

# Empowering the NHS: Challenges for the pandemic

Armine Ghazaryan, Corrado Giuliotti, Jackline Wahba

ESRC Centre for Population Change, University of Southampton

Contact: [A.Ghazaryan@southampton.ac.uk](mailto:A.Ghazaryan@southampton.ac.uk)

## Introduction

During the worst phase of the Covid-19 outbreak, the UK government’s slogan was: stay home, save lives, protect the NHS. This message clearly shows that protecting the capacity of NHS services is vital for dealing with such a pandemic. Therefore, an important question is whether the NHS had been protected in the years leading up to the outbreak.

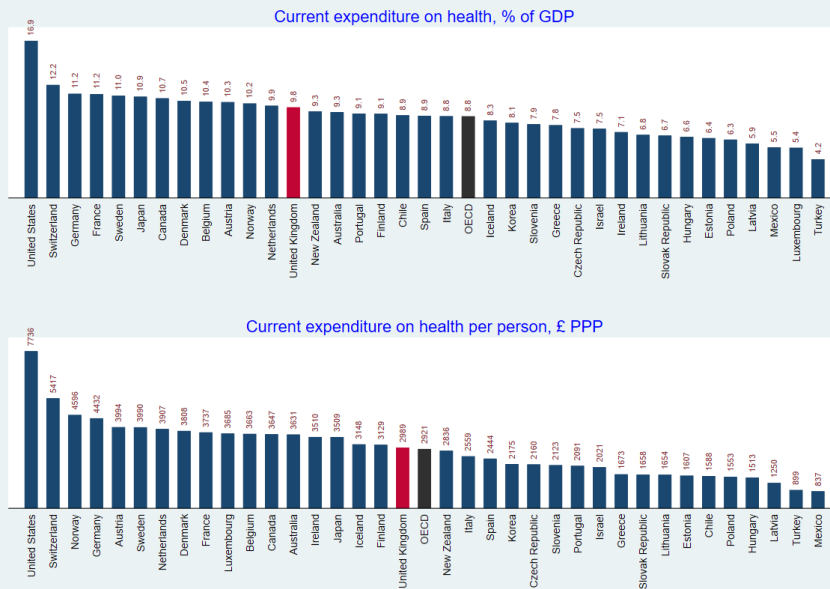


Figure 1: OECD comparison of health expenditures

Source: OECD Health Statistics 2019 and Office for National Statistics

Note: The figure shows current expenditure (all financing schemes) on healthcare as a % of GDP and in GBP purchasing power parity per person. The figure for current expenditure as a % of GDP is for 2018, while the figure for current expenditure in £PPP per person is for 2017.

## Expenditure on healthcare

To take stock of NHS funding and staffing, we first examined the patterns and trends in healthcare spending in the UK. Figure 1 shows that, in 2018, UK expenditure on healthcare as a percent of GDP was higher than the OECD (Organisation for Economic Co-operation and Development) average, though behind most Western European and Nordic countries. However, healthcare expenditure in terms of GBP purchasing power parity per person was much lower. According to the ONS, in 2017, UK healthcare spending per person was the second-lowest among the G7. The highest spenders were France, Germany and the United States. However, in terms of availability of healthcare resources for the population, the UK ranks lower than the OECD average (Figure 2). In addition, the density of doctors (i.e. number of doctors per 1000 population) in the UK is much lower than the OECD average and the second lowest in the EU. The density of nurses is also low when compared to other OECD countries. Furthermore, the UK has also a relatively low availability of hospital beds: 2.5 beds (per 1000 population) compared with an average of 4.7 among OECD countries.<sup>1</sup>

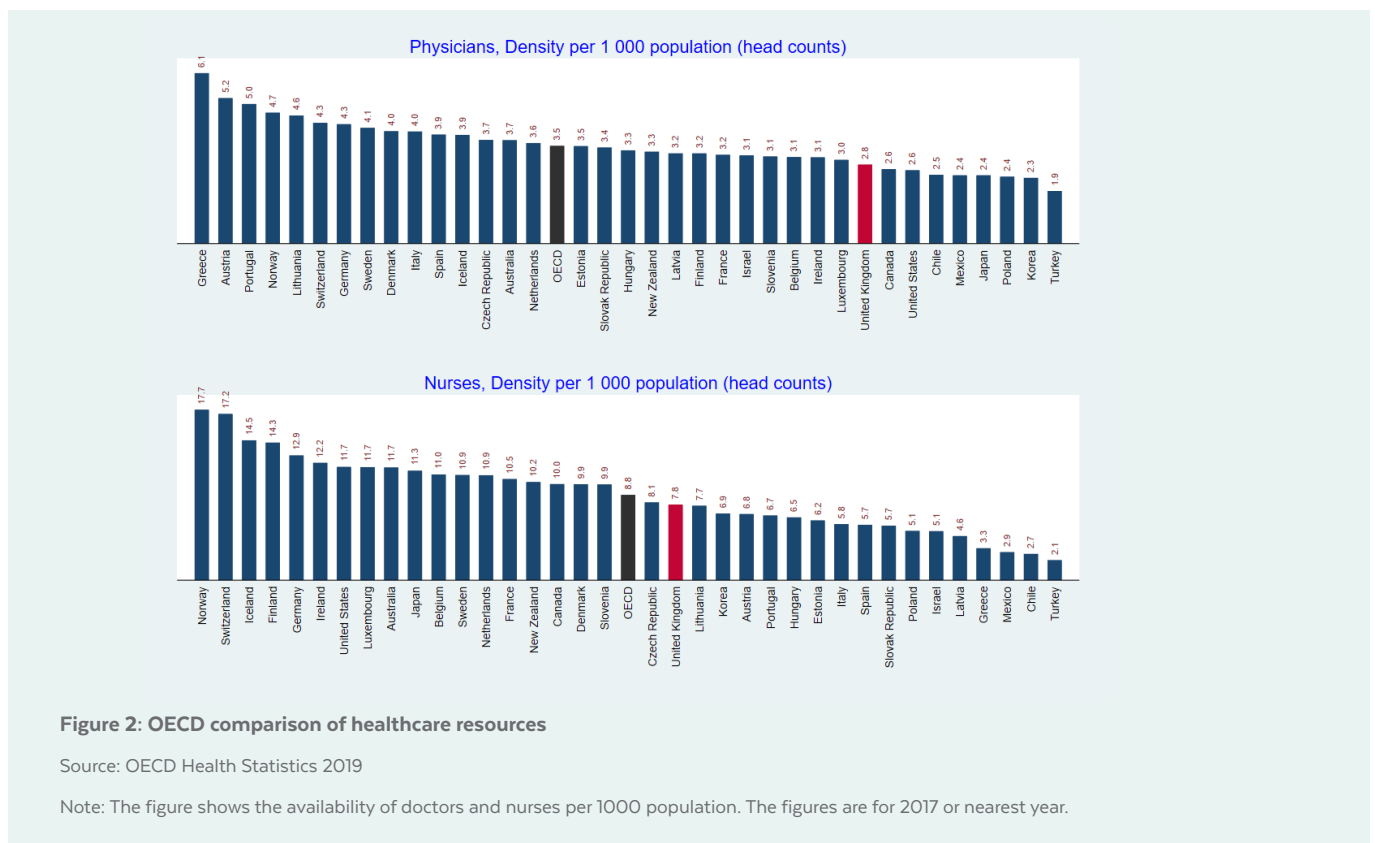


Figure 2: OECD comparison of healthcare resources

Source: OECD Health Statistics 2019

Note: The figure shows the availability of doctors and nurses per 1000 population. The figures are for 2017 or nearest year.

Sources of healthcare funding in the UK don't really explain the observed discrepancy between the UK's higher health expenditure as a share of GDP and its relatively low healthcare spending per person. The majority of healthcare expenditure in the UK is publicly funded, currently amounting to 7.5% of GDP (and accounting for 77% of all health expenditure), which is slightly higher than the OECD average.<sup>2</sup> Voluntary healthcare payment schemes constitute about 0.5% of GDP (around 5% of total expenditure), a figure that is in line with the OECD average levels. Household out-of-pocket payments are around 1.5% of GDP (around 16% of total expenditure), slightly lower than the mean value among OECD countries.

1. 2017 (or nearest year), source: OECD

2 The figures for financing schemes are for 2018 or nearest year. Source: OECD

Over the last decade government expenditure on healthcare – measured as a percentage of GDP – has been stagnant, and growth rates in expenditures in real terms have dropped dramatically since the financial crisis (Figure 3). Government expenditure on the health sector (in current prices) has been growing, although the increase has been less marked since 2010, growing by 3% on average since 2011. However, the average growth in real terms has only been 1.3%. Expenditure as a percentage of GDP exhibits a slightly decreasing trend since 2010, stabilising at around 7.2% in the past eight years. Expenditures in real terms decreased by about 0.2% in 2011-2012 and increased by 0.5% and 0.6% in years 2012-2013 and 2016-2017. Overall, this suggests that over the last decade the healthcare sector has not been provided with adequate public funding to enable it to grow and develop, and it has been clearly affected by austerity measures since 2010.

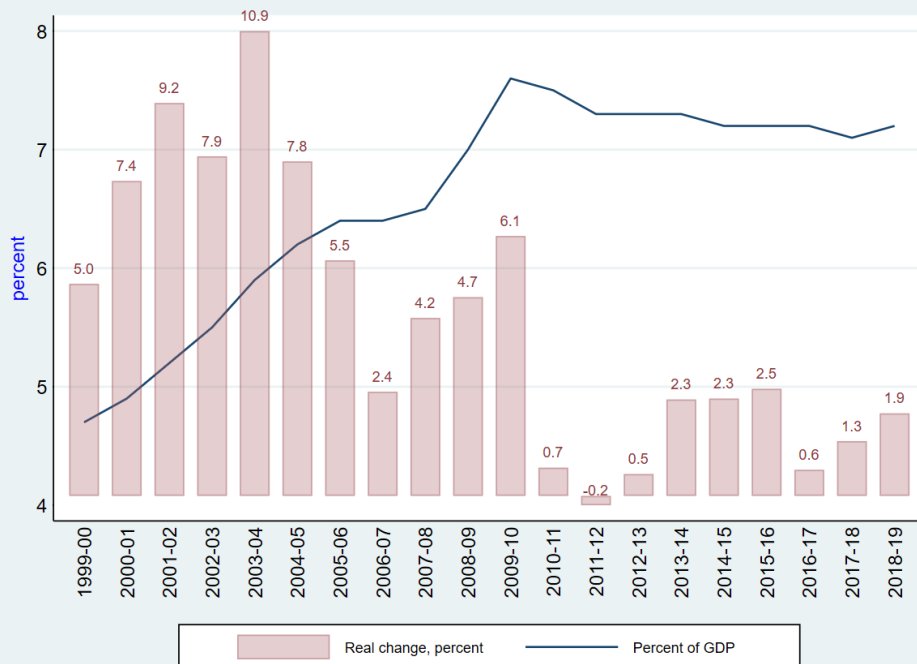


Figure 3: Dynamics of UK public sector expenditure on healthcare

Source: HM Treasury. Public Expenditure Statistical Analyses 2019

Note: The figure shows the dynamics in real change in public expenditure on health sector, as well as expenditure as a percent of GDP. Real change is calculated from nominal expenditure figures, adjusted to 2018-19 price levels using GDP deflators from ONS. Real changes are calculated as annual percentage change (growth / reduction) in expenditure in real terms.

## Demand for healthcare

The older population has been increasing steadily over recent years, with the share of those aged 65 and over constituting around 18.4% in 2018, up from 16.4% in 2010 and 15.9% in 2000. This increase is particularly steep after 2012, reflecting that the large cohort of baby-boomers turned 65 in that year<sup>3</sup>. These figures on population ageing suggest that the pressure on the healthcare system has been higher in recent years. For instance, in 2018-2019, the proportion of patients aged 65 and over using medical services was much higher than those aged 65 and under. This was true in all categories of medical services including Accident and Emergency (A&E), patients admitted to the hospital, critical care patients, and outpatient visits (Figure 4). Note, the number of patients could account for multiple visits of the same individual, and therefore the same individual might be included more than once. These figures suggest that the UK’s ageing population has created additional demand on healthcare services.

<sup>3</sup> www.ons.gov.uk

Proportion of age groups by treatment type in 2018-19, %

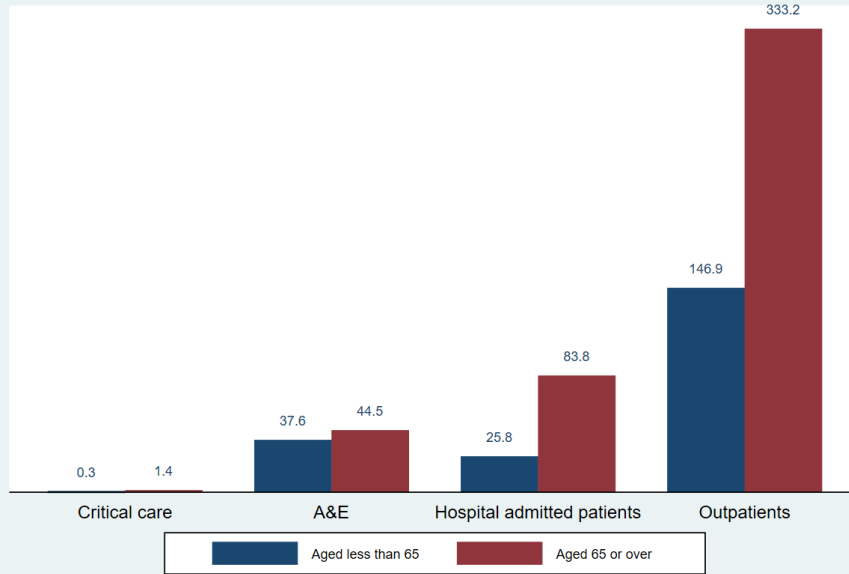


Figure 4: Demand on medical services in England by age groups

Source: Office for National Statistics, NHS Digital, Hospital Episode Statistics for England, Accident & Emergency Statistics, and own calculations

Note: The figure shows the demand on medical services by type. It is calculated as the number of individuals admitted for hospital care by type of care in each age group divided by the number of population of the corresponding age group.

## Health professionals

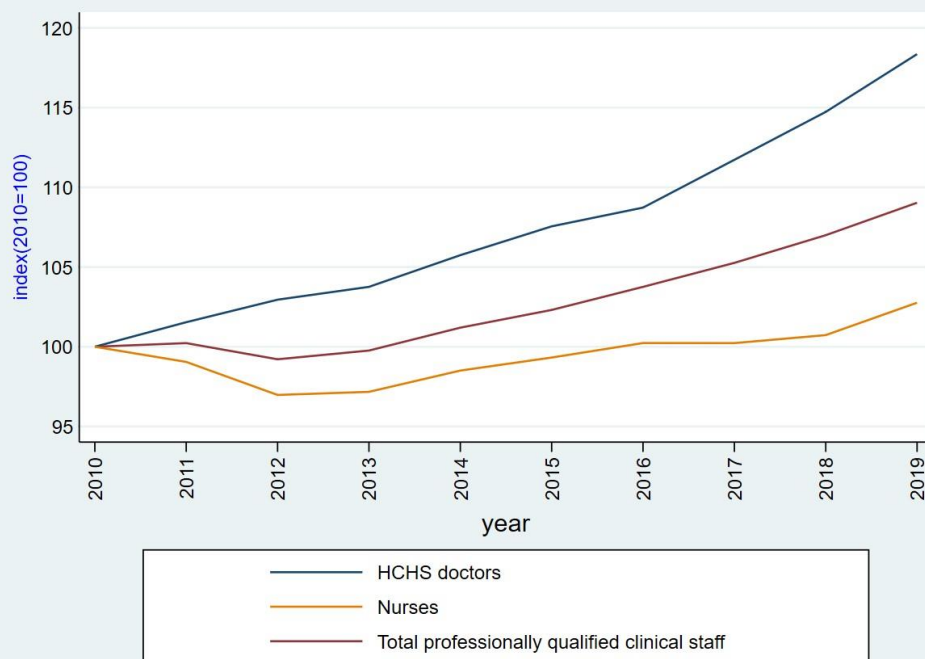
Against this background, a critical requirement is the availability of well-qualified health professionals. According to the ONS, in 2019 around 1.2 million people were employed in healthcare, making the NHS the UK's biggest employer. Despite its large workforce, the NHS has been under pressure to meet the ever increasing demand for its services. Yet as Figure 2 shows, there were only 2.8 doctors and 7.8 nurses per 1000 people in 2018. This has hardly increased over the last decade; in 2010 there were 2.6 doctors and 8.8 nurses per 1000 people.

Over the previous decade, the NHS workforce has been increasing at a slow pace. Since 2010 the number of NHS professionally qualified staff has grown annually by 1% on average, bringing overall growth since 2010 to around 10% (Figure 5). This growth has been predominantly driven by the increase in the number of doctors (with average annual growth of 1.9% and cumulative growth of around 19% by 2019). The average annual increase in the number of nurses has been rather small; the annual increase has been around 0.3% with cumulative growth of about 4%. Such small increases fail to keep up with population growth and therefore do not translate into more doctors and nurses per head.

One potential explanation for the decline in the number of nurses is that the government abolished the student grants for nurses in England and Wales in 2017<sup>4</sup>. Grants were replaced with student loans and the cap on the number of nurses and midwives that could start their studies was removed. It was argued that the removal of the cap would provide an additional 10,000 nurses and other healthcare professionals for the NHS. Starting from September 2020, the government will bring back bursaries for nurses by providing grants of at least £5000 to students of nursing professions<sup>5</sup>.

4 [www.gov.uk/government/publications/nhs-bursary-reform/nhs-bursary-reform](http://www.gov.uk/government/publications/nhs-bursary-reform/nhs-bursary-reform)

5 [www.gov.uk/government/news/nursing-students-to-receive-5-000-payment-a-year](http://www.gov.uk/government/news/nursing-students-to-receive-5-000-payment-a-year) 4



**Figure 5: The dynamics of NHS professionally qualified clinical staff in England**

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

Note: The figure shows normalised levels of NHS professionally qualified staff (full time equivalent), doctors and nurses. The annual levels are calculated based on monthly average levels.

NHS professionally qualified staff includes HCHS doctors, nurses & health visitors, midwives, ambulance staff, scientific, therapeutic & technical staff. HCHS doctors include the following categories of doctors: Consultant, Associate Specialist, Specialty Doctor, Staff Grade Doctor, Specialty Registrar, Core Training, Foundation Doctor Year 2, Foundation Doctor Year 1, Hospital Practitioner / Clinical Assistant, Other and Local HCHS Doctor Grades. Nurses include nurses and health visitors.

## International workforce

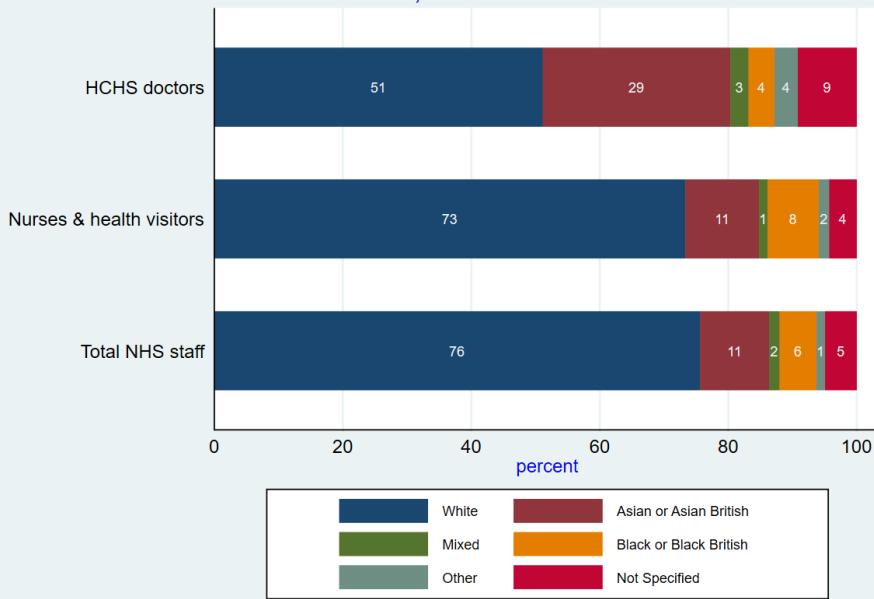
The NHS workforce is very diverse and international, an aspect that has attracted public and media attention, particularly during the Covid-19 pandemic. Around 51% of doctors and 73% of nurses in England are from a white ethnic background (Figure 6).

While Black, Asian and minority ethnic (BAME) groups constitute around 14% of the UK population<sup>6</sup> and around 20% of total NHS staff, the proportion for NHS doctors is around 40%. For certain categories of doctors, the proportion of BAME is as high as 57%. Thus, overall, doctors from BAME backgrounds are over-represented in the NHS compared with the UK population.

Many countries rely on international migrants to fill occupations in shortage. Healthcare professionals are one of the most globally sought-after labour forces. The UK is more dependent on foreign-born doctors and nurses than the OECD average. The proportion of foreign-born doctors and nurses in the UK is also higher than the majority of EU countries, with the average proportion of foreign-born doctors and nurses for the EU being 16% and 10%, respectively (Figure 7).

<sup>6</sup> Sources: Census, 2011, and LFS, 2019

### Doctors, Nurses and Total NHS Staff

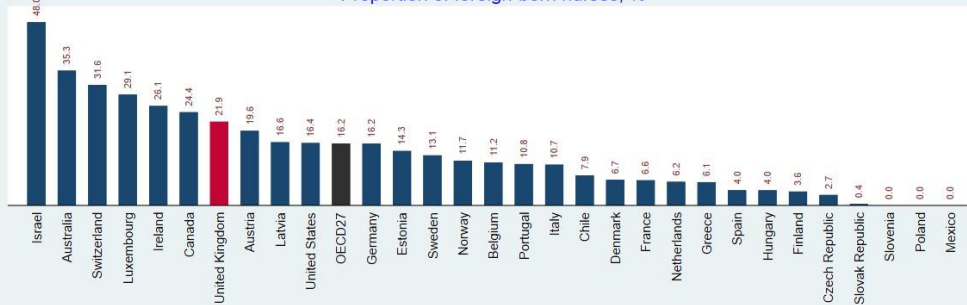


**Figure 6: The ethnic composition of NHS staff**

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

Note: The figure shows the ethnic composition of categories of NHS staff as of January 2019.

### Proportion of foreign-born nurses, %

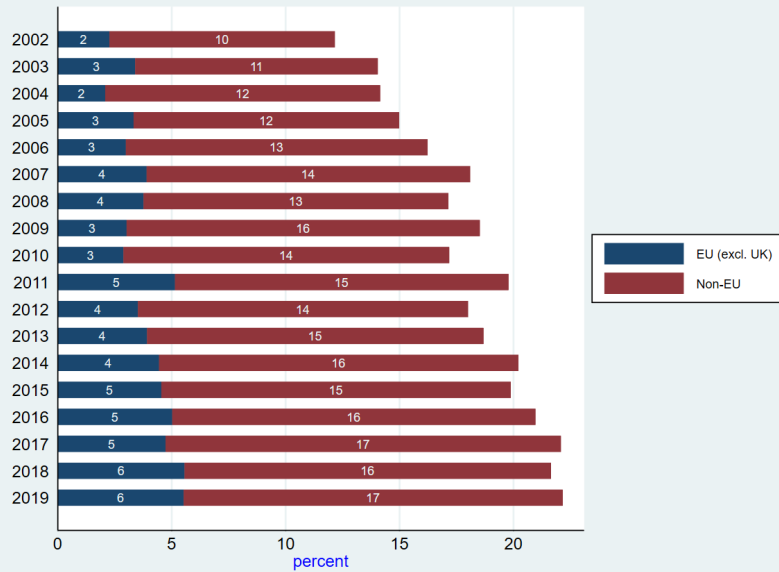


**Figure 7: Comparison of proportions of foreign-born doctors and nurses: selected OECD countries**

Source: DIOC 2015/16, LFS 2015/16

Note: The figure shows the proportion of foreign-born doctors and nurses in selected OECD countries for 2015/2016.

The role of the non-UK health workforce has been steadily increasing since the early 2000s to 20% in 2019. The breakdown of healthcare professionals in the UK by country of birth reveals the growing importance of non-UK health professionals (Figures 8, 9). EU member states have provided a steady supply of health workers, and so have non-EU countries, in particular Asian countries. According to the ONS, in 2019 one in five General Practitioners (GPs) in England was non-UK born, with the majority coming from non-EU countries (16%, mostly from South Asia and Africa) and 4% from the EU. As reported in Figure 8, the average share for the period 2002-2019 of total non-UK workforce was 18.5%, of which 4% were from the EU, with the remaining from non-EU countries.

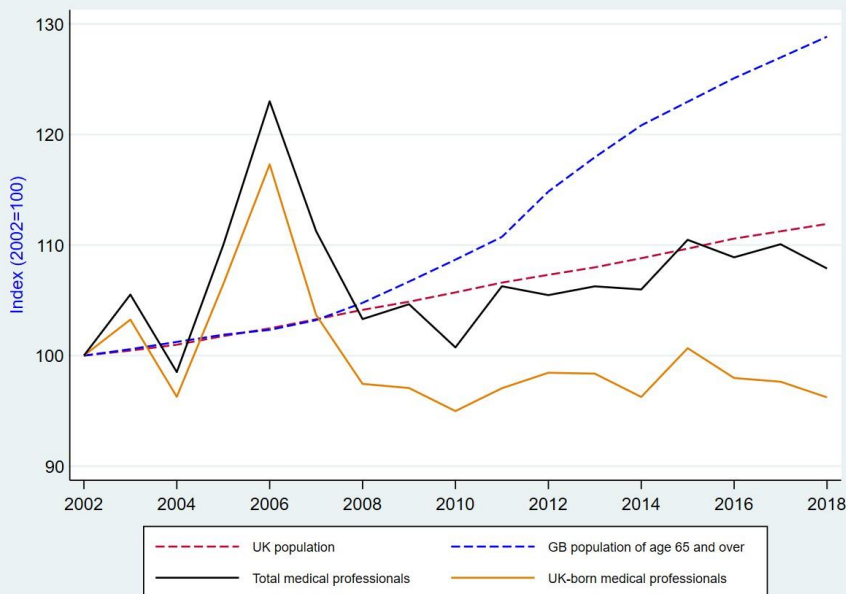


**Figure 8: Proportions of medical workers by country of birth: adjusted by sampling weights**

Source: Labour Force Survey

Note: The figure shows proportions of medical workers (including hospital and medical practice workers) by each group of countries in total for each year. Proportions are adjusted by person weights.

EU includes individuals from member-countries of the European Union, that were a member at the time. Non-EU includes individuals from non-EU member-countries.



**Figure 9: Cumulative change in the number of medical professionals, the UK population and the ageing population of Great Britain**

Source: Labour Force Survey and Office for National Statistics

Note: The figure shows the cumulative change in UK-born and non-UK-born medical professionals (including hospital and medical practice workers), the UK population and the population aged 65 and over in Great Britain. Person weights are applied in calculating the change in the number of medical professionals.

One important question is whether the EU referendum of June 2016 has affected the number of foreign healthcare professionals, particularly from the EU. The evidence suggests that the Brexit vote negatively affected the supply of EU doctors and nurses.

Following the EU referendum, there has been a decrease in the number of EU (EEA) nurses; the number of doctors from EU (EEA) has continued to increase, but at a lower rate, as shown in Figure 10. This pattern has been offset by a steadily increasing trend in the supply of non-EU doctors and nurses, and by the somewhat volatile supply of UK doctors and nurses (Figure 10). The proportion of the medical workforce from Asia has increased since the referendum, which might be attributable to the government's removal of the cap on hiring non-EU doctors amid concerns of doctor shortages.

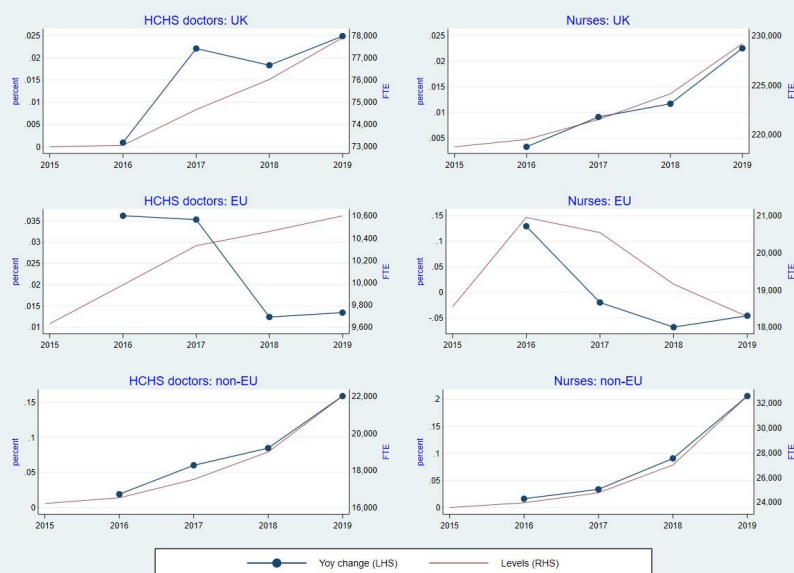


Figure 10: The dynamics of doctors and nurses in England by country of birth

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

Note: The figure shows annual changes (Yoy change) and levels (full time equivalent) in doctors and nurses of UK, EU(EEA) and non EU nationals. Annual changes are calculated based on monthly average levels.

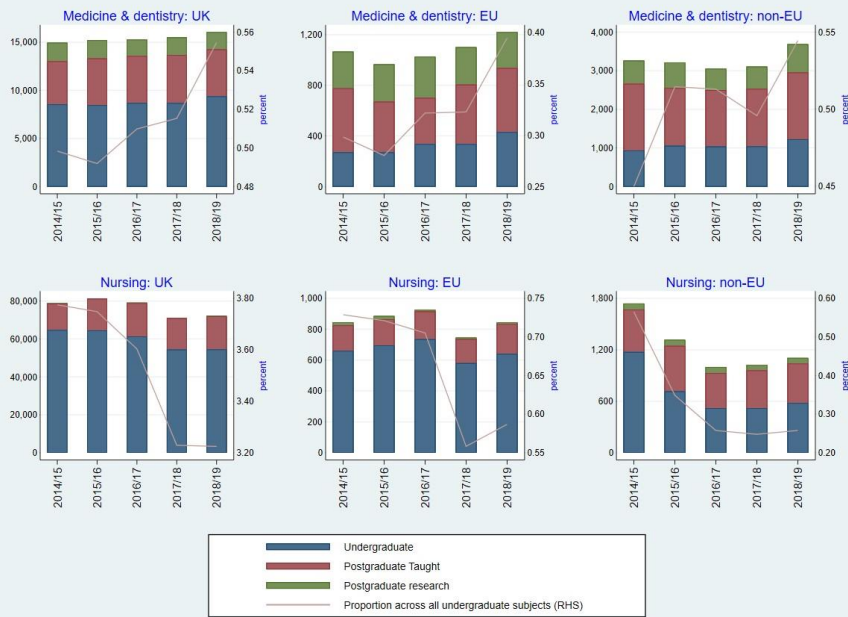
FTE is Full-Time Equivalent, the proportion of full time contracted hours that the employee is contracted to work. 1 would indicate they work a full set of hours, 0.5 that they work half time. HCHS doctors include the following categories of doctors: Consultant, Associate Specialist, Specialty Doctor, Staff Grade Doctor, Specialty Registrar, Core Training, Foundation Doctor Year 2, Foundation Doctor Year 1, Hospital Practitioner / Clinical Assistant, Other and Local HCHS Doctor Grades. Nurses include nurses and health visitors.

## Medical students

A key way to increase the NHS workforce is to train an adequate number of nurses and doctors. Statistics from the Higher Education Statistics Agency (HESA) suggest a stable number of UK-born medical students, with a slight increase in the number of students enrolling in medicine and dentistry in the last five years (Figure 11). However, the number of UK-born students newly enrolled in nursing has been decreasing, most likely reflecting the government's abolition of nurses' bursaries.

The number of enrolled students does not indicate that, when they graduate, they will all enter the UK labour market. In fact, the number of medicine and dentistry graduates entering the UK labour market was stable up until the academic year of 2016/2017 (Figure 12), while there was a slight increase in the supply of graduates from subjects allied to medicine in 2016/2017. In the context of a growing and ageing population, there is a compelling need to nurture the supply of medical students in order to cope with current and future demand.

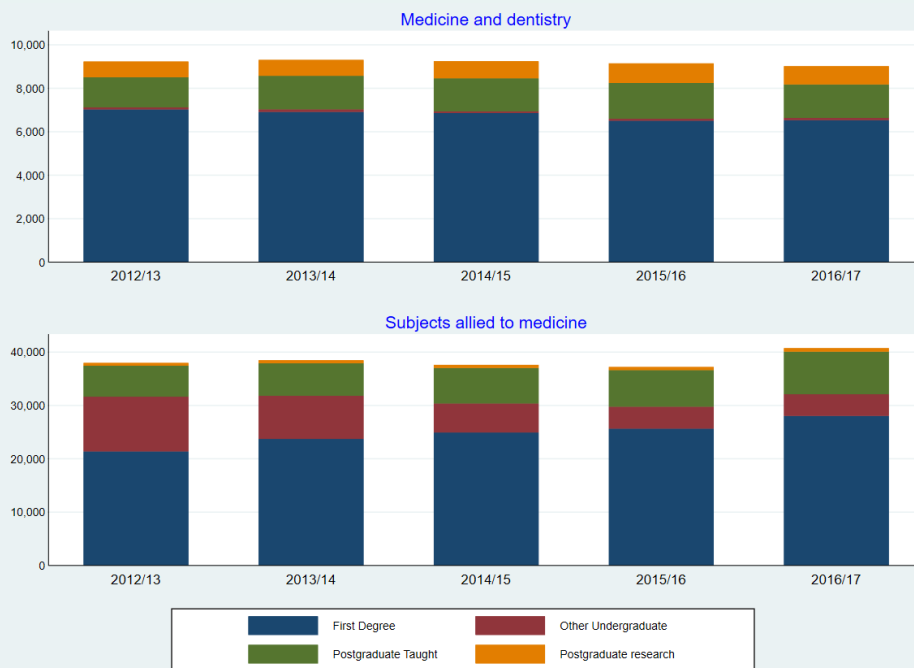




**Figure 11: Number of first-year students studying medicine and dentistry, and nursing by domicile**

Source: HESA

Note: The figure shows breakdown of number of first-year students studying medicine and dentistry by degree of study for three domiciles. Domiciles are based on postcodes of students' permanent or home address prior to entry to the course.



**Figure 12: Number of students graduating from medicine and related subjects and starting work in the UK**

Source: HESA

Note: The figure shows the breakdown of number of graduates of medicine and dentistry and allied subjects by degree of study. The graduates' post-graduation activity is work in the UK.

## Conclusions

Although the UK has higher health expenditure as a share of GDP than the OECD average, it has lower healthcare spending per person. Spending cuts have clearly affected the NHS's ability to meet increasing demand for healthcare. Added to this, concerns over Brexit have reduced the number of EU health professionals. Our analysis suggests that over the last decade the healthcare sector has not been provided with adequate public funding to enable it to grow and develop, and it has been clearly affected by austerity measures since 2010, and uncertainty over Brexit. The UK's ageing population has also created additional demand on healthcare services and, coupled with stagnant government spending, this has likely increased the pressure on healthcare services. At this critical time, it is important for the government to "protect the NHS" by ensuring that spending on healthcare is growing in-line with an ageing population and that more medical students are being trained. The UK needs to grow its workforce to cope with the increase in its ageing population and in preparation for potential future global health crises.