Improving productivity, addressing unmet needs and prevention

How the NHS can optimise health outcomes in a time of financial constraint

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Context and aims

Context

The NHS needs to consider how it can increase healthcare value—i.e., deliver better outcomes and greater output from the amount of input. Delivering more from existing resource means increasing productivity. At the same time, it needs to understand the opportunity prevention and better managing illness can deliver. Together these things need to be possible for the NHS to be sustainable.

There is widespread concern about the current state of the National Health Service (NHS). The recent Darzi Report characterised it as "in serious trouble," highlighting the significant pressures it faces[1]. The NHS is experiencing declining—or at best, stagnating—performance even though it now absorbs approximately 29% of total public service spending[2].

The government has also made clear its commitment to a triple shift towards prevention, community and digital. Darzi points out that the commitment to prevention is two decades old and yet funding for acute hospital care has increased from 49% to 58% between 2002 and 2021 as a proportion of total health service spend, whilst proportional spend in other care settings has been flat or has fallen. The inverse of the strategic intent has happened.

A consequence of this is that the NHS perceives there is no new money—whilst the government view is that it has constrained or reduced spending elsewhere to invest in health. In recent speeches Prime Minister, Keir Starmer, and Health Secretary, Wes Streeting, have both asserted that any additional funding must sit alongside comprehensive reforms, underscoring the urgent need for systemic change.

Aims

This report seeks to understand at the highest level:

1) What is the **size of the productivity** opportunity in the NHS overall and what is driving it?
2) What is the **size of unmet needs** in chronic conditions, and what is the potential impact of closing these gaps through improved care and treatment?
3) What is the opportunity **for improved return on investment of prevention?**
4) What are the **critical enablers** to permit this to happen?

This report primarily focuses on secondary care due to comprehensiveness of the secondary care dataset and the high accuracy of the clinical coding aligned with therapeutic areas within secondary care.

Given the concentration of funding in the acute sector we have focused explicitly on acute sector impact in these three areas.

Source:

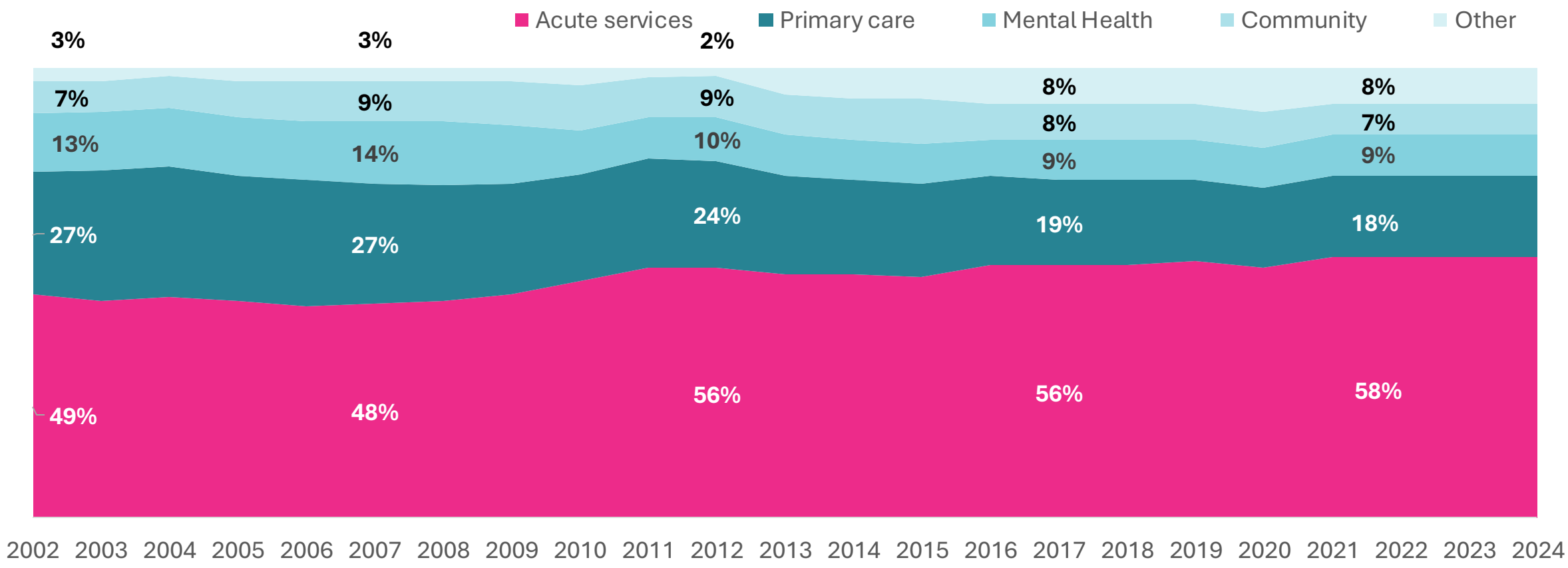
[1] Lord Ara Darzi's Independent investigation of the NHS in England (2024)

[2] Past and Future UK Health Spending, Institute of Fiscal Studies (2024)

Context: The Darzi report revealed that despite strategic intention to “shift left”, acute spend has continued to grow from 49% to 58%

Estimate of NHS spend by healthcare service

Percentage, 2002 - 2021



A substantial opportunity exists to improve productivity, increase congruence with guidelines in treating chronic conditions and better select investments in prevention

A substantial opportunity exists to improve productivity, address unmet patient needs in line with guidelines and improve investments in prevention:

- NHS productivity has declined in acute hospitals but not in the rest of the NHS; if addressed it could release **£12 - 17b** in resources in pure productivity gain from the acute sector. Productivity increased for first half of last decade and then started to fall in 2018/19, a year before Covid, as annual growth rate in clinical staff increased 2.3-3.7x. Note that inpatient care has managed to see rising numbers of patients with shrinking numbers of beds, but in comparison outpatients' volume has steadily risen 4x population growth.
- Significant unmet health needs exist in the management of chronic conditions relative to guidelines which contribute to the nation's ill health and increasing burden on the health system; closing these gaps could improve quality of life, improve life expectancy and lower acute sector resource utilisation costs on chronic diseases , estimated as **£6.1 - £9.2b** in total just from the cost of activity in the acute sector.
- Prevention spending is hard to identify and rarely evaluated but there is a wide range in impact from 0 to 35x; Improving the targeting of spending on prevention could double the impact it has from a median of 2x to an upper quartile of 4x, taking account of where the benefits fall suggests that the acute sector would receive **£3.3 - £7.2b** of the posited £11bn-22bn opportunity from improved investing in prevention.

Note: the NHS released its own productivity in February 2025 update whilst this report was under embargo:
https://www.england.nhs.uk/long-read/nhs-productivity-update-feb-25/
https://www.england.nhs.uk/long-read/nhs-productivity/

Realising the productivity opportunity requires an alignment of workforce and patient needs and a focus on major unmet health needs

Achieving this would require:

- Focusing on acute productivity to align workforce with patient needs (maximising activity per unit of input) within each provider and across providers on the one hand, and pursuing the transformation of outpatients through digitalisation to create new ways to address underlying demand
- Establishing an explicit focus on the major unmet health needs that driver ill health to close gaps in diagnosis and treatment with a greater emphasis on case finding and population health management; this will require using the disinvestment in acute and re-investment in primary and community care, diagnostics and medicine and data/digital to support this
- Taking a healthcare value approach, maximising impact and minimising costs to invest more in high impact prevention interventions, develop the commissioning approaches for high impact interventions and systematically evaluate these
- A common set of enablers including a much stronger focus on allocating resources where impact is maximised, ensuring the money follows the patient, linked patient level data, routine use of evaluation and data-driven evaluation

If the opportunity of £12 - 17b in acute productivity or £3.4b - £5.0b from reducing variation in chronic disease or £6.1 - £9.2b from closing care gaps would amount to **£15 to £27b** in opportunity to improve the resource use purely of the acute sector. Realising this benefit would allow the NHS to invest in spending more on the priorities of government including the additional activity that is needed to deliver elective waiting times, treat patients according to guidelines and invest in the triple shift (prevention, community and digital) that has been the stated priority of this government and previous ones.

Addressing these issues could release £10-16b in resources, cut chronic disease costs by 11% and boost prevention impact by £11b a year

Productivity

Looking back over the last decade, NHS spending has increased faster than output and hence productivity has fallen, in the acute sector in particular. If reversed, this would release £12-17b in resources.

Whilst spend in primary care and community care has fallen over the last 10 years, overall productivity in these areas has kept in level or increased as activity appears to have increased in line with spend.

Real spend per capita has increased by 23% across the NHS with spend in the acute sector growing 1.4 times faster than the whole NHS. However, whilst real spend has grown 41% and weighted activity output grew 21%, acute productivity has fallen 10-14%. The principal driver of this is workforce rising faster than output with doctors increasing 37% and nurses 34% since 2013/14.

The loss in acute productivity between 2019/20 and 2023/24 is estimated to have cost approximately 12-18% of the acute budget and is equivalent to £12-17b per year.

It is important to consider reasons why productivity may have decreased over the last 10 years including a clear change in policy toward “safer staffing” in 2018/19 and the suspension of payment by results (PbR).

This report has not examined the level of productivity 10 years ago and opportunities may exist to improve from this baseline level in any of these sectors.

Unmet health needs

Unmet health needs contribute to the ill health of the nation and place an increasing burden on the health system. Addressing these gaps could lower acute sector resource utilisation costs on chronic diseases (CVD, CKD and dementia), which can be conservatively estimated as £6.1-£9.2b

These conditions represent these represent a growing spectrum of CRM conditions. CRM accounts for £26 billion or 45% of the chronic disease burden and 56% of acute healthcare cost, with dementia contributing an additional £8 billion, for a total of £34bn.

Approximately 18% to 40% of patients remain undiagnosed and 32% to 94% of patients are not receiving optimal treatment across these conditions.

Optimising treatment could cut HCRU costs and mortality across five health conditions, with potential gross savings of £870 million to £4.8 billion—excluding long-term impacts like heart attacks and strokes. Applying a 15–29% gross opportunity rate to the £34b spend on CVRM and Dementia suggests savings of £4.7–9.0b. Extending this to other chronic conditions raises the total to £6.7–12.3b. After accounting for 25–50% reinvestment costs, the net opportunity ranges from £3.4–5.0b (variation) to £6.1–9.2b (guideline implementation).

Prevention

Secondary prevention (managing existing conditions) tends to generate savings mainly within the acute sector. Updating our previous analysis to take account of where the benefits fall suggests that the acute sector would receive £3.34bn - £7.24bn of the posited £11bn-22bn opportunity from improved investing in prevention.

Prevention is a stated priority for the NHS and the government, but what is spent on it is poorly captured and the return on investment is rarely analysed.

Analysis of prevention interventions shows median ±2x ROI and upper quartile ±4x ROI – with some interventions delivering far higher.

NHS and Local Authority (LA) colleagues indicated they do not use ROI routinely, hence there is no reason to think more than median impact.

Whatever the level of savings being targeted, the fact that the median ROI is 2x and upper quartile 4x, suggests it is reasonable to invest 25% to 50% of the expected savings from these initiatives in order to achieve the benefits of prevention.

Achieving this would require commissioning to adopt a healthcare value approach—maximising impact while minimising costs—to reinvest in high-impact prevention interventions. This includes developing effective commissioning strategies for these interventions and systematically evaluating their outcomes.

Productivity

Overview of section

What we've done and why:

- This section focuses on understanding how the productivity of the NHS has changed over the last decade and compares this to how much the NHS spends per head of the population.
- Productivity is one way to measure the performance of a sector as it compares the growth in the quantity of outputs to the growth in the inputs.
- We calculated how NHS productivity in the acute sector has changed to understand the cost of lost productivity within the acute sector.
- We also examined how activity, both inside and outside of hospitals, has changed in the past 5-10 years and whether changes in the workforce have been similar.
- It is important to understand that whilst productivity has decreased over the last 10 years, there are several factors that may have led to this including changes in policy and suspension of payment by results.

Key points covered in this section are:

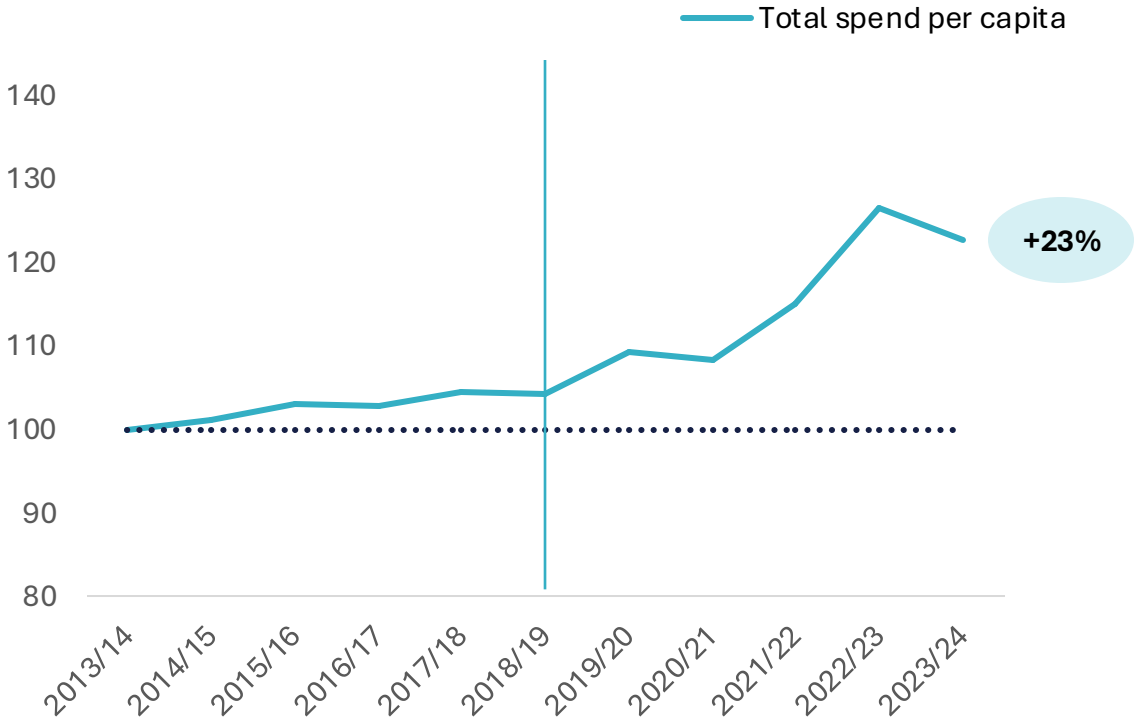
- NHS spend per capita increased 23% from 2013/14 to 2023/24 with acute sector growth 1.4x faster than the whole NHS. Primary care spend increased by 5% and community spend fell by 5%
- Productivity outside the hospital has kept level or increased from 2019/20 to 2023/24 as activity has increased in line with spend and workforce
- Acute activity generally increased until 2018/19 and fell before COVID, during COVID and has not recovered to pre-Covid levels as real funding per capita outstrips activity
- Acute productivity has fallen 10-14% from 2013/14 to 2023/24 as real spend has grown 41% while weighted activity output grew 21% and workforce 34-37%
- The annual rate of growth in the number of doctors and nurses was 2.3x and 3.7x higher in 2018/19 to 2023/24 than between 2013/14 and 2018/19
- Length of stay has increased in last 5 years, but this change can be attributed to the increase in complexity of spells—and hence is not responsible for lost productivity
- Care per patient in acute trusts has remained flat whilst nursing workforce has increased 12%, suggesting declining productivity
- Over last 10 years nursing workforce increased 34%, managers 79% and doctors 37% compared to OBDs 3% and weighted activity (WAU) has increased 23%
- Over last 5 years nursing workforce increased 22%, managers 33% and doctors 19% compared to OBDs 3% and weighted activity (WAU) has increased 6%
- The loss in acute productivity between 2019/20 and 2023/24 is estimated to have cost approximately 12% of the acute budget and is equivalent to £12b

[1] Lord Ara Darzi's Independent investigation of the NHS in England (2024)
[2] Past and Future UK Health Spending, Institute of Fiscal Studies (2024)

NHS spend per capita increased 23% from 2013/14 to 2023/24, with acute sector growth 1.4x faster than the whole NHS

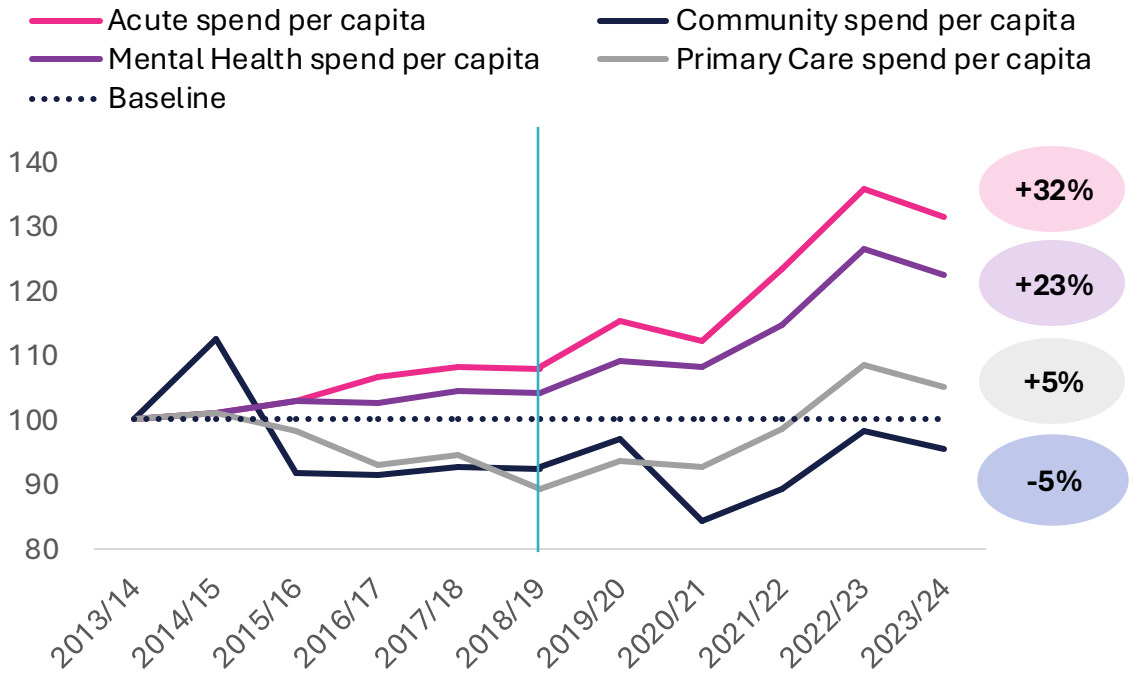
Total NHS spend per capita as a proportion of 2013/14 spend

£ spend per head between 2013/14 and 2023/24 indexed to 2013/14, constant at 2022/23 prices



NHS spend per head as a proportion of 2013/14 spend

£ spend per head between 2013/14 and 2023/24 indexed to 2013/14, constant at 2022/23 prices



NHS spend per capita increased 23% from 2013/14 to 2023/24, with acute sector growth 1.4x faster than the whole NHS, primary care only increased 5% and community fell 5%

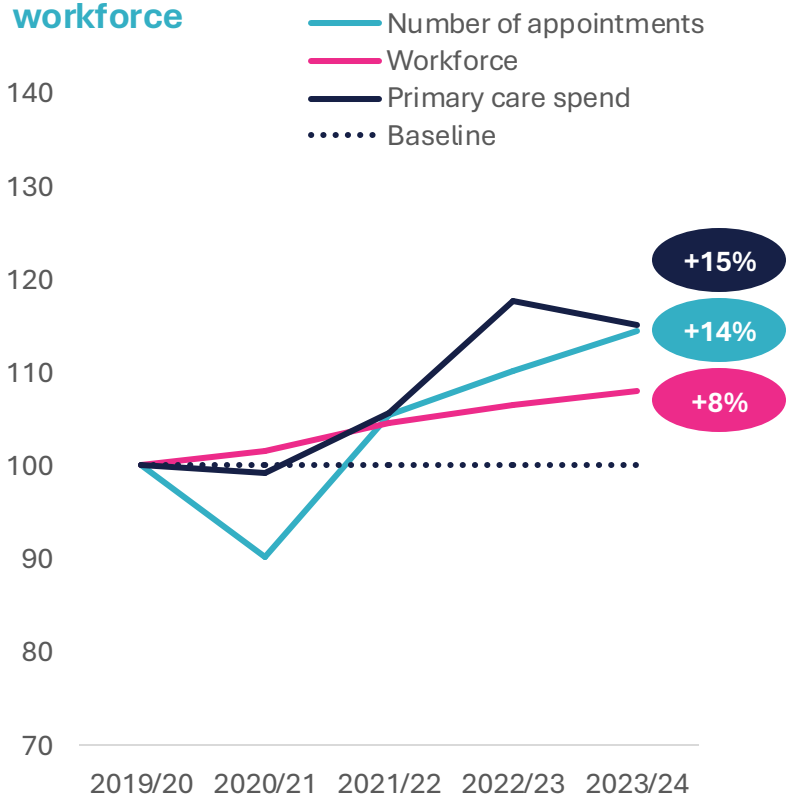
Source: UK House of Commons Research Briefing: NHS funding and expenditure (2024),Populations data is from ONS. Spend by care setting is taken from Darzi report (2024), 2021/22– 2023/24 splits are assumed to 2020/21 proportions documented in Darzi. Between 7-10% of spend categorised as 'Other' and not attributed to any care setting.

Productivity outside the hospital has kept level or increased from 2019/20 to 2023/24 as activity has increased in line with spend and workforce

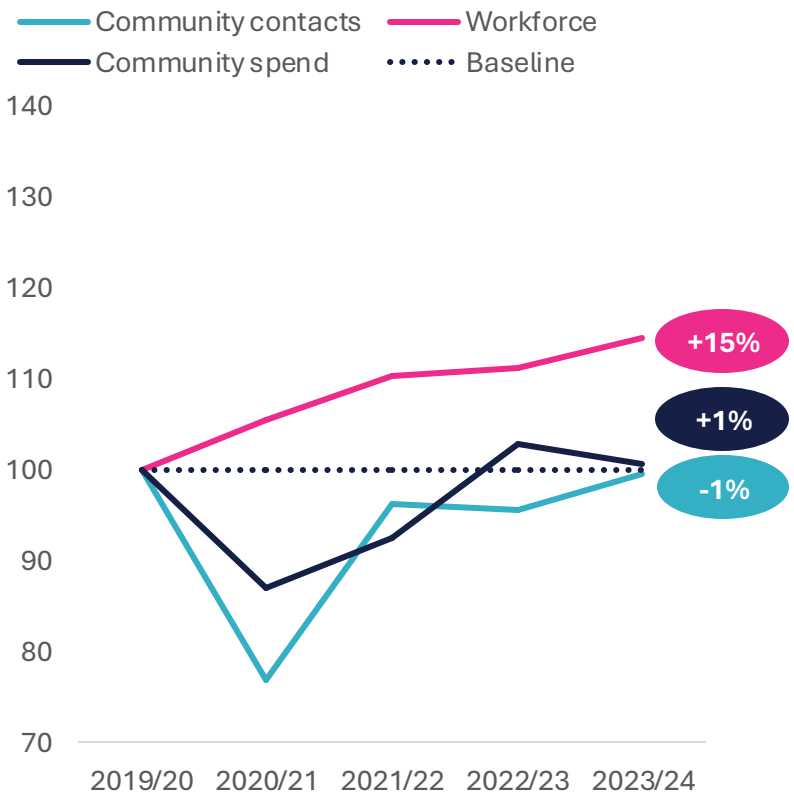
Total number of appointments/contacts, workforce (WTE) and spend per capita in England

All indexed to 2019/20 and per capita, spend is expressed in constant prices for 2022/23

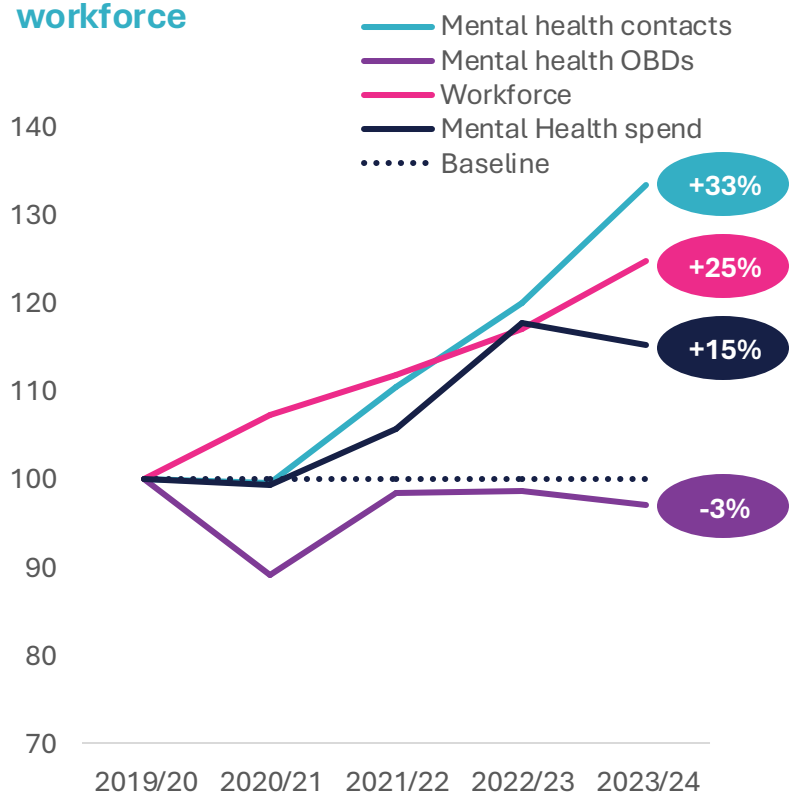
General Practice appointments and workforce



Community contacts and workforce



Mental health contacts, OBDs and workforce

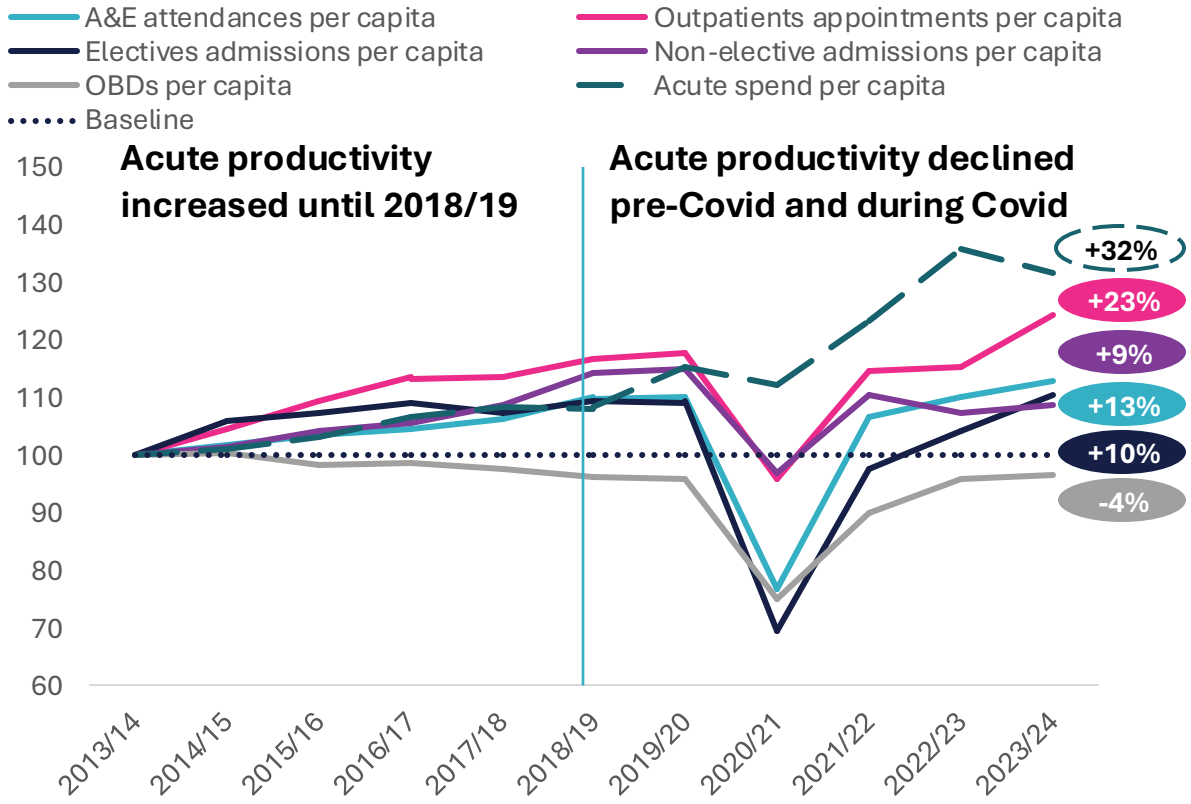


Source: Appointments in General Practices (NHS Digital), General Practice Workforce (NHS Digital) (2019/20- 2023/24), Mental Health Dataset (MHSDS; NHS Digital), NHS Workforce Statistics (HCHS Mental Health Workforce), Community Care Dataset (CSDS), NHS Workforce Statistics (NHS Digital– mapped to community trusts), CF analysis

Acute activity generally increased until 2018/19 and fell before covid, during covid and has not recovered to pre-Covid levels as real funding per capita outstrips activity

Acute activity and real spend per capita from 2013/14 to 2023/24

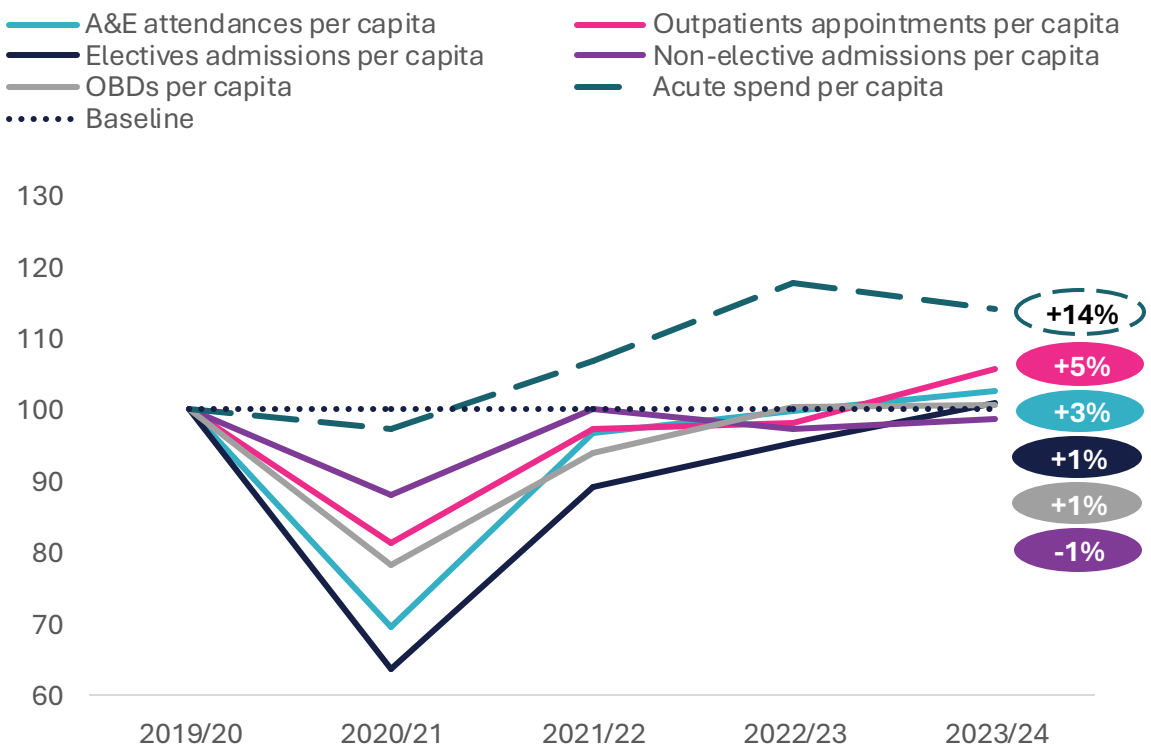
All items indexed to 2013/14, spend in constant 2022/23 prices



See page 41 for weighted activity unit calculation

Acute activity and real spend per capita from 2019/20 to 2023/24

All items indexed to 2019/20, spend in constant 2022/23 prices



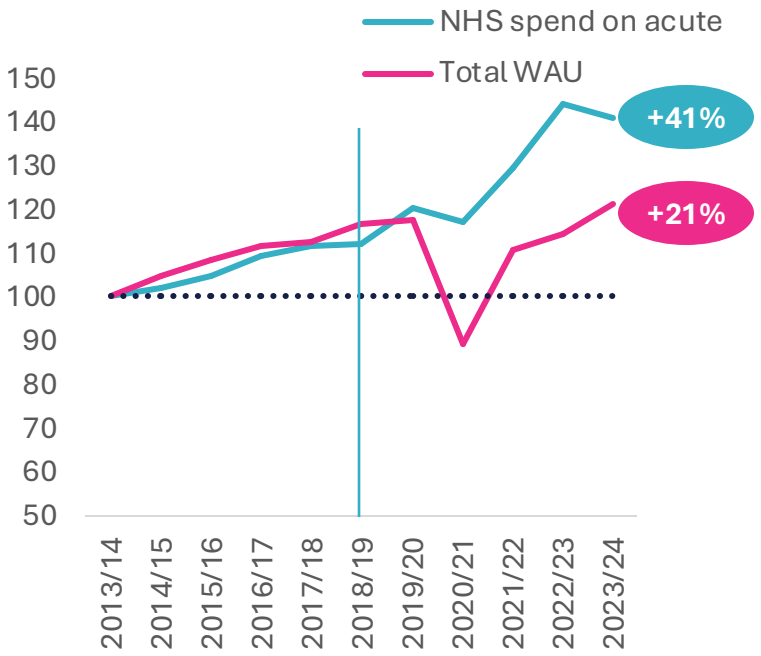
Note: Some of the outpatient growth is a reflection of the backlog being delivered

Source: UK House of Commons Research Briefing: NHS funding and expenditure (2024), Populations data is from ONS. Spend by care setting is taken from Darzi report (2024), 2021/22 – 2023/24 splits are assumed to 2020/21 proportions documented in Darzi. Between 7-10% of spend categorised as 'Other' and not attributed to any care setting. NHS A&E attendances, NHS Outpatients appointment dataset, NHS Emergency and Non-elective admissions, NHS Hospital Admitted Patient Care and Adult Critical Care Activity, NHS KH03 Occupancy Dataset.

Acute productivity has fallen 10-14% from 2013/14 to 2023/24 as real spend has grown 41% while weighted activity output grew 21% and workforce 34-37%

Real NHS spend on acute and output

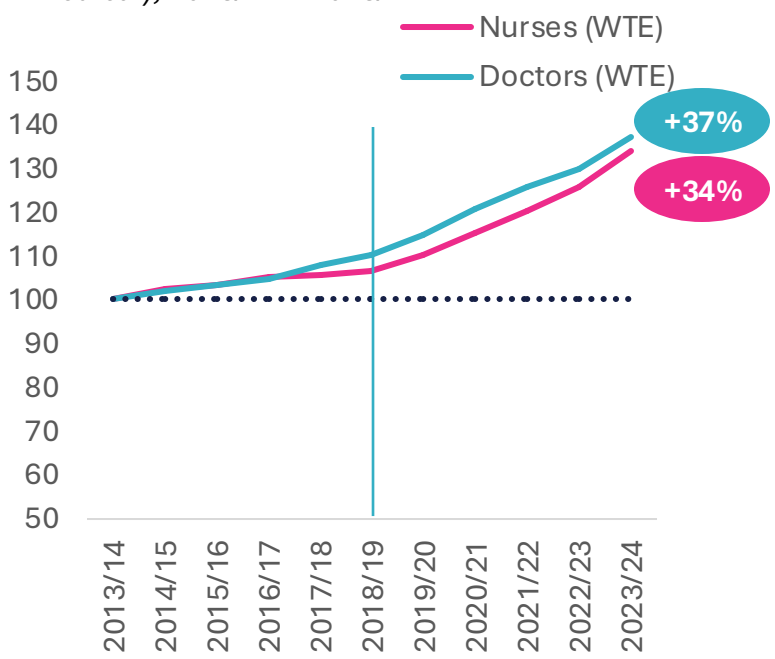
%, indexed to 2013/14, 2013/14 – 2023/24



- 41% increase in NHS acute spend vs 2013/14 (based on constant 2023/24 prices) (17% increase in NHS acute spend vs 2019/20)
- 21% increase in output as expressed by weighted activity unit vs 2013/14 (3% increase vs 2019/20)

Medical and nursing staff FTE

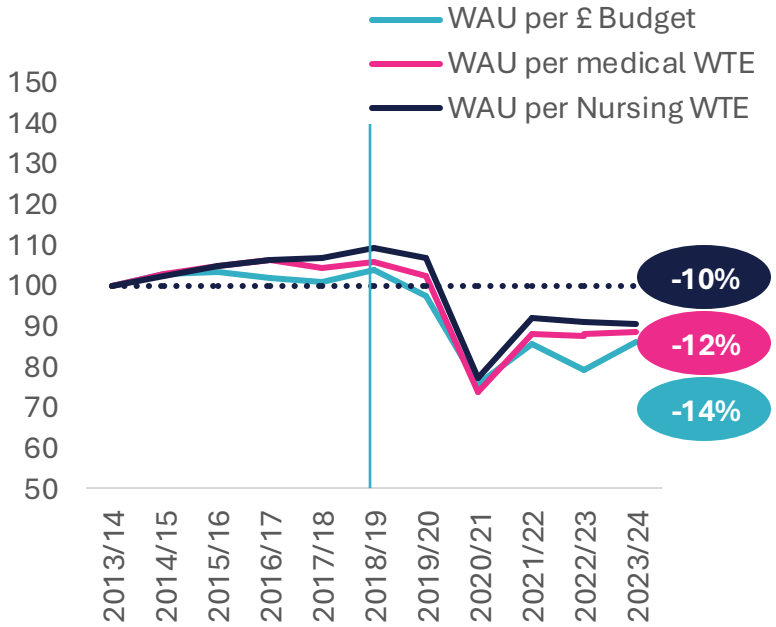
%, indexed to baseline (2013/14 – nursing or 2019/20 – medical), 2013/14 – 2023/24



- 37% increase in acute doctors since 2013/14 and 19% increase since 2019/20
- 34% increase in acute nurses since 2013/14 and 22% increase since 2019/20

Productivity

%, indexed to 2013/14, 2013/14 – 2023/24



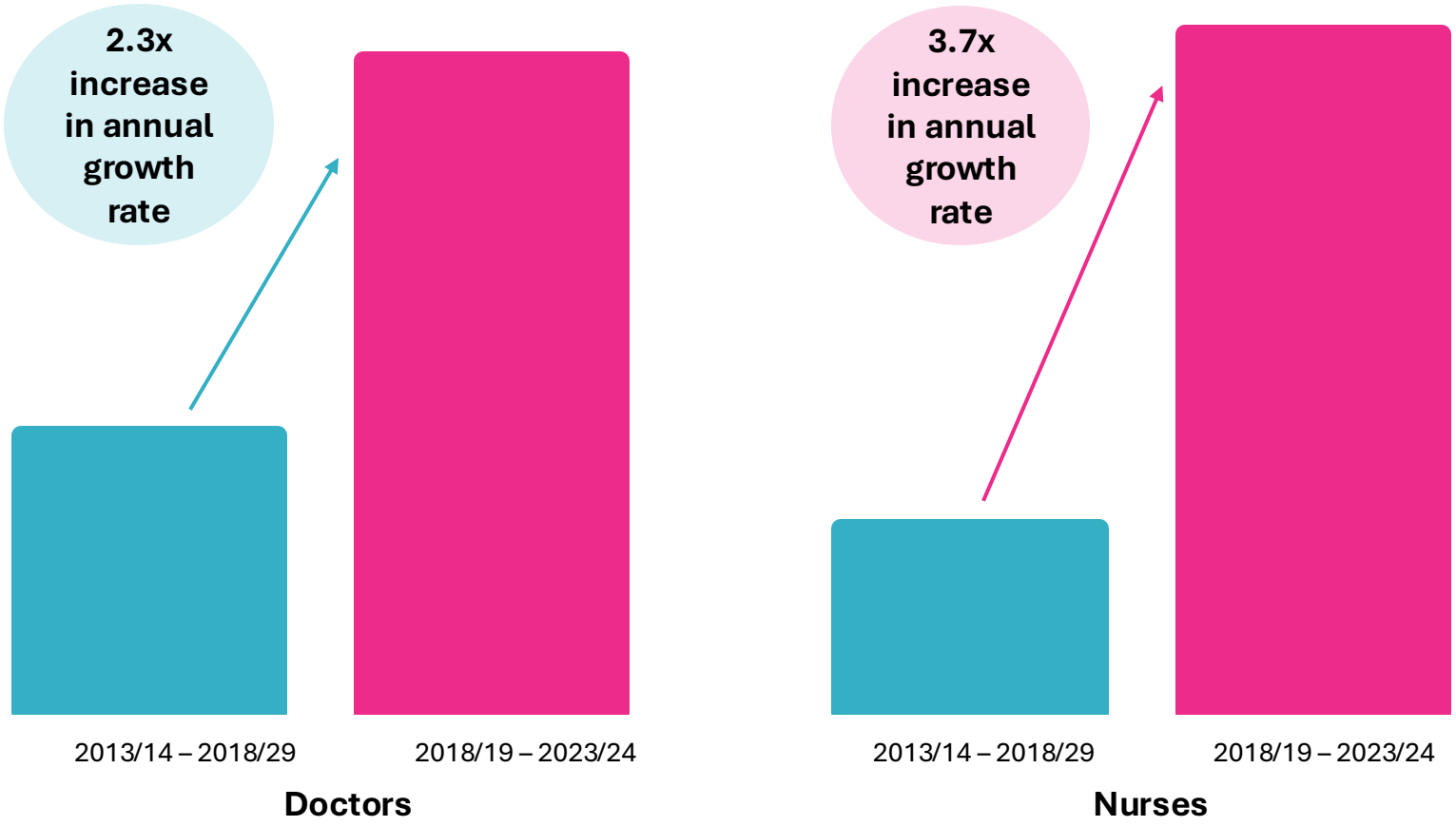
- Productivity rose through to 18/19
- Productivity fell in 19/20 and 20/21
- Improved productivity remains below pre-pandemic

Source: A&E Attendances and Emergency Admissions, Monthly Outpatient Referrals Data, KH03 Bed Occupancy, NHS Hospital Admitted Patient Care and Adult Critical Care Activity, Unit Costs of Health and Social Care 2023, NHS Workforce Statistics (Nursing Workforce), ONS (Medical Workforce), NHS funding and expenditure (Parliament papers, 2024), Populations data is from ONS. Spend by care setting is taken from Darzi report (2024), 2021/22- 2023/24 splits are assumed to 2020/21 proportions documented in Darzi. Between 7-10% of spend categorised as 'Other' and not attributed to any care setting.

The annual rate of growth in the number of doctors and nurses was 2.3x and 3.7x higher in 2018/19 to 2023/24 than between 2013/14 and 2018/19

Annual rate of growth for doctors and nurses

%, 2013/14 – 2023/24

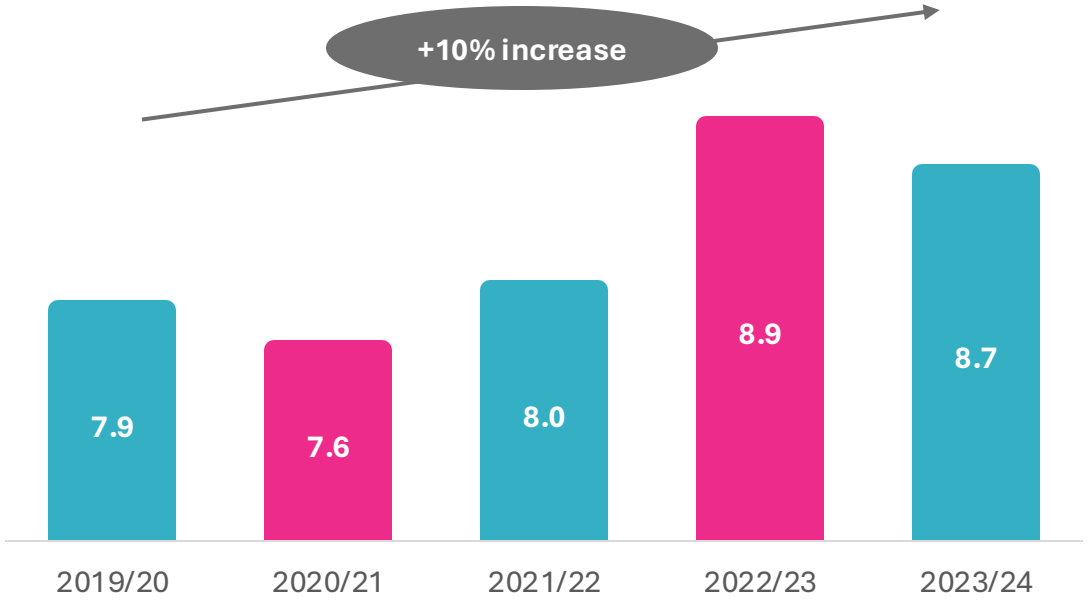


- Between 2013/14 and 2018/19, the annual increase in the number of medical FTE was 1.92%.
- In comparison, the annual growth rate in medical FTE between 2018/19 and 2023/24 increased to 4.68% which was 2.34x higher
- Similarly, the annual growth rate for nursing FTE in 2013/14 – 2018/19 was 1.28% in England.
- Between 2018/19 and 2023/24, the annual growth rate in nursing FTE had increased to 4.68% which is 3.7x the growth rate in previous 5 years.

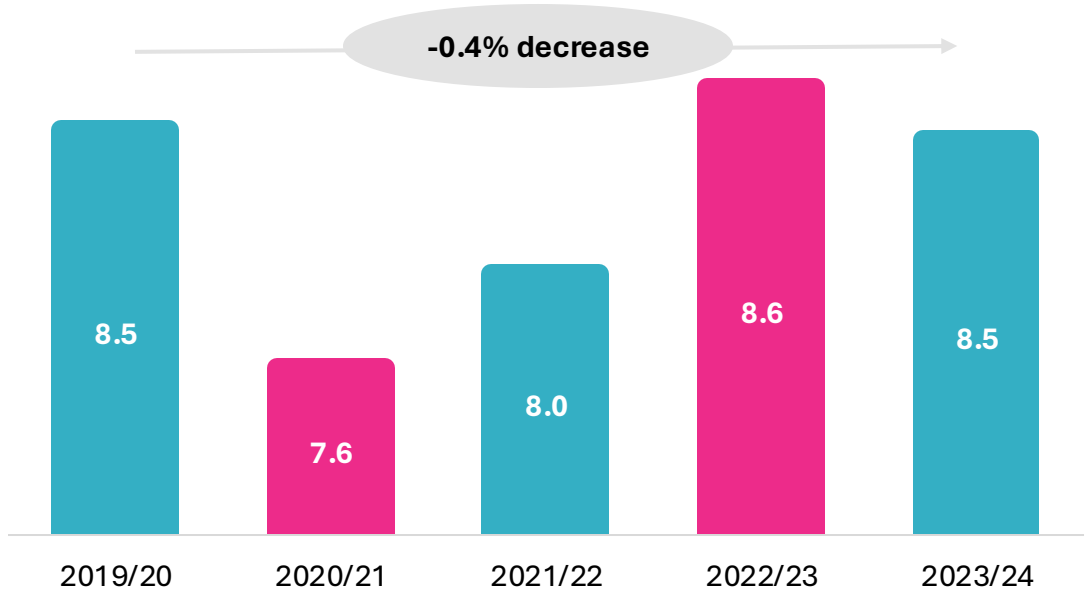
Source: NHS Workforce Statistics (Nursing Workforce), ONS (Medical Workforce)

Length of stay has increased in last 5 years, but this change can be attributed to the increase in complexity of spells—and hence is not responsible for lost productivity

Non-elective length of stay, days, exc. 0 day



Non-elective length of stay, days, exc. 0 day weighted for complexity



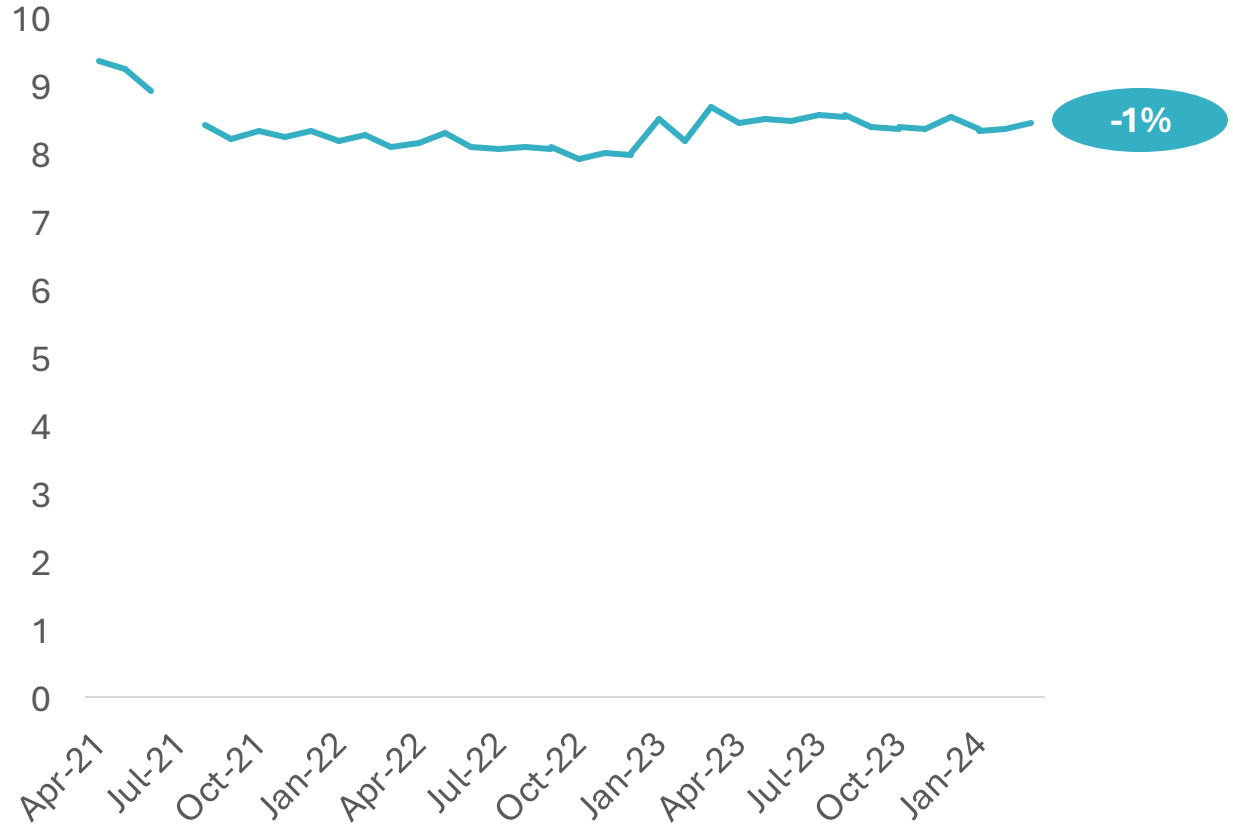
- 19/20 HRG base tariff prices used as a proxy for complexity
- Regression analysis performed to understand impact of length of stay on price and predict price for HRGs without tariff
- For each month, activity cost calculated for each HRG by multiplying number of spells for by associated price
- Within each month, HRG activity cost summed and divided by total number of spells to give average activity cost per spell
- Average activity cost per spell compared to 19/20 to determine complexity index
- Complexity index multiplied by spells for a given month to determine weighted spells
- Total bed days divided by weighted spells to give weighted average LOS
- Note: 19/20 baseline is assumed to be March 2019 to Feb 2020 to correct for impact of pandemic

Source: HES, CF analysis

Care per patient (measured by care hours per patient day) in acute trusts has remained flat whilst nursing workforce has increased 12% suggesting declining productivity

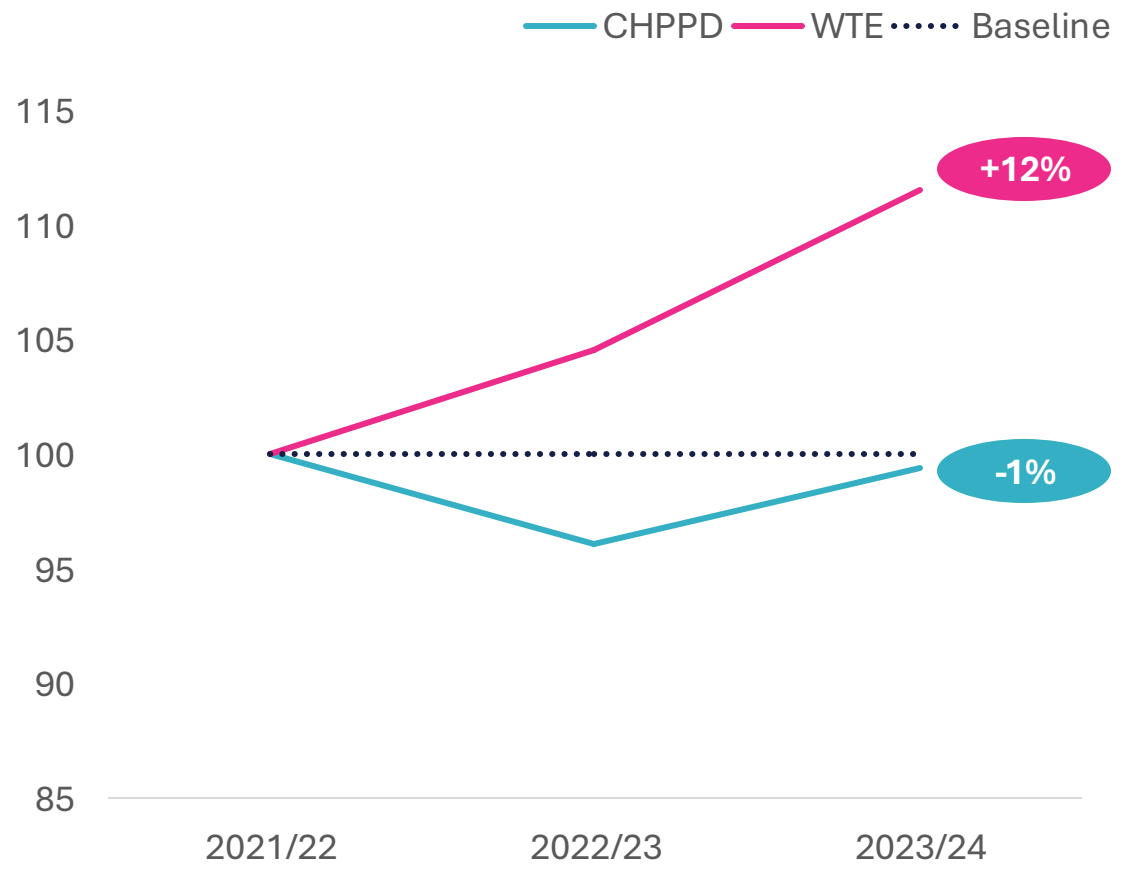
Care hours per patient in acute trusts

Average number of CHPPD by Nurses & Midwives and Nursing Associates, 2021/22 – 2023/24



Care hours per patient and nurse WTE in acute trusts

Hours or WTE indexed to 2021/22 (baseline)

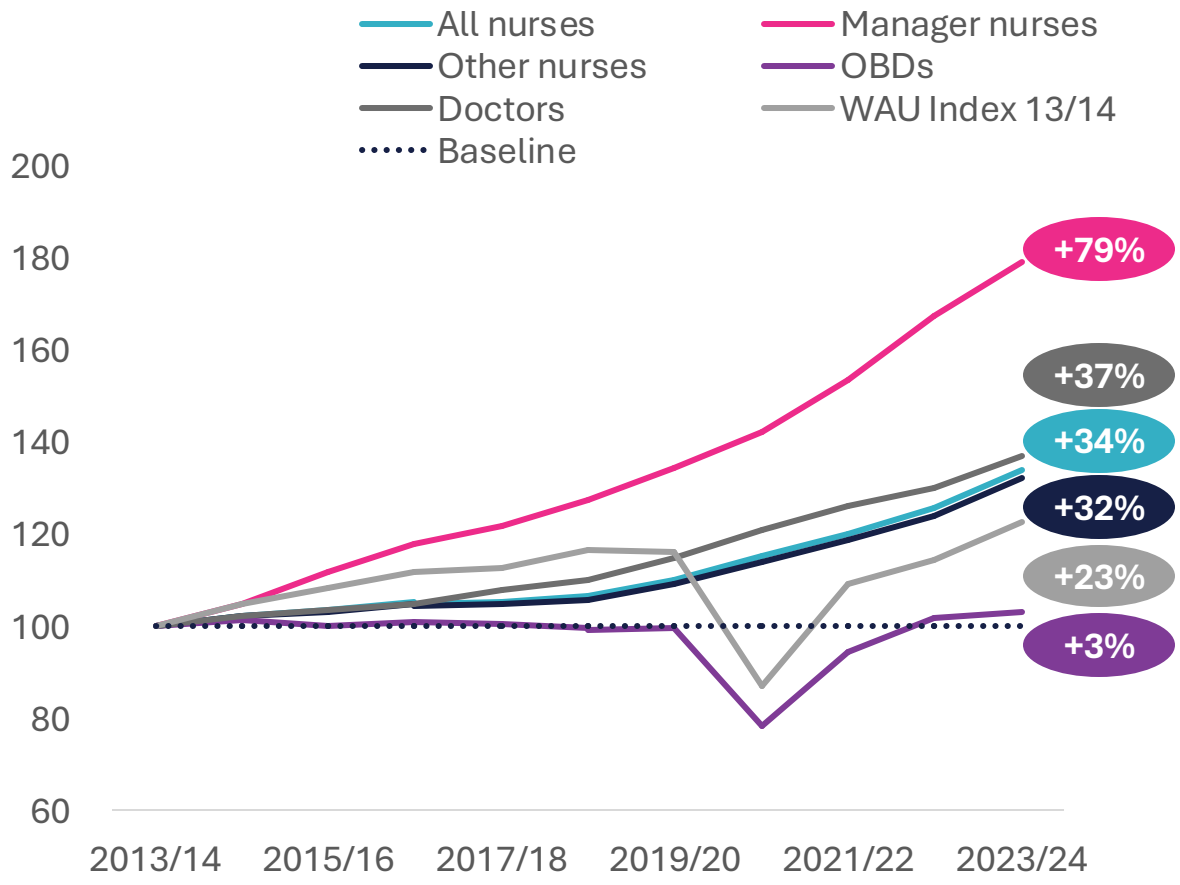


Source: Care hours per patient day (CHPPD) data (NHS Digital), NHS Workforce Statistics, CF analysis, Notes: Acute providers defined as per the list of trusts and foundation trusts in the TAC accounts

Over last 10 years nursing workforce increased 34%, managers 79% and doctors 37% compared to OBDs 3% and weighted activity (WAU) has increased 23%

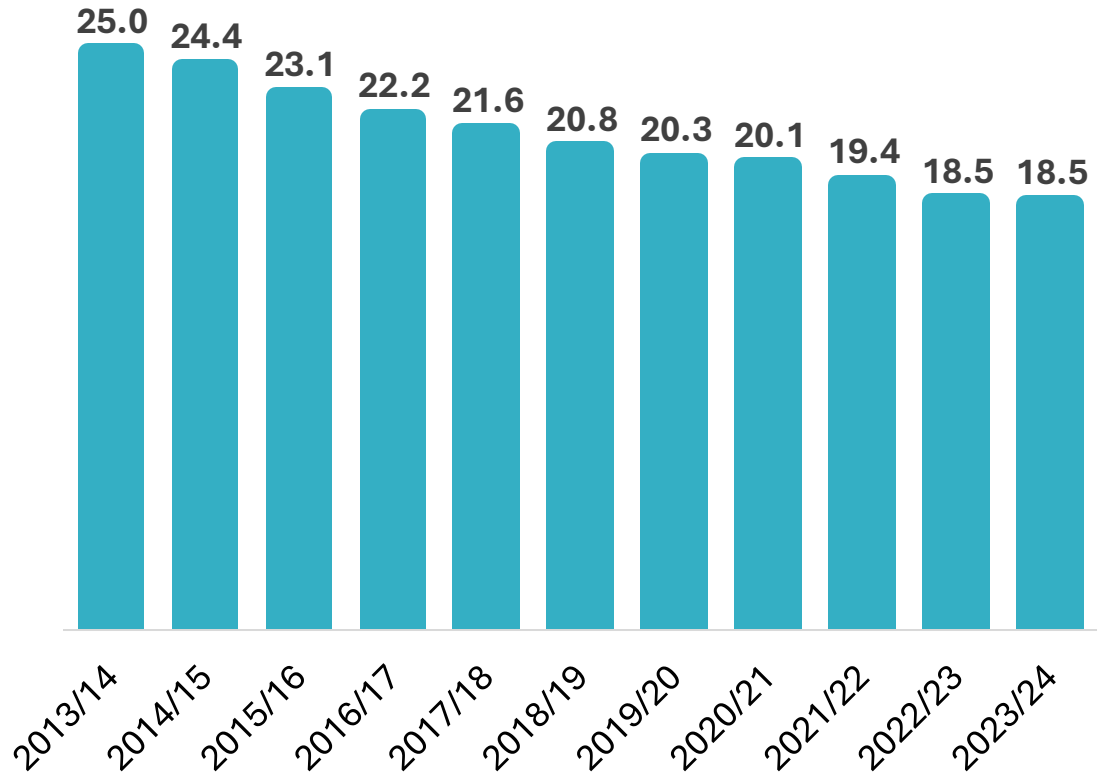
Nursing WTE, OBDs and productivity over time

WTE, OBDs and productivity indexed to 2013/14, 2013/14-2023/24



Number of non-manager nurses to manager nurses in acute trusts

Ratio of non-manager nurses to manager nurses in acute trusts in England, 2013/14 – 2023/24

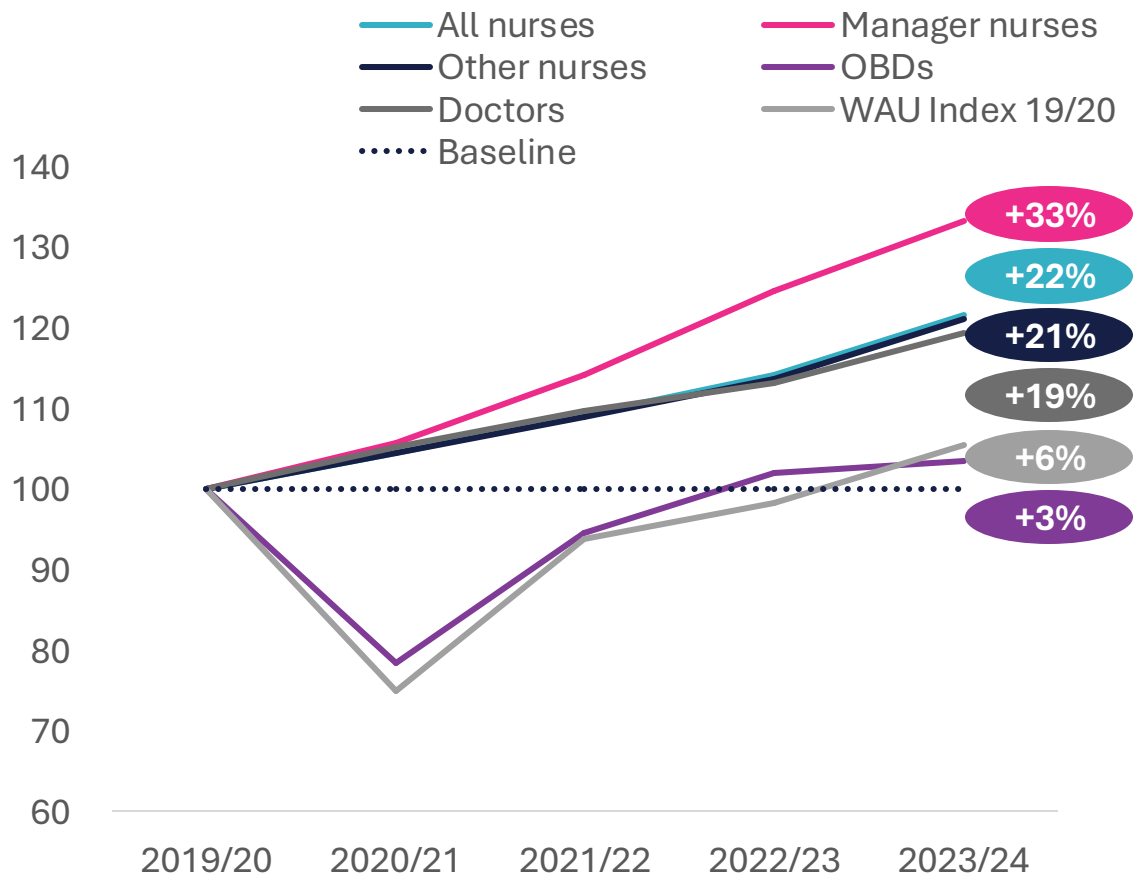


Source: KH03 Bed Available and Occupancy (NHS Statistics), NHS Workforce Statistics
Note: manager nurses include: Nurse Managers and Modern Matrons as defined by NHS England

Over last 5 years nursing workforce increased 22%, managers 33% and doctors 19% compared to OBDs 3% and weighted activity (WAU) has increased 6%

Nursing WTE, OBDs and productivity over time

WTE, OBDs and productivity indexed to 2019/20, 2019/20-2023/24



Absolute number of nurses and doctors per year (WTE)

2019/20 – 2023/24

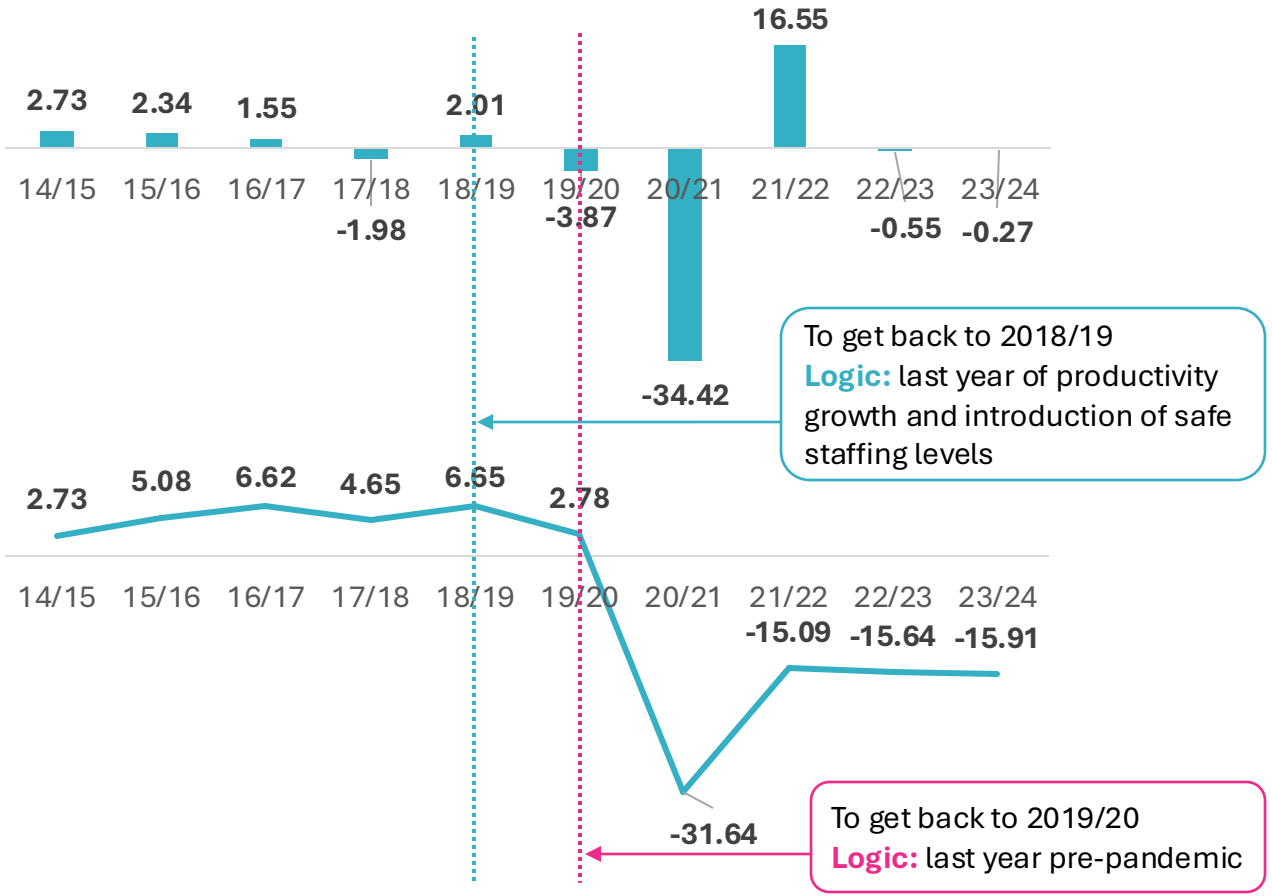
Year	Manager Nurses	Other Nurses	Adult Nurses	Doctors
2019/2020	8,772	178,205	186,977	99,564
2020/2021	9,276	186,149	195,425	105,975
2021/2022	10,021	194,020	204,041	110,977
2022/2023	10,927	202,462	213,389	116,266
2023/2024	11,697	215,855	227,553	123,019

Source: KH03 Bed Available and Occupancy (NHS Statistics), NHS Workforce Statistics
Note: manager nurses include: nurse managers and modern matrons

The loss in acute productivity between 2019/20 and 2023/24 is estimated to have cost approximately 12% of the acute budget and is equivalent to £12b

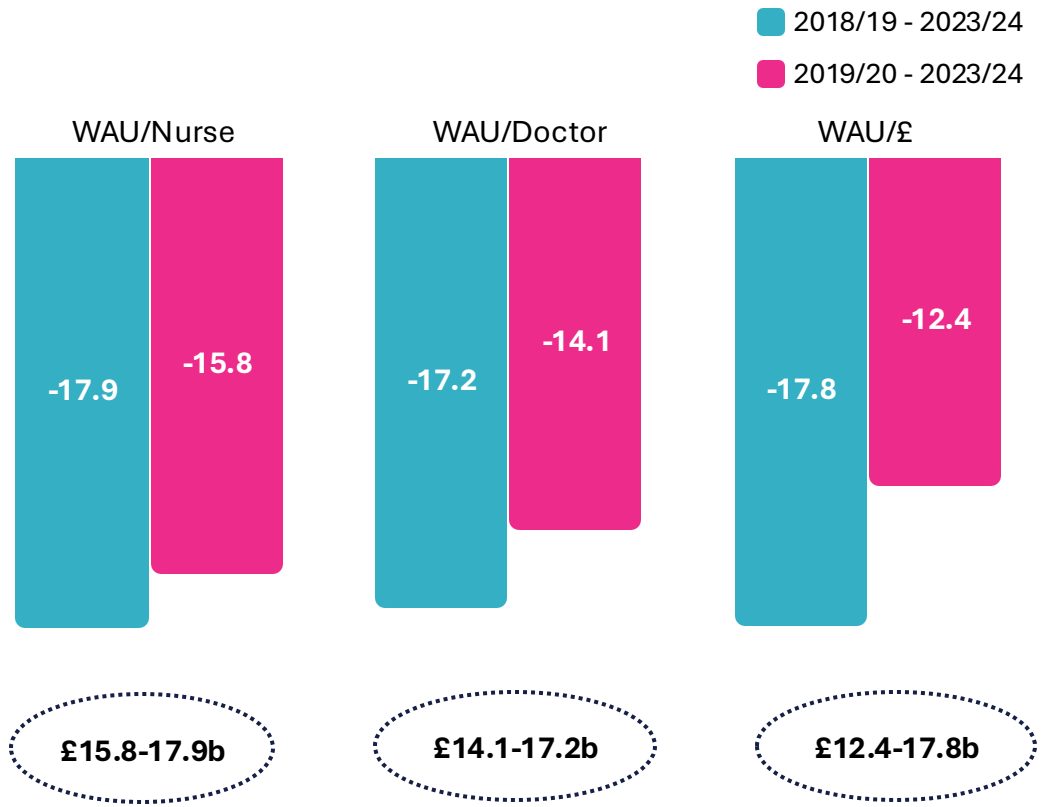
Change in acute productivity over time

Change in acute activity as a percentage of change in acute spend, 2014/15 - 2023/24



Change in acute productivity

Change in productivity between 2018/19 or 2019/20 and 2023/24



Source: A&E Attendances and Emergency Admissions, Monthly Outpatient Referrals Data, KH03 Bed Occupancy, NHS Hospital Admitted Patient Care and Adult Critical Care Activity, Unit Costs of Health and Social Care 2023, NHS Workforce Statistics (Nursing Workforce), ONS (Medical Workforce), NHS funding and expenditure (Parliament papers, 2024), Populations data is from ONS. Spend by care setting is taken from Darzi report (2024), 2021/22- 2023/24 splits are assumed to 2020/21 proportions documented in Darzi. Between 7-10% of spend categorised as 'Other' and not attributed to any care setting.

Latest NHS report largely aligns with CF analysis, whilst indicating recent gain in productivity using month 7 data

	CF analysis	NHS England analysis
Headline	**The fall in acute productivity between 2019/20 and 2023/24 has been estimated to cost the NHS approximately 12.4%** of its acute budget and is equivalent to £12b. By making use publicly available data, we calculated acute productivity in the NHS to have fallen by 10-14% between 2013/14 and 2023/24.	**NHS England analysis productivity is approximately 11% lower in 2023/24 compared to 2019/20.** Updated method for measuring productivity, acute productivity is estimated to have grown by 2.4% in the first 7 months of 2024/25 compared to the same period in 2023/24.
Data	Our analysis made use of publicly data that has been published by the NHS and parliament. All the data used for calculations included complete financial years from 2013/14 to 2023/24.	NHS England analysis used more granular data (currently unpublished)
Notes on Analysis	We calculated a **Weighted Activity Unit (WAU)** when assessing productivity for hospital activity. This allows for productivity to be expressed in a single, comparable metric by weighting each activity according to its relative cost and complexity (using 2022/23 prices). This methodology allows analysis of workforce-to-activity relationships to be fair and meaningful. Instead of simply counting activity volumes, we account for the fact that some activities are more resource-intensive or complex than others.	Month 7 analysis suggests 6.3% output (cost weighted activity) growth and 3.9% input (inflation adjusted spend) growth. The NHS notes that 2023/24 was also significantly impacted by industrial action. It had direct costs of around £1.2b and reduced aggregate activity. NHSE estimates an impact on productivity of around 3%. Based on this analysis, adjusted productivity (taking into account the above) would be around 11% lower than before the pandemic or 8% if we adjusted for the impact of industrial action.

Note: the NHS released its own productivity in February 2025 update whilst this report was under embargo:
https://www.england.nhs.uk/long-read/nhs-productivity-update-feb-25/
https://www.england.nhs.uk/long-read/nhs-productivity/

Considerations affecting productivity in the NHS

An older and sicker population with more complexity

- The Darzi investigation found that **the health of the nation has worsened** with an increasing number of people with long term conditions and mental health[2]
- A significant reduction in patients accessing healthcare during the COVID pandemic, led to the **delayed diagnosis of physical and mental health conditions, as well as delayed detection of deteriorating pre-existing conditions**[2]
- Average length of stay has increased by 10% between 2019/20 and 2023/24, **almost all of the increase in length of stay in the last 5 years can be attributed to the increase in complexity of spells**

Regulatory requirements affecting staffing

- The establishment of **safe staffing standards** with **minimum nurse-to-patient ratios and prioritising patient care**, establishing clear care standards to prevent future failings in healthcare[1]
- Implemented in 2018/19, it appears **introduction of safe staffing standards for nurses linked to the large increase in levels of staffing** which began in 2018/19 and continued uninterrupted since
- Note that this does not account for the increased number of doctors

Incentives and coding

- **Suspension of PbR removed linkage of activity and payment in acute** which had contributed to productivity in earlier periods
- **Inconsistent clinical coding in SDEC/ zero-day admissions** may have contributed to the observed productivity decline
- In comparison, primary care has continued to be incentivised for outcomes and activity (and is the only setting where in the NHS individuals have any incentive) and has high productivity and good data
- Community and mental health have poor quality data **and lack any incentive or link between activity and payment**

Challenges associated with recovering productivity

- **Longer lengths of stay and difficulty turning beds around** are challenges in recovering acute productivity, influenced by permanent COVID-19 measures and the balance between short and long stayers. Reduction in bed capacity has led to rising occupancy rate which has made it harder to ensure patients have appropriate beds.
- **Structural challenges make it complex to reallocate funds** from acute care to primary and community care
- Darzi highlighted the **number of managers and the degree of turnover of senior managers** may have contributed to decline in management capabilities, knowledge and efficiency across the NHS
- Loss of goodwill and high levels of burnout amongst staff has led **to industrial action and increased sick days**

Source: [1]Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry; [2]Independent investigation of the NHS in England (2024);National Quality Board, 'Supporting NHS providers to deliver the right staff, with the right skills, in the right place at the right time.' (2016) and NHSE 'Safe staffing guidelines in specific settings' (2018)

To capture this opportunity, we must boost clinical workforce productivity

Safer staffing models	• This starts with an economic review of safer staffing models to review the guidelines being operated within and whether the benefits of these is worth the cost.
Match workforce to demand	• Address the mismatch between clinical workforce growth and patient demand by leveraging granular data on activity and staffing at both the provider and system level. Localised workforce planning should be introduced to ensure clinical capacity is better matched to actual patterns of patient need.
Activity-based payments	• Create incentives for providers and potentially staff by ensuring the money follows the patient. Activity based payment across the board is needed to enable funding of activity, remove distortions from block funding, and provide a basis for value-based models on top of the baseline of counting of activity.
Data, digital and AI	• Data, digital and AI should be embraced to accelerate this. The FDP could enable replicable analysis to scale workforce productivity across the country and deploy AI tools that reduce admin, particularly through natural language processing and intelligent agents, freeing up clinicians to focus on patient care.

Methodology, data and source for analysis

Methodology for calculation of weighted activity unit

A **Weighted Activity Unit (WAU)** allows for hospital activity to be expressed in a single, comparable metric by weighting each activity according to its relative cost and complexity (using 2022/23 prices).

By converting varied clinical activities into one unit, we can more accurately compare how different types of work use staff and resources.

This allows analysis of workforce-to-activity relationships to be fair and meaningful. Instead of simply counting activity volumes, we account for the fact that some activities are more resource-intensive or complex than others.

1. Index total activity per year

- The acute activity assessed were:
  - Elective admissions
  - Non-elective admissions
  - A&E attendances
  - Outpatient appointments
- Index each acute activity to the baseline year (2013/14)

2. Calculate the cost weighting of each activity

- Multiple the unit cost of each activity (Jones et al., (2023)) by the total level of activity per year
- Sum the total cost of each activity together to obtain total cost of acute activity per year
- Calculate the cost weighting of each acute activity for year

3. Calculate the WAU

- Multiple the cost weighting of each activity type with the activity index for the year
- Example: If in 2022/23 the cost weighting for A&E attendances was 5% of the total acute spend and indexed A&E attendances was 116%, the WAU would be 6%.

4. Calculate the integrated WAU

- The weighted activity index for each activity during a year were summed to provide the integrated WAU for the year

Funding data provided by NHS to parliament

Date	Cash prices (£billions)	2022/23 prices (£billions)	Real terms change (%)
2013/14	109.8	135.6	2.4%
2014/15	113.3	138.4	2.0%
2015/16	117.2	142.1	2.7%
2016/17	120.6	142.9	0.6%
2017/18	125.2	146.0	2.2%
2018/19	128.4	146.7	0.5%
2019/20	138.5	154.6	5.3%
2020/21	144.9	153.4	-0.8%
2021/22	153.1	163.4	6.5%
2022/23	181.7	181.7	11.2%
2023/24 planned	189.5	177.9	-2.1%

Breakdown of NHS spending £ Billion: real terms 2023/24 prices			Change over period	
	2015/16	2023/24	£ billion	%
Acute	49.3	63.6	+14.3	+28.9%
Specialised services	19.1	24.9	+5.8	+30.3%
Core mental health	9.4	13.7	+4.3	+45.3%
Primary medical care	11.2	12.9	+1.7	+14.8%
Community services	9.2	12.3	+3.1	+34.2%
Continuing care	5.6	6.5	+0.9	+17.1%
Other	24.4	20.0	-4.4	-18.0%
Total	128.4	153.8	+25.4	+19.8%

Source: Parliamentary Briefing: NHS funding and expenditure (2024)

Activity data from published NHS data

Date	A&E attendances	Outpatients	Electives admissions	NEL admissions	OBDs	Population
2013/14	21,778,657	101,844,824	7,760,623	5,565,567	36,848,377	53,918,686
2014/15	22,354,781	107,188,423	8,273,821	5,691,577	37,283,771	54,370,319
2015/16	22,920,435	113,298,661	8,464,215	5,885,604	36,782,169	54,808,676
2016/17	23,362,301	118,578,912	8,676,087	6,022,019	37,228,867	55,289,034
2017/18	23,830,120	119,378,895	8,583,947	6,243,151	37,029,010	55,619,548
2018/19	24,826,982	123,351,435	8,809,917	6,597,117	36,717,901	55,924,528
2019/20	25,017,116	124,927,782	8,842,098	6,398,352	36,753,847	56,230,056
2020/21	17,429,559	101,898,658	5,628,814	5,328,755	28,813,755	56,325,961
2021/22	24,374,967	122,325,785	7,931,133	6,112,702	34,718,080	56,554,891
2022/23	25,348,842	124,461,569	8,560,692	6,318,832	37,449,292	57,112,542
2023/24	26,321,069	135,445,596	9,165,026	6,776,814	37,988,331	57,690,323

Source: Quarterly Attendances & Emergency Admission monthly statistics, NHS and independent sector organisations in England, Hospital Outpatient Activity, Summary Table 1: FCEs, FAEs, Admission method, 2014-15 to 2023-24, Monthly Hospital Activity, Average Daily Available and Occupied Beds Timeseries, ONS England population.

Workforce statistics from NHS sources

Date	Adult nurses	Manager nurses (modern matron, nurse manager)	All other nurses	Ratio
2010/11	169,917	7,124	162,793	22.9
2011/12	167,593	6,822	160,770	23.6
2012/13	166,376	6,544	159,832	24.4
2013/14	169,862	6,526	163,336	25.0
2014/15	173,601	6,840	166,761	24.4
2015/16	175,820	7,282	168,538	23.1
2016/17	178,475	7,686	170,789	22.2
2017/18	179,035	7,932	171,102	21.6
2018/19	181,025	8,321	172,704	20.8
2019/20	186,977	8,772	178,205	20.3
2020/21	195,425	9,276	186,149	20.1
2021/22	204,041	10,021	194,020	19.4
2022/23	213,389	10,927	202,462	18.5
2023/24	227,553	11,697	215,855	18.5

Date	Medical workforce - Acute	Increased output if regained productivity of 2019/20
2013/14	73,701	1,179
2014/15	78,139	1,201
2015/16	78,438	1,185
2016/17	80,512	1,165
2017/18	86,390	1,153
2018/19	90,379	1,139
2019/20	99,564	1,109
2020/21	105,975	1,171
2021/22	110,977	1,194
2022/23	116,266	1,204
2023/24	123,019	1,200

Source: NHS Hospital & Community Health Service (HCHS) monthly workforce statistics

Limitations

- We have looked at high level national metrics around workforce and activity, but we are unable to make inferences about the exact reasons why output has not increased proportionally with the standard activity metrics that we have used.

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