

Technical appendices

Health and social care funding projections 2021

REAL Centre (Research and Economic Analysis for the Long term)

Appendix A: Definitions of spending

This appendix provides additional detail on the different definitions of health and social spending used throughout the main funding projections report. Table A1 summarises the measures that are routinely collected and published. Different measures can look at:

- who is spending: government, insurance schemes, out-of-pocket payments
- different types of spending (day-to-day running costs, capital investment in equipment, buildings, and research and development)
- the geography (UK or individual countries within the union)
- the range of services (NHS or health more broadly including some long-term care).

Table A1 summarises the measures that are routinely collected and published.

Table A1: Alternative definitions of public health care spending

	Departmental spending DHSC	Functional spending	Identifiable spending	SHA/OECD health care spending (government schemes and compulsory schemes)
Type of spending	Current and capital	Current and capital	Current and capital	Current only (Gross Fixed Capital Formation measures capital spending)
Territory in which spending occurs	England	UK	Where the spending takes place is irrelevant ('for' basis and not 'in' basis)	UK
Department level	DHSC only	DHSC, other departments, devolved administrations and local authorities	DHSC, other departments, devolved administrations and local authorities	NHS, local authorities, and other government bodies involved in the provision of health care
UK residents vs non-residents	Residents and non-residents in England	Residents and non-residents in the UK	UK residents	UK residents
Local authorities included?	No	Yes	Yes	Yes, health and social care-related spending by local authorities
Devolved administration included?	No	Yes	Yes	Yes
COFOG classification	No	Yes	No	Yes, with some inclusions (eg local authorities' spending for social care) and exclusions (eg BEIS spending for health)

Financial/calendar year	Financial	Financial	Financial	Calendar
Source	PESA	PESA	PESA	OECD

The broadest measure is the internationally consistent measure of total health spending, produced by the OECD. This is spending from all sources, using a wide definition of health and covering all the UK. This is an important measure representing the aggregation of decisions by government, firms and individuals. Government spending is the largest single component of total UK health spending (79%). The OECD measure captures current health care spending and part of spending on long-term care.

Departmental budget for health spending

The *Budget*^{*} and *Spending Review*[†] documents typically refer to this concept of health spending. The Public Expenditure Statistical Analysis (PESA) explains this in more detail.[‡]

The departmental budget for health is the amount that the UK Treasury allocates to DHSC for health care expenditure in England. It is measured by the total departmental expenditure limit (TDEL) for the department, and it is the sum of resource (RDEL) excluding depreciation and capital (CDEL) spending. TDEL spending can also be split into NHS budget and non-NHS budget. The latter is allocated to the non-NHS sectors of the departmental group, including NHS health care providers and commissioners and the department's Arm's Length Bodies (ALBs).

RDEL includes spending on day-to-day resources and administration costs, such as salaries and employer pension contributions. It also includes current grants to local authorities and subsidies paid to the private sector. Capital (CDEL) includes spending on fixed capital assets that will contribute to productivity in the future, capital grants, and the acquisition of certain financial assets acquired or sold for policy reasons.

The UK Treasury also allocates funding for devolved public services, such as health care and education. The Barnett formula gives the annual block grants for the Scottish government, Welsh government and Northern Ireland executive. The formula calculates devolved budgets by using the previous year's budget as a starting point, adjusted for comparable spending per person in England.[§]

Central government also provides capital and current grants to local authorities. In 2019–20 DHSC provided almost £3bn to local authorities in current grants, of which £2.9bn was

* See for example *Budget 2021*, p 32 (www.gov.uk/government/publications/budget-2021-documents).

† See for example *Spending Review 2020*, section 7 (www.gov.uk/government/publications/spending-review-2020-documents/spending-review-2020).

‡ For PESA series (www.gov.uk/government/collections/public-expenditure-statistical-analyses-pesa).

§ (www.instituteforgovernment.org.uk/explainers/barnett-formula).

allocated for public health spending. DHSC also finance local authorities through capital support. This amounted – in England only – to £0.3bn in the same year.

The NHS and local government created a local single pooled budget – the Better Care Fund – to incentivise integrated care and shift resources into social care and community services. The *Spending Review 2015* also introduced the Improved Better Care Fund (iBCF) grant from 2017/18 onwards. The grant provides local government with new funding to support social care activity (£2.1bn in 2020–21).

Functional health spending

The OBR publishes long-term projections of functional spending in its Fiscal Sustainability Report.* Departmental spending is spread across a variety of functions, including health. Functions are based on the UN’s Classification Of the Functions Of Government (COFOG).

The PESA publication also covers the public sector expenditure on services by function, including health, split across different government departmental groups. Table A2 illustrates the mapping between departmental spending and functional spending for health.

Table A2: Mapping between departmental and functional spending for health, 2019–20

	£bn
Total functional spending	164
of which:	
DHSC	134
Scotland	14
Wales	8
Northern Ireland	5
Local government	3
Other departments (BEIS and DCSM)	0.2

Source: PESA 2021

Identifiable health spending

HMT collects information on the allocation of expenditure by country and region, which is split into identifiable and non-identifiable components:

- Identifiable components – where the benefits of the expenditure can be attributed to specific individuals, eg in health care where different individuals benefit from different treatments.
- Non-identifiable components – where the benefits of the expenditure cannot be attributed to specific individuals, eg defence spending for the benefit of the whole country.

* See for example: *Fiscal sustainability report (July 2020)* (<https://obr.uk/fsr/fiscal-sustainability-report-july-2020/>).

Health expenditure is entirely identifiable and as of 2019–20 this amounted to almost £163bn. Table A3 below shows the distribution of total and per capita spending for the health functions across UK countries.

Table A3: Distribution of functional health spending across the UK countries, 2019–20

	£bn	£ per capita
Identifiable spending in the UK	163	2,445
of which:		
England	137	2,427
Scotland	14	2,507
Wales	8	2,546
Northern Ireland	5	2,616

Source: PESA 2021 (Note: numbers may not sum up due to rounding.)

Health spending according to the System of Health Accounts (SHA)

The Office for National Statistics (ONS) publishes the UK Health Accounts annually. These are produced according to the SHA 2011 framework, a set of internationally standardised definitions for health care expenditure. The SHA considers two types of spending for health care:

- Current health expenditure, which captures the final consumption of health care goods and services by households, government and non-profit institutions.
- Gross capital formation, which refers to the demand for capital goods by health providers.

The SHA recommends keeping these two types of spending separate, as they refer to different timings of consumption, and discourages the use of the aggregate total health expenditure as a sum of the two.

Current health expenditure

Current health expenditure is the headline statistic used in international comparisons. The OECD health accounts data set* breaks this down into different dimensions, including the ‘financing scheme’ – the type of financing arrangement through which people obtain health services. There are four main categories:

1. **Government schemes and compulsory contributory health care financing schemes.** This category includes all schemes aimed at ensuring access to basic health care for the whole of society, a large part of it, or at least some vulnerable groups. It includes government schemes, social health insurance, compulsory private insurance and compulsory medical saving accounts. This is the concept of public spending used by the OECD in their projections.

* (www.oecd.org/els/health-systems/health-expenditure.htm).

Government schemes are the major financing schemes in the UK, where the health system is primarily financed through budget allocated to the NHS, local authorities and other relevant government bodies.

2. **Voluntary health schemes.** These are based on the purchase of a health insurance policy, which is not made compulsory by government. Under these schemes access to health care services is left to individuals and private companies, eg private health insurance.
3. **Household out-of-pocket payments.** These refer to direct payments for health care goods and services from the household primary income or savings, at the time of the purchase or use of goods and services (no third-party payer is involved).
4. **Rest of the world financing schemes.** These comprise financial arrangements involving institutional units (or managed by institutional units) that are resident abroad, but who collect, pool resources and purchase health care goods and services on behalf of residents, without transiting their funds through a resident scheme.

The concept of public (current) health spending according to the SHA is broader than those explored previously, and includes some services typically considered social care in the UK.

Social care spending definitions

Adult social care – the provision of support and personal care to meet needs arising from illness, disability, or old age – is either paid for publicly or privately, or provided voluntarily, typically by family and friends. In England, Wales and Scotland, local authorities are responsible for the public provision. This is primarily funded by council tax, business rates and central government grants. In Northern Ireland, health and social care trusts have this responsibility due to the integrated nature of their health and social care system. Figures on public adult social care spending in England are available in the *Adult Social Care Statistics in England*^{*} or the *Adult Social Care Activity and Finance Report*,[†] both published by NHS Digital. The PESA release also includes figures for the devolved administrations.

The SHA framework uses the concept of 'long-term care expenditure'. This accounts for services aimed at managing chronic health conditions related to long-term care dependency (including old age- and disability-related conditions) and reducing suffering where an improvement in health is not expected.

^{*} See for example: Adult Social Care Statistics 2020 (<https://digital.nhs.uk/data-and-information/publications/statistical/adult-social-care-statistics-in-england-an-overview/2020>).

[†] See for example: Adult Social Care Activity and Finance Report 2019–20 (<https://digital.nhs.uk/data-and-information/publications/statistical/adult-social-care-activity-and-finance-report/2019-20>).

Total long-term care expenditure can be divided into:*

- Health-related long-term care, which is included within the measure of total current health care expenditure recognised by the SHA. This relates to medical or nursing care and personal care services which provide help with activities of daily living (ADL), such as support with food intake, bathing, washing, dressing.
- Social long-term care, which sits outside the definition of current health care spending used in the SHA or by the OECD. This consists of assistance services that enable a person to live independently, in support of Instrumental Activities of Daily Living (IADLs), including shopping, cooking and managing finances.

Public (current) health spending in the SHA

The concept of health care used in the SHA and OECD differs from that used in COFOG[†], which is the key reference for recording health functional spending. The main data source for calculating public current health spending is the HMT's Online System for Central Accounting and Reporting (OSCAR) data set, which forms the basis of functional spending published in PESA. Current health spending within SHA is obtained after applying a number of deductions and additions to the OSCAR data set, as Table A4 shows.

The largest adjustment is the inclusion of the health-related long-term care spending in the estimate of current health care spending. Excluded from the latter is the social long-term care spending component.

Table A4: Adjustments to OSCAR data set

Included in the SHA definition of current health care spending	Excluded from the SHA definition of current health care spending
Local authorities' spending on social care with strong ADL component, and where care is due to a health condition (health-related LTC)	Local authorities' spending on social care with strong IADL component (social LTC)
Children's social care, where service is due to a health condition and there is a strong ADL component	BEIS spending on health (R&D)
Carer's Allowance	Education and training spending on future workforce (E&T for current workforce is included)

* OECD *Spending on long-term care*, November 2020 Briefing.

[†] Developed by the OECD, the COFOG system classifies government expenditure data from the system of national accounts by the purpose for which the funds are used.

Income received by the NHS from public authorities, insurers, and private businesses under the Compensation Recovery Scheme	Client contributions to social care services
Payments made by the UK government to other EEA nations to fund the care of UK residents who are injured or fall ill while temporarily in other EEA nations	Payments made by the UK government to fund the care of eligible former UK residents living in other EEA countries and eligible dependents of workers employed in the UK
Expenditure by elements of the Scottish and Welsh governments responsible for health, and the Healthcare and Care and Social Services Inspectorates in Wales	NHS contribution to ASC services with strong IADL component
Preventive health care spending by non-health government bodies (eg Food Standards Agency)	Grants to UK charities

Source: adapted from ONS *UK health accounts: methodological guidance*

Appendix B: Our modelling approach

This Appendix provides additional detail on the modelling approach presented in the main report. This includes the data sources and input data used, and a comparison of different modelling approaches.

Data sources

Table B1 details the different data sources used in the results presented in the main report. This includes data sources used to calculate activity rates and unit costs.

Table B1: Data sources for activity rates and unit costs

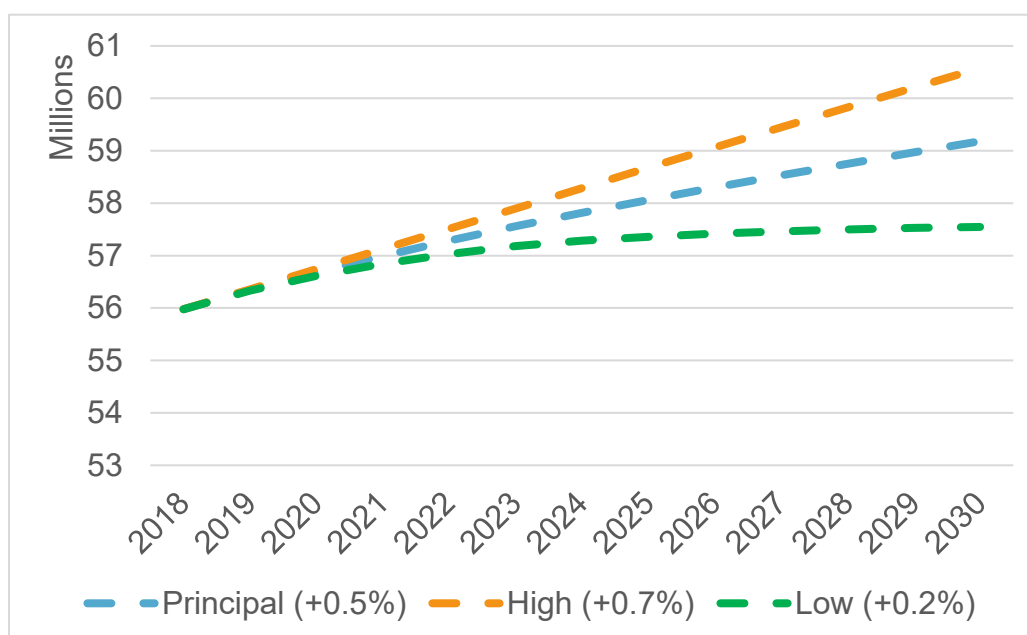
	Primary care	Community care	Acute care	Maternity	Mental health	Drug prescribing	Social care*
Activity	CPRD data	NHS Reference Costs	Hospital Episode Statistics		NHS Digital	Hospital Episode Statistics NHS Business Services Authority	CPEC modelling
Unit costs	Personal Social Services Research Unit	NHS Reference Costs			Mental health dashboard	NHS Digital Prescription Cost NHS Business Services Authority	CPEC modelling

*Funding projections for social care are from CPEC

Model inputs

Figure B1 shows the ONS principal, high and low population projections. The estimates of funding set out in the main report use the principal population projections. Health and social care funding needs would likely be higher/lower if the high/low population projections are used.

Figure B1: Principal, low and high ONS population projections (in millions), England



Source: ONS 2018-based principal population projections for England

Table B2 shows that there is limited impact on population projections from stripping out the impact of COVID-19 excess deaths. Therefore, principal population projections are used throughout the funding projections analysis presented in the main report.

Table B2: Principal population projections (in million), with and without excess deaths

	2021	2025	2030	Average annual growth % (2021–2030)
ONS principal population projections	56.90	58.01	59.16	0.43%
Population projections, stripped of COVID-19 excess deaths	56.99	58.06	59.18	0.42%

Source: ONS 2018-based principal population projections for England; ONS weekly excess deaths up to week ending 7 May 2021; 2017–2019 national life tables for England

Table B3 shows the projected population growth for each constituent country of the UK. These estimates are used when uprating funding projections for England to a UK level.

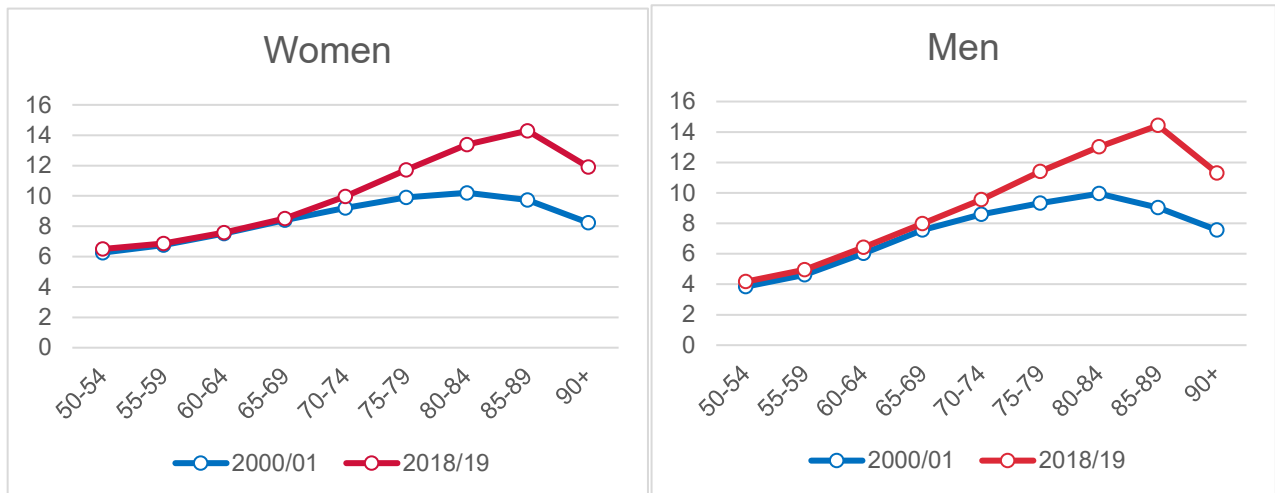
Table B3: ONS projected population growth, for the UK and each constituent country

	Population size (million)		
	2018	2030	Annual average growth
England	56.0	59.0	0.5%
Wales	3.1	3.2	0.2%
Scotland	5.4	5.6	0.2%
Northern Ireland	1.9	2.0	0.3%
UK	66.4	69.8	0.4%

Source: ONS 2018-based population projections

Figure B3 shows the use of primary care services by age and how these have changed between 2000/01 and 2018/19. These age-utilisation curves are combined with demographic data to estimate the underlying funding pressures for different health care services (examples shown in the following table).

Figure B3: Change in utilisation of primary care (consultation rates per person per year), 2000/01 to 2018/19



Source: CRPD data analysed under the approved study (www.cprd.com/protocol/descriptive-analysis-primary-care-consultations-england-2000-2018)

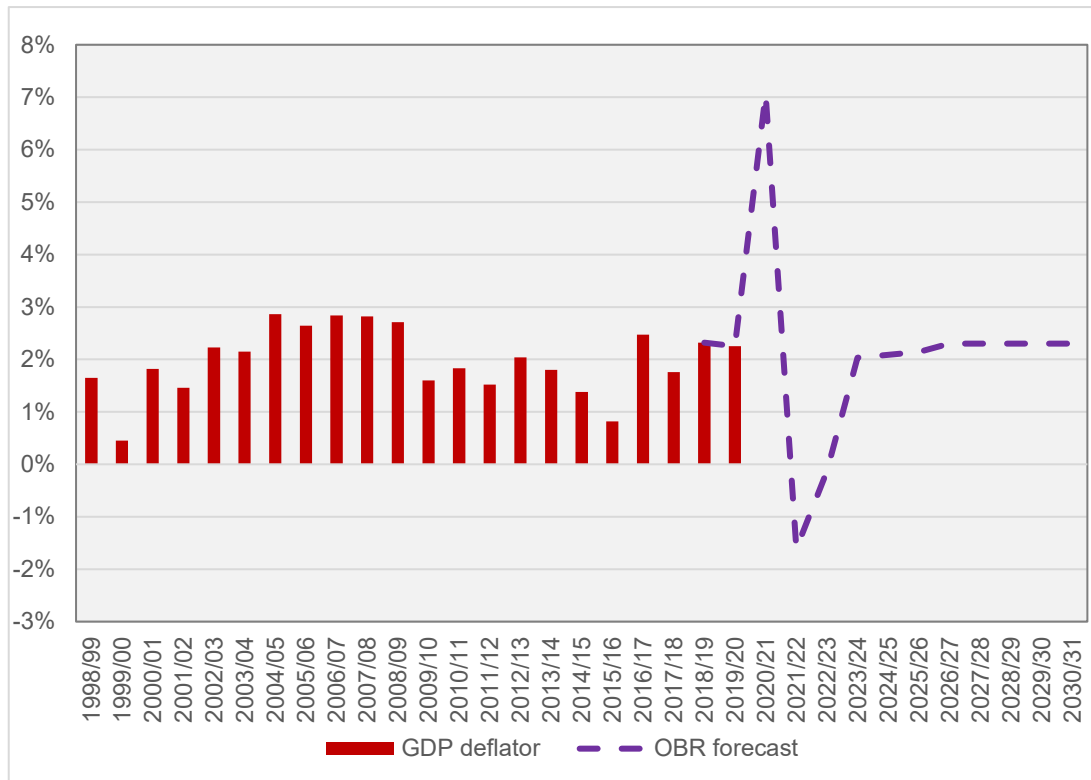
Table B4: Projected annual growth rate in utilisation of primary and community care through to 2030/31, for 50 years older

	Women	Men
50-54	0.2%	0.5%
55-59	0.1%	0.4%
60-64	0.0%	0.4%
65-69	0.1%	0.3%
70-74	0.4%	0.6%
75-79	0.9%	1.1%
80-84	1.5%	1.5%
85-89	2.2%	2.6%
90+	2.1%	2.3%

Source: REAL Centre calculations based on the change in utilisation rates over time (2000/01 to 2018/19) in primary care (see Figure B3)

Figure B4 shows past inflation and projected GDP deflator. These are used in the funding estimates to convert nominal estimates into real terms estimates.

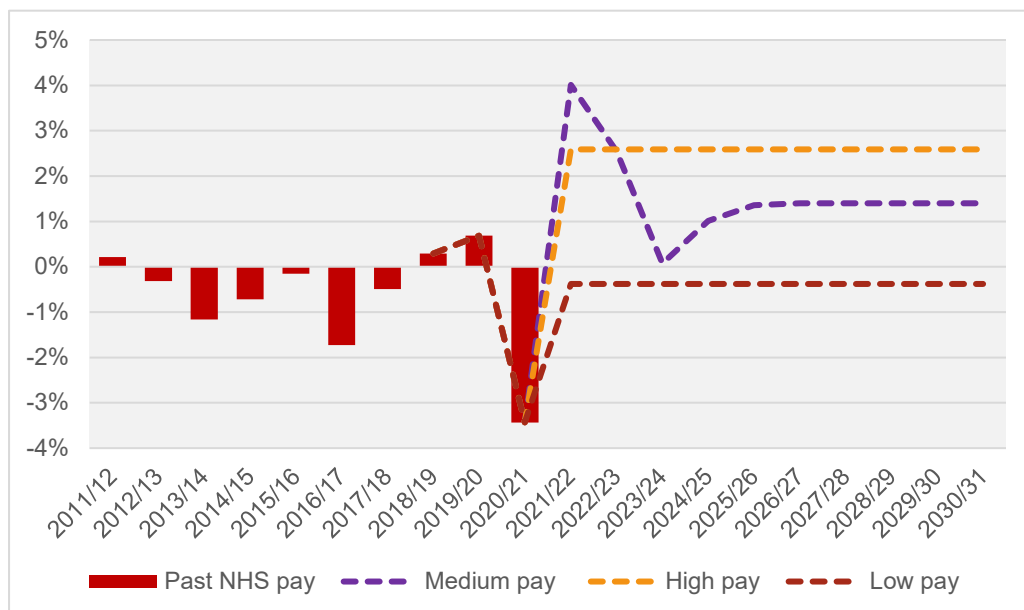
Figure B4: Past inflation and projected GDP deflator



Source: OBR long-term GDP deflator

Figure B5 shows NHS pay growth adjusted for inflation (ie in real terms) and different assumptions/projections for pay. The assumptions/projections are used in the estimates of funding presented in the main report, for example the recovery scenario uses the high pay scenario (yellow dotted line) based on the projection of all economy earnings from the OBR.

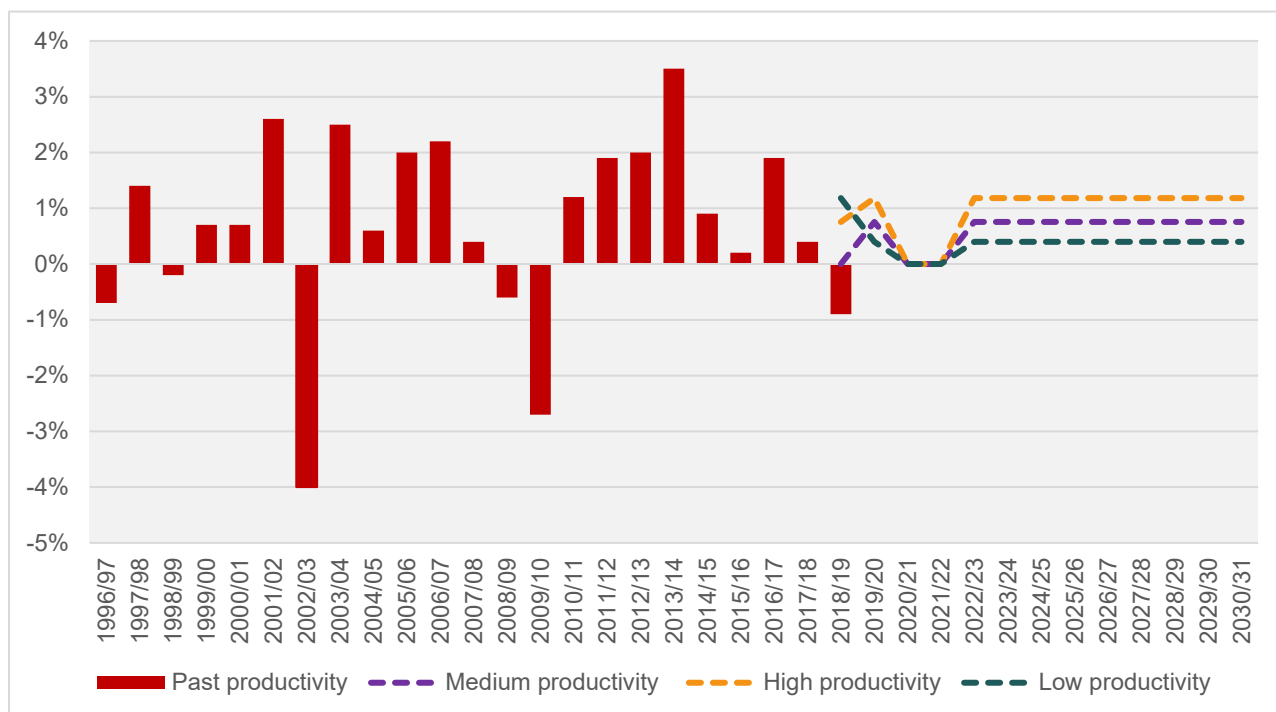
Figure B5: Past NHS staff pay growth and pay growth assumptions (real terms)



Source: NHS pay (2011/12–2020/21); OBR long-term forecast for all-economy earnings growth rate

Figure B6 shows historical health care productivity growth and high, medium and low assumptions for future productivity. These future assumptions are used in the estimates of funding projections presented in the main report.

Figure B6: Past ONS health care productivity and projected productivity growth



Source: ONS productivity for public health care (1998/99–2018/19)

Comparison with other approaches

The funding projections presented in the main report use a component-based approach to modelling underlying funding projections. There are alternative approaches to modelling future health care funding. The **OECD** identifies three main classes of models used to project health spending at different levels of aggregation, from micro to macro models (see source below). These models differ in data needs, and the type and time horizon of policy questions they can best address.

- Micro models use individuals as their unit of analysis in population cohorts. By modelling interactions and lifetime changes through microsimulation techniques, micro models permit an assessment of epidemiological transitions or exposure to risk factors in a population over time.
- Component-based models stratify the analysis by component, such as type of health expenditures or population group. Within this family are cohort-based models, in which projections are usually stratified by age group, gender or health status. This is the most common class of models and is also used by the OBR.
- Macro models focus on projecting total aggregate health expenditure. The analysis relies on time-series and cross-sections of aggregate indicators. In some cases, macro models connect projections of future health spending to general economic indicators. While the least demanding in terms of data, they are most appropriate for short-term time horizons that assume limited structural changes.

Appendix C: Results

Mental health

The additional mental health treatment needed as a result of the pandemic is spread across different teams. The single biggest line is for IAPT services, while there are much lower numbers of referrals for, for example, inpatient services (Table C1). Here, we present only the point estimate, but there is a significant amount of uncertainty surrounding these numbers.

Table C1: Estimated additional mental health referrals by service (point estimate)

Service line	2020–21	2021–22	2022–23	2023–24
24/7 Crisis Response Line	10,218	29,417	10,114	1,735
Single Point of Access Service	10,924	31,452	10,831	1,859
IAPT	88,301	254,396	88,421	15,237
Primary Care Mental Health Service	11,590	33,396	11,633	2,006
Assertive Outreach Team	202	581	196	34
Autistic Spectrum Disorder Service	267	767	261	46
Child & Adolescent Mental Health	5,209	15,025	5,323	921
Community Mental Health Team - Functional	26,956	77,568	26,517	4,537
Community Mental Health Team - Organic	690	1,985	671	116
Community Team for Learning Disabilities	523	1,505	510	89
Criminal Justice Liaison and Diversion Service	1,888	5,452	1,959	342
Crisis Resolution Team	10,771	30,986	10,553	1,801
Crisis Resolution Team/Home Treatment Service	19,194	55,217	18,810	3,209
Day Care Service	737	2,121	717	124
Early Intervention Team for Psychosis	5,578	16,033	5,407	916
Forensic Learning Disability Service	69	198	67	12
Forensic Mental Health Service	912	2,638	968	170
General Psychiatry Service	21,007	60,455	20,710	3,538
Home Treatment Service	321	925	318	55
Individual Placement and Support Service	459	1,320	446	77
Neurodevelopment Team	210	604	209	37
Paediatric Liaison Service	173	498	163	27
Personality Disorder Service	2,479	7,141	2,482	428
Psychiatric Liaison Service	9,271	26,719	9,331	1,610
Psychological Therapy Service (non IAPT)	22,311	64,270	22,309	3,840
Psychotherapy Service	6,424	18,452	6,162	1,038
Specialist Perinatal Mental Health Community Service	1,262	3,618	1,185	197
Substance Misuse Team	8,386	24,209	8,661	1,507
Inpatient services - Adult	570	1,636	544	93
Inpatient services - Children & Young People	811	2,337	808	140

Inpatient services - Learning Disabilities	15	42	13	2
Inpatient services - Older Adult	269	774	262	45

NHS England funding breakdown

In the main body of the report, we provide NHS funding across time. Below, we present the breakdown of different aspects of NHS funding by service area.*

Table C2: NHS funding projections, broken down by area (stabilisation), £bn (2021/22 prices)

NHS England funding	2018/19	2024/25	2030/31
Acute	48.3	60.1	71.4
Maternity	3.0	2.9	3.1
Community	9.0	11.4	13.4
Primary care	11.4	14.3	15.7
Mental health	11.4	14.0	14.9
Community prescriptions	8.8	9.5	10.1
Specialised services	17.1	22.7	29.4
Other	14.3	17.6	20.6

* Note: all these numbers exclude any pensions transfer covered by the Treasury.

Table C3: NHS funding projections, broken down by area (recovery), £bn (2021/22 prices)

NHS England funding	2018/19	2024/25	2030/31
Acute	48.3	64.0	74.7
Maternity	3.0	3.0	3.3
Community	9.0	11.5	13.8
Primary care	11.4	14.4	16.2
Mental health	11.4	14.4	17.6
Community prescriptions	8.8	9.5	10.1
Specialised services	17.1	22.7	29.4
Other NHS England	14.3	18.2	21.6