**NHS Cost Inflation Index**

**Introduction**

1. Much like the rest of the economy, the NHS also faces inflation on the price it pays for different items of spend. The inflation NHS faces can be broadly split into a pay and non-pay category. Pay inflation stems from changes in the unit costs NHS organisations pay for different staff groups and non-pay inflation stems from changes in the prices of goods and services purchased by the NHS, such as clinical supplies or transport costs.
2. The size and scope of the NHS means it has a unique mix of inflationary factors, but there is no single measure of the inflation experienced within the NHS. The Department of Health and Social Care, in conjunction with the Office for National Statistics, have worked with NHS and University of York to address this gap, creating a new granular measure of NHS inflation.
3. Until 2017/18, inflation faced by the NHS was measured by the Hospital and Community Health Services (HCHS) Index. The HCHS was a weighted average of two separate inflation indices, the Pay Cost Index (PCI) which measured pay inflation and the Health Service Cost Index (HSCI) which measured non-pay inflation. The Pay Cost Index and the Health Service Cost Index were weighted by the proportion of HCHS expenditure on each.
4. The HCHS index had many applications across departments to adjust for NHS inflation. For example, to deflate NHS spend for the calculation of productivity and efficiency (output/input). However, the HCHS index was discontinued in 2016/17 due to lack of resources. This left a gap for a measure of NHS inflation.

**Scope**

1. The NHS has four broad areas of spend that we have inflation data for:

Table 1: NHS broad areas of spend (£b)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **15/16** | | **16/17** | | **17/18** | | **18/19** | |
| Spend | Prop. | Spend | Prop. | Spend | Prop. | Spend | Prop. |
| NHS Providers | 77 | 80% | 79 | 80% | 81 | 80% | 85 | 89% |
| General Practice | 8 | 8% | 8 | 8% | 8 | 8% | 8 | 9% |
| Prescribing | 9 | 9% | 9 | 9% | 9 | 9% | 0 | 0% |
| Dentistry | 3 | 3% | 3 | 3% | 3 | 3% | 3 | 3% |
| Total spend covered | 96 | 100% | 98 | 100% | 100 | 100% | 96 | 100% |

Note: spend is rounded. Source: DHSC Annual Accounts.

1. The NHSCII identifies an appropriate inflation measure for each item of spend in these broad spend areas, creating a detailed overall inflation measure for the NHS. Hence, the benefit of the inflation index is threefold:

* First, the index will fill the gap left by the discontinuation of the HCHS index and produce a measure of NHS cost inflation. This can be used in different applications in replacement of the HCHS index to adjust for NHS inflation.
* Second, the granularity of the index can be used to track NHS inflation to a specific item of spend. For instance, a fall in provider inflation (leading an increase in provider spend) can be traced back to the specific item of spend which contributed to the fall, e.g. decline of pay inflation.
* Third, the index can give more accurate measures of productivity and efficiency since input expenditure would be deflated by a detailed measure of inflation. This in turn will support productivity calculations of ONS/York and our work in measuring 1.1% cash releasing productivity for Financial Test 2 of the Long-Term Plan.

1. The NHSCII will measure NHS inflation for two broad categories:

* For pay inflation: actual inflation as experienced by NHS organisations – the staff unit prices paid by NHS organisations. This can be used to deflate workforce expenditure.
* For non-pay inflation: actual inflation experienced by the wider economy but weighted by how much the NHS spends on the item. This can be used to deflate transport costs by proxy of patient transport inflation.

**Limitations**

1. Non-pay inflation is measured by proxy as we are able to measure and calculate only the actual inflation to the consumer instead of actual inflation to the supplier (due to unavailability of data on prices paid by suppliers). This limits the applicability of the non-pay inflation measure due to it being an estimation. It should thus be caveated before use.
2. We hope to improve the non-pay inflation by including more actual inflation in the future. Currently, prescribing is the only sector with this in place.
3. The following sections provide further detail on the items of expenditure included in each of the five large areas of NHS spend.

**NHS Providers**

1. The Consolidated NHS Provider accounts detail items of spend for providers.

Table 2: NHS Provider Consolidated Accounts (£m)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trust accounts** | **15/16** | **16/17** | **17/18** | **18/19** |
| **Total Operating expenses** | **77,379** | **79,129** | **80,802** | **85,011** |
| Purchase of healthcare from NHS and DHSC bodies | 592 | 74 | 93 | 82 |
| Purchase of healthcare from non-NHS and non-DHSC | 947 | 1078 | 1,106 | 1326 |
| Purchase of social care | 200 | 283 | 182 | 183 |
| Employee expenses - staff | 48,611 | 50045 | 51,600 | 54198 |
| Non-executive directors | 27 | 28 | 28 | 28 |
| Supplies and services - clinical | 6,447 | 6,343 | 6,428 | 6,521 |
| Supplies and services - general | 1,397 | 1319 | 1,388 | 1431 |
| Drug costs | 6,525 | 6867 | 7,087 | 7211 |
| Inventories written down | 10 | 10 | 12 | 11 |
| Consultancy costs | 299 | 259 | 247 | 227 |
| Establishment | 939 | 871 | 881 | 920 |
| Premises | 3,285 | 2874 | 2,995 | 3181 |
| Transport (including patient travel) | 627 | 648 | 664 | 699 |
| Depreciation on property, plant and equipment | 2,036 | 2015 | 1,983 | 2012 |
| Amortisation of intangible assets | 150 | 180 | 199 | 217 |
| Net Impairments | 889 | 1308 | 606 | 1053 |
| Increase in provision for impairment of receivables | 119 | 130 | 134 | 99 |
| Increase in other provisions | 11 | 9 | 10 | 40 |
| Change in provisions discount rate(s) | - 1 | 43 | 6 | -7 |
| audit services- statutory audit | 18 | 18 | 16 | 16 |
| other auditor remuneration (external auditor only) | 6 | 8 | 3 | 3 |
| Internal audit costs | 25 | 22 | 20 | 20 |
| Clinical negligence | 1,418 | 1649 | 1,946 | 1996 |
| Legal fees | 91 | 78 | 83 | 87 |
| Insurance | 59 | 59 | 56 | 60 |
| Research and development | 371 | 438 | 491 | 611 |
| Education and training | 259 | 331 | 390 | 454 |
| Rentals under operating leases | 404 | 666 | 672 | 715 |
| Early retirements | 4 | 3 | 5 | 3 |
| Redundancy | 57 | 60 | 53 | 32 |
| Charges to operating expenditure for on-SoFP | 888 | 902 | 914 | 948 |
| Charges to operating expenditure for off-SoFP | 5 | 5 | 6 | 5 |
| Car parking & security | 21 | 37 | 39 | 43 |
| Hospitality | 7 | 7 | 8 | 7 |
| Losses, ex gratia & special payments | 11 | 15 | 17 | 18 |
| Grossing up consortium arrangements | 12 | 8 | 7 | 11 |
| Other services, eg external payroll | 97 | 82 | 78 | 71 |
| Other | 482 | 319 | 313 | 443 |
| NHS charitable funds: Other resources expended | 33 | 38 | 36 | 36 |

Note: FT and non-FT accounts were reported separately before 2016/17 and had to be mapped for 2015/16. Source: [Trust accounts](https://improvement.nhs.uk/documents/3018/Consolidated_provider_accounts_201718_web.pdf).

**General Practice**

1. Total General Practice expenditure as per DHSC accounts can be split into pay (74% of spend) and non-pay (26% of spend) using staff volume and unit costs to calculate total spend on staff and goods and services.

Table 3: General Practice spend (£m)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| General Practice | 7,764 | 7,939 | 8,242 | 8,493 |
| General Practice staff | 5,822 | 6,008 | 6,094 | 6,299 |
| % staff spend | 75.0% | 75.7% | 73.9% | 74.2% |

Note: Total General Practice spend comes from material expenditure items from [DHSC accounts](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/629984/DH_annual_accounts_2016_2017_web_version.pdf). Total staff spend is calculated using the staff volumes and unit costs from below.

1. Staff pay is the main category of spend and the main source of inflation in General Practice. This can be further broken down into different staff groups to give more granularity. The tables below show staff volumes and unit costs for different staff groups which make up the total staff spend.

Table 4: General Practice staff (FTE)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| GP partners | 21,617 | 20,880 | 20,008 | 19,098 |
| GP non-partners | 12,170 | 12,933 | 13,271 | 14,276 |
| Nurses in GP Practices | 15,421 | 15,816 | 16,100 | 16,379 |
| GP Direct Patient Care staff | 11,105 | 11,689 | 12,093 | 12,766 |
| GP Admin/Non-Clinical staff | 63,915 | 65,220 | 65,134 | 66,582 |

Note: Annual figures are averages of the Sept and Mar data for that year. GP figures exclude locums. Source: [Healthcare Workforce Statistics](https://digital.nhs.uk/data-and-information/publications/statistical/healthcare-workforce-statistics/september-2018-experimental).

Table 5: General Practice staff earnings £

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **14/15** | **15/16** | **16/17** | **17/18** | **18/19** |
| GP partners | 121,466 | 122,753 | 128,253 | 132,700 | 136,891 |
| GP non-partners | 74,370 | 73,321 | 74,239 | 76,600 | 79,019 |
| Nurses in GP Practices | 30,485 | 30,778 | 31,090 | 31,519 | 32,385 |
| GP Direct Patient Care staff | 18,550 | 18,821 | 18,981 | 19,175 | 19,934 |
| GP Admin/Non-Clinical staff | 24,499 | 24,910 | 25,390 | 25,838 | 26,614 |

Note: To get FTE earnings, all figures have been uprated by the FTE/headcount earnings ratio. Income before tax figure also includes non-NHS private earnings. NHS only earnings are not available for the time being. Source: All GPs is the GPMS ‘income before tax’ from [GP Earning and Expenses Time-Series (Table 13)](https://digital.nhs.uk/data-and-information/publications/statistical/gp-earnings-and-expenses-estimates/gp-earnings-and-expenses-time-series). Direct patient care is ‘Nurses’ and Admin/Non-Clinical is ‘Central functions’ from [NHS Staff Earning Estimates](https://digital.nhs.uk/data-and-information/publications/statistical/nhs-staff-earnings-estimates/december-2018-provisional-statistics).

1. There is no specific information on General Practice non-pay items for the time being. This spend category will, therefore, be treated as one item (GP non-pay).

**Prescribing**

1. To account for inflation in prescribing, costs of a prescription to the patient are acquired. This information is sourced from the York CHE productivity publication.
2. They use data of all prescriptions dispensed in the community from the Prescription Cost Analysis (PCA) system. These data include information about the drug code, net ingredient cost, quantity of drug dispensed, and number of prescription items.

Table 6: Prescribing volumes and unit costs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Unique drug codes observed | Total Prescribing | Total Spend  £ | Activity weighted average prescription unit cost (£) |
| 2004/05 | 8,779 | 691,948,868 | 8,094,174,944 | 11.7 |
| 2005/06 | 8,535 | 733,010,929 | 8,013,483,226 | 10.93 |
| 2006/07 | 8,218 | 762,631,738 | 8,250,323,893 | 10.82 |
| 2007/08 | 8,769 | 803,297,137 | 8,303,500,918 | 10.34 |
| 2008/09 | 8,276 | 852,482,281 | 8,376,264,432 | 9.83 |
| 2009/10 | 8,072 | 897,727,347 | 8,621,421,130 | 9.6 |
| 2010/11 | 7,860 | 936,743,859 | 8,880,735,344 | 9.48 |
| 2011/12 | 7,856 | 973,381,568 | 8,777,964,802 | 9.02 |
| 2012/13 | 7,699 | 1,001,825,994 | 8,397,492,181 | 8.38 |
| 2013/14 | 7,353 | 1,031,703,347 | 8,540,423,964 | 8.28 |
| 2013/14\* | 7,809 | 1,039,535,998 | 8,703,169,718 | 8.37 |
| 2014/15 | 7,926 | 1,071,065,672 | 8,942,734,216 | 8.35 |
| 2015/16 | 8,021 | 1,087,838,465 | 9,288,424,660 | 8.54 |
| 2016/17 | 8,147 | 1,108,965,909 | 9,193,912,893 | 8.29 |
| 2017/18 | 7,803 | 1,106,431,880 | 9,095,228,060 | 8.22 |

Note: \* In February 2017, NHS Digital released a new set of prescribing data to include previously omitted drug codes. The 12/13-13/14 growth figures for prescribing are based on the earlier data; whilst the 13/14-14/15 growth figures are based on the new data.

Source: This table is taken from a York CHE memo. They used data from the PCA System.

1. This is the most detailed source of prescription prices. Hence York’s measure of prescription price change is an informed measure of inflation in prescribing.

**Dentistry**

1. Total Dentistry expenditure as per DHSC accounts can be split into pay (60% of spend) and non-pay (40% of spend) using dentist staff volume and unit costs to calculate total spend on dentists.

Table: Dentistry spend (£m)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| Total Dentistry | 2,804 | 2,768 | 2,812 | 2,788 |
| Dentists | 1,674 | 1,656 | 1,662 | 1,665 |
| %staff spend | 60% | 60% | 59% | 60% |

Source: Total dentistry spend is from DHSC accounts. Total dentists spend is by multiplying the dentist count and income from below.

1. Spend on dentists pay is the main category of spend and the main source of inflation in Dentistry. This can be further broken down into different dentist groups to give more granularity. The tables below show dentist volumes and unit costs for different dentist groups which make up the total dentist spend.

Table: Dentistry staff volumes (count)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Dentists by contract type** | **15/16** | **16/17** | **17/18** | **18/19** |
| GDS | 19,976 | 20,046 | 20,514 | 20,915 |
| PDS | 1,709 | 1,625 | 1,536 | 1,501 |
| TDS | 861 | 794 | 812 | 787 |
| Mixed | 1,543 | 1,542 | 1,446 | 1,342 |

Source: [Dental workforce.](https://files.digital.nhs.uk/2F/7EB174/nhs-dent-stat-eng-17-18-anx3-wr.csv) Note: There is double counting present in each contract type because although a dentist can primarily hold one type of contract they are also likely to hold others and it is not possible to have distinct counts.

Table: Dentistry staff earnings £

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Dentist income** | **14/15** | **15/16** | **16/17** | **17/18** | **18/19** |
| GDS | 68,100 | 66,900 | 66,600 | 65,800 | 65,010 |
| PDS | 99,800 | 99,600 | 99,800 | 102,800 | 105,890 |
| TDS | 70,500 | 69,200 | 68,700 | 68,100 | 67,505 |
| Mixed | 71,300 | 69,900 | 67,900 | 68,600 | 69,307 |

Source: All self employed contract type [Dental earnings.](https://files.digital.nhs.uk/C9/6F2A76/dent-earn-time-seri-data-eng-wal-06-07-16-17.xls) Note: 18/19 earnings were not available so they were uprated by growth rate of previous year’s earnings. TDS contract earnings were not available so “all contract types” earnings were used.

1. Changes in dentists’ pay will be used as an indication of pay inflation in Dentistry. Non-pay will be treated as one category of spend due to lack of available data.

**Deflators**

1. A working group consisting of DHSC, ONS, York and NHS colleagues was established to find appropriate deflators to adjust for inflation in the different items of NHS spend. The following section identifies the deflators agreed on for each item of spend.
2. The deflators have been chosen based on informed recommendations based on analyses of what each NHS spend item consists of and what type of inflation it could face.

**NHS Providers**

Table 10: NHS Provider spend deflators

|  |  |  |
| --- | --- | --- |
| **Employee expenses, Non-executive directors, Redundancy, Early retirements, Education and Training** | | |
| Proportion of spend | ~64.4% (cumulative) | |
| Consists of | payments made to NHS staff. Training may include languages, IT skills and health and safety. | |
| Deflator(s) | The main source of inflation is changes in unit pay which is available from ESR pay data.  A calculated Paasche pay index[[1]](#footnote-1) measures change in unit cost of staff keeping staff volumes fixed. | |
| Caveats | We have excluded certain providers (RP6, RBN, R0B) due to their inconsistent data availability. These may be included back in once their data availability normalises. They account for 1.4% of expenditure.  Employee expenses does not yet account for bank or agency effect due to data unavailability. The NHS pays for agency and bank staff, so this should also be accounted for under employee expenses.  Using ESR pay for education and training means we are assuming NHS uses its own staff to train and not externals. | |
| **Drug costs** | | |
| Proportion of spend | | ~9% |
| Consists of | | spend on drugs. |
| Deflator(s) | | The main source of inflation would be changes in drug prices. The most accurate available deflator for this inflation is:  [PPI 7112210000 Basic pharmaceutical products and pharmaceutical preparations](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/producerpriceindex) |
| Caveats | | The PPI is not that detailed, but detailed data on drugs expenditure is not yet possible to obtain. This is the more accurate deflator we have available for now. |
| **Supplies and Services Clinical** | | |
| Proportion of spend | | ~8% |
| Consists of | | spend on items used for medical purposes e.g. surgery equipment. |
| Deflator(s) | | [PPI 3250000000 Medical & Dental Instruments & Supplies](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/producerpriceindex) |
| Caveats | | Procurement data may add more detail to this deflator. |
| **Premises** | | |
| Proportion of spend | | ~4% |
| Consists of | | spend on building, other than rent, incurred in relation to buildings. Examples include: building repairs and maintenance, utilities, facilities management and catering. |
| Deflator(s) | | [SPPI 5620000000 Canteens and Catering](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/serviceproducerpriceindices) (15%);  [CPI 4.5 Electricity gas and other fuels](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/consumerpriceinflation) (30%);  [CPI 4.4 Water supply](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/consumerpriceinflation) (5%);  [COPI Non-Housing Repair and Maintenance](https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/datasets/interimconstructionoutputpriceindices) (50%) |
| Caveats | | The proportions split between deflators is an estimate. |
| **Depreciation** | | |
| Proportion of spend | | ~2.5% |
| Consists of | | Land (0%), buildings (48%), dwellings (0.5%), information technology (16.5%), payments on accounts and assets under construction (0%), furniture and fittings (2%), plant and machinery (30.3%) and transport equipment (2.2%). |
| Deflator(s) | | [COPI Public other new work](https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/datasets/interimconstructionoutputpriceindices);  [PPI 2620000000 Computers & Peripheral Equipment;](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/producerpriceindex)  [PPI 3101000000 Office & Shop Furniture;](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/producerpriceindex)  [PPI 2660000000 Irradiation, Electromedical & Electrotherapeutic Equipment;](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/producerpriceindex)  [PPI 2910000000 Motor Vehicles](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/producerpriceindex) |
| **Supplies and services general** | | |
| Proportion of spend | | ~1.7% |
| Consists of | | spend on items for cleaning/washing contracts, as well as a range of textile related products. |
| Deflator(s) | | [SPPI 9601000000 Commercial washing and dry cleaning](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/serviceproducerpriceindices) (75%);  [PPI 7111131400 Textiles & Textile products](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/producerpriceindex) (25%) |
| Caveats | | The split between deflators is an estimate. |
| **Establishment** | | |
| Proportion of spend | | ~1.1% |
| Consists of | | spend on general expenses such as telephone costs, stationery, printing and staff expenses. |
| Deflator(s) | | [PPI 1723000000 Paper Stationery](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/producerpriceindex) (25%);  [SPPI 6110000000 Business Telecoms](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/serviceproducerpriceindices) (25%);  [SPPI 4911000000 Business Rail Fares](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/serviceproducerpriceindices) (40%);  [SPPI 5310000000 National post/parcel force](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/serviceproducerpriceindices) (10%). |
| Caveats | | Paper stationary deflator is only available from 2017 (this has been adjusted for before this date). |
| **Consultancy costs, Audit costs, Legal fees, Research and development** | | |
| Proportion of spend | | ~1.1% (cumulative) |
| Consists of | | activities in industries under section M: ‘professional, scientific and technical services’ of the ASHE publication. |
| Deflator(s) | | Average weekly earnings of [Pay Professional, Scientific & Technical Activities](https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/averageweeklyearningsbyindustryearn03) |
| Caveats | | The earnings are under an industry which consist of many other professions and could thus reflect inflation caused by increase in earnings of other professions. |
| **Charges to operating expenditure for on-SoFP and off-SoFP** | | |
| Proportion of spend | | ~1.1% (cumulative) |
| Consists of | | On-Statement of Financial Position (SoFP) and off-SoFP which determine whether the expense of Private Finance Initiatives (PFI) and Local Improvement Finance Trust (LIFT) contracts should count toward an organisation’s assets and liabilities or not. Most PFI (and LIFT) schemes are on-SoFP. |
| Deflator(s) | | This expense moves at the same rate of [RPI](https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/czbh/mm23). |
| **Rentals under operating leases** | | |
| Proportion of spend | | ~0.8% |
| Consists of | | Possibly includes spend on renting machinery and vehicles rather than dwellings. |
| Deflator(s) | | [SPPI 7732000000 Renting services of civil engineering machines and equipment](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/serviceproducerpriceindices) |
| Caveats | | Assuming the NHS does not rent any dwellings/property. |
| **Transport (including patient travel)** | | |
| Proportion of spend | | ~0.8% |
| Consists of | | Travelling costs. |
| Deflator(s) | | [CPI 07.3.2 Passenger transport by road](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/consumerpriceinflation) |
| **Amortisation of intangible assets** | | |
| Proportion of spend | | ~0.2% |
| Consists of | | mainly IT/software equipment. |
| Deflator(s) | | [SPPI 6200000000 Computer Services](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/serviceproducerpriceindices) |
| **Insurance** | | |
| Proportion of spend | | ~0.1% |
| Consists of | | NHS insurance against claims. |
| Deflator(s) | | [CPI 12.5 Insurance](https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/consumerpriceinflation) |
| **Car parking and security** | | |
| Proportion of spend | | ~0.05% |
| Consists of | | costs of maintaining car parking space and security. |
| Deflator(s) | | [COPI Non-Housing Repair and Maintenance](https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/datasets/interimconstructionoutputpriceindices) |
| Caveats | | assuming this does not include capital costs of car parks. |
| **Clinical Negligence** | | |
| Proportion of spend | | ~2.4% |
| Consists of | | indemnity cover for clinical negligence claims against trusts in England, through the Clinical Negligence Scheme for Trusts (CNST). |
| Deflator(s) | | Residual – assumed to have inflation at the same rate as everything else. |
| Caveats | | The current position is for CNST prices to follow the residual as spend input is unlikely to be for output for that explicit year. Around 37% of CNST spend is on legal fees[[2]](#footnote-2) and it may be possible to use a deflator for this.  Our current recommendation is to exclude CNST spend in productivity calculations since the spend amount does not represent that year’s activity. |
| **Purchase of health from NHS, DHSC and non-NHS, non-DHSC bodies; Purchase of social care** | | |
| Proportion of spend | | ~1.7% (cumulative) |
| Consists of | | provider spend on buying services from trusts/private sector. Mostly mental health and community health services. |
| Deflator(s) | | Residual – assumed to have inflation at the same rate as everything else. |
| **Impairments, provisions, hospitality, losses ex gratia, consortium arrangements, external payroll, other, NHS charitable funds** | | |
| Proportion of spend | | ~1.5% (cumulative) |
| Consists of | |  |
| Deflator(s) | | Residual – assumed to have inflation at the same rate as everything else. |

1. The table below details spend proportions, inflation deflators and calculated inflation indices for each item included in the NHS provider accounts for 2018/19. 2014/15 is held as the base year, 2014/15 index = 100.

Table 11: NHS Provider cost inflation index 2018/19

|  |  |  |  |
| --- | --- | --- | --- |
| **Item in NHS Provider Accounts 2018/19** | **%of spend** | **Deflators** | **Inflation index** |
| Purchase of healthcare from NHS and DHSC bodies | 0.10% |  | 106.07 |
| Purchase of healthcare from non-NHS and non-DHSC | 1.56% |  | 106.07 |
| Purchase of social care | 0.22% |  | 106.07 |
| Employee expenses - staff (including executive directors) | 63.75% | 2.24% | 105.97 |
| Non-executive directors | 0.03% | 2.24% | 105.97 |
| Supplies and services - clinical | 7.67% | 1.07% | 103.21 |
| Supplies and services - general | 1.68% | 1.46% | 100.84 |
| Drug costs | 8.48% | 3.56% | 108.79 |
| Inventories written down | 0.01% |  | 106.07 |
| Consultancy costs | 0.27% | 2.79% | 105.19 |
| Establishment | 1.08% | 1.89% | 104.71 |
| Premises | 3.74% | 3.02% | 105.79 |
| Transport (including patient travel) | 0.82% | 3.08% | 117.63 |
| Depreciation on property, plant and equipment | 2.37% | 2.85% | 109.47 |
| Amortisation of intangible assets | 0.26% | 1.59% | 101.97 |
| Net Impairments | 1.24% |  | 106.07 |
| Increase in provision for impairment of receivables | 0.12% |  | 106.07 |
| Increase in other provisions | 0.05% |  | 106.07 |
| Change in provisions discount rate(s) | -0.01% |  | 106.07 |
| Fees payable to the external auditor: |  |  |  |
| audit services- statutory audit | 0.02% | 2.79% | 105.19 |
| other auditor remuneration (external auditor only) | 0.00% | 2.79% | 105.19 |
| Internal audit costs, including local counter fraud services | 0.02% | 2.79% | 105.19 |
| Clinical negligence | 2.35% |  | 106.07 |
| Legal fees | 0.10% | 2.79% | 105.19 |
| Insurance | 0.07% | -1.63% | 116.57 |
| Research and development | 0.72% | 2.79% | 105.19 |
| Education and training | 0.53% | 2.24% | 105.97 |
| Rentals under operating leases | 0.84% | 1.63% | 100.12 |
| Early retirements | 0.00% | 2.24% | 105.97 |
| Redundancy | 0.04% | 2.24% | 105.97 |
| Charges to operating expenditure for on-SoFP FRIC | 1.12% | 3.06% | 110.39 |
| Charges to operating expenditure for off-SoFP IFRIC | 0.01% | 3.06% | 110.39 |
| Car parking & security | 0.05% | 1.61% | 105.30 |
| Hospitality | 0.01% |  | 106.07 |
| Losses, ex gratia & special payments | 0.02% |  | 106.07 |
| Grossing up consortium arrangements | 0.01% |  | 106.07 |
| Other services, eg external payroll | 0.08% |  | 106.07 |
| Other | 0.52% |  | 106.07 |
| NHS charitable funds: Other resources expended | 0.04% |  | 106.07 |

Note: all figures are for 2018/19. Blanks in deflators indicates the residual was used as a deflator. Source: %of spend comes from trust accounts and deflators from the sources outlined above.

1. Each deflator is weighted against the proportion of spend on that item to give the overall inflation index for providers, split by pay (employee expenses and non-executive directors) and non-pay (the rest of the items).

Table 12: Overall provider cost inflation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| non-pay inflation | 0.45% | 2.16% | 1.07% | 2.43% |
| pay inflation | 0.30% | 2.10% | 1.22% | 2.24% |
| **overall provider inflation** | 0.35% | 2.12% | 1.16% | 2.31% |

**General Practice**

1. The GP staff and earnings figures can be used to calculate a Paasche pay index which would measure changes in staff unit costs, keeping staff volumes fixed, thereby being a deflator of pay inflation in General Practice.

Table 13: GP Pay inflation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| Paasche pay | 0.8% | 2.8% | 2.7% | 3.1% |

1. However, we also need to have a deflator for non-pay inflation. CPIH is used to deflate for non-pay inflation and the overall GP inflation index is calculated by weighting the Paasche pay by the proportion of spend on staff and thereby splitting the inflation in General Practice by staff and non-staff.

Table 14: Overall GP inflation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| Staff | 0.8% | 2.8% | 2.7% | 3.1% |
| Non-staff | 0.4% | 1.4% | 2.6% | 2.1% |
| **Overall General Practice inflation** | 0.7% | 2.5% | 2.6% | 2.9% |

**Prescribing**

1. Prescription unit costs and volumes from PCA System can be used to calculate a Paasche price ratio to measure price change in prescriptions, keeping prescription volumes fixed. This can be used as a deflator for prescription cost inflation.

Table 15: Prescribing inflation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| Paasche price inflation | -0.1% | -7.0% | -2.6% |  |

Note: Prescribing data is not yet available for 18/19. Source: York CHE NHS Productivity Publication.

**Dentistry**

1. The dentist volumes and unit costs can be used to calculate a Paasche pay index to measure the change in dentists’ pay, keeping dentist volumes fixed. This can be used as a deflator for pay inflation in dentistry.

Table: Dentistry pay inflation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| Paasche pay | -1.6% | -0.6% | -0.7% | -0.7% |

1. CPIH is used to deflate for non-pay inflation in dentistry. The overall dentistry index is calculated by weighting the pay and non-pay deflator using the proportion of spend on these categories.

Table: Overall Dentistry inflation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| Staff | -1.6% | -0.6% | -0.7% | -0.7% |
| Non-staff | 0.4% | 1.4% | 2.6% | 2.1% |
| **Overall Dentistry inflation** | -0.8% | 0.2% | 0.7% | 0.5% |

**Overall NHSCII**

1. The overall NHS inflation is calculated using the weighted harmonic mean method[[3]](#footnote-3) by weighing individual inflation indices against their spend proportions.

Table 19: NHS spend proportions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Expenditure share** | **15/16** | **16/17** | **17/18** | **18/19** |
| NHS Providers | 80.2% | 80.4% | 80.5% | 88.5% |
| General Practice | 8.0% | 8.1% | 8.2% | 8.6% |
| Prescribing | 8.9% | 8.7% | 8.5% |  |
| Dentistry | 2.9% | 2.8% | 2.8% | 2.9% |
| **Total** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

Table 20: NHS Cost Inflation Index

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| NHS Providers | 100.4 | 102.5 | 103.7 | 106.1 |
| General Practice | 100.7 | 103.2 | 106.0 | 109.0 |
| Prescribing | 99.9 | 92.9 | 90.5 |  |
| Dentistry | 99.2 | 99.4 | 100.2 | 100.6 |

Note: Prescribing data is not yet available for 2018/19.

Table 21: Growth in indices

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| NHS Providers | 1.0035 | 1.0212 | 1.0116 | 1.0231 |
| General Practice | 1.0075 | 1.0247 | 1.0263 | 1.0287 |
| Prescribing | 0.9993 | 0.9300 | 0.9742 |  |
| Dentistry | 0.9921 | 1.0023 | 1.0074 | 1.0046 |

Table 22: Expenditure share/growth in deflator

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| NHS Providers | 0.7991 | 0.7878 | 0.7955 | 0.8653 |
| General Practice | 0.0799 | 0.0788 | 0.0800 | 0.0833 |
| Prescribing | 0.0886 | 0.0932 | 0.0874 |  |
| Dentistry | 0.0293 | 0.0281 | 0.0278 | 0.0289 |

Table 23: NHS inflation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| **Total health inflation** | 0.31% | 1.23% | 0.94% | 2.30% |

**Comparability with HCHS**

1. The following illustrates how the new NHSCII compares against the discontinued HCHS index.

Table 24: HCHS index versus NHSCII

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **15/16** | **16/17** | **17/18** | **18/19** |
| HCHS overall (old) | 1.32% | 2.07% |  |  |
| NHS Overall Provider | 0.35% | 2.12% | 1.16% | 2.31% |
|  | | | |  |
| HCHS PCI Pay (old) | 0.30% | 1.00% |  |  |
| NHS Provider pay | 0.30% | 2.10% | 1.22% | 2.24% |
|  | | | |  |
| HCHS HSCI Prices (old) | 2.70% | 3.90% |  |  |
| NHS Provider Non-Pay | 0.45% | 2.16% | 1.07% | 2.43% |

1. The two most notable differences are:

* **NHS Provider pay index is ~1% higher than the HCHS PCI Pay index in 2016/17:** this is most likely due to the 1.4% increase in national insurance contributions in 2016/17, which is captured by the provider pay index and not by the HCHS PCI pay index.
* **NHS Provider non-pay index is lower than the HCHS HSCI prices inflation:** this is most likely due to the HSCI having a high (~12%) inflation for medical services from supply chain data. We believe this was due to poor data quality of the supply chain data.

1. Where staff are put into buckets by pay band and staff group. The index in effect calculates how much the average wage would have increased between year n+1 and n if they had year n+1 distribution of staff. [↑](#footnote-ref-1)
2. Para 1.12 in [here](https://www.nao.org.uk/wp-content/uploads/2017/09/Managing-the-costs-of-clinical-negligence-in-trusts.pdf) [↑](#footnote-ref-2)
3. Formula [here](https://www.tutorialspoint.com/statistics/harmonic_mean.htm) [↑](#footnote-ref-3)