%	6,481	0.9%	3.9
Endocrine, Nutritional and Metabolic Disorders	2,017	1.7%	3,135	1.7%	16,014	2.2%	5.1
Mental Health disorders	40	0.0%	1,761	1.0%	11,898	1.6%	6.8
Problems of Learning Disability							
Neurological problems	7,081	6.0%	24,246	13.5%	65,682	8.9%	2.7
Problems of Vision	13,244	11.3%	750	0.4%	1,798	0.2%	2.4
Problems of Hearing	793	0.7%	648	0.4%	1,241	0.2%	1.9
Problems of circulation	4,766	4.1%	15,683	8.7%	90,648	12.3%	5.8
Problems of the respiratory system	2,598	2.2%	25,081	13.9%	121,507	16.5%	4.8
Dental Problems	3,972	3.4%	360	0.2%	610	0.1%	1.7
Problems of the gastro intestinal system	21,267	18.2%	19,550	10.9%	87,212	11.9%	4.5
Problems of the skin	3,958	3.4%	5,580	3.1%	22,248	3.0%	4.0
Problems of the Musculo skeletal system	18,986	16.2%	8,802	4.9%	35,486	4.8%	4.0
Problems due to Trauma and Injuries	677	0.6%	10,921	6.1%	62,282	8.5%	5.7
Problems of the genito urinary system	6,495	5.5%	14,953	8.3%	73,150	10.0%	4.9
Maternity and Reproductive Health	1,004	0.9%	19,517	10.8%	34,964	4.8%	1.8
Conditions of neonates	122	0.1%	1,217	0.7%	1,945	0.3%	1.6
Adverse effects and poisoning	960	0.8%	7,069	3.9%	27,162	3.7%	3.8
Healthy Individuals	1,265	1.1%	778	0.4%	591	0.1%	0.8
Social Care Needs		0.0%	34	0.0%	172	0.0%	5.1
Other Areas of Spend/Conditions	3,020	2.6%	4,834	2.7%	3,419	0.5%	0.7
Total	117,173		179,895		735,162		4.1

NHS Inpatient Attendances, 2014-15; Secondary User Service by primary diagnosis, 2014-15; All data provided by The Strategy Unit.

7 Informal care services provided by Black Country residents

7.1 Provision of informal care in England

The level of unpaid or informal care provided by individuals in the UK was collected in the census in both 2001 and 2011. The data was disaggregated by economic activity, to examine the patterns of unpaid care provision. Table 7.1 and Table 7.2 show the percentage of the population in England who provided unpaid care in 2001 and 2011. This shows that the percentage of people who provided no care increased slightly between 2001 and 2011 in all categories (except for looking after home or family and other economically inactive). However, there has been a slight increase in the percentage of people who provide 50 hours or more of unpaid care per week.

Table 7.1 Provision of unpaid care by employment status, England 2001

Status	No unpaid care	1 to 19 hours / week	20-49 hours / week	50+ hours / week	Total provides care
Employed	88%	10%	1%	1%	12%
Unemployed	89%	8%	1%	2%	11%
Retired	83%	10%	2%	5%	17%
Student	95%	4%	0%	0%	5%
Looking after home or family	77%	10%	4%	10%	23%
Long-term sick or disabled	86%	6%	2%	5%	14%
Other economically inactive	90%	6%	2%	3%	10%
Total – economically inactive	85%	8%	2%	5%	15%

ONS 2001 Census area statistics; provision of unpaid leave by economic activity

Table 7.2 Provision of unpaid care by employment status, England, 2011

Status	No unpaid care	1 to 19 hours / week	20-49 hours / week	50+ hours / week	Total provides care
Employed	89%	9%	1%	1%	11%
Unemployed	90%	6%	2%	2%	10%
Retired	85%	8%	2%	6%	15%
Student	95%	3%	1%	1%	5%
Looking after home or family	75%	7%	5%	13%	25%
Long-term sick or disabled	88%	5%	2%	5%	12%
Other economically inactive	89%	5%	2%	4%	11%
Total – economically inactive	86%	7%	2%	5%	14%

ONS 2011 Census area statistics; provision of unpaid leave by economic activity

7.2 Provision of informal care in the Black Country

Table 7.3 and Table 7.4 present the percentage of the population who provided informal care in the Black Country in 2001 and 2011. The data is disaggregated by

economic activity. This shows that the provision of unpaid care in the Black Country follows a similar pattern to England as a whole. There has been a slight increase in the percentage of people providing no unpaid care between 2001 and 2011. The decrease in the percentage of people providing care has largely been concentrated in the provision of under 19 hours of unpaid care per week, and there has been a slight increase in the proportion of people providing 50 hours of unpaid care per week or more.

Table 7.3 Provision of unpaid care by employment status, Black Country 2001

Status	No unpaid care	1 to 19 hours / week	20-49 hours / week	50+ hours / week	Total provides care
Employed	87%	11%	2%	2%	14%
Unemployed	89%	8%	2%	2%	11%
Retired	83%	9%	2%	6%	17%
Student	94%	5%	1%	1%	6%
Looking after home or family	72%	10%	5%	13%	28%
Long-term sick or disabled	87%	6%	2%	6%	13%
Other economically inactive	90%	5%	2%	3%	11%
Total – economically inactive	83%	8%	3%	6%	17%

ONS 2001 Census area statistics; provision of unpaid leave by economic activity

Table 7.4 Provision of unpaid care by employment status, Black Country 2011

Status	No unpaid care	1 to 19 hours / week	20-49 hours / week	50+ hours / week	Total provides care
Employed	87%	9%	2%	2%	13%
Unemployed	90%	6%	2%	2%	10%
Retired	84%	7%	2%	7%	17%
Student	94%	4%	1%	1%	6%
Looking after home or family	72%	7%	6%	15%	28%
Long-term sick or disabled	88%	4%	2%	6%	12%
Other economically inactive	88%	4%	3%	5%	13%
Total – economically inactive	84%	6%	3%	7%	16%

ONS 2011 Census area statistics; provision of unpaid leave by economic activity

The percentage of people aged 16 and over providing unpaid care in 2011 has been multiplied by the number of people in the Black Country in each economic activity group. This provides an estimate of the number of people providing unpaid care (see Table 7.5). In total over 130,000 individuals provided unpaid care in 2015 in the Black Country, compared to 800,000 who provided no care. The largest number of these were employed (49%). However, people who were economically inactive were more likely to provide more hours of care per week, with three quarters of the individuals who said they provided 50 or more hours of unpaid care a week being economically inactive.

Table 7.5 Estimated levels of care in Black Country (000), 2015

Status	No unpaid care	1 to 19 hours / week	20-49 hours / week	50+ hours / week
Employed	427	46	9	9
Unemployed	42	3	1	1
Economically inactive	331	24	11	28
Total	800	73	21	38

ONS 2011 Census area statistics; provision of unpaid leave by economic activity; Annual Population Survey, Employment by age (2015)

The number of hours of unpaid care provided per week in the Black Country has been calculated by multiplying the mid-point of the time categories (9.5 hours; 34.5 hours and 66 hours) by the number of individuals in each category. Under these assumptions, there were nearly four million hours of unpaid care provided in the Black Country each week in 2015 (see Table 7.6). Nearly two thirds of these hours were provided by the economically inactive.

The monetary value of the hours of unpaid care has been estimated at £38 million per week, and £2 billion for 2015.

This was estimated by multiplying the number of hours of unpaid care by an estimated value of non-worktime assuming that in the absence of providing unpaid care, individuals would use the time for leisure purposes.

The value of leisure time, taken from research carried out by the Department of Transport (2013) to estimate the value of travel time savings, is £9.63 per hour (in 2015 prices using GDP deflators).

Table 7.6 Total number and value of hours of unpaid care provided per week in Black Country, 2015

Status	Estimated hours of unpaid care per week (000)	Value of unpaid care per week (£m)
Employed	1,343	13
Unemployed	121	1
Economically inactive	2,434	23
Total	3,897	38

ONS 2011 Census area statistics; provision of unpaid leave by economic activity; Annual Population Survey, Employment by age (2015); Department of Transport (2013) Meta-Analysis of Post-1994 Values of Non-Work Travel Time Savings

Part B: REVIEW OF OPTIONS TO
INCREASE ECONOMIC
IMPACTS FROM NHS
SPENDING

Key findings of the options review

The research in Part B has examined approaches to better utilise NHS resources in the Black Country to boost the economic output in the area, examining three scenarios. These scenarios describe alternative, realistic methods of delivering NHS services, with limited effects on overall expenditure levels but with the potential to deliver economic returns through improving the productivity of the local economy.

This is an exploratory exercise, to show how changes in the use of NHS and partner organisation resources might generate benefits for the local economy. The analysis has been carried out at a high level, using a series of calculations and assumptions to aid future discussion about the implications of future policy and resource choice. The results should be considered as tentative indicating the possible benefits and showing a possible new direction of policy change. They should not be taken as predicted values of future economic performance.

Scenarios explored

- **Scenario 1 - Improving access to healthcare services for employed individuals.** Patients who are employed can find it difficult to attend healthcare appointments for themselves or for those they care for, as they typically occur during the working day. The NHS could offer services that are more convenient for employed individuals. This could be through changing forms of access (such as use of telephone or video conferencing for consultation) and /or moving services to more convenient locations. This could lead to increase in economic output in the Black Country of £9 million per year. It could also generate substantial cost savings to the NHS.
- **Scenario 2 - Increasing support for employed individuals presenting common mental health problems.** Many individuals are estimated to have a mental health condition. These range from common conditions (for example stress and anxiety) to more complex needs. Many individuals with more common mental health conditions are either in employment or would like to return to work. By using some of the resources available within the NHS and local partner organisations (for example local authorities), support could be provided to these individuals to ensure they can remain in employment (and reduce the amount of absence individuals require) and help to support other individuals back into work. This could lead to increase in economic output of over £8 million per year as a result of limited additional expenditure.
- **Scenario 3 - Providing support for informal carers.** The value of informal care provided in the Black Country is estimated to be over £2 billion in 2015. However, some of this informal care is provided at the expense of other economic activity. Some individuals who are employed but have caring responsibilities will require time absent from work to provide care, and may fall out of the labour market altogether. Other individuals who are not in employment would like to return to work if their caring responsibilities were reduced. The NHS could use some resources to provide support to carers, to help them cope with providing care and remaining in employment. This could lead to increase in economic output of £8 million per year as a result of limited additional expenditure.

Taking the medium estimate, for each of the three scenarios, the economic impact ranges from between £8m and £10m per year depending on scenario. As one benchmark to gauge the economic significance of these impacts, the national Growth Deal programme of government grant funding for local economies, funds the Black Country Growth Deal programme by an average of £23m a year (£162m for the period 2015-21).

More detailed analysis should be carried out to further examine the costs and benefits (including possible unexpected effects) of these and other possible scenarios prior to developing policy advice.

8 Introduction

8.1 Measures to increase economic impact

The research in Part B has examined approaches to better utilise NHS resources in the Black Country to boost the economic output in the area. Workshop discussions were held with local health service and economic development stakeholders to decide areas where NHS services could be altered to generate economic returns. The three scenarios described below were developed based on the feedback received from the workshop.

This is an exploratory exercise, to show how changes in the use of NHS and partner organisation resources might generate benefits for the local economy. The analysis has been carried out at a high level, using a series of calculations and assumptions to aid future discussion about the implications of future policy and resource choice. The results should be considered as tentative indicating the possible benefits and showing a possible new direction of policy change. They should not be taken as predicted values of future economic performance.

More detailed analysis should be carried out to further examine the costs and benefits (including possible unexpected effects) of these and other possible scenarios prior to developing policy advice.

8.1.1 Scenarios explored

These scenarios describe alternative, realistic methods of delivering NHS services, with limited effects on overall expenditure levels but with the potential to deliver economic returns through improving the productivity of the local economy.

- **Scenario 1- Improving access to healthcare services for employed individuals.** Patients who are employed can find it difficult to attend healthcare appointments for themselves or for those they care for, as they typically occur during the working day. The NHS could offer services that are more convenient for employed individuals. This could be through changing forms of access (such as use of telephone or video conferencing for consultation) and /or moving services to more convenient locations.¹³ This could lead to increase in economic output in the Black Country of £9 million per year as a result of limited additional expenditure.
- **Scenario 2 - Increasing support for employed individuals presenting common mental health problems.** Many individuals are estimated to have a mental health condition. These range from common conditions (for example stress and anxiety) to more complex needs. Many individuals with more common mental health conditions are either in employment or would like to return to work. By using some of the resources available within the NHS and local partner organisations (for example local authorities), support could be provided to these individuals to ensure they can remain in employment (and reduce the amount of absence individuals require) and help to support other

¹³ The analysis focusses on the movement of services to more convenient locations. It does not examine the impact of changing the times services are available at, so that patients can access services at a more convenient time. Changing the time services are available at would deliver similar types of economic benefits as changing locations (less productive time lost due to patients attending appointments), but the scale of the impacts has not been assessed.

individuals back into work. This could lead to increase in economic output of over £8 million per year as a result of limited additional expenditure.

- **Scenario 3- Providing support for informal carers.** The value of informal care provided in the Black Country is estimated to be over £2 billion in 2015. However, some of this informal care is provided at the expense of other economic activity. Some individuals who are employed but have caring responsibilities will require time absent from work to provide care, and may fall out of the labour market altogether. Other individuals who are not in employment would like to return to work if their caring responsibilities were reduced. The NHS could use some resources to provide support to carers, to help them cope with providing care and remaining in employment. This could lead to increase in economic output of £8 million per year as a result of limited additional expenditure.

8.2 Structure of the report

The remaining sections of this report discuss the costs and benefits of each of these scenarios. These include a rationale for the intervention, a description of how the costs and benefits of the scenario were calculated (including a presentation of the assumptions made and the source materials which underpin the assumptions), the results and the conclusions from the analysis.

9 Scenario 1: Economic impact of improving access to services for employed individuals

This section presents the costs and benefits of altering the provision of NHS services to improve access for employed individuals. The results provide an illustration of the nature and scale of the costs and benefits, and are not intended to be a service change proposition.

Two separate initiatives have been explored. The first is to make primary care appointments more convenient for employed individuals (as well as for individuals that they care for). The second examines making outpatient appointments in secondary care more convenient by providing some of these contacts in a primary care setting. These are well established policy aims for the NHS; this analysis examines these aims from a broader economic perspective.

9.1 Rationale for the initiative

Accessing healthcare is time consuming, requiring time off from work; both by those who are ill, and those in work who provide 'informal' care (see later scenario). Improving the ease of access should reduce the costs associated with using healthcare, for both employers and employees.

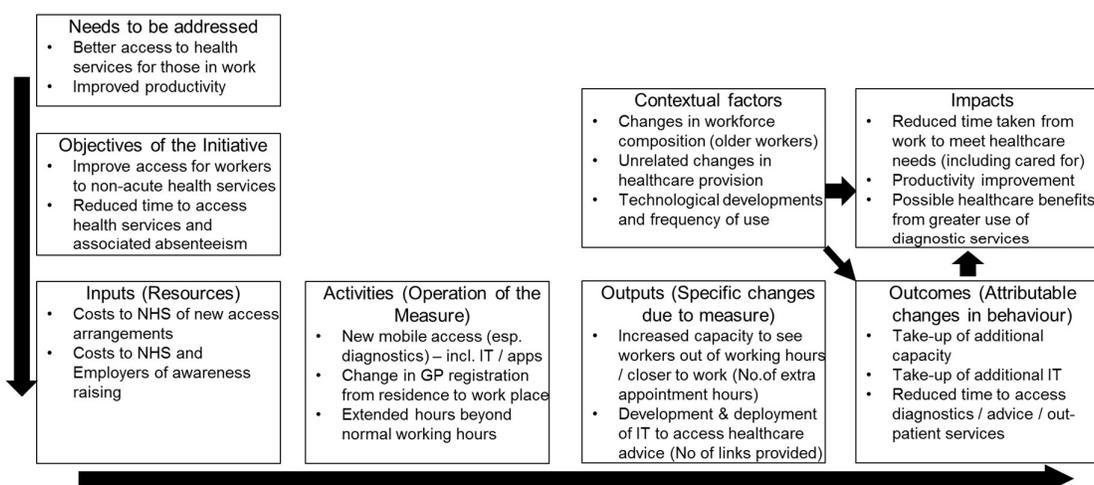
There are numerous approaches to improving access to health services. In primary care, this includes allowing patients to attend surgeries closer to their work, the provision of further out of hours services, providing mobile surgeries that provide contacts in major employment centres or the provision of distance appointments (such as promoting telephone and video conferencing contacts, or the provision of new IT or mobile app services). For secondary care, these approaches could include providing more services outside standard working hours or moving some provision to more convenient locations (such as GP practices) or by telephone or video conferencing (distance appointments).

These interventions will have multiple economic and health effects. Patients and carers who are in employment will be able to spend less time absent from work, which will improve productivity and output. The improved access may also increase the number of patients who access services, which could improve the long term health of the population and have longer term impacts on NHS resources.

The provision of these interventions could require initial investment by the NHS, or a reorganisation of current resources (which could reduce the expenditure required). Therefore, the costs and benefits of each intervention need to be investigated in more detail.

A brief summary of the scenario is shown in Figure 2.1.

Figure 9.1 Intervention logic for improving access to health services



9.1.1 Nature of the intervention

Two interventions have been modelled to show the effect of improving access to health services – one to show the effects of changing access to primary care and one to show the effects of changing access to secondary care services. The first involves making primary care appointments more accessible for working individuals through the improved provision of (and advertising of) distance appointments, both over the telephone and video-conferencing. This may involve some investment by GP surgeries to ensure they have the necessary equipment.¹⁴ However, other than this there would be no additional investment or new services required.

The second involves moving some secondary care service appointments into primary care, which makes attending these appointments more convenient for working individuals. This intervention would not require any additional investment by the health service, as the intervention only requires reorganising how (and by who) services are provided.

9.2 Modelling assumptions

In order to provide estimates of how these initiatives could affect economic performance, several assumptions need to be made about the interventions.

9.2.1 Scenario 1: Improving access to primary care services

The assumptions for improving the access to primary care services is presented in Table 9.1.

¹⁴ Some GP surgeries could invest in technologies to ensure they can have secure web-based video consultations. However, existing evidence suggests that take-up of these services is relatively low compared to telephone consultations. Given the expense and existing evidence, it is assumed that only a low proportion of GP surgeries will want to / need to purchase this equipment, and many surgeries and patients will want to use telephone consultations. However we note there is a general interest to increase remote consultations with the possibility of national targets

Table 9.1 Assumptions required to estimate the potential impact of improving access to primary care services

Category	Assumption	Source
Nature of the intervention	Allowing patients to access GP services via telephone or video conferencing facilities, and wider promotion of these options where they already exist	
Cost of intervention	Cost (one off) of setting up secure video-conferencing facilities: £500 / practice	Based on cost of NHSone video – conference system
Proportion of practices which need / want need equipment	25%	Assumed to be a minority of practices as most will use telephone consultations
Take-up of intervention	20% of appointments	National target of 10% of patients using online services – assumed higher level from intervention
Duration of appointments	11.7 minutes for face to face consultations 7.1 minutes for remote consultations	PSSRU Unit cost of health and social care
Proportion of GP appointments taken outside work hours	7%	NHS England – data on out of hours provision by practice
Proportion of GP appointments taken by people who are absent anyway	5%	Assumed value to cover individuals who are employed but not at work, for example long-term sick, short-term absence or parental leave (Labour Force Survey, Live Births statistics)
Distribution of GP appointments between employed / unemployed of same age	Assume that individuals of same age are equally likely to attend GP regardless of their employment status.	Simplifying assumption – varied in the sensitivity analysis
Travel times	Home to GP practice: 0.11 hours Work to GP practice: 0.31 hours	Department of Transport Journey statistics Labour Force Survey
Value of time	Value of production: £26 / hour Value of leisure: £10 / hour	Regional GVA estimates Department of Transport
Waiting time at GP practice	11.3 minutes	GP Patient survey
Value of a GP consultation	£37 for a face to face consultation £22 for a remote consultations	PSSRU Unit Cost of Health and Social Care

9.2.2 Scenario 1: Improving access to secondary care services

The assumptions for improving access to secondary care services are presented in Table 9.2.

Table 9.2 Assumptions required to estimate the potential impact of improving access to secondary care services

Category	Assumption	Source
Nature of the intervention	Allowing patients to access secondary care services in a primary care setting.	
Cost of outpatient appointment	£137	NHS reference costs
Cost of support of secondary care specialist staff	2.5% of time for secondary care staff for appointments transferred to primary care	Assumption based on secondary care staff having to provide support / training to primary care staff, and this being related to the number of patients who are treated in primary care
Waiting time in hospital	51.3 minutes	NHS outpatient survey; NHS guidance on arrival times
Duration of outpatient appointment	20 minutes	NHS guidance on duration of appointment
Cost of primary care appointment	£37	PSSRU Unit Cost of Health and Social Care
Duration of primary care appointment	11.7 minutes	PSSRU Unit Cost of Health and Social Care
Waiting time in primary care	11.3 minutes	GP Patient survey
Travel time to hospital	Home to hospital: 12.5 minutes Work to hospital: 9.4 minutes	Department of Transport journey time statistics Labour Force Survey
Travel time to GP practice	Home to GP: 6.8 minutes Work to hospital: 18.8 minutes	Department of Transport journey time statistics Labour Force Survey
Take-up of outpatient appointments in new setting	20% of total outpatient appointments	NHS data; evaluations of programmes introducing new care pathways
Outpatient appointments that require a carer	30% of total outpatient appointments	Macmillan Cancer Support (2015): Evaluations of the South Yorkshire, Bassetlaw and North Derbyshire Survivorship Programme
Employment rate of carers supporting outpatient appointments	35%	Annual Population Survey

9.3 Scenario 1: Calculations

9.3.1 Total cost of face to face primary care appointments

The total cost of primary care appointments for employed individuals is calculated for three groups:

- The cost to primary care of providing the appointment;
- The cost to the economy for the individual to attend the appointment; and

- A cost in terms of lost leisure time for employed individuals who already take appointments outside of work time and individuals who are out of work.

The cost to the primary care service of providing the appointment is the number of primary care appointments for employed individuals multiplied by the average unit cost of an appointment.

The cost to the economy of employed individuals attending primary care appointments is estimated on the duration of time an individual spends absent from work because of the appointment¹⁵. There are three separate components to this duration of absence:

- The time an individual spends travelling to and from the GP practice to attend their appointment. This is assumed to be two times the duration of the journey between the GP practice and their workplace;
- The duration of time an individual spends waiting in the GP practice for their appointment to begin; and
- The duration of their appointment.

These three portions of time are multiplied by the average value of production to estimate the total value of the loss to the economy.

The calculation to estimate the cost of the time lost for employed individuals who attend primary care appointments outside working hours (either using out of hours services or attending appointments when they are already absent from work) is similar to the approach described above, but with two notable differences. These are:

- The time an individual spends travelling to and from the GP appointment is assumed to be two times the duration of the journey between home and the GP practice (as they are assumed to be travelling to and from their home to the GP practice); and
- The portions of time are multiplied by the average value of leisure time instead of the average value of production.

The total cost of primary care appointments to unemployed and inactive patients is calculated in exactly the same way as the cost for employed individuals who have appointments outside their working hours.

9.3.2 Total cost of remote consultations

The total cost of remote consultations again involves the cost to three groups: the cost to the health service for providing the appointments, the cost to employers and the economy from lost production due to employed individuals attending primary care appointments; and the cost to individuals from losing leisure time when employed individuals attend consultations outside working hours or out of work individuals attend consultations.

The cost to the health service is calculated in a similar way as above – the unit cost of an appointment is multiplied by the total number of appointments.

It is assumed that a remote appointment (using a telephone or video-conferencing) will be shorter than a face to face appointment and a GP will still provide the consultation. This will lead to a decrease in cost for the appointments. However, it

¹⁵ This assumes that the time for appointments is lost time to employers – that employees do not take appointments in annual leave or work additional overtime as a result of attending appointments.

is also assumed that a small number of GP surgeries will need to invest in capital equipment (video-conferencing equipment) in order to provide these services, although most patients and surgeries will use telephone consultations, which will require no capital investment. This leads to an additional cost to the health service, which is added to the cost of the appointments.

For individuals who decide to use remote consultations rather than face to face appointments, the cost to the economy and the cost in lost leisure time is much lower. This is because for these appointments there is zero commuting or waiting time, therefore the cost is simply the duration of the appointment multiplied by the value of leisure time or average value of production.

For individuals who decide to continue receiving their appointment face to face, the cost calculations are identical to those described in section 9.3.1.

9.3.3 Total cost of secondary care outpatient appointments

The costs of secondary care outpatient appointments are calculated in a similar way. An average unit cost of an outpatient appointment is multiplied by the total number of outpatient consultations to estimate the cost to the health service of providing the appointments.

A cost to employers and the economy is estimated by multiplying the time taken for the whole appointment (travel time, duration of the appointment and waiting time), although the duration of each of these is different to the corresponding times for primary care, by the average value of production. The same is true for the cost to employed individuals who attend appointments outside their working hours and people who are not in work.

However, there is an additional cost in the secondary care appointment calculations for employers and individuals. It is assumed that a proportion of individuals attending these appointments will take a family member or friend (an informal carer) with them to the appointment. These informal carers will either be taking time away from their workplace or sacrificing their leisure time. The costs for these individuals are calculated in the same way as the time costs for the patients.

9.3.4 Total cost of secondary care appointments delivered in a primary care setting

The cost of secondary care outpatient appointments delivered in a primary care setting are calculated in the same way as described in section 9.3.3. However, some of the key multipliers are different in the calculations for primary care. These are:

- The duration of time taken to travel to and from the appointment (assumed to be work to GP or GP to home compared to work to hospital or home to hospital);
- The waiting time for patients and carers (this is assumed to be lower in primary care facilities);
- The duration of the appointment; and
- The average unit cost of the appointment (this is assumed to be lower in primary care than in secondary care).

9.4 Scenario 1: Results

9.4.1 Results for improving access to primary care services

Table 9.3 presents the results from the analysis. The impact of introducing more remote consultations is the original cost to the health service, employers and individuals of attending all face to face appointments minus the costs when a proportion of individuals use remote appointments.

The introduction of the more remote consultations in primary care shows a slight increase in costs to the NHS. This is because a minority of GP practices will have to invest in new telecommunications equipment. However, the overall impact on the NHS is positive, as there is a larger reduction in costs as the remote consultations have a shorter duration (and are therefore less expensive) than face to face consultations. This cost saving, if not reallocated to other services, would represent a reduction in NHS expenditure and hence a negative economic impact.

If the introduction or further promotion of these services led to an increase in the total number of patients receiving consultations, then the cost to the NHS would also increase. However, this could lead to reductions in more severe secondary care episodes in the future, as individuals who would not have attended the GP previously now do so.

There is a large saving to individual patients and employers following the introduction of more remote consultations. As some patients no longer need to travel or wait for their appointment, they spend less time absent from work (or away from leisure time).

Table 9.3 Results from the analysis of improving access to primary care services

Category	Existing (£m)	New (£m)	Impact (£m)
Ongoing cost to NHS of providing service	228.6	210.1	18.5
NHS Set up costs	0.0	0.0	0.0
Loss of production from duration of appointments	12.8	11.8	1.0
Loss in production from waiting times	12.3	9.8	2.5
Loss of production from travelling times	26.7	21.4	5.3
Loss of leisure time from duration of appointments	6.9	6.4	0.5
Loss of leisure time from waiting times	6.7	5.3	1.3
Loss of leisure time from travelling times	22.3	17.3	4.9
Total impact on NHS expenditure	228.6	210.1	18.5
Total impact on BC economy (excl. NHS)*	51.8	43.0	8.8
Total impact on leisure time	35.9	29.0	6.8

ICF calculations; values in black are benefits; values in red are additional costs

*NHS cost savings if not allocated to other services would represent a reduced local economic impact

9.4.2 Results for improving access to secondary care services

Table 9.4 presents the results from the analysis. The cost of moving secondary care outpatient appointments into primary care is the total cost of providing all appointments in secondary care minus the total cost of outpatient appointments when a proportion of these are moved into primary care.

The results from switching some outpatient appointments from secondary to primary care shows a decrease in costs to the health service, individuals and employers. The largest impact is for the NHS costs.

Table 9.4 Results from the analysis of improving patient access to secondary care services

Category	Existing (£m)	New (£m)	Impact (£m)
Ongoing cost to NHS of providing service	181.1	154.7	26.4
Training / ongoing support of secondary care staff	0	0.9	0.9
Loss of production from duration of appointments	3.9	3.6	0.3
Loss in production from waiting times	10.1	8.5	1.6
Loss of production from travelling times	3.7	4.4	0.7
Loss of leisure time from duration of appointments	2.8	2.6	0.2
Loss of leisure time from waiting times	7.2	6.1	1.1
Loss of leisure time from travelling times	3.5	3.2	0.3
Loss of production for employed carers	4.8	4.5	0.3
Loss of leisure time for carers	4.3	3.7	0.5
Total impact on NHS expenditure	181.1	155.6	25.5
Total impact on BC economy (excl. NHS)*	22.6	21.1	1.5
Total impact on leisure time	17.8	15.6	2.2

ICF calculations; values in black are benefits; values in red are additional costs

*NHS cost savings if not allocated to other services would represent a reduced local economic impact

9.5 Scenario 1: Sensitivity analysis

This section provides a discussion of how the results for each of the scenarios analysed, change as the assumptions used change. The results of the sensitivity analysis provide high and low values for each of the scenarios analysed, increasing confidence that the true value lies between this range.

9.5.1 Assumptions

The assumptions used to estimate the impact of interventions to make attending appointments more convenient which have been varied are presented in Table 9.5 and Table 9.6. The assumptions varied are for the cost and duration of interventions, the balance between employed and non-employed individuals using services, the take-up of the interventions and the proportion of outpatients who require a carer.

Table 9.5 Assumptions to be varied for the sensitivity analysis of improving access to primary care services

Category	Assumption			Source
	Low	Central	High	
Cost of intervention	Cost (one off) of setting up secure video-conferencing facilities			Based on cost of NHSone video-conference system
	<ul style="list-style-type: none"> ■ £360 / practice ■ 33% of practices require new equipment 	<ul style="list-style-type: none"> ■ £500 / practice ■ 50% of practices require new equipment 	<ul style="list-style-type: none"> ■ £1,000 / practice ■ 75% of practices require new equipment 	
Proportion of practices which need / want need equipment	10%	25%	50%	Assumed to be a minority of practices as most will use telephone consultations
Take-up of intervention	10% of appointments	20% of appointments	30% of appointments	
Duration of appointments	11.7 minutes (both remote and face to face)	11.7 minutes (face to face) 7.1 minutes (remote)	12.9 minutes (face to face) 7.8 minutes (remote)	PSSRU Unit cost of health and social care
Proportion of GP appointments taken outside work hours	8%	12%	17%	LFS, Live Births statistics, NHS England
Distribution of GP appointments between employed / unemployed of same age	Assume unemployed individuals are more likely to receive an appointment than employed. Each appointment has a 67% chance of being taken by an unemployed patient, and a 33% chance of being taken by an employed patient	Assume that individuals of same age are equally likely to attend outpatient appointment regardless of their employment status.	Assume that individuals of same age are equally likely to attend outpatient appointment regardless of their employment status.	
Travel times	<ul style="list-style-type: none"> ■ Home to GP practice: 5.0 minutes ■ Work to GP practice: 17.5 minutes 	<ul style="list-style-type: none"> ■ Home to GP practice: 6.8 minutes ■ Work to GP practice: 18.8 minutes 	<ul style="list-style-type: none"> ■ Home to GP practice: 8.6 minutes ■ Work to GP practice: 20.1 minutes 	Department of Transport Journey statistics
Waiting time at GP practice	10.2 minutes	11.3 minutes	12.4 minutes	GP Patient survey
Value of a GP consultation (per 11.7 mins)	£33	£37	£44	PSSRU Unit Cost of Health and Social Care
Value of remote consultation	£33	£22	£27	PSSRU Unit Cost of Health and Social Care

Table 9.6 Assumptions to be varied for the sensitivity analysis of improving access to secondary care services

Category	Assumption			Source
	Low	Central	High	
Cost of outpatient appointment	£123	£137	£150	NHS reference costs
Training / ongoing support of secondary care staff	1% of cost of outpatient time transferred to primary care	2.5% of cost of outpatient time transferred to primary care	5% of cost of outpatient time transferred to primary care	
Waiting time in hospital	46.2 minutes	51.3 minutes	56.5 minutes	NHS outpatient survey; NHS guidance on arrival times
Travel time to hospital	<ul style="list-style-type: none"> ■ Home to hospital: 6.2 minutes ■ Work to hospital: 4.6 minutes 	<ul style="list-style-type: none"> ■ Home to hospital: 12.5 minutes ■ Work to hospital: 9.4 minutes 	<ul style="list-style-type: none"> ■ Home to hospital: 18.8 minutes ■ Work to hospital: 14.1 minutes 	Department of Transport journey time statistics Labour Force Survey
Take-up of outpatient appointments in new setting	10%	20%	30%	NHS data; Evaluations of programmes introducing new care pathways
Outpatient appointments that require a carer	20%	30%	40%	Evaluations of programmes introducing new care pathways
Employment rate of carers supporting outpatient appointments	25%	35%	50%	Annual Population Survey
Proportion of outpatient appointments taken when patient is out of work (absent and out of hours)	8%	12%	17%	NHS data on out of hours provision
Employment status of patients	Assume unemployed individuals are more likely to receive an appointment than employed. Each appointment has a 67% chance of being taken by an unemployed patient, and a 33% chance of being taken by an employed patient	Assume that individuals of same age are equally likely to attend outpatient appointment regardless of their employment status.	Assume that individuals of same age are equally likely to attend outpatient appointment regardless of their employment status.	

9.5.2 Sensitivity results

The results from the sensitivity analysis are presented in Table 9.7 and Table 9.8. This shows that for both interventions, the benefits to the NHS and the economy outweigh the costs of providing the intervention. If the duration of primary care appointments is shorter using telephone or video conferencing, there is a large saving to the NHS, but even in the absence of this reduction in duration there is a large benefit to the wider economy.

Table 9.7 Results from the sensitivity analysis for improving patient access to primary care services

Category	Low (£m)	Central (£m)	High (£m)
Ongoing cost to NHS of providing service	8.0	18.5	42.0
NHS Set up costs	0.0	0.0	0.1
Loss of production from duration of appointments	0.5	1.0	2.1
Loss in production from waiting times	1.2	2.5	5.1
Loss of production from travelling times	2.4	5.3	11.4
Loss of leisure time from duration of appointments	0.3	0.5	1.2
Loss of leisure time from waiting times	0.6	1.3	3.1
Loss of leisure time from travelling times	2.4	4.9	10.4
Loss of production for employed carers	-	-	-
Loss of leisure time for carers	-	-	-
Total impact on NHS expenditure	8.0	18.5	41.9
Total impact on BC economy (excl. NHS)*	4.1	8.8	18.6
Total impact on leisure time	3.2	6.8	14.7

ICF calculations; values in black are benefits; values in red are additional costs

*NHS cost savings if not allocated to other services would represent a reduced local economic impact

Table 9.8 Results from the sensitivity analysis for improving patient access to secondary care services

Category	Low (£m)	Central (£m)	High (£m)
Ongoing cost to NHS of providing service	11.9	26.4	56.4
Training / ongoing support of secondary care staff	0.2	0.9	4.0
Loss of production from duration of appointments	0.2	0.3	0.5
Loss in production from waiting times	0.7	1.6	3.3
Loss of production from travelling times	0.5	0.7	0.9
Loss of leisure time from duration of appointments	0.1	0.2	0.4
Loss of leisure time from waiting times	0.5	1.1	2.5
Loss of leisure time from travelling times	0.0	0.3	1.2
Loss of production for employed carers	0.0	0.3	1.5
Loss of leisure time for carers	0.2	0.5	1.4
Total impact on NHS expenditure	11.8	25.5	52.4
Total impact on BC economy (excl. NHS)*	0.4	1.5	4.4
Total impact on leisure time	0.8	2.2	5.6

ICF calculations; values in black are benefits; values in red are additional costs

*NHS cost savings if not allocated to other services would represent a reduced local economic impact

The results of the analysis for primary and secondary care are combined in Table 2.9

Table 9.9 Results from the sensitivity analysis for improving patient access to primary and secondary care services

Category	Low (£m)	Central (£m)	High (£m)
Ongoing cost to NHS of providing service	20.0	45.0	98.4
NHS set-up cost / Training / ongoing support of secondary care staff	0.2	0.9	4.1
Loss of production from duration of appointments	0.7	1.3	2.6
Loss in production from waiting times	1.9	4.0	8.4
Loss of production from travelling times	1.9	4.6	10.5
Loss of leisure time from duration of appointments	0.4	0.8	1.7
Loss of leisure time from waiting times	1.1	2.5	5.6
Loss of leisure time from travelling times	2.4	5.3	11.6
Loss of production for employed carers	0.0	0.3	1.5
Loss of leisure time for carers	0.2	0.5	1.4
Total impact on NHS expenditure	19.8	44.0	94.3
Total impact on BC economy (excl. NHS)*	4.5	10.3	23.0
Total impact on leisure time	4.0	9.0	20.3

ICF calculations; values in black are benefits; values in red are additional costs

*NHS cost savings if not allocated to other services would represent a reduced local economic impact

9.6 Conclusions for Scenario 1

The main findings from this analysis are that significant economic benefits could be generated from the NHS reorganising how services are delivered. The modelling

above shows the potential annual impact if services are redesigned to be more convenient for employed patients and carers. The key conclusions from introducing and promoting remote contacts are:

- There is a relatively small cost for GP practices to purchase the equipment required to deliver distance appointments. However, there are no further additional costs to the NHS.
- If the remote contacts have a shorter duration and are carried out by the same staff members as face-to-face consultations, there are likely to be savings to the NHS (£19m).
- There are also likely to be significant benefits for the economy, as patients have to spend less time travelling to and from their GP practice and waiting for appointments. The estimated value to the economy is nearly £9m.
- There are also benefits to individuals who are not working when their GP appointment takes place. This benefit comes from the individual having additional leisure time as they no longer have to travel to and from the GP practice or wait for an appointment. This is estimated to be nearly £7m.

This shows that with minimal cost, the NHS could provide a significant contribution to the economy of the Black Country. Assuming all other economic conditions remain the same, the NHS could improve worker productivity which could then allow the local economy to perform better. As well as improving economic performance, the intervention will help to increase the amount of leisure time for people who are not in work, which will help to improve their level of well-being.

However, the benefit to the economy is based on an assumption that there is no decrease in the quality of healthcare individuals receive. It assumes that patients receiving a consultation via the telephone or video conferencing are equally likely to be diagnosed correctly as patients receiving their appointment face-to-face. It also assumes that the patients will not need a second, face-to-face appointment to confirm their diagnosis. It also assumes that the savings in NHS expenditure are reallocated to other local services.

The figures above are based on a set of assumptions set out in section 9.2. These assumptions have been varied in the sensitivity analysis, presented in section 9.5. However, there may be further costs and benefits from the intervention which have not been captured in the analysis. For example, if more patients attend a GP appointment than would have previously, this could help to prevent some future emergency admissions to secondary care. This is because health problems are identified and treated at an earlier stage. Preventing future emergency admissions would provide benefits to the health service, the economy and an increase in leisure time. However, these potential impacts have not been captured in the analysis.

The key conclusions for moving some secondary care outpatient appointments to a primary care setting are:

- There are no overhead costs to the NHS to move some outpatient services to a primary care setting. This assumes that the outpatient appointments are delivered by primary care professionals in a primary care setting, and that the primary care professionals already have the skills required to deliver these appointments. However, there is a cost to secondary care to provide training and / or support to primary care staff, to ensure they are confident in delivering outpatient appointments. This is estimated to be nearly £1m.
- The move to delivering services to primary care increases the cost to primary care (by £10m), as they are providing additional appointments. However, there

are more substantial savings to secondary care (£36m). This leads to an overall benefit to the NHS of just under £26m (when the ongoing support/training cost is included). This is an opportunity cost, rather than cash saving. It will free up resources in secondary care which can be devoted to patients with more complex needs.

- The main benefit of this scenario is to the NHS. However, there are also benefits to the wider economy, as patients and carers spend less time absent from work. As the appointments in secondary care and waiting times are estimated to be shorter (although travel times for employed individuals are estimated to be longer), there is a benefit to the economy (nearly £2m).
- There are also benefits to individuals who are not working when their outpatient appointment takes place. This benefit comes from the individual having additional leisure time as their journey time, waiting time and appointment time are all reduced. This is estimated to be over £2m.

This shows that reorganising the provision of services by moving some secondary care outpatient appointments to primary care provides a large opportunity cost saving to the NHS. This is much larger than the economic benefit or improvements in the amount of leisure time people have. Therefore the main driver for this change would be from the NHS, with the additional benefit to the economy.

However, there are some other factors to consider here. GP practices have to have the capacity to deliver these appointments. It is assumed they have the correct skills. In order to deliver additional appointments GPs would need to shift some of their existing appointments to practice nurses or other health care professionals¹⁶ in order to make the capacity to deliver the appointments. If this is not possible, additional GP capacity would need to be recruited to meet the additional demand, which would reduce the savings for the NHS. Additionally, the savings to the NHS would only be realised if the outpatient appointments are provided by primary care staff, rather than secondary care staff delivering the appointment in a primary care setting.

Providing outpatient appointments in a primary care setting could have additional benefits to those that have been modelled. For example, providing services in a primary care setting could decrease non-attendance, as the provision is in a more convenient location or because it takes less time. This could help to identify some problems at an earlier stage and reduce future, more costly treatments.

This analysis provides an analytical framework for assessing the economic impact of making NHS services more accessible to patients, particularly those in employment. It demonstrates what type of costs may be incurred due to the service change and the benefits that would accrue from it. However, this does not represent a complete business case for service change in the Black Country. These topics would have to be explored in greater detail before any service change was proposed.

¹⁶ Another approach would be to screen appointments so that GPs do not provide unnecessary appointments (appointments where solutions and treatments could be delivered by pharmacists or GP receptionists).

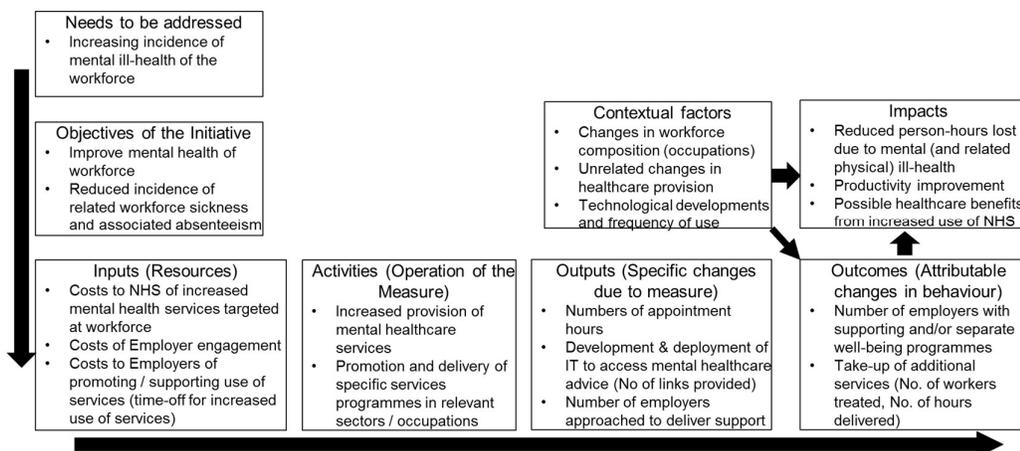
10 Scenario 2: Economic impact of increasing support for common mental health problems

This section presents the costs and benefits of the NHS providing additional support services for more common mental health problems, such as stress or anxiety. The aim of this scenario is to explore the potential impacts on the economy of providing mental health support, therefore the treatment of severe mental health conditions (which are unlikely to have direct economic impacts) has not been included in the analysis. The impact on two groups has been explored – those in employment and individuals who are not in employment but who would like to return to the labour market. This scenario supports current research being undertaken by the West Midlands Combined Authority (WMCA). Again, the results provide an illustration of the direction and scale of the costs and benefits, and are not intended to be a service change proposition.

10.1 Rationale for the intervention

Mental ill-health is an important cause of absenteeism and for the non-participation of people of working age in the workforce. To the extent that mental ill-health also limits educational attainment it also effects the subsequent level of skills in the workforce. Expansion and improvements in mental health services targeted at those of working age can be expected to reduce absenteeism, and increase participation and skills levels; all contributing to potential improvements in productivity. Figure 3.1 provides an indicative intervention logic for the scenario.

Figure 10.1 Intervention logic for the use of mental health services to improve productivity



10.1.2 Nature of the initiative

The initiative is concerned with providing increased mental health services to persons of working age suffering common and less severe mental health problems. For those in work the initiative would work with employers to encouraging take-up of services. This should result in lower absenteeism at work and lower healthcare costs. For those out of work the initiative would work with DWP / JobCentre Plus to support individuals back into the labour market. This would, over time, increase labour market participation and skill level, and reduce Skills Shortage and Hard to Fill Vacancies.

The intervention is assumed to be Improving Access to Psychological Therapies (IAPT) which provides support for individuals with common mental health needs in a primary care setting. This is assumed to be a face to face consultation, followed by ongoing telephone support where needed. On average, this is assumed to be a one hour face to face consultation in a primary care setting, followed by four half hour telephone consultations. These assumptions are based on findings from Layard et al (2007), which described a “high throughput, low intensity” model of support for individuals with mental health needs. This description is most appropriate for the support of individuals with common mental health conditions. However, there are many different ways in which IAPT support is delivered, so actual delivery could differ from this model.

10.2 Modelling assumptions

In order to provide estimates of how these initiatives could affect economic performance, several assumptions need to be made about the interventions. These are presented in Table 10.1.

Table 10.1 Assumptions required to estimate the potential economic impact

Category	Assumption	Source
Nature of the intervention	Providing IAPT support for individuals with common mental health needs in a primary care setting. This is assumed to be a face to face consultation, followed by ongoing telephone support where needed. On average, this is assumed to be a one hour face to face consultation in a primary care setting, followed by four half hour telephone consultations.	
Cost of intervention	No one off costs, just on-going cost of providing support	
Number of employed individuals with common mental health issues	72,236	Annual Population Survey; assumption that 14.7% of working individuals have a mental health condition
Number of unemployed individuals with mental health issues who would like to return to work	20,467	DWP statistics on number of ESA claimants who have a mental health condition – which is 43% of all individuals claiming ESA or JSA
Average duration of absence for common mental health issues	3.2 days per year	Labour Force Survey (LFS)
Average value of ESA payments	£73.10 / week	DWP statistics - Assumed to be in the work-related activity group
Average value of JSA payments	£73.10 / week	DWP statistics – Assumed to be over 25
Take-up of services	20%	Layard et al (2007) ¹⁷
Duration of appointments	Initial face to face contact: 1 hour Follow up telephone contact: Assumed 4 contacts each with a duration of 0.5 hours	Layard et al (2007)

¹⁷ Clark, D.; Layard, R.; Smities, R. (2007) Improving Access to Psychological Therapy: Initial Evaluation of the Two Demonstration Sites. This research evaluates the first year performance of two sites where IAPT services were introduced. The research analyses outcomes for a relatively large number of participants, and one of the areas (Doncaster) is comparable to Black Country.

Category	Assumption	Source
Cost of service provision	£37 / hour	Based on PSSRU – Community mental health team for adults with mental health problems
Travel time to service	For initial face to face contact: 0.22 hours for unemployed; 0.62 hours for employed	Department of Transport Journey Times Labour Force Survey
Value of time	Employed (lost production): £26/hour Unemployed (leisure time): £10/hour	Regional GVA estimates Department of Transport
Number of Hard to Fill Vacancies (HtFV)	5,317	UKCES Employer Skills Survey
Value of individual returning to work	£41,920	Regional GVA estimates, GVA per job
Impact of service on employed individuals	38.3% reduction in absence from work	Layard et al (2007)
Impact of service on unemployed individuals	4% of participants enter the labour market	Layard et al (2007)

10.3 Scenario 2: Calculations

10.3.1 Cost of providing IAPT appointments

The IAPT intervention is assumed to be an initial face to face consultation between a member of community mental health team and a patient. This could take place at any convenient location for the client, and is assumed here to be in their local GP practice. Following this appointment, it is assumed that there is ongoing support for the client, and this will most likely take the form of ad hoc telephone support. This is assumed to take two further hours per patient. Therefore, the total cost of providing the IAPT appointments is the number of appointments multiplied by the hourly cost of a community mental health worker multiplied by three.

There is a cost to employers and individuals who are not working for attending the first IAPT appointment. This cost is calculated by summing the duration of time spent travelling to and from the GP practice (assumed to be twice the travel time between the GP practice and work for employed individuals and twice the travel time between home and the GP practice for unemployed individuals, as patients have to travel to and from the GP practice); the duration of appointment (one hour) and the time spend waiting at the GP practice. The sum of the duration of time is then multiplied by the average value of production for employed individuals and the average value of leisure time for those not in employment.

10.3.2 Cost of existing benefit payments

Individuals who are out of work who have common mental health issues could be receiving either Job Seekers Allowance (JSA) or Employment and Support Allowance (ESA). It has been assumed, because the intervention is targeting individuals with common mental health conditions that individuals receiving ESA are in the work-related activity group. Therefore the value of JSA and ESA are the same.

The cost of benefit payments for individuals with common mental health needs is the number of individuals claiming benefits with mental health needs multiplied by the

weekly allowance multiplied by 52 (the whole year). Any change in benefit payments is not a local economic benefit, but is an interesting impact of the intervention.

10.3.3 Cost of existing Hard to Fill Vacancies

Hard to Fill Vacancies (HtFV) are defined as vacancies where an employer cannot find applicants with the skills, qualifications or experience to do the required job. This means that the job goes unfilled, and production is lost. To estimate the cost of HtFV on the economy, the number of HtFV in the Black Country has been multiplied by the average annual output per job.

10.3.4 Cost of existing absence from work for common mental health issues

Employed individuals with common mental health issues take time off work related to these conditions. The cost of absence from work due to common mental health issues is estimated by multiplying the average duration of absence due to mental health issues by the number of employed individuals with common mental health issues and the average value of production.

10.3.5 Benefit of reduced absence from work

The support programme aims to reduce the amount of absence individuals with mental health issues need to take. This will reduce the level of lost production from absence. This benefit is calculated by multiplying the reduction in the number of days absence a person who receives support will take in a year by the number of people receiving support and the average value of production.

10.3.6 Benefit in re-employment of out of work individuals

The support programme aims to help re-employ some individuals who were out of work. This will reduce the level of benefit payments as individuals claiming them enter employment (as there are HtFV in the Black Country, this would not lead to replacement of workers but would fill existing vacancies). The value of benefit to the Government would be the number of individuals who had re-entered employment multiplied by the weekly value of the benefit multiplied by 52.

Re-employing out of work individuals and filling HtFV could also increase the level of output in the Black Country, as more people will be employed and producing goods or providing services. The benefit to the economy of this is calculated by multiplying the number of people who re-enter employment by the average value of a HtFV.

10.4 Scenario 2: Results

Table 10.2 presents the results from the analysis. The impact of introducing IAPT services to 20% of people who have common mental health problems leads to an increase in costs to the health service, as they are providing an additional service. However, no new equipment or treatment space is required. However, some of this outlay would be expected to be recouped in the future by preventing these individuals from accessing more expensive healthcare treatments in the future, as they have better control of the mental health conditions.

The introduction of the IAPT services is estimated to lead to benefits to businesses and the wider economy through reduced absence and filling HtFV. It is estimated

that the intervention will support 147 unemployed individuals back into work. The filling of HtFV has the largest monetary impact on the economy. The benefits of the service far outweigh the costs.

Table 10.2 Results from the analysis of providing support for individuals with common mental health problems

Category	Existing cost (£m)	New cost (£m)	Impact (£m)
Cost of absence due to common mental health issues	42.1	38.9	3.2
<i>Number of HtFV (non-monetary measure)</i>	<i>5,317</i>	<i>5,170</i>	<i>147</i>
Cost of HtFV	222.9	216.7	6.2
Cost of out of work benefit payments	177.9	177.3	0.6
Health service cost of provision	0.0	2.1	2.1
Cost of time to attend for employed individuals	0.0	1.4	1.4
Cost of time to attend for out of work individuals	0.0	0.1	0.1
Total cost to health service	0.0	2.1	2.1
Total cost of benefit payments	177.9	177.3	0.6
Total impact on BC economy	265.0	257.0	8.0
Total impact on leisure time	0.0	0.1	0.1

ICF calculations; values in black are benefits; values in red are additional costs

10.5 Scenario 2: Sensitivity analysis

This section provides a discussion of how the results for each of the scenarios analysed change as the assumptions used in the calculations are varied. The results provide high and low values for the impacts of the intervention to support individuals with common mental health conditions, between which it can be confidently stated the true value lies.

10.5.1 Assumptions to be varied

Table 10.3 presents the assumptions to be varied in the sensitivity analysis. These are the assumptions around duration of absence, take-up of the service, duration and cost of provision and the impact of the intervention. All other assumptions are as described in Table 10.1, and all the calculations are as described in section 10.3.

Table 10.3 Assumptions required for the sensitivity analysis

Category	Assumption			Source
	Low	Central	High	
Average duration of absence for common mental health issues	3 days / year	3.2 days / year	4 days / year	LFS

Category	Assumption			Source
	Low	Central	High	
Take-up of services	10%	20%	30%	Layard et al
Duration of appointments	Follow up telephone contact: Assumed 3 contacts each with a duration of 30 minutes	Follow up telephone contact: Assumed 4 contacts each with a duration of 30 minutes	Follow up telephone contact: Assumed 5 contacts each with a duration of 30 minutes	Layard et al
Cost of service provision	£31 / hour	£37 / hour	£40 / hour	Based on PSSRU
Travel time to service	Assumed to be a online-service, therefore no travel time required	For initial face to face contact: 13.6 minutes for unemployed; 37.6 minutes for employed	For initial face to face contact: 17.2 minutes for unemployed; 40.3 minutes for employed	Department of Transport Journey Times LFS
Impact of service on employed individuals	32% reduction in absence from work	38% reduction in absence from work	45% reduction in absence from work	Layard et al
Impact of service on unemployed individuals	1% of participants enter the labour market	4% of participants enter the labour market	8% of participants enter the labour market	Layard et al

10.5.2 Results from the sensitivity analysis

Table 10.4 presents the results of the sensitivity analysis. This shows that in the low, central and high impact analysis, the benefits of the intervention outweigh the costs. The costs of the intervention are estimated to range from £1.0m (including costs to employers and individuals to attend appointments) to £7.3m. The largest impact is estimated to be filling HtFV, with the impact ranging from £1m to over £21m. The total impact on the economy is estimated to range from just under £2m to over £26m.

Table 10.4 Results from the sensitivity analysis of providing support for individuals with common mental health problems

Category	Low impact (£m)	Central impact (£m)	High impact (£m)
Cost of absence due to common mental health issues	1.1	3.2	7.8
Cost of HtFV	1.1	6.2	21.2
Cost of out of work benefit payments	0.1	0.6	1.9
Health service cost of provision	0.6	2.1	4.3

Category	Low impact (£m)	Central impact (£m)	High impact (£m)
Cost of time to attend for employed individuals	0.4	1.4	2.7
Cost of time to attend for out of work individuals	0.0	0.1	0.3
Total cost to health service	0.6	2.1	4.3
Total cost of benefit payments	0.1	0.6	1.9
Total impact on BC economy	1.8	8.0	26.3
Total impact on leisure time	0.0	0.1	0.3

ICF calculations; values in black are benefits; values in red are additional costs

10.6 Conclusions for Scenario 2

The main findings from this analysis are that significant economic impacts could be generated from the NHS providing support to individuals with mental health conditions. The key conclusions from introducing and promoting services to support people with mental health conditions are:

- There are no overhead costs for providing the service. This assumes that the intervention can be delivered in existing NHS space (GP practices). Therefore the cost of provision is the staff time required to deliver the service (£2.1m).
- There is a cost to the economy, which is the cost of employed individuals attending their appointment of £1.4m (including travel and waiting time). There is a much smaller cost for non-working participants to attend appointments (£0.1m), due to smaller numbers of non-working participants, the value of leisure time being lower than the value of economic output and shorter travel times than for employed individuals.
- Compared to the costs of provision, there are large potential economic benefits due to the intervention. One of the reasons for the economic benefit is that employed individuals take less time absent from work due to their mental health condition (£3.2m).
- However, the largest impact relates to supporting unemployed individuals back into employment. This is estimated to be £6.2m (147 individuals), assuming the individual remains in employment for a whole year.
- There is an additional benefit to supporting individuals back into work. This is that it will reduce the amount of benefits paid to people who are out of work. This provides a benefit to the Department for Work and Pensions (DWP). This has been estimated to be (£0.6m) for one year. However, if individuals can be supported back into work, this benefit could extend into future years. However, this is not a benefit to the local economy.
- Even in the absence of any effect on the employment of out of work individuals with mental health problems, the intervention would still deliver a positive return on investment by reducing absence in the workplace.
- The modelling only examines the potential economic impact of the intervention on the Black Country economy. However, the intervention could also have benefits for the NHS. Individuals with mental health conditions are more likely to access the NHS for treatment for mental health problems as well as for other conditions. Providing employed individuals with support could help them to better manage their health, and for unemployed individuals supporting them back into employment could have significant health benefits. This would help to reduce expenditure on these patients for the NHS.

11 Scenario 3: Economic impact of providing support for informal carers

This section presents the costs and benefits of altering the provision of NHS services to improve access for employed individuals. The analysis covers two groups of informal carers – those in employment and those not in employment but who would like to return to the labour market.

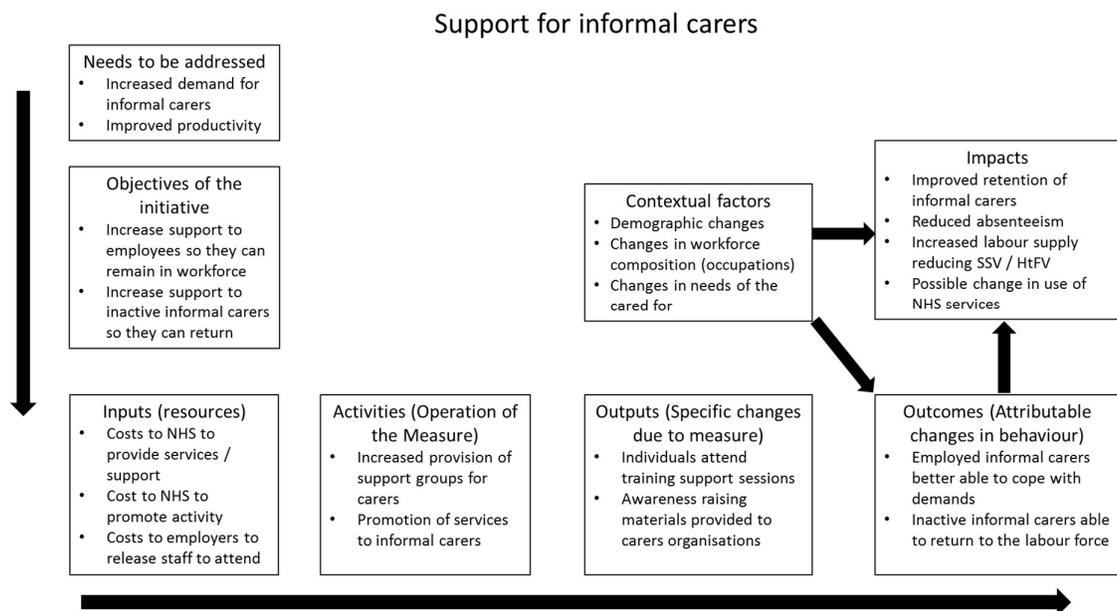
11.1 Rationale for the intervention

The provision of informal care by individuals of working age can lead to difficulties for those who are employed and individuals who are inactive but would like to return to employment. Individuals who are in employment may struggle to attend work on some occasions due to their caring requirements. Individuals who provide care which prevents them from re-entering the labour market (for example due to a lack of time or flexibility) can become stuck in a cycle of inactivity due to caring responsibilities – by providing care they lose labour market experience, which means employers can be less willing to employ them in the future due to gaps in their career experience.

Additionally, the provision of informal care can be detrimental to the health and well-being of carers (for individuals in employment additional stress of providing care and maintaining their job). This can lead to increased absence from work and higher use of healthcare services.

The current trend in Government spending on social care and demographic changes means that the demand for informal care is likely to increase in the future.

Figure 11.1 Intervention logic for improved services for informal carers of working age



11.1.2 Nature of the initiative

The initiative is concerned with providing additional information and support services for informal carers of working age. The NHS, in partnership with local authorities and the voluntary sector¹⁸ would be responsible for commissioning and delivering these support services. For those in work the initiative would work with employers to encouraging take-up of services. This should result in lower absenteeism at work, improved retention and lower healthcare costs. For those out of work, the intervention would work with carers' organisations to encourage take-up in the service. This could result in reduced healthcare costs and an increase in the number of people who are able to return to the labour market. The intervention should also benefit the Government, as the individuals receiving care would require less state funded health and social care.

It is assumed that the intervention would be based in a community setting (for example a community centre or an easily accessible local hub¹⁹) and use family support workers (or equivalent) to provide support to informal carers. It is anticipated that this support would be an initial one hour face to face meeting at the local hub. This would be used to help them complete a carers assessment form (which can be a long and complicated form) and provide initial information about how to provide effective and productive care, how to cope with their caring responsibilities, where they can access help, and what technologies may be available to support them. The length of the carers' assessment form can discourage carers' from completing the form, and therefore they do not have a proper plan for caring and have not necessarily accessed all the support and guidance available to them. This could mean that the care they provide is inefficient.²⁰

In advance, participants would complete a questionnaire (unsupported), so that they have prepared some information to share with the family support worker. This is estimated to take one hour to complete on average. Following the initial meeting, the family support worker will provide further support when it is needed, for example as caring needs change or if the individual is struggling to cope.

11.2 Modelling assumptions

In order to provide estimates of how this initiative could affect economic performance, several assumptions need to be made about the intervention. These are presented in Table 11.1.

¹⁸ For example the NHS could fund posts in partnership with local authorities to undertake the intervention, or the NHS and local authorities in combination could commission the voluntary sector to provide the intervention.

¹⁹ These could include, for example, schools, libraries and religious centres, or existing NHS community facilities.

²⁰ Information taken from an expert workshop focussing on social care

Table 11.1 Assumptions required to estimate the potential economic impact

Category	Assumption	Source
Nature of the intervention	Allowing informal carers to receive support to complete a carer's assessment form, which is assumed to take one hour. Additional support is provided to guide carers to information and guidance, such as what equipment and technologies are available to support them, and to provide support	
Cost of space for intervention	£7.50 per hour	Dudley Council for Voluntary Service
Number of carers who are employed	64,269	Census survey, 2011; Population estimates, 2015
Number of carers who are unemployed	4,779	Census survey, 2011; Population estimates, 2015
Number of carers who are economically inactive (aged 16-64)	53,680	Census survey, 2011; Population estimates, 2015
Percentage of employed carers with stress or anxiety issues	30%	Assumptions based on Survey of Carers in Households 2009/10
Average duration of absence for common mental health issues	3.2 days per year	LFS
Average duration of absence for caring responsibilities	2 days per year	Acas
Value of JSA	£73.10 / week	DWP – assumed to be over 25 years old
Number of people claiming JSA	4,415	DWP statistics
Value of carers allowance	£62.70 / week	DWP statistics
Number of individuals claiming carers allowance	18,690	DWP statistics
Percentage of carers reached	10%	
Cost of intervention	1 hour face to face support with family support worker: £30 Assumed 1 additional hour of ongoing telephone support over the year: £30	PSSRU hourly cost of family support worker
Cost of preparation time	Assumed 1 hour of time prior to face to face session to prepare information: Cost of leisure time to individual	Expert workshop on social care
Travel time to service	For initial face to face contact: 14.3 minutes for unemployed; 7.2 minutes for employed	Department of Transport Journey Times
Waiting time for service	11.3 minutes	GP patient survey
Value of time	Employed (lost production): £26/hour Unemployed (leisure time): £10/hour	Regional GVA estimates Department of Transport
Number of Hard to Fill Vacancies (HtFV)	5,317	UKCES Employer Skills Survey
Impact of support on retention of employed workers	2% of employed workers remain in employment	Assumptions based on Survey of Carers in Households 2009/10
Value of employee retention to employers and economy	17% of earnings	Centre for American Progress (2012) There Are Significant Business

Category	Assumption	Source
		Costs to Replacing Employees
Impact of support on rate of absence due to caring	25%	Assumptions based on Survey of Carers in Households 2009/10
Impact of support on rate of absence due to stress and anxiety	10%	Assumptions based on Survey of Carers in Households 2009/10
Impact of support on unemployed and inactive workers	3% of workers re-enter the labour market	Assumptions based on Survey of Carers in Households 2009/10
Value of labour market re-entry	Estimated to be value of output per job (£41,920)	Regional GVA estimates, GVA per job

11.3 Scenario 3: Calculations

11.3.1 Cost of providing support to informal carers

The support for informal carers is assumed to be in their local GP practice for an initial appointment (of one hour), with subsequent telephone support. This support is assumed to take one further hour per carer supported. Therefore, the total cost of providing the support is the number of informal carers supported multiplied by the hourly cost of a family support worker multiplied by two.

There is a cost to employers and individuals who are not working for attending their carers support session. This cost is calculated by summing the duration of time spent travelling to and from the GP practice (assumed to be twice the travel time between the GP practice and work for employed individuals and twice the travel time between home and the GP practice for employed individuals; the duration of appointment (one hour) and the time spend waiting at the GP practice. The sum of the duration of time is then multiplied by the average value of production for employed individuals and the average value of leisure time for those not in employment.

11.3.2 Cost of existing benefit payments

Individuals who are out of work who have common mental health issues could be receiving either Job Seekers Allowance (JSA) or Carers Allowance (CA). It has been assumed individuals do not receive both of these benefits simultaneously.

The cost of benefit payments for individuals on each type of benefit payment has been calculated by the number of individuals claiming the benefit multiplied by the weekly allowance multiplied by 52 (the whole year).

11.3.3 Cost of existing Hard to Fill Vacancies

To estimate the cost of HtFV on the economy, the number of HtFV in the Black Country has been multiplied by the average annual output per job, as described in section 10.3.

11.3.4 Cost of existing absence from work

Employed individuals with caring responsibilities are likely to take time off work due to stress and anxiety. The cost of absence from work due to common mental health issues is estimated by multiplying the average duration of absence due to mental health issues by the number of employed informal carers who suffer from stress and anxiety and the average value of production.

Individuals with caring responsibilities are also likely to take time off work due to their caring responsibilities. The cost of this has been calculated in the same way as above, with the number of employed informal carers multiplied by the average number of days absence and the average value of production.

11.3.5 Benefit of reduced absence from work

The support programme aims to reduce the amount of absence informal carers need to take for anxiety and stress and to provide informal care. This will reduce the overall level of lost production from absence. This benefit is calculated by multiplying the reduction in the number of days absence a person who receives support will take in a year by the number of people receiving support and the average value of production.

11.3.6 Benefit in re-employment of out of work individuals

The support programme aims to help re-employ some individuals who were out of work. This will reduce the level of benefit payments as individuals claiming them enter employment (as there are HtFV in the Black Country, this would not lead to replacement of workers but would represent filling existing vacancies).

The value to the Government would be the number of individuals who had re-entered employment multiplied by the weekly value of the benefit multiplied by 52. It is assumed that individuals re-entering employment who were previously claiming CA no longer claim the benefit as they earn over the threshold to receive the benefit (£116 per week). The change in benefit payments is not a local economic benefit, but an interesting impact of the intervention.

Re-employing out of work individuals and filling HtFV could also increase the level of output in the Black Country, as more people will be employed and producing goods or providing services. The benefit to the economy of this is calculated by multiplying the number of people who re-enter employment by the average value of output per job in the Black Country.

11.3.7 Benefit of retention

The support would also help to prevent employed individuals from falling out of employment to provide informal care on a permanent basis. The benefit of this is calculated by multiplying the number of individuals who have been prevented from leaving employment by 17% of the average wage. This is the estimated benefit to businesses of retention, as it reduces the cost of recruitment and allows them to keep staff who know how their organisation works, thus providing efficiencies.

11.4 Scenario 3: Results

Table 11.2 presents the results from the analysis. The impact of providing support for informal carers to a third of carers in the Black Country leads to an increase in

costs to the health service, as they are providing an additional service. A modest allowance for equipment / treatment space is included.

The introduction of the support for informal carers is estimated to lead to benefits to businesses and the wider economy through reduced absence and filling HtFV and improved retention. The filling of HtFV has the largest monetary impact on the economy. The benefits of the service (the black entries in the impact column) far outweigh the costs (the red entries in the impact column).

Table 11.2 Results from the analysis of providing additional support to informal carers

Category	Existing cost (£m)	New cost (£m)	Impact (£m)
Cost of absence due to anxiety and stress	11.2	11.1	0.1
Cost of absence due to providing informal care	23.4	22.8	0.6
<i>Number of HtFV (non-monetary)</i>	<i>5,317</i>	<i>5,142</i>	<i>175</i>
Cost of vacancies	222.9	215.5	7.4
Cost of carers allowance payments	60.9	60.8	0.2
Cost of JSA payments	22.2	22.2	0.1
Cost of provision – staff time	0.0	0.7	0.7
Cost of provision – room hire	0.0	0.1	0.1
Cost of time to attend for employed individuals	0.0	0.4	0.4
Cost of time to attend for out of work individuals	0.0	0.2	0.2
Cost of time to individuals to prepare for appointment	0.0	0.1	0.1
Benefit to business of retention	0.0	0.5	0.5
Total cost to NHS/local authority	0.0	0.8	0.8
Total cost of benefit payments	83.2	82.9	0.2
Total impact on BC economy	257.6	249.4	8.1
Total impact on leisure time	0.0	0.3	0.3

ICF calculations; values in black are benefits; values in red are additional costs

11.5 Sensitivity analysis

This section provides a discussion of how the results for each of the scenarios analysed change as the assumptions used in the calculations are varied. The results provide high and low values for the costs and benefits associated with the initiative to support informal carers, between which it can confidently be stated that the true value lies between.

11.5.1 Assumptions to be varied

Table 11.3 presents the assumptions which have been varied in the sensitivity analysis. The assumptions to be varied are those relating to the duration of absences, the number of carers suffering from stress, the take-up of the intervention, the cost and duration of the intervention and the impact of the intervention. All other assumptions remain the same as presented in Table 11.1, and all the calculations are as described in section

Table 11.3 Assumptions required to estimate the potential economic impact

Category	Assumption			Source
	Low	Central	High	
Percentage of employed carers with stress or anxiety issues	25%	30%	35%	Assumptions based on Survey of Carers in Households 2009/10
Average duration of absence for common mental health issues	3 days / year	3.2 days / year	4 days / year	LFS
Average duration of absence for caring responsibilities	1 day / year	2 days / year	5 days / year	Acas
Percentage of carers reached	25%	33%	40%	
Cost of intervention	0.5 hour face to face support with family support worker: £15 Assumed 30 additional minutes of ongoing telephone support over the year: £15	1 hour face to face support with family support worker: £30 Assumed 1 additional hour of ongoing telephone support over the year: £30	1 hour face to face support with family support worker: £30 Assumed 2 additional hour of ongoing telephone support over the year: £60	PSSRU hourly cost of family support worker
Cost of preparation time	Assumed 30 minutes of preparation time	Assumed 1 hours of preparation time	Assumed 2 hours of preparation time	Expert workshop on social care
Value of room hire	£5 per hour	£7.50 per hour	£10 per hour	
Travel time to service	For initial face to face contact: 0.22 hours for unemployed; 0.62 hours for employed	For initial face to face contact: 0.22 hours for unemployed; 0.62 hours for employed	For initial face to face contact: 0.22 hours for unemployed; 0.62 hours for employed	Department of Transport Journey Times
Waiting time for service	10.2 minutes	11.3 minutes	12.4 minutes	GP patient survey
Impact of support on retention of employed workers	1% of employed workers remain in employment	2% of employed workers remain in employment	5% of employed workers remain in employment	Assumptions based on Survey of Carers in Households 2009/10
Value of employee retention to employers and economy	15% of earnings	17% of earnings	25% of earnings	Centre for American Progress (2012) There Are Significant Business Costs to Replacing Employees
Impact of support on rate of absence due to caring	25%	33%	50%	Assumptions based on Survey of Carers in

Category	Assumption			Source
	Low	Central	High	
				Households 2009/10
Impact of support on rate of absence due to stress and anxiety	5%	10%	20%	Assumptions based on Survey of Carers in Households 2009/10
Impact of support on unemployed and inactive workers	2% of workers re-enter the labour market	3% of workers re-enter the labour market	5% of workers re-enter the labour market	Assumptions based on Survey of Carers in Households 2009/10

11.5.2 Results from the sensitivity analysis

The results from the sensitivity analysis are presented in Table 11.4. This shows that despite varying multiple assumptions, the benefits of the intervention significantly outweigh the costs in the low, central and high estimates of the impact. The largest impact in all the estimates is the impact on HtFV (£1m to £25m). The total impact on the economy ranges from £1m to nearly £34m, whereas the costs to the NHS and local authorities are estimated to be between £0.2m and £2.5m.

Table 11.4 Results from the sensitivity analysis of providing additional support to informal carers

Category	Low impact (£m)	Central impact (£m)	High impact (£m)
Cost of absence due to anxiety and stress	0.0	0.1	0.7
Cost of absence due to providing informal care	0.1	0.6	5.9
Cost of HtFV	1.2	7.4	24.5
Cost of carers allowance payments	0.0	0.2	0.6
Cost of JSA payments	0.0	0.1	0.2
Cost of provision – staff time	0.2	0.7	2.2
Cost of provision – room hire	0.0	0.1	0.2
Cost of time to attend for employed individuals	0.1	0.4	1.2
Cost of time to attend for out of work individuals	0.0	0.2	0.4
Cost of time to individuals to prepare for appointment	0.1	0.1	0.2
Benefit to business of retention	0.1	0.5	3.7
Total cost to NHS/local authorities	0.2	0.8	2.5
Total cost of benefit payments	0.0	0.2	0.8
Total impact on BC economy	1.3	8.1	33.5
Total impact on leisure time	0.1	0.3	0.7

ICF calculations

11.6 Conclusions on Scenario 3

The main findings from this analysis are that significant economic impacts could be generated from the NHS providing support to informal carers. The key conclusions from introducing and promoting services to support carers are:

- The cost of the service is assumed to be a staffing cost (family support workers) and a small cost to hire space to deliver the service in. The cost of provision is estimated to be relatively small (£0.8m).
- There is a cost to the economy, which is the cost of employed individuals attending their appointment (including travel and waiting time). This cost is relatively small (£0.4m). There is a much smaller cost for out of work participants of £0.2m, due to the value of leisure time being lower than the average value of economic output. There is a further loss of leisure time to both employed and those not in employment to prepare for the appointment (£0.1m).
- Compared to the costs of provision, there are large potential economic benefits due to the intervention. There are four main economic benefits from the intervention, which are:
 - Out of work participants finding and maintaining employment. These individuals are assumed to fill HtFV, so could contribute additional output to the local economy (£7.4m).
 - Employed individuals being supported to stay in employment, when in the absence of the intervention they would have ended their employment to provide informal care. This is estimated to be worth £0.5m.
 - Employed carers spend less time absent from work due to the support and guidance they receive. This is estimated to be £0.7m, with most of this due to a reduction in the absence required to provide informal care.
- There is an additional benefit to supporting individuals back into work. This is that it will reduce the amount of benefits paid to people who are out of work. This provides a benefit to the DWP. This has been estimated to be (£0.2m) for one year. However, if individuals can be supported back into work, this benefit could extend into future years.
- The intervention could also have long term benefits for the NHS and the quality of life of carers and the cared for. These impacts have not been modelled in this exercise. Informal carers often suffer from other health problems, which can be made worse by providing care. This can lead to costs to the NHS. By providing support, the carers will be better able to manage their own health, and therefore reduce the burden on the NHS.
- Additionally, employment has a beneficial effect on health and wellbeing, which would provide additional benefits to the NHS. These impacts have not been assessed in this modelling exercise.
- Finally, informal carers receiving advice and guidance on how to plan care and access equipment and services to support their caring will have a positive impact on the individual they care for. The care provided will be more productive and of better quality, which could improve the quality of life of the person being cared for. This could in turn reduce the number of appointments the cared for individual has with the NHS, providing further benefits.

12 Summary of conclusions from the scenario analysis

12.1 Limitations of the research

Although this research provides information about the direction and scale of some impacts as a result of changes in local health services it has, because of its exploratory nature, some limitations. These would need to be addressed when using the framework as the basis of service propositions. These limitations include:

- Lack of dynamic analysis: The analytical framework only considers annual costs and benefits, where some of the interventions may lead to different costs and benefits in the future. For example, providing support for people with mental health conditions is likely to lead to increasing benefits in future years;
- Lack of coverage of all economic impacts: The framework does not assess all the potential economic impacts of a change in service. For example, supporting people with mental health problems could lead to savings to the NHS (both for treating mental health problems, but also other conditions that people with mental health problems also suffer from);
- Lack of coverage of other service changes: The framework does not examine the economic effect of a change in service, such as changes in quality of services, patient satisfaction, or equality effects.

12.2 Main findings from the scenario analysis

The scenarios analysed in this research show that changes in local NHS service provision have the potential to provide significant additional economic benefits to the Black Country, at limited extra cost to the NHS. The impacts result from reducing the amount of absence employed individuals take, helping unemployed individuals back into employment and supporting employed individuals to remain in employment. There are also potential benefits to the NHS and to Government, in terms of reducing demand for services and benefits paid to out of work individuals.

All of the interventions examined are estimated to provide a positive return on investment based on the assumptions and calculations used. This means that for each pound invested by the NHS, the local economy benefits by more than one pound. The largest potential impact is through the initiatives supporting out of work individuals back into the labour market. However, even in the absence of supporting anyone back into employment, the interventions would still have a positive return on investment.

Sensitivity analysis was carried out on all the initiatives, which showed that even with more conservative assumptions, all the initiatives still provided a positive return on investment.

The analysis carried out presents the annual impact of each of the initiatives. However, there are likely to be longer term benefits accruing from the interventions, such as long term health benefits (leading to savings to the NHS) and recurring benefits (sustained employment and reduced absence from work).

The total cost to the NHS of all the interventions combined is under £5m, which represents less than 1% of NHS spending in the Black Country. Given the benefits that could accrue from a small proportion of NHS expenditure, and the potential benefits which have not been modelled, a strong case can be made to conduct

further research in these areas and develop detailed business cases for service changes.

The benefit to the local economy, without considering any benefits to the NHS, are estimated to be higher than the costs associated with the intervention. Therefore, this could be used to secure funding from sources outside the NHS to support these interventions.

The comparative impacts of the three scenarios on the Black Country economy and NHS services is summarised in Table 5.1. These indicate that under low to high sensitivity that:

- Scenario 1 provides significant NHS cost savings which alone could justify the initiative, and has the highest economic impact of the three scenarios
- The other two scenarios have similar impacts on the Black Country economy, which, depending on low to high impact assumptions, range from 3 to 13 times the costs of the changes in service provision;
- The economic impacts as a multiple of costs increase under less conservative assumptions.

Taking the medium estimate, the economic impact ranges from between £8m and £10m per year. As one benchmark for comparison as to the economic significance of these impacts, the Black Country Growth Deal, the national grant based programme of government funding for local economies receives an average of £23m a year (£162m for the period 2015-21).

Table 12.1 Summary of impacts from the specified scenarios

Scenario		Impact	Annual impacts (£m)		
			Low	Medium	High
Scenario 1	Access to services	Economic impact on Black Country (GVA)	4.5	10.3	23.0
		Impact on Local NHS costs	19.8	44.0	94.3
		Multiple of cost	<i>NHS savings</i>	<i>NHS savings</i>	<i>NHS savings</i>
Scenario 2	Access to mental health services	Economic impact on Black Country (GVA)	1.8	8.0	26.3
		Impact on Local NHS costs	-0.6	-2.1	-4.3
		Multiple of Cost	3.0	3.8	6.1
Scenario 3	Support to informal carers	Economic impact on Black Country (GVA)	1.3	8.1	33.5
		Impact on Local NHS costs	-0.2	-0.8	-2.5
		Multiple of Cost	6.5	10.1	13.4

Scenario results

12.3 Limits in scaling-up the economic impacts

As each intervention brings benefits for the economy, it may be tempting to scale up the interventions to increase the take-up rates, or expand service to include more health conditions. The results from the scenario analysis are based on a minority of target population taking part in the intervention. This is presented in

Table 12.2 Proportion of the population assumed to participate in the interventions

Scenario		Target population	Assumed take-up (%) in target population	Assumed take-up (no.)	Total population	Assumed take-up as % of total population
Scenario 1	Access to primary care services	5,797,000 (working age primary care appointments)	20%	1,235,900	6,987,953 (total primary care appointments)	18%
Scenario 1	Access to secondary care services	1,324,000 (working age outpatient appointments)	20%	264,800	1,479,683 (total outpatient appointments)	18%
Scenario 2	Access to mental health services	92,700 (working age)	20%	18,500	1,167,000	2%
Scenario 3	Support to informal carers	122,700 (working age carers)	10%	12,300	1,167,000	1%

Scenario results

The scaling up of the interventions can be considered in further work to develop business cases for service change. However, there are limiting factors to expanding the scale of these initiatives:

- Limits on staff capacity – both the quantity of staff to provide the services described and the skills of the staff;
- Limits on the willingness of patients to take-up services – information failures exist and would prevent the full potential from being reached;
- Limits on space – There are potential constraints to modifying the use of the NHS estate;
- Local labour market – the number of hard to fill vacancies, the source of the most significant benefits are limited. The trend in the number of these types of vacancies is uncertain.

These factors should be considered when introducing or scaling up any of the initiatives.

12.4 Next steps – developing the analytical framework

This research has presented a basic analytical framework to estimate the economic costs and benefits of different changes to NHS service provision.

Despite the limitations, this research provides a new and interesting insight into how changes in service provision can affect the local economy. Further research, which builds on these frameworks should be undertaken to more accurately demonstrate all the costs and benefits of changes in services. The further research would address the limitations of the current frameworks.

This research could include:

- Exploring in more detail the assumptions which have been used and underpin the analytical frameworks and to increase their validity. For example, is it possible that a mental health intervention could use space at GP practices? Or what training is required to ensure primary care staff can deliver some outpatient appointments. Some of this may be qualitative research, exploring in detail with

health care professionals what is required for these changes in research, to better inform any future economic analysis.

- Collecting further information on all of the impacts of a change in service including the detailed labour market impacts implicit in the assumptions. Each of the interventions also has the potential to have further impacts on the NHS, through the influencing the demand for other NHS services. This would need to be explored in more detail, as it has the potential to significantly alter the scale of the impacts presented in this research. The work would involve examining medical literature and programme evaluations which include a scientific approach to impact assessment. This would allow these further impacts to be quantified and monetised.
- Extending the analysis over a longer time period. The current frameworks examine the costs and benefits in a single year, but it is likely that some impacts will change over time. Therefore, the analysis would need to be extended over a suitable time period (this could be a five year period), differentiating start-up costs, and the elapsed time for initiatives to take effect.

On the basis of this further research, specific business cases will need to be developed in detail such that Commissioners can make informed decisions about service provision and potential changes in services including service quality and equality impacts. The business case should look to include the economic impacts, not least because the economic benefits may justify co-financing by other economic development stakeholders.

Part A: ANNEXES

Annex 1 Input output categories

Table A1.1 Input output table categories

IOG code	Broad category	Specific description
01	Agriculture	Products of agriculture, hunting and related services
02		Products of forestry, logging and related services
03		Fish and other fishing products; aquaculture products; support services to fishing
05	Production	Coal and lignite
06 & 07		Crude petroleum and natural gas & Metal ores
08		Other mining and quarrying products
09		Mining support services
10.1		Preserved meat and meat products
10.2-3		Processed and preserved fish, crustaceans, molluscs, fruit and vegetables
10.4		Vegetable and animal oils and fats
10.5		Dairy products
10.6		Grain mill products, starches and starch products
10.7		Bakery and farinaceous products
10.8		Other food products
10.9		Prepared animal feeds
11.01-6		Alcoholic beverages
11.07		Soft drinks
12		Tobacco products
13		Textiles
14		Wearing apparel
15		Leather and related products
16		Wood and of products of wood and cork, except furniture; articles of straw and plaiting materials
17		Paper and paper products
18		Printing and recording services
19		Coke and refined petroleum products
20A		Industrial gases, inorganics and fertilisers (all inorganic chemicals) - 20.11/13/15
20B	Petrochemicals - 20.14/16/17/60	
20C	Dyestuffs, agro-chemicals - 20.12/20	
20.3	Paints, varnishes and similar coatings, printing ink and mastics	
20.4	Soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	
20.5	Other chemical products	
21	Basic pharmaceutical products and pharmaceutical preparations	
22	Rubber and plastic products	
23OTHER	Glass, refractory, clay, other porcelain and ceramic, stone and abrasive products - 23.1-4/7-9	
23.5-6	Manufacture of cement, lime, plaster and articles of concrete, cement and plaster	
24.1-3	Basic iron and steel	
24.4-5	Other basic metals and casting	

IOG code	Broad category	Specific description
25OTHER		Fabricated metal products, excl. machinery and equipment and weapons & ammunition - 25.1-3/25.5-9
25.4		Weapons and ammunition
26		Computer, electronic and optical products
27		Electrical equipment
28		Machinery and equipment n.e.c.
29		Motor vehicles, trailers and semi-trailers
30.1		Ships and boats
30.3		Air and spacecraft and related machinery
30OTHER		Other transport equipment - 30.2/4/9
31		Furniture
32		Other manufactured goods
33.15		Repair and maintenance of ships and boats
33.16		Repair and maintenance of aircraft and spacecraft
33OTHER		Rest of repair; Installation - 33.11-14/17/19/20
35.1		Electricity, transmission and distribution
35.2-3		Gas; distribution of gaseous fuels through mains; steam and air conditioning supply
36		Natural water; water treatment and supply services
37		Sewerage services; sewage sludge
38		Waste collection, treatment and disposal services; materials recovery services
39		Remediation services and other waste management services
41-43	Construction	Construction
45	Distribution, transport, hotels and restaurants	Wholesale and retail trade and repair services of motor vehicles and motorcycles
46		Wholesale trade services, except of motor vehicles and motorcycles
47		Retail trade services, except of motor vehicles and motorcycles
49.1-2		Rail transport services
49.3-5		Land transport services and transport services via pipelines, excluding rail transport
50		Water transport services
51		Air transport services
52		Warehousing and support services for transportation
53		Postal and courier services
55		Accommodation services
56	Food and beverage serving services	
58	Information and communication	Publishing services
59-60		Motion picture, video and TV programme production services, sound recording & music publishing & programming and broadcasting services
61		Telecommunications services
62		Computer programming, consultancy and related services
63		Information services
64	Financial and insurance	Financial services, except insurance and pension funding
65.1-3		Insurance, reinsurance and pension funding services, except compulsory social security & Pensions

IOG code	Broad category	Specific description
66		Services auxiliary to financial services and insurance services
68.1-2	Real estate	Real estate services, excluding on a fee or contract basis and imputed rent
68.2IMP		Owner-Occupiers' Housing Services
68.3		Real estate services on a fee or contract basis
69.1	Professional and support activities	Legal services
69.2		Accounting, bookkeeping and auditing services; tax consulting services
70		Services of head offices; management consulting services
71		Architectural and engineering services; technical testing and analysis services
72		Scientific research and development services
73		Advertising and market research services
74		Other professional, scientific and technical services
75		Veterinary services
77		Rental and leasing services
78		Employment services
79		Travel agency, tour operator and other reservation services and related services
80		Security and investigation services
81		Services to buildings and landscape
82		Office administrative, office support and other business support services
84		Government, health & education
85	Education services	
86	Human health services	
87-88	Social care services	
90	Other services	Creative, arts and entertainment services
91		Libraries, archives, museums and other cultural services
93		Gambling and betting services
94		Sports services and amusement and recreation services
96		Services furnished by membership organisations

Source: UK Input output tables

Annex 2 Additional regional economic data

A2.1 Employment by age and gender

Table A2.1 Full and Part time employment by gender and age in the Black Country, 2015

Age	Male		Female	
	Full-time	Part-time	Full-time	Part-time
16-24	76%	24%	63%	37%
25-49	92%	8%	56%	44%
50+	84%	16%	52%	48%
Total	76%	24%	63%	37%

ONS Annual Population Survey, Full and Part-time work, 2015

Table A2.2 Percentage of the population who are economically active in the Black Country, 2015

Age	Dudley		Sandwell		Walsall		Wolverhampton		Black Country	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
16-24	71%	62%	65%	51%	48%	49%	53%	53%	60%	54%
25-49	88%	75%	92%	69%	88%	67%	91%	73%	90%	71%
50-64	82%	63%	72%	64%	77%	70%	76%	64%	77%	65%
65+	13%	4%	11%	2%	10%	2%	11%	4%	11%	3%

ONS Annual Population Survey, 2015, Economic Activity by age

Table A2.3 Percentage of the population who are employed in the Black Country, 2015

Age	Dudley		Sandwell		Walsall		Wolverhampton		Black Country	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
16-24	57%	51%	51%	40%	33%	41%	35%	43%	45%	43%
25-49	83%	69%	88%	65%	82%	61%	84%	66%	84%	65%
50-64	78%	61%	68%	62%	73%	67%	70%	58%	73%	62%
65+	13%	4%	11%	2%	10%	2%	10%	4%	11%	3%

ONS Annual Population Survey, 2015, Employment by age

Annex 3 Additional earnings and wages data

Table A3.1 Gross weekly pay for full time workers, 2010-2015

Area	2010	2011	2012	2013	2014	2015
Dudley	497	487	479	497	478	499
Sandwell	461	452	448	448	441	453
Walsall	468	457	442	446	449	476
Wolverhampton	468	443	455	449	447	434
England	559	541	542	540	532	533

ONS Annual Survey of Hours and Earnings, 2010 to 2015; GDP deflators

Table A3.2 Gross weekly pay for part time workers, 2010-2015

Area	2010	2011	2012	2013	2014	2015
Dudley	173	173	181	167	169	168
Sandwell	175	159	164	177	171	162
Walsall	179	158	169	184	167	160
Wolverhampton	146	140	159	142	149	156
England	170	164	164	166	163	167

ONS Annual Survey of Hours and Earnings, 2010 to 2015; GDP deflators

Table A3.3 Hourly pay for full time workers, 2010-2015

Area	2010	2011	2012	2013	2014	2015
Dudley	12.36	12.09	11.86	12.31	11.67	12.30
Sandwell	11.66	11.45	11.55	11.14	11.11	11.34
Walsall	11.72	11.52	11.34	11.42	11.48	12.20
Wolverhampton	11.72	11.09	11.03	11.34	11.04	10.82
England	14.10	13.72	13.72	13.73	13.49	13.47

ONS Annual Survey of Hours and Earnings, 2010 to 2015; GDP deflators

Table A3.4 Hourly pay for part time workers, 2010-2015

Area	2010	2011	2012	2013	2014	2015
Dudley	8.60	7.97	8.28	8.51	8.19	8.10
Sandwell	8.06	7.50	7.78	8.16	8.35	8.01
Walsall	8.33	7.72	7.68	8.03	8.12	8.07
Wolverhampton	7.97	7.45	7.98	7.55	7.78	7.85
England	8.83	8.57	8.51	8.58	8.48	8.50

ONS Annual Survey of Hours and Earnings, 2010 to 2015; GDP deflators

Table A3.5 Gender pay gap for Full-time workers (hourly earnings), 2010-2015

Area	2010	2011	2012	2013	2014	2015
Dudley	6.7%	2.1%	4.4%	7.9%	2.6%	6.5%
Sandwell	-0.7%	3.0%	-0.5%	2.8%	7.3%	0.6%
Walsall	12.5%	6.4%	10.2%	13.2%	4.5%	15.5%
Wolverhampton	6.2%	14.5%	15.7%	10.5%	10.1%	14.3%
England	10.7%	11.0%	10.2%	10.7%	9.9%	9.9%

ONS Annual Survey of Hours and Earnings, 2010 to 2015

Annex 4 Land valuation estimates

Table A4.1 Land values by Government region and selected Local Authorities, 2015

Area	Value (£m)
East of England	2.6
East Midlands	1.1
London	29.1
North East	1.0
North West	1.4
South East	3.6
South West	2.0
West Midlands	1.5
Yorkshire and Humberside	1.4
England including London	6.9
England excluding London	2.1
<i>Local Authorities</i>	
Dudley	1.17
Sandwell	1.48
Walsall	0.88
Wolverhampton	1.19

Department for Communities and Local Government (2015) Land value estimates for policy appraisal; Estimated value of a typical residential site

Part B: ANNEXES

Annex 5 Detailed assumptions

A5.1 Providing services in more convenient locations

A5.1.1 Assumptions for travel times

The assumptions for the travel time calculations are based on two main sources:

- Department for Transport (DfT) Journey Time Statistics (2014) for journey times from home to GP practices and hospitals; and
- The Labour Force Survey (2007) for travel times to work (released as part of the regional snapshot, 2009).

The DfT Journey Time Statistics provide estimates of the journey time to GP practices and hospital by car and by public transport. The estimates used in the central calculations are the midpoint between the journey time by car and by public transport, as different individuals will have different modes of transport.

The journey to work statistics are average journey to work times for all individuals, regardless of mode of transport. The data is presented in bands (percentage of individuals with a journey time of between 0 and 20 minutes). The midpoint of these bands has been multiplied by the percentage of workers in each band, and the sum of these multiplications represents the average journey to work time.

It has been assumed that for the majority of people, the journey time to a hospital from a workplace is shorter than the journey time from home to work. This is because many people will work in the centre of an area, where the hospital will also be located. Therefore, the average journey time from work to a hospital is estimated to be 75% of the journey time from home to a hospital.

It is also assumed that GP practices are located closer to an individual's home than to their workplace. The duration of travel time from work place to a GP practice is estimated to be the journey time from home to work minus half the duration of home to GP travel time (as it is assumed that the GP practice is in a similar direction to workplace – heading towards the centre of an area). The travel times in each of the four local authorities have been multiplied by the number of residents in the Local Authority and divided by the total Black Country population to estimate the average Black Country journey times.

A5.1.2 Assumptions for waiting times

The duration of waiting times in primary care in the Black Country was taken from the GP patient survey. Patients estimate how long they wait prior to being seen for their appointment, and the data is presented in bands (percentage of individuals with a journey time of between 5 and 15 minutes). The midpoint of these bands has been multiplied by the percentage of workers in each band, and the sum of these multiplications represents the average waiting time. The average waiting time in each CCG area has been multiplied by the population in each area, and the sum of these multiplications represents the average waiting time in primary care in the Black Country.

The duration of waiting times in secondary care (for outpatient appointments) is based on two main sources: the NHS outpatient survey (2011), which provided average time after the scheduled start of an appointment patients had to wait (provided in bands with local authority weighting; duration of wait estimated to be 21

mins and 20 seconds in the Black Country); and NHS guidance on how long before an appointment a patient should arrive prior to their appointment time (30 minutes).

A5.1.3 Assumptions for take-up of interventions

The assumptions around the take-up of interventions are based on information from the GP survey. This showed that at the moment there is relatively low take-up of online and telephone services outside of booking appointments. The evaluation of the challenge fund programme showed that while there was a large increase in the number of people willing to use telephone consultations (starting from a low base), take-up of other forms of consultation were low. Therefore the take-up of distance appointments has been estimated at 20%.

The assumption for the take-up of secondary care services in a primary care setting is based on evaluations of pilot schemes which aimed to introduce follow up care into a primary care setting. Take-up for these services was initially low, but has increased over time. Not all secondary care appointments are suitable to be provided in a primary care setting. Therefore the take-up of this has been estimated as 20% of all secondary care outpatient appointments

A5.1.4 Assumption for appointments taken out of hours and when individual is absent from work

NHS England provides information about whether GP practices provide out of hours services. This shows where individuals have the option of attending appointments outside working hours. The data showed whether a GP practice was open for out of hours services before work (on a morning) or after work (in the evening) or on weekends. It was assumed that where a surgery was open before work there were one hours' worth of appointments available; where they were open after work there were a further one hours' worth of appointments; and surgeries open on a Saturday or a Sunday were open for 3.5 hours. Using this assumption, on average GP surgeries in the Black Country offered three hours of appointments outside working hours per week.

The evaluation of the challenge fund programme showed that take-up of out of hour's appointments was high. Therefore it was assumed that these additional three hours of time offered would be fully utilised. Base on standard opening times of nine hours per day (five days a week), this represents 7% of current GP appointments being taken outside working hours.

Additionally, some appointments would be taken by individuals who were already absent from work due to sickness. There is no research to estimate this proportion. However, data from the LFS has shown that close to a million people in the UK have a period of extended sick leave each year (just over 3% of workers), and nearly 700,000 children are born each year (therefore some parents attending the GP practice will be on paternity or parental leave). Additionally, some individuals who have a period of short-term sick leave will attend the GP surgery while absent from work. Therefore it has been estimated that 5% of working individuals who attend a GP appointment are already absent from work due to ill health.

The same proportion of individuals are assumed to attend secondary care when they are absent from work and in hours outside their usual working schedule.

A5.1.5 Assumption for value of new equipment

The value of new telecommunication equipment has been estimated using information about the pricing for NHSOne. This includes a cost to purchase the system, a subscription cost per month and an annual support cost. It has been assumed that the most appropriate cost was for the personal payment plan. This costs approximately £500 for the first year, and will cost £150 per year in subsequent years.

It has been assumed that a proportion of GP practices already have suitable systems to deliver distance appointments, and that some practices will not want to provide this service. Therefore, it has been assumed that 25% of practices are required to make the purchase of equipment. The cost has been provided for a single year.

It has been assumed that no additional equipment is required to deliver the secondary care appointments in a primary care setting.

A5.1.6 Assumptions for additional caring responsibilities

For GP appointments, it has been assumed that patients attend on their own, without a carer, family member or friend attending.

For secondary care appointments, it has been assumed that 30% of patients require a carer to attend the appointment. This is based on the findings in the evaluation of a change in the colorectal care pathway (McMillan, 2014). It is assumed that the carers are evenly likely to be employed or not for the population aged 16 and above. Therefore, it has been assumed that 35% of carers are employed.

A5.2 Increasing support for common mental health problems

A5.2.1 Assumption on duration and frequency of support

It has been assumed that the intervention follows those described in Layard et al (2007) Improving Access to Psychological Therapy: Initial Evaluation of the Two Demonstration Sites. This is that there is an initial face-to-face meeting, lasting for 45 minutes to one hour. Subsequent contacts are made via telephone consultations, and have a duration of approximately 30 minutes²¹. There is no information on how frequently these telephone contacts are provided (as there is no defined pathway), but it is assumed that there will be four follow ups in a year.

A5.2.2 Assumption on journey and waiting times

The assumptions for the calculations of journey time and waiting time are the same as described in section A5.1, with the values for primary care used. This is because it has been assumed that the first contact for the intervention takes place in a primary care setting.

²¹ In the evaluation, subsequent telephone contacts are assumed to be 22 minutes, but it has been assumed that these contacts will be slightly longer.

A5.2.3 Assumption on the number of individuals with mental health problems

It has been assumed that 64% of people with common mental health problems are employed; therefore, in the UK, there is an estimated 4.6 million people in work who may have a common mental health problem. That equates to 14.7% of employed individuals experiencing mental health problems in the workplace.

In order to assess the number of unemployed individuals with mental health problems, data for the number of individuals who claim Employer Support Allowance (ESA) for mental health issues has been divided by the total number of people claiming out of work benefits (either ESA or Job Seekers Allowance, JSA). This shows that 44% of individuals claiming benefits in the Black Country have mental health problems.

These percentages have been multiplied by the total number of people who are employed and unemployed people in the Black Country (taken from the Annual Population Survey).

A5.2.4 Assumption on take-up of service

The assumption of the take-up of the service is based on the take-up of the service in Doncaster (Layard et al, 2008). This was described as a high-volume, predominantly low intensity service. A total of 4,451 participants were referred to the service, which equates to approximately 1.5% of the total population of Doncaster. This percentage has been multiplied by the total population of the Black Country, and divided by the estimated number of people with mental health problems in the Black Country. This gives an estimated take-up rate of 20%.

A5.2.5 Assumption on the impact of the programme

The estimated impact of the programme has also been taken from the Layard et al research. This provides estimates of the number of people who were out of work prior to the intervention who had found work, those who were in employment who had fallen out of work, and information about whether an individual was on sick leave. From this, the following assumptions on impact have been made:

- 4% of unemployed individuals who participate will enter the workforce; and
- The level of absence from the workplace as a result of minor mental health conditions decreases by 38%.

The unemployed individuals who re-enter the workforce are assumed to be additional workers entering jobs, rather than replacing other workers. This assumes that the individuals re-entering the workforce are helping to fill Hard to Fill Vacancies (HtFV), for example through the skills they possess or where they are willing to work. This means that the additional workers contribute additional GVA to the economy.

A5.2.6 Assumption on the cost of the programme

The delivery of the programme is assumed to be in GP practices, which assumes there is no additional rental costs to the NHS for this intervention. There are no set up or equipment costs. The intervention is assumed to be delivered by Community mental health team. Therefore the cost of the intervention is simply the staff time required to deliver the support and guidance.

A5.3 Providing support for informal carers

A5.3.1 Assumption on duration and frequency of support

It has been assumed that the intervention provides support for a carer to complete their carers' assessment, and then ongoing telephone support. There is no information on the length of time support for a carers' assessment would take (<https://www.hertfordshire.gov.uk/media-library/documents/adult-social-services/factsheets/carers-assessment-what-you-need-to-know-a5.pdf>). It has been estimated that it will take one hour. The assessment includes discussions about the carers' time, working arrangements and health and well-being. It is assumed that carers' will be signposted to other helpful services during the carers' assessment. Further, it is assumed that there will be subsequent support for the carer, provided over the telephone. This would be to check if the carers' situation had changed and to provide further support and signposting. There is no information on how frequently these telephone contacts are provided, but it is assumed that there will be one hour of telephone follow up per year.

A5.3.2 Assumption on journey and waiting times

The assumptions for the calculations of journey time and waiting time are the same as described in section A5.1. However, local hubs are assumed to be in town centres. Therefore the travel times have been calculated in the same way as described above, but using the journey time to town centres. It is assumed that the travel time to a town centre from a workplace is shorter than from home. Therefore, the average journey time from work to a local hub is estimated to be 50% of the journey time from home to a local hub. Waiting times at community centres for support for carers are assumed to be the same as those at a GP practice.

A5.3.3 Assumption on the number of carers

The number of carers, disaggregated by employment status, has been taken from the Census (2011) and applied to the population of employed and inactive individuals from the Annual Population Survey (2015).

A5.3.4 Assumption on take-up of service

There is no information about the potential take-up of an intervention similar to the one proposed. As the intervention is a relatively simple intervention, without much effort required by carers', it has been assumed that 10% of carers' would use the service. Carers' who are providing care for individuals with less serious caring requirements are most likely to use the service.

A5.3.5 Assumption on the impact of the programme

There are multiple impacts of the intervention. These are discussed individually below.

A5.3.5.1 Impact on absence from work

The intervention is assumed to have two impacts on absence from work. These are a reduction in the time a carer requires to be absent from work due to caring responsibilities, and a reduction in the time a carer requires to be absent from work due to stress and anxiety.

There are no statistics available on the number of days absence due to caring responsibilities in the UK. However, surveys carried out by the CIPD show that caring responsibilities are an important causes of absence (35% of employees said it was in the top five common causes of absence)²². ACAS suggests that employees have a right to a reasonable amount of time off work to look after dependents, and suggest one to two days for this²³. Therefore, it has been estimated that all employed carers take on average two days absence from work per year.

The number of days absence for stress and anxiety has been taken from the LFS, and is estimated to be 3.2 days per person suffering with these conditions. The proportion of employed carers who suffer from stress and anxiety has been taken from the Survey of Carers in Households 2009/10 (30%).

A survey for Carers UK showed that 88% of employers believe that additional support for carers will reduce absence from work. There is no evidence which shows the exact impact of providing support on the duration of absence. However, the Survey of Carers in Households 2009/10 showed that employed individuals with a lower number of hours spent caring had a higher level of health and wellbeing, and were less likely to state that they were feeling depressed than employed carers providing a higher number of hours care. Therefore, reducing the number of hours care (by providing additional support or signposting to useful services) is likely to have a positive impact on carers' health, which will reduce the absence from stress. This has been estimated to be a decrease of 10% in the absence from stress.

It is also assumed that providing support will reduce the duration of absence from work that carers require. This is estimated to be a reduction of 25% (0.5 days absence per carer per year).

A5.3.5.2 Impact on retention of carers' in the workplace

Providing additional support to carers will also enable some carers to remain in employment when the absence of the intervention would have meant they left the workforce. The Survey of Carers in Households 2009/10 shows that 2% of individuals previously employed had left the workforce due to caring responsibilities. Therefore, it has been assumed that 2% of employed carers would leave the workforce due to caring commitments, and as a result of the programme they do not have to.

The value of retention to businesses is estimated to be 17% of an employee's annual wages²⁴. This is a conservative estimate, with some businesses stating in research carried out by Employers for Carers that the impact is between 50% and 150% of an employee's earnings²⁵.

The improvement on retention will also have a positive impact on Central Government. As employees are able to stay in work, they are less likely to claim JSA or careers allowance. The number of individuals who remain in work has been multiplied by the value of the careers allowance to estimate this impact.

²² CIPD (2016) Absence Management

²³ <http://www.acas.org.uk/index.aspx?articleid=3235>

²⁴ Centre for American Progress (2012) There Are Significant Business Costs to Replacing Employees

²⁵ Employers for Carers (2013) Supporting working carers: The benefits to families, business and the economy

A5.3.5.3 Impact on re-employment of carers

The Survey of Carers in Households 2009/10 provides information on the percentage of out of work carers who would like to return to work. Careers who would like to return to work but only if their caring responsibilities are reduced have been selected as the most appropriate measure for this impact. 10% of out of work carers would like to return to work if their caring responsibilities were reduced. However, it has been assumed that not all of these individuals would possess the skills to return to work, therefore it has been assumed that 5% of out of work carers' who participate in the programme will return to work.

The unemployed individuals who re-enter the workforce are assumed to be additional workers entering jobs, rather than replacing other workers. This assumes that the individuals re-entering the workforce are helping to fill Hard to Fill Vacancies (HtFV), for example through the skills they possess or where they are willing to work. This means that the additional workers contribute additional GVA to the economy.

A5.3.6 Assumption on the cost of the programme

The delivery of the programme is assumed to be in a local community hub. This means there is an additional rental cost for the NHS and local authorities, but this cost will be relatively low due to using community facilities. There are no set up or equipment costs. The intervention is assumed to be delivered by a family support worker. Therefore the cost of the intervention is simply the staff time required to deliver the support and guidance and the rental cost.