NHS Education for Scotland

NHSScotland Workforce

LATEST STATISTICS AT 31 MARCH 2022

An Official Statistics publication for Scotland

Publication date: 7 June 2022

NHS Education for Scotland

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This is an Official Statistics Publication

This report accompanies the latest release of the Official NHS Workforce Statistics on **Turas Data Intelligence**. All statistics have been produced in compliance with the UK Statistics Authority's **Code of Practice for Statistics**.

1. Executive summary

Statistics on 31 March 2022:

- There were just under 182 thousand staff employed by NHS Scotland, the highest reported to date and a 2% annual increase. Whole Time Equivalent (WTE) employment has grown by 3% over the same period to just under 157 thousand.
- In the year ending 31 March 2022, the WTE inflow to NHS Scotland is around 16,500 WTE, a 2% increase on the previous year. The WTE outflow increased by 66% to the highest value reported in the past 10 years, with an outflow of just under 12 thousand WTE recorded over the past financial year.
- The sickness absence rate for NHS Scotland increased by 1 percentage point to 5.7%. This does not include COVID-19 related absence.
- There were just under 14,700 WTE medical and dental staff employed, an annual increase of 2%. The number of vacant medical and dental consultant posts has increased by 2% over the past year to just under 490 WTE.
- The national spend on medical agency locum staff has increased by 17% over the past year to £102 million in year ending 31 March 2022.
- The nursing and midwifery staff group is the largest in NHS Scotland, accounting for just over 65 thousand WTE (42%) of the workforce. It has increased by 2.3% over the past year. The number of vacant nursing and midwifery posts is just over 6,200 WTE, a 38% annual increase.
- The NHS Scotland spend on nursing and midwifery bank staff rose by 18% compared to the previous financial year to £232 million for the year ending 31 March 2022. The spend on nursing and midwifery agency staff in the same year was £89 million, a 126% increase on the previous year.
- There were just under 13 thousand WTE allied health professions employed in NHS Scotland, an annual increase of 4%. The number of vacant allied health professions posts has increased by 43% over the past year to 1,150 WTE.
- The number of dentists working in Scotland has decreased by 5% over the past year to around 3,500. The majority of these dentists are independent contractors and are in addition medical and dental employment figures quoted above.

2. Introduction

NHS Education for Scotland (NES) is the source for Official Statistics on the NHS Scotland Workforce.

The NHS Scotland workforce has a significant role to play in the delivery of quality services that meet the needs of patients, their families, and the general public in a modern health service. Staffing also accounts for a large portion of the NHS Scotland budget: the **Scottish Health Service costs report** for the year ended 31 March 2021 reports that employment accounted for almost 68.9% or £5.5 billion of hospital costs.

NES publish quarterly updates on an extensive set of indicators, including numbers of staff employed and number of vacant posts. These data support NHS Boards and the Scottish Government with local, regional, and national workforce planning. This annual report reflects on the latest key indicators for clinical staff including Medical and dental consultants, doctors and dentists in training, qualified nurses and midwives, and allied health professions (AHPs), and non-clinical staff in administrative and support staff.

We will describe some of the ways in which COVID-19 has impacted the NHS Scotland workforce. We will also highlight how we use routinely collected information to provide one measure of the demand for qualified midwives.

NES have been working on the warehousing of historic and current NHS Scotland workforce data. In the December 2021 release of the NHS Scotland workforce official statistics, we announced that the first phase of this work was completed with the NHS employment data warehoused and a new data model and report developed. The implementation of the warehouse affects users in two ways. First, a new single NHS Scotland workforce dashboard replaced most of the previous dashboards and the Excel tables. This dashboard has improved navigation, filtering, table (including export functionality) and chart views of the workforce data. Second, as part of the development of the warehouse we reviewed historic employment data and made numerous improvements to how these data are processed and reported. As a result of these improvements there will be some minor differences between the statistics published from the warehouse compared with previously published statistics. Please see **Turas Data Intelligence website** for more detail about the changes.

2.1. Workforce data and information

The primary source of information on staff employed by NHS Scotland is the **Scottish Workforce Information Standard System (SWISS)** which brings together HR and Payroll information. In addition to this, NES collects a range of information directly from NHS Boards.

These data presented within this report, as well as in our **dashboards and tables**, includes all staff employed directly by NHS Boards and excludes those working as independent contractors, such as general medical practitioners (GPs) and general dental practitioners (GDPs), or staff employed on bank and agency contracts. The exception is the Dental table which includes staff working in all hospital, community and high street services in Scotland.

Throughout out this report, numbers of staff employed and vacant posts are described in terms of Headcount or Whole Time Equivalent (WTE), a measure which accounts for part-time working.

In conjunction with this report, comprehensive workforce data for 31 March 2022 are available via the **Turas Data Intelligence website**: NHS Scotland workforce dashboard presents quarterly data over a ten-year period for staff employed. Variation in indicators between age band, contract type, whole- and part-time working, sex, sub job family and Agenda for Change (AfC) band, grade, and specialty where applicable, are available as chart visuals or tables. Using **Turas Data Intelligence**, users can explore the dashboard to quickly identify trends and compare professions, NHS Boards, and regions.

Additional information available in the NHS Scotland workforce dashboard include: vacancies available for consultants, nursing and midwifery staff and AHPs, sickness absence rates, turnover, nursing and midwifery bank and agency spend, and medical agency spend.

Information on equality and diversity, dentists, and nursing and midwifery student intake and progression are available in Microsoft Excel tables. A full list of these data are published and a timetable of future releases are available on our **webpages**.

As described in the Appendix some of the data collections in 2020 were disrupted due to the COVID-19 pandemic, limiting interpretation of national trends for vacancy and nursing and midwifery agency information.

Throughout this report, where possible, we will highlight the impact of the COVID-19 pandemic on the workforce.

Official workforce publications prior to 3 December 2019 can be accessed via the **ISD Workforce publication page**.

3. The Workforce

3.1. Employment

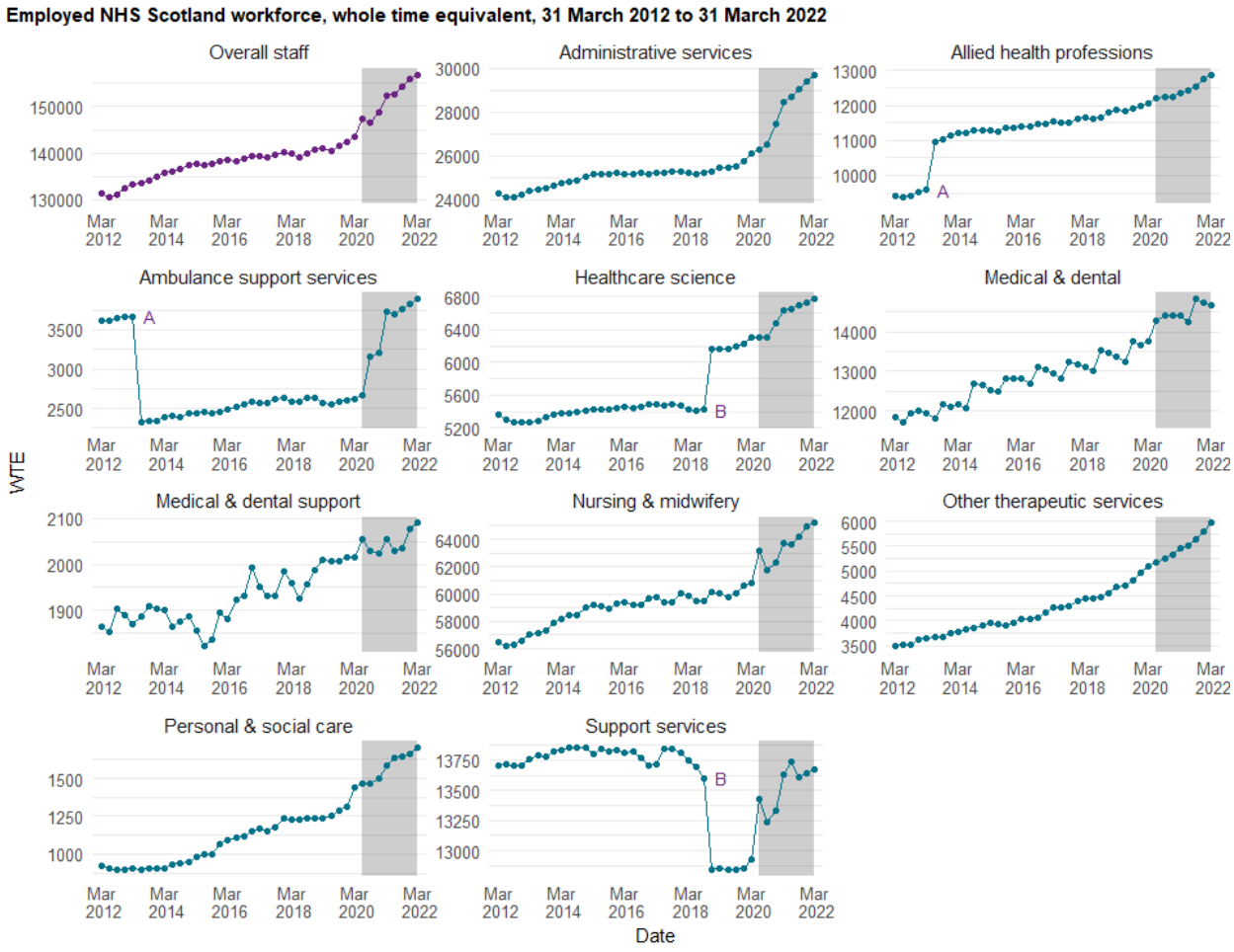
On 31 March 2022, NHS Scotland had a total headcount of 181,723 staff, the highest reported to date and a 2.3% increase in the past year. Adjusting for part-time working, the Whole Time Equivalent (WTE) also increased by 2.9% to 156,875.6 WTE (Figure 1).

Over the COVID-19 pandemic the number of staff employed has increased. It is challenging to attribute any individual increase or change in staffing to the COVID-19 pandemic response or to other non-pandemic related factors.

Furthermore, the figures may be under-reported since these staffing data do not include staff working on bank or agency contracts which will have been used to assist with both the clinical response and vaccination programme.

WTE employment in NHS Scotland increased rapidly between March 2020 to March 2021 (6.2%). Whilst the WTE of staff employed did continue to rise over the past year, it has been at a slower rate than 2020/21, albeit still larger than the year before the pandemic (31 March 2019 to 31 March 2020: 1.8% in WTE).

Figure 1: The number of staff employed has grown during the past ten years to 156,875.6 WTE on 31 March 2022



Data Source: SWISS

Footnote:

1. Shaded grey area from 30 June 2020 onwards indicates where the COVID-19 pandemic may have affected these data.
2. Paramedics were recategorised from ambulance support services staff to allied health professions on 1 April 2013 (point A).
3. On 31 December 2018, sterile services were recategorised from support services to healthcare sciences job family (point B).

WTE employment increased for all job families during the pandemic (Figure 1). From 31 March 2020 to 31 March 2022, the percentage increase varied from: 48.8% (1,277.4 WTE) in ambulance support services to 3.8% (76.2 WTE) in Medical & dental support.

During the first wave of the COVID-19 pandemic, ambulance support services WTE increased by 42.3% from 31 March 2020 to 3,723.4 WTE on 31 March 2021 in part to support the mobile testing units. Over the past year, the rate of increase fell to 4.6% with 3,893.5 WTE.

From 31 March 2020 to 31 March 2021, nursing and midwifery workforce WTE employment increased by 4.9%.

Between March and June 2020 there was an increase of just over 2,300 WTE nurses (Figure 1). These were largely nursing students in their second or third year who entered employment early to support the COVID-19 response. However, this number is likely to be an underestimate since there were some staff who were not employed onto both the **HR and Payroll systems** and are therefore excluded in these data.

The majority of the second-year nursing students returned to their normal studies at the end of August 2020 and account for the decrease in the nursing and midwifery workforce between June and September 2020. A second increase of around 2,000 WTE nurses is seen between September 2020 and March 2021 and reflects the additional employment arising from winter pressures and the vaccination programme (split between Adult and Public Health nursing). This second increase may also include some students who worked during the first wave of the pandemic but were not recorded on both the **HR and Payroll system** and hence were not visible in these data earlier.

The nursing and midwifery workforce increased by 2.3% from 31 March 2021 to 31 March 2022. Whilst this was at a slower annual rate that the previous year, it is still greater than the increase seen prior to the pandemic: 1.2% from 31 March 2019 to 31 March 2020.

Historically, approximately 500 WTE doctors join the NHS Scotland workforce in August each year when they graduate from university. In 2020 this inflow appeared earlier, between March and June, as doctors in the final year of university were employed early as part of the pandemic response. Over the past year, the inflow of medical students returned to pre-pandemic pattern, with the increase in medical staff showing between June and September 2021.

Between March 2015 and March 2019, Administration staff WTE remained relatively constant with a 1.3% increase to 25,475.5 WTE. The WTE began to rise to 26,120.4 WTE in March 2020. Since then, it has increased by 13.8% to 29,722.1 WTE. This will be in part to support the contact tracing and COVID-19 vaccination programmes.

Users can explore the changes in employment over time in detail in the **NHS Scotland workforce dashboard on the Turas Data Intelligence website**.

3.2. Vacancies

Vacancy rates help us to understand the demand and supply for labour in NHS Scotland. **The ONS** say high vacancy rates in the public sector could indicate that current staff have a larger workload to cope with staff shortages. High vacancy rates may be caused by low retention or challenges in recruiting new staff. Recruiting challenges could be because of wage competition, or from simply not wanting to work in the public sector.

On the other hand, a very low vacancy rate may suggest that there are few new staff and so occupations are missing out on new skills and ideas, which could limit workforce capacity building. However, having a low vacancy rate could also mean that the industry is very effective at filling vacancies.

A vacancy is a post which has been cleared for advert after being through the redeployment process (internal or external advert) and remains a vacancy until an individual starts in the post. These data are **collected by survey**. This means the reported vacancies include posts that are vacant due to staff leaving and the creation of new posts available due to the expansion of services. For example, the **Health and social care: winter overview 2021 to 2022 plan** sets out several aims to increase the workforce capacity through additional funding. Local intelligence has indicated that some of the increases in vacancies in areas such as Mental health nursing and District nursing are due to the additional funding available for these disciplines.

NHS boards provide information on the number of vacancies for medical and dental consultants, nursing and midwifery and allied health professions. Data provided for 31 March, 30 June and 31 December 2020 was disrupted due to COVID-19 pandemic.

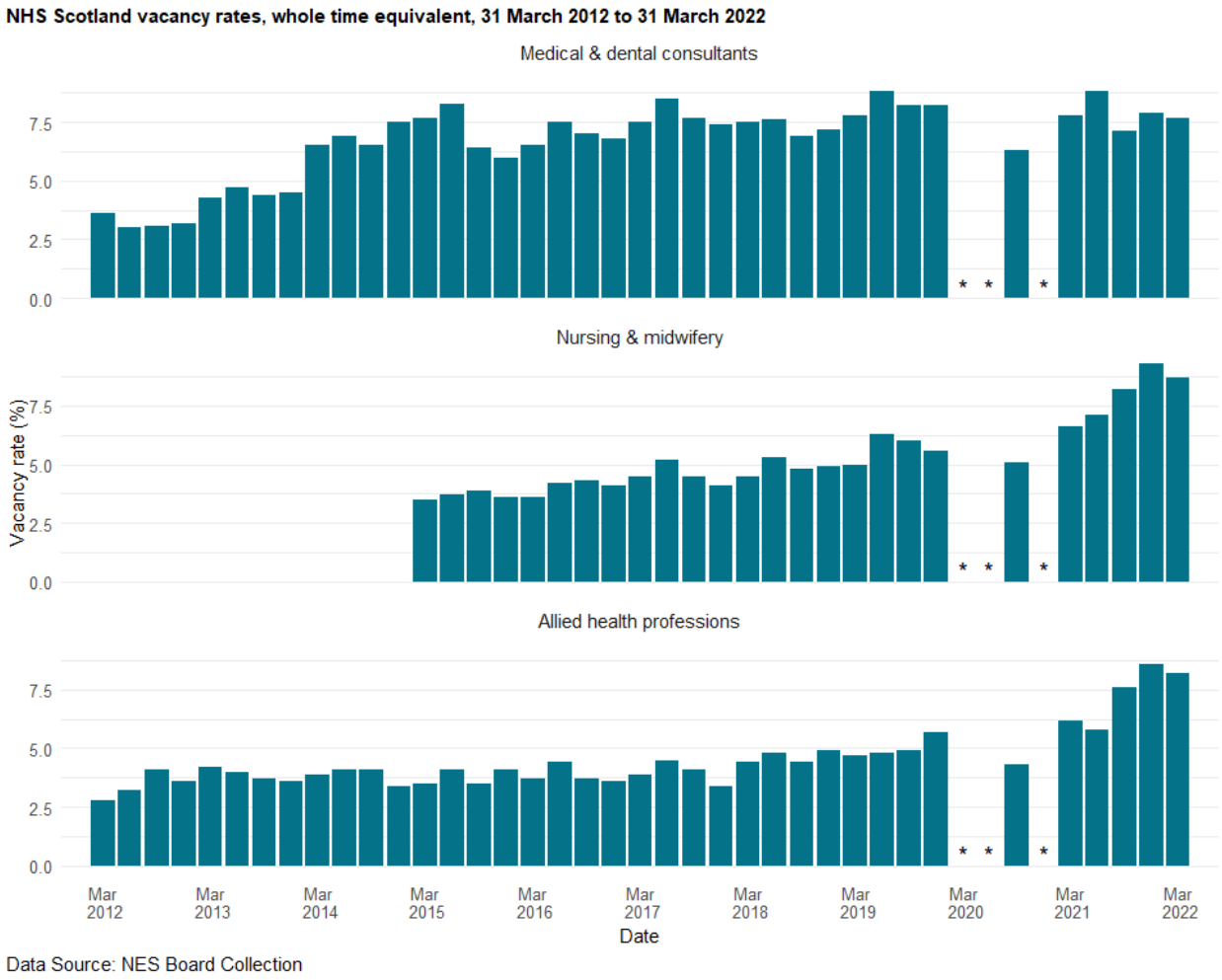
From 31 March 2021 to 31 March 2022, the number of vacant medical and dental consultant posts increased by 1.7% from 478.3 WTE to 486.7 WTE. However, the vacancy rate - which takes into account the changes in the number of employed staff - decreased by 0.1 percentage points to 7.7% (Figure 2).

The number of allied health professions vacancies has increased by 42.7% from 31 March 2021 to 1,157.2 WTE on 31 March 2022. The vacancy rate increased from 6.2% to 8.2% over the same period (Figure 2).

Similarly, the number of nursing and midwifery vacancies have increased over the past year by 38.1% from 4,494.4 WTE to 6,209 WTE on 31 March 2022. The vacancy rate increased from 6.6% to 8.7% over the same period (Figure 2).

A similar trend to the number of vacant posts in NHS Scotland can be seen in the recent **UK Labour Market Vacancy Survey**, which reports the seasonally adjusted vacancies for the UK, shows that prior to the pandemic the number of vacancies was increasing. The number drops markedly through the early part of the pandemic (March to June 2020), and then rapidly increases to its highest level over the past ten years.

Figure 2: The vacancy rate for medical and dental consultants, nursing and midwifery and allied health professions has been increasing



Data Source: NES Board Collection

Footnote:

1. For the dates marked with an asterisk (*) data provided are incomplete and we therefore have not calculated a Scotland value. For March, June, and December 2020 the provision of data was disrupted due to COVID-19 pandemic.
2. Nursing and midwifery staff the vacancy figures are shown from the community review (March 2015) onwards.

Users can explore changes in vacancies over time in detail in the **NHS Scotland workforce dashboard on the Turas Data Intelligence website**.

3.3. Age and sex profile

NHS Scotland uses the **six steps methodology to integrated workforce planning** to ensure we have the **right people in the right place at the right time** to deliver high quality care that meets the needs of Scotland's population. The demographic make-up of the workforce that is

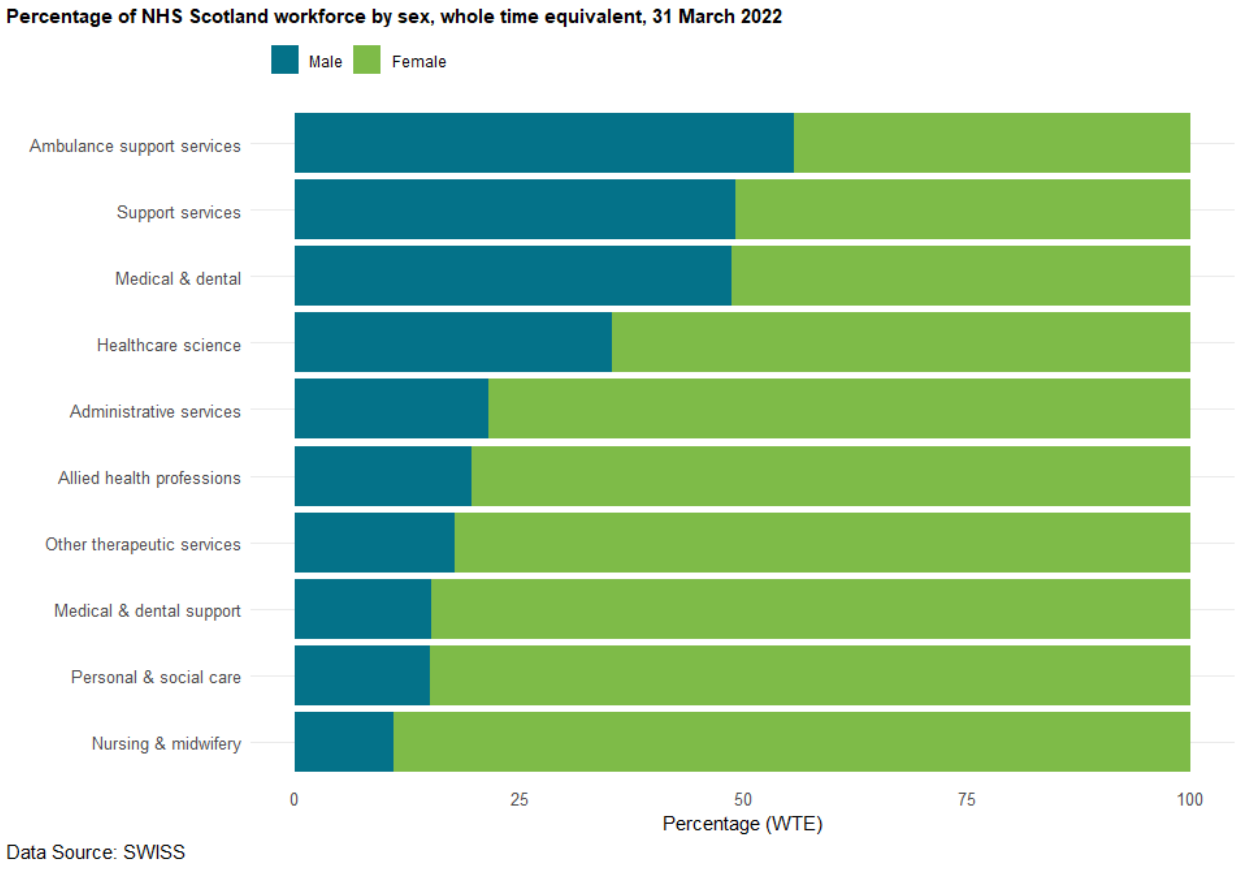
available is a key component of the methodology (step 4). For example, we can consider the different working patterns by age and sex; staff who are in the upper age bands and may be likely to retire within the next 10 years or so; and staff who are in the younger age bands indicates the inflow from newly qualified staff.

Comparing the number of females and males working for the NHS in Scotland with the **number of females and males employed (and aged 16-64) in Scotland** there is a large difference: 10.7% (142,953) of employed females work for the NHS compared with only 2.9% (38,770) of employed males.

Prior to the pandemic, the percentage of females steadily increased from 78.9% (121,736 WTE) on 31 March 2012 to 79.3% (132,494 WTE) on 31 March 2020. Over the past two years the percentage of the workforce that are female has fallen slightly to 78.7%.

There is much variation between different staff groups: 55.0% of staff in ambulance support services are male compared with only 10.1% of staff in nursing and midwifery (Figure 3).

Figure 3: The percentage of males in the workforce varies by job family



Data Source: SWISS

The age distribution varies between job families (Figure 4).

The median age of the workforce on 31 March 2022 was 45. This has changed little over the past 10 years.

Figure 4: The age distribution varies by job family

Data Source: SWISS

The percentage of the workforce aged 34 and under has increased from 22.8% (35,219 headcount) on 31 March 2012 to 26.9% (48,928 headcount) on 31 March 2022 (Figure 5).

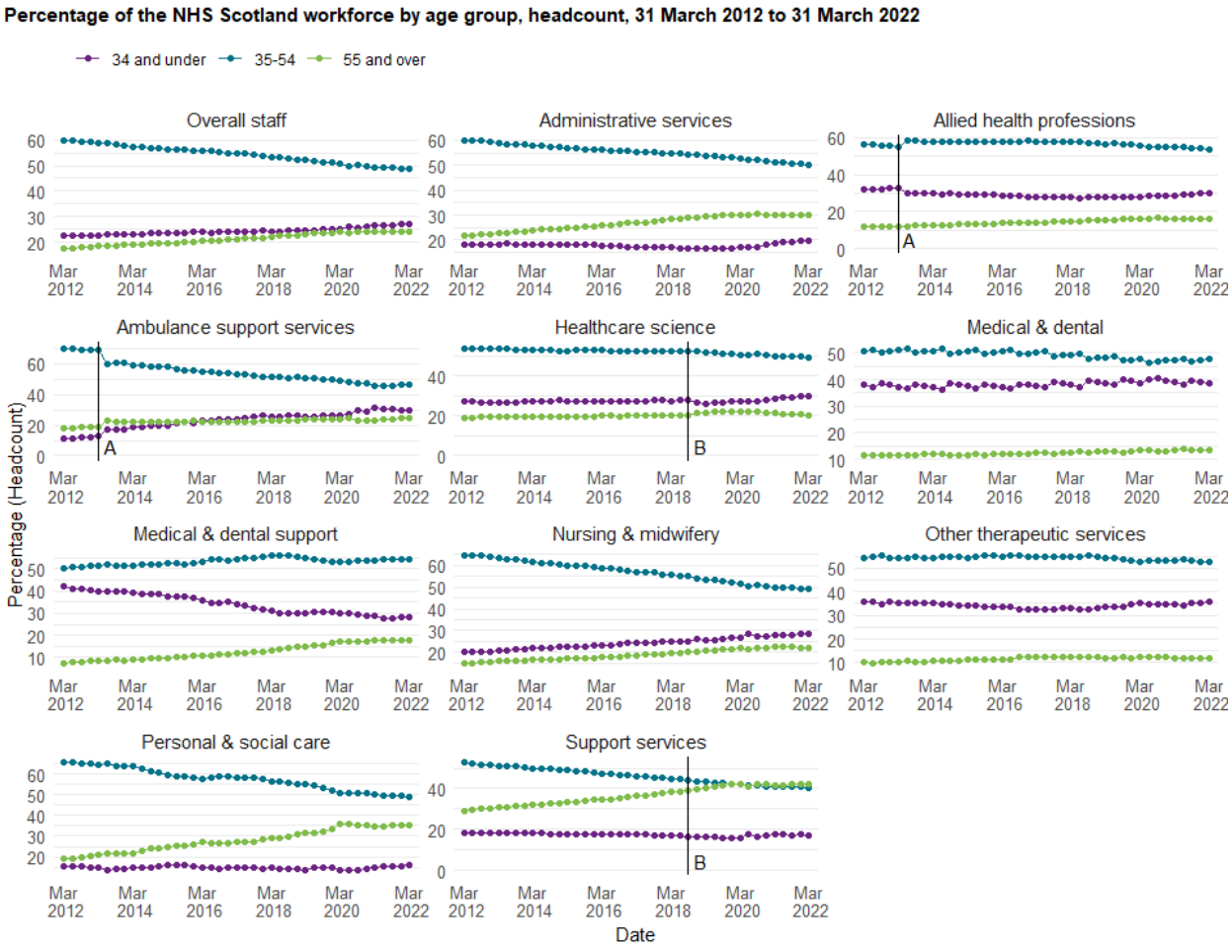
The number of staff aged 34 and under has increased in all except two job families (medical and dental support staff headcount decreased by 23.6% to 706, and support services decreased by 4.6% to 3,233). The largest increase was ambulance support services: the number of staff in this age group increased by 173.7% to 1,188 headcount (Figure 5; a recategorisation of paramedics from ambulance support services staff to allied health professions in 2013 caused a small increase in the number of staff aged 34 and under).

For example, on 31 March 2022, 13.6% of medical and dental staff were aged 55 and over compared with 42.3% of support services staff.

The percentage of the workforce aged 55 and over has increased from 17.5% on 31 March 2012 to 24.2 % on 31 March 2022. The percentage of staff in this age group has increased across each staff group (Figure 5).

The personal and social care workforce had the largest increase of 252.8% to 748 headcount.

Figure 5: The age distribution varies over time



Data Source: SWISS

Footnote:

1. Paramedics were recategorised from ambulance support services staff to allied health professions on 1 April 2013 (line marked A).
2. On 31 December 2018, sterile services were recategorised from support services to healthcare sciences job family (line marked B).

3.4. Part-time working

In Scotland, results from the **Labour Force Survey in Dec - Feb 2022** indicate that 38.1% of females and 13.7% of males employed are working part-time. The percentage of staff in the NHS Scotland workforce working part-time is slightly higher.

During the pandemic, the percentage of females working part-time decreased by 1.6 percentage points from 50.2% to 48.6%. Prior to this the figure had been stable (31 March 2012: 50.3% or 61,253 headcount).

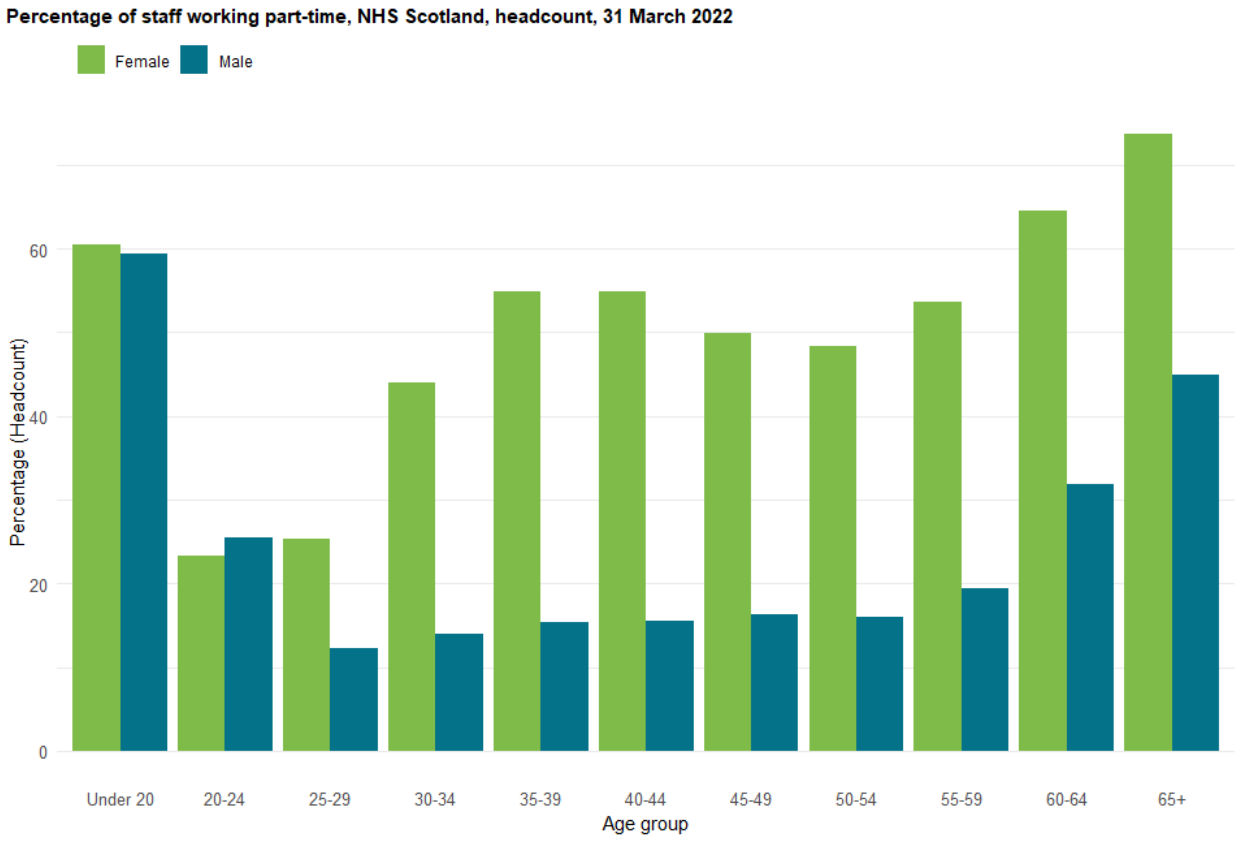
The percentage of males working part-time is lower than it is for females, although it has been increasing. It rose steadily between March 2012 to March 2020 by 2.2 percentage points to 17.8%. This increase accelerated over the past two years, rising to 18.7%.

Part-time working also varies by age groups (Figure 6). A high percentage of female and male staff work part-time if they are under 20. This may be because they are also in higher education.

Females are least likely to be working part-time in the 20 to 29 age groups. The proportion working part-time increases sharply as age increases with a slight dip in the 45 to 54 age groups before increasing again for females 55 and older.

There are a slightly higher proportion of males working part-time in the 20 to 24 age group compared with females. This is the only age group where this is the case. The proportion of males working part-time increases slightly between 25 to 59 age groups, then there is a large increase for males 60 and over.

Figure 6: The percentage of staff working part-time varies by sex and age

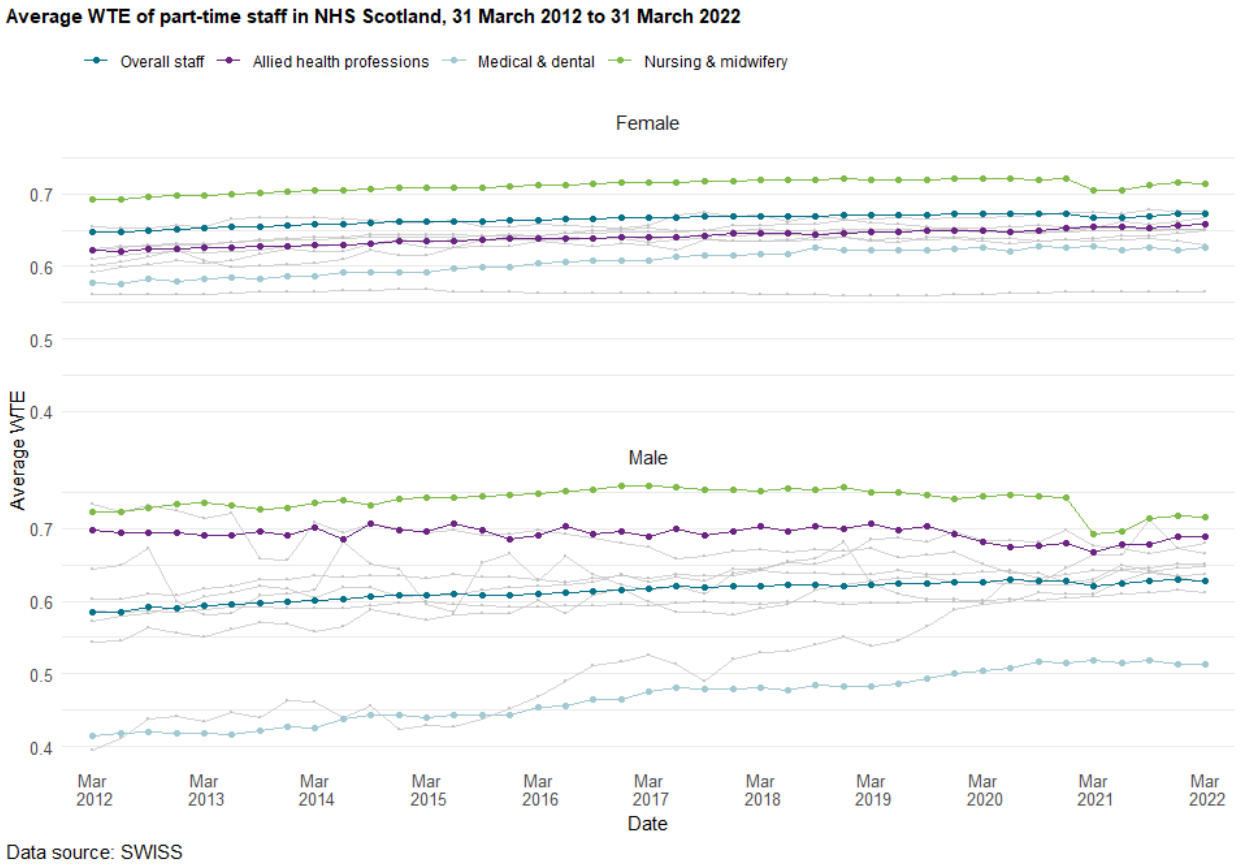


Data Source: SWISS

Whole Time Equivalent (WTE) - the number of contracted hours as a proportion of the conditioned hours for a given post - a way of measuring the size of the workforce taking part-time working into account. Examining average WTE over time, in those who work part-time, shows how part-time working has changed in NHS Scotland. Over the past decade the average WTE for people who work less than full time has increased for both females and males and between most staff groups (Figure 7). Assuming a weekly standard of 37.5 hours, the average WTE for females has increased from 0.65 to 0.67 which equates to an extra 1 hour a week. For males, the increase is slightly larger, from 0.59 to 0.63, roughly 1.6 hours.

There is much variation in average WTE between job families (Figure 7). Notably, there was a decrease in the average WTE between 31 December 2020 to 31 March 2021 for nursing and midwifery staff working part-time. This is due to a large number of part time fixed-term contracts that were employed over during this time. 2,510 headcount, 71.5% of the increase in staff between 31 December 2020 and 31 March 2021 were part-time fixed-term.

Figure 7: The average WTE for part-time staff has increased over the past decade for both female and male staff



Data source: SWISS

Footnote: The unlabelled data lines indicate the considerable variation in part-time working patterns between job families and over time.

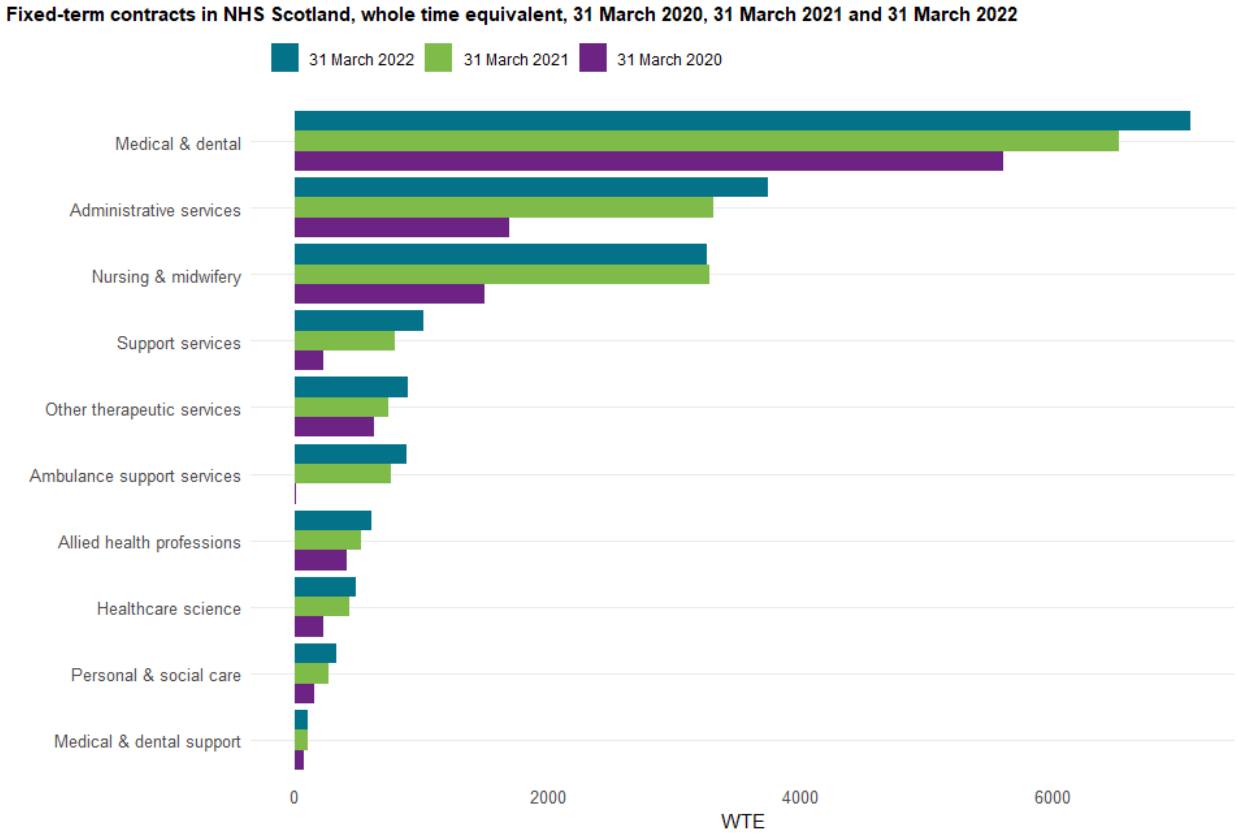
3.5. Fixed-term contracts

The increase in short-term demand for staff caused by the COVID-19 pandemic has been partly met by an increased use of fixed-term contracts.

Prior to the pandemic the number of staff on fixed-term contracts remained relatively stable at around 7% of total WTE. This increased to 11% (16,767.8 WTE) on 31 March 2021. On 31 March 2022, there were 11.7%, 18,432.7 WTE staff.

The number of staff on fixed-term contracts varies between job families (Figure 8). For some staff groups, it may be routine for their contracts to be fixed-term. For example, fixed-term contract in doctors in training account for 93.4% (5,780.6 WTE) of total staff employment. Other changes in the numbers of contract types may be related to the pandemic.

Figure 8: The WTE of people on fixed-term contracts has risen over the last three years, but this varies by job family



Data source: SWISS

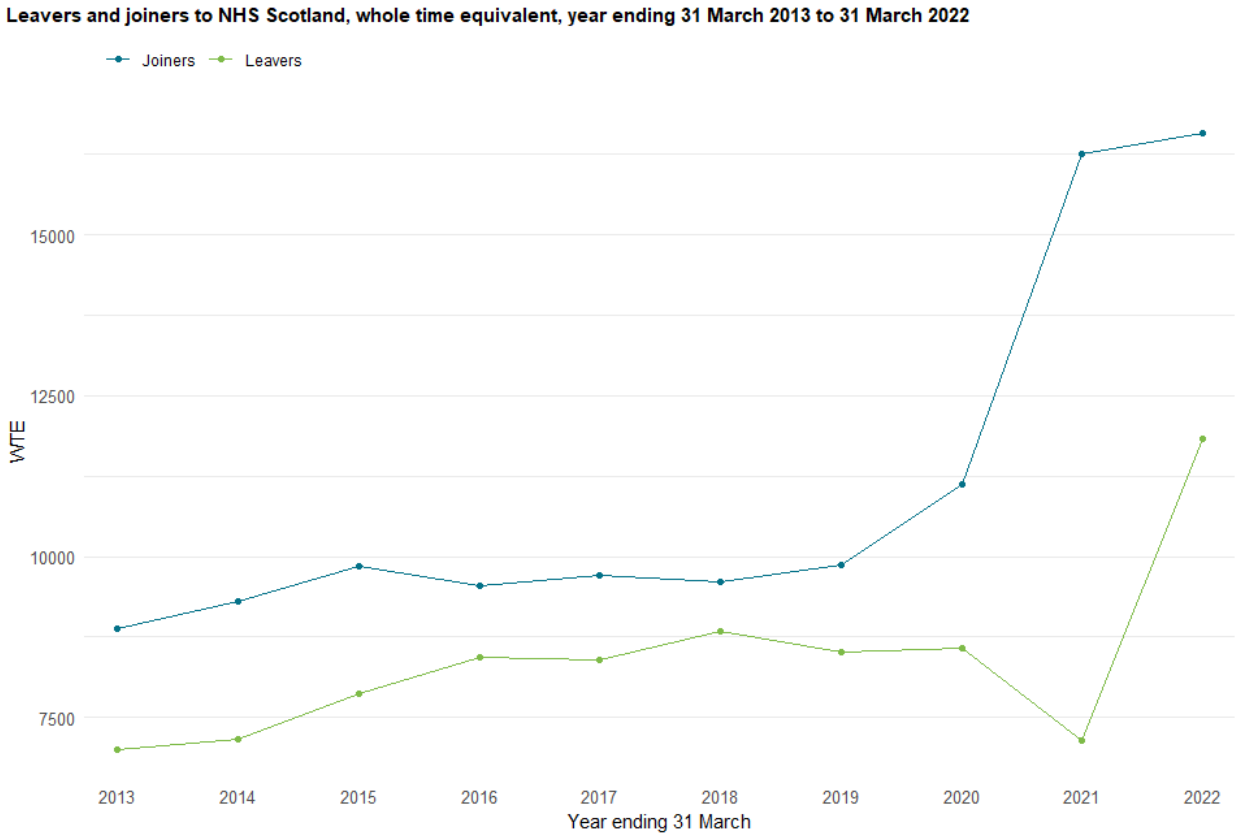
3.6. Turnover

High rates of staff **turnover** in an organisation can indicate a loss of organisational knowledge, increased costs in recruitment of new staff, and costs for induction and training.

After a period of stability, the inflow of WTE has increased over the last few years. This is particularly evident over the last two financial years with 16,250.7 WTE in the year ending 31 March 2021 and 16,580.3 in the year ending 31 March 2022. This is likely due to the **recruitment of staff to aid with the COVID-19 pandemic**.

The outflow from NHS Scotland was relatively stable between year ending 31 March 2016 to year ending 31 March 2020 with around 8,500 WTE staff leaving each financial year (range: 8,390.9 - 8,831.3, average: 8,547.9). In the year ending 31 March 2021, the number of leavers dropped to 7,138.7 WTE. In the year ending 31 March 2022, the number of leavers has increased by 65.8% to 11,838.4 WTE.

Figure 9: The number of joiners and leavers have increased significantly over the last financial year



Data source: SWISS

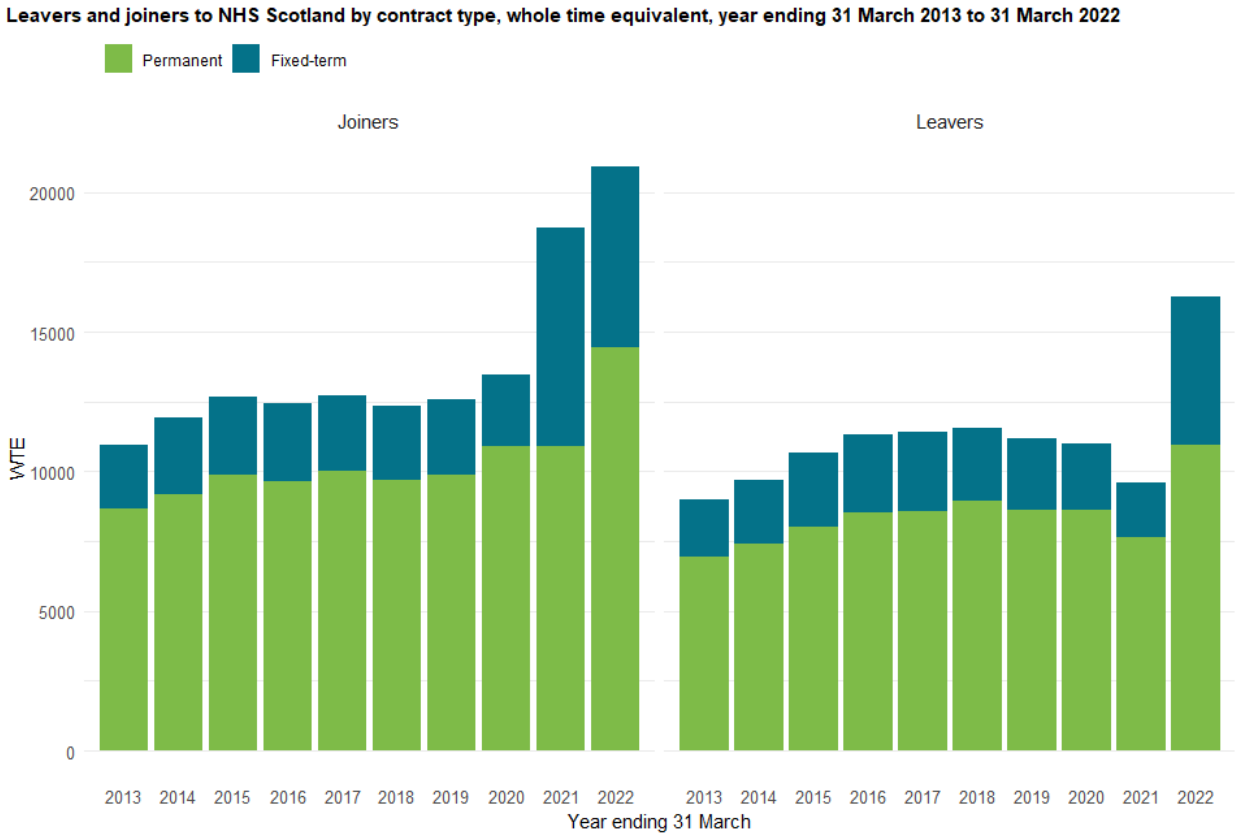
In the year ending 31 March 2022, there has been an increase in the number of staff joining on permanent contract types (14,424.6 WTE compared with 10,905.3 WTE the year previous), and a decrease in the number of staff joining on fixed-term contracts (6,514.6 WTE compared with 7,808.2 WTE the year previous).

The outflow of people on permanent and fixed-term contracts has increased over the past year. The number of leavers on permanent contracts has increased by 43.5% to 10,947.7 WTE and on fixed-term contracts by 167.9% to 5,300.8 WTE respectively in the year ending 31 March 2022 compared with the previous year.

Individuals who leave and start a post on a different contract type are captured as both a joiner and leaver (Figure 10). Individuals may initially start in the NHS on a fixed-term contract and go on to work in a permanent post. In the year ending 31 March 2022, 1,092.1 WTE started on a permanent contract that had previously been employed on a fixed-term contract. This figure has increased from 474.1 WTE in the previous year.

The number of leavers, which was at a historically low level between March 2020 and March 2021 has increased in the past year. This could be due to people who delayed leaving during the first part of the pandemic who have since left.

Figure 10: The number of joiners and leavers has increased over the last financial year for people on fixed-term and permanent contracts



Data source: SWISS

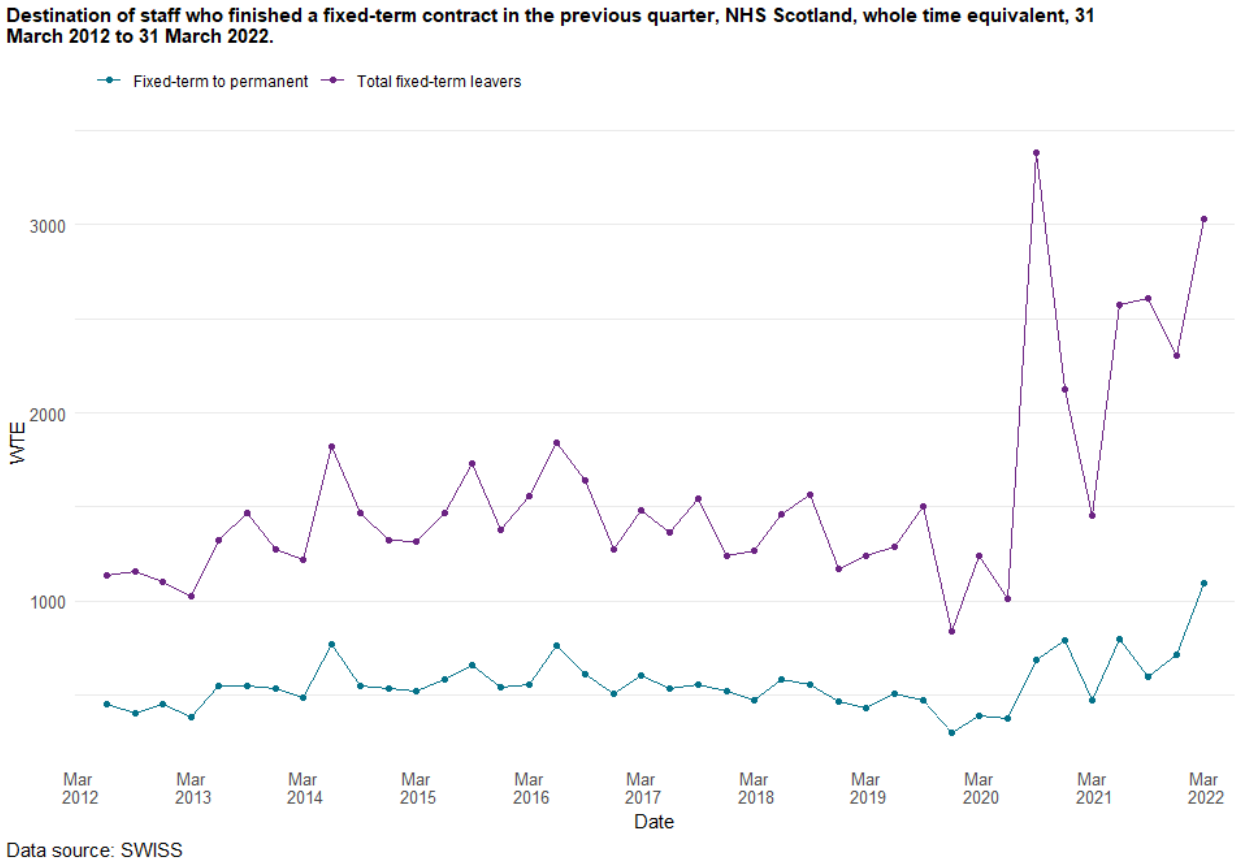
Examining the subsequent destinations of those who had a fixed-term contract may give some indication of future destinations of the current staff employed on a fixed-term contract. Do they join the workforce as permanent members of staff when their contract is over, or do they leave the NHS workforce.

We looked at the number of non-medical staff (doctors in training are employed on fixed-term contracts as they often move as part of their training) who only had a fixed-term contract. Prior to the pandemic, approximately 1500 WTE staff finished a fixed-term contract each quarter. Of these, approximately one third had a permanent contract the quarter following the end of their fixed-term contract. Fewer of the staff employed on fixed-term

contracts that have ended during the pandemic have moved into permanent positions, although this will be partially explained by the student nurses who were employed on short term fixed-term contracts as part of the COVID-19 pandemic response.

The current methodology only looks at those who are in permanent employment in the quarter following their fixed-term, some of these nurses will have taken up permanent employment in the subsequent quarters.

Figure 11: Whole time equivalent of people who move from a fixed-term to a permanent contract has remained relatively stable over the past 10 years



Data source: SWISS

Turnover rates can be explored in more detail in the **NHS Scotland workforce dashboard on the Turas Data Intelligence website**.

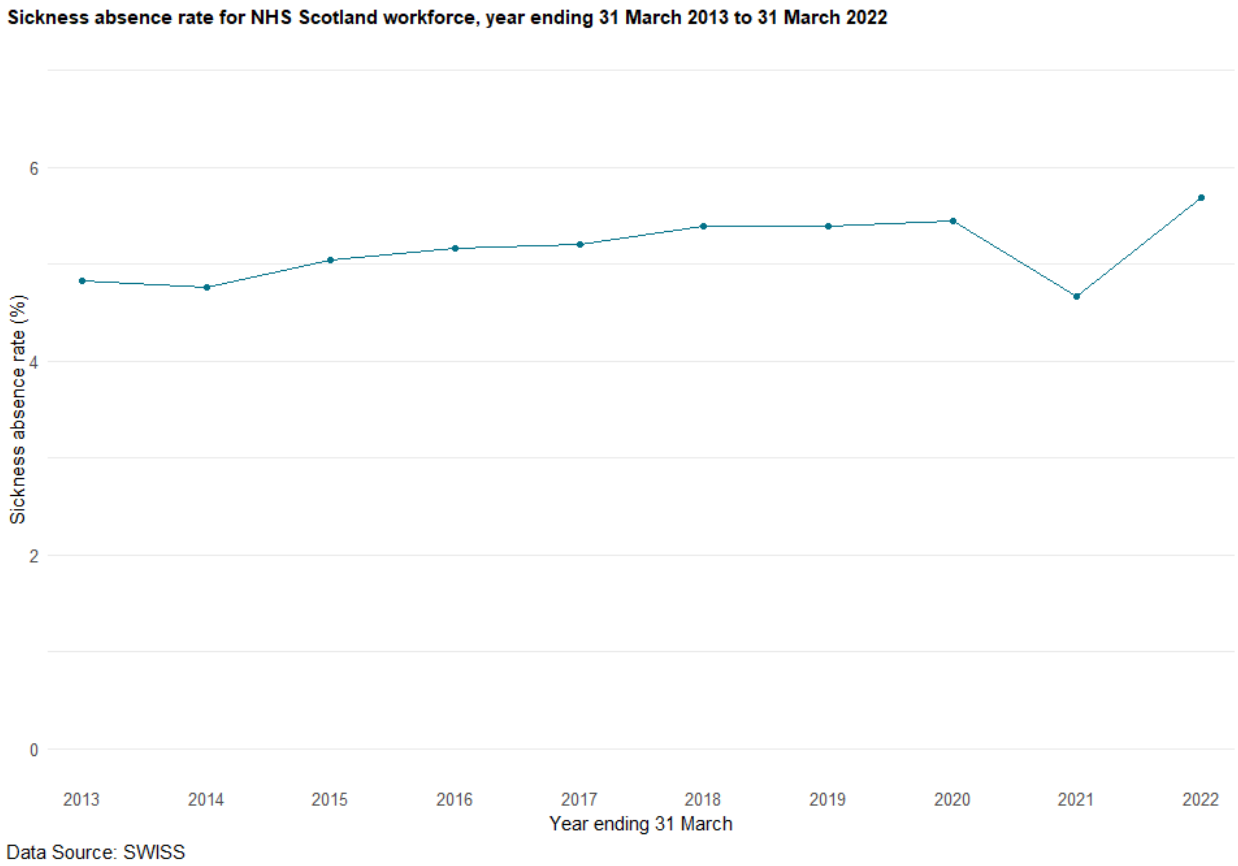
3.7. Sickness absence

Sickness absence in NHS Scotland can result in cancelled appointments and procedures and lead to increased spend on supplementary staff, such as medical locum and agency nurses. The Scottish Government set a **national standard** which required NHS Boards to achieve a sickness absence rate of 4.0% or less from 31 March 2009.

The sickness absence data reported here do not include any COVID-19 absences as this is captured in a different data source which we do not have full access too. Summary data are **published weekly**. Sickness absence includes absence types: normal sick leave, unpaid sick leave, industrial injury, accident involving a third party, and injury resulting from a crime of violence.

The **sickness absence rate** for NHS Scotland in the year ending 31 March 2022 has increased by 1 percentage point to 5.7%, the highest value over the last ten years.

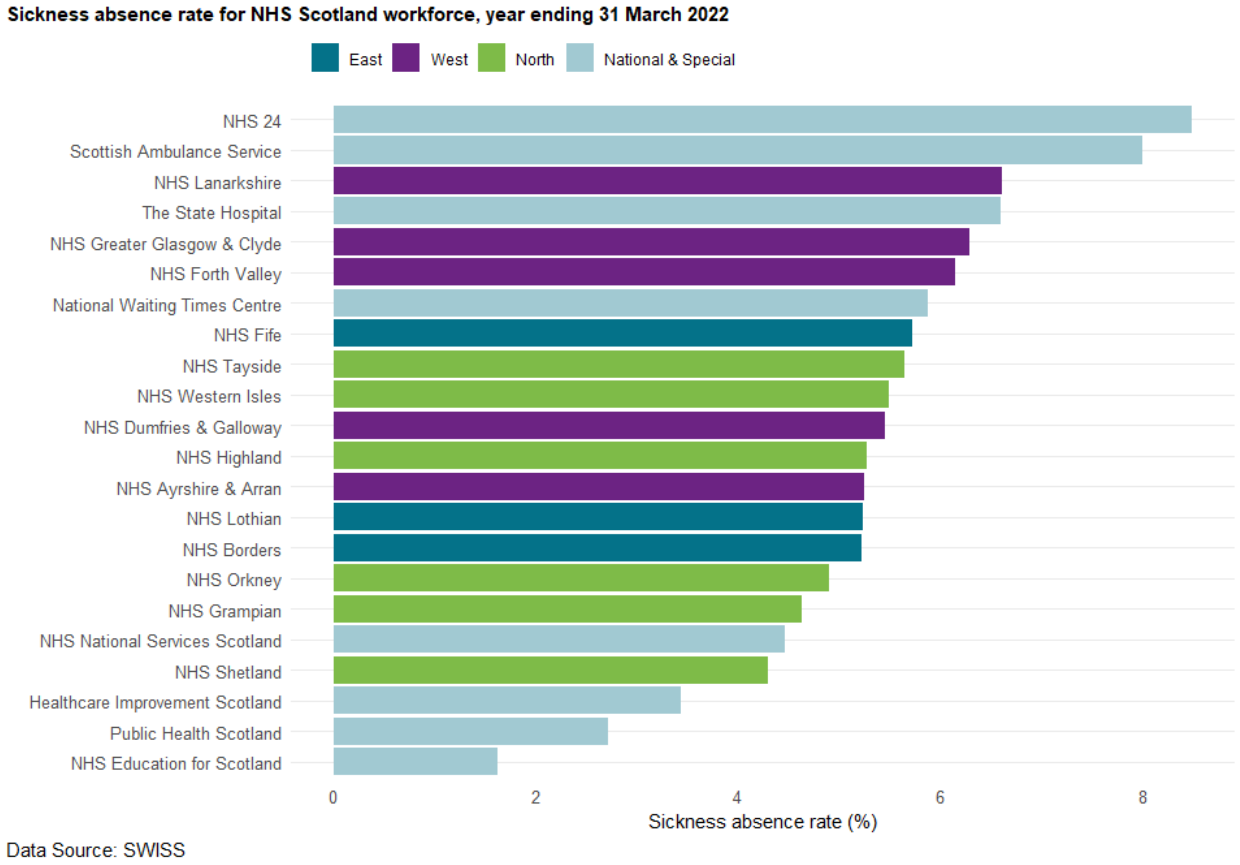
Figure 12: The sickness absence rate has increased to 5.7% over the year ending 31 March 2022



Data Source: SWISS

There is wide variation in sickness absence rates between Boards as shown in Figure 13. In the year ending 31 March 2022, all but one Board showed an increase in the sickness absence rate (NHS Orkney, 4.9%). The largest increase was in Scottish Ambulance Services where in the year ending 31 March 2022 increased by 2.5 percentage points to 8%. However, the highest sickness absence rate for the year ending 31 March 2022 was NHS 24 at 8.5%.

Figure 13: The sickness absence rate varies between NHS Boards



Data Source: SWISS

When COVID-19 was at its peak, it likely had an impact on the non COVID-19 sickness absence rate reported here for multiple reasons. For example, a **low level of seasonal respiratory illnesses** combined with the restrictions on movement, shielding and staff working from home where possible, will likely have reduced the rate of absence for the year ending 31 March 2021. Over the past year **restrictions in Scotland have been relaxed**. During this time, the sickness absence rate has increased and further work exploring the long-term mental and physical impact the pandemic may have on the workforce is required.

Users can explore the sickness absence data in the **NHS Scotland workforce dashboard on the Turas Data Intelligence website**.

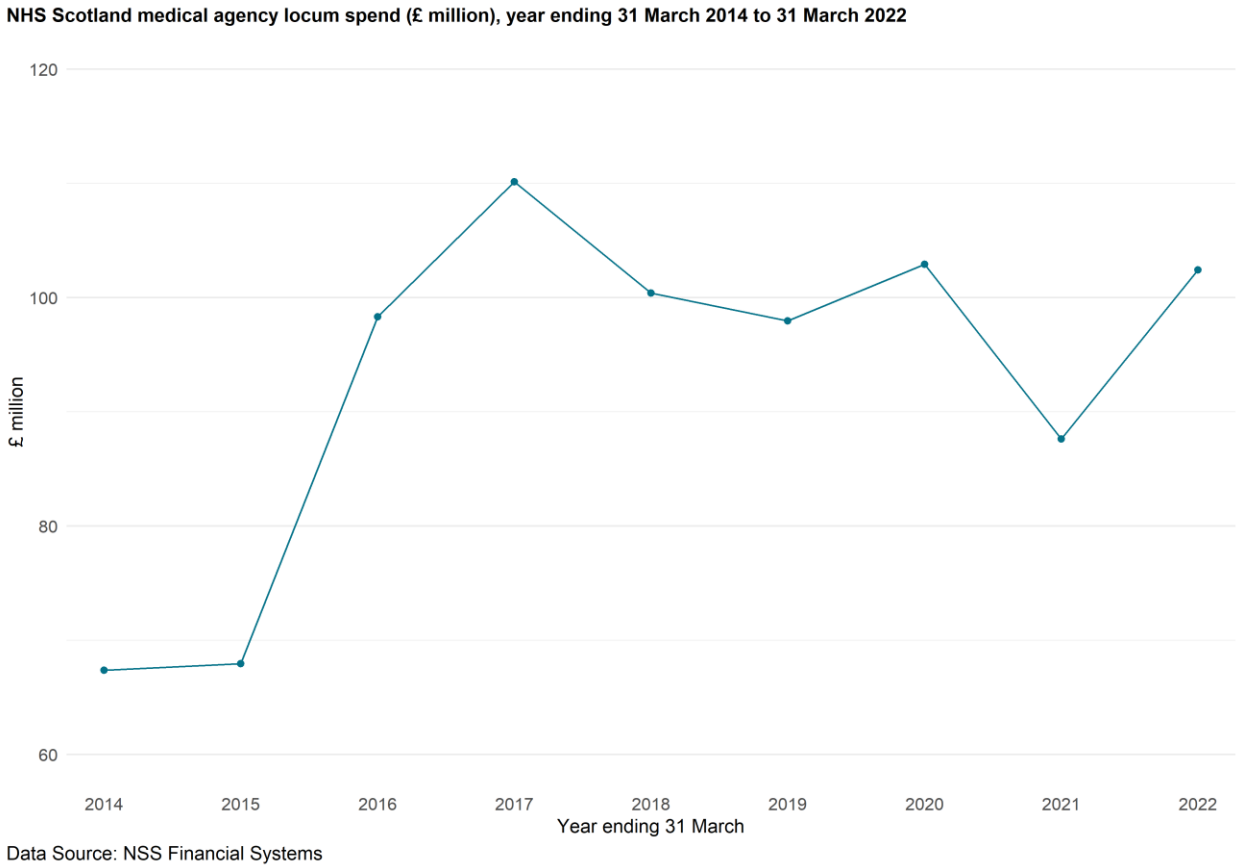
3.8. Medical agency and nursing bank and agency expenditure

Medical agency

Agency locum doctors and dentists are used by NHS Boards to support the workforce by providing additional temporary capacity. The annual spend on locums includes those who are hired through private agencies (and not locums who are directly employed by NHS Boards).

The national spend on agency locums has increased by 16.9% in the past year to £102.4 million (Figure 14).

Figure 14: The medical agency spend has increased over the past financial year

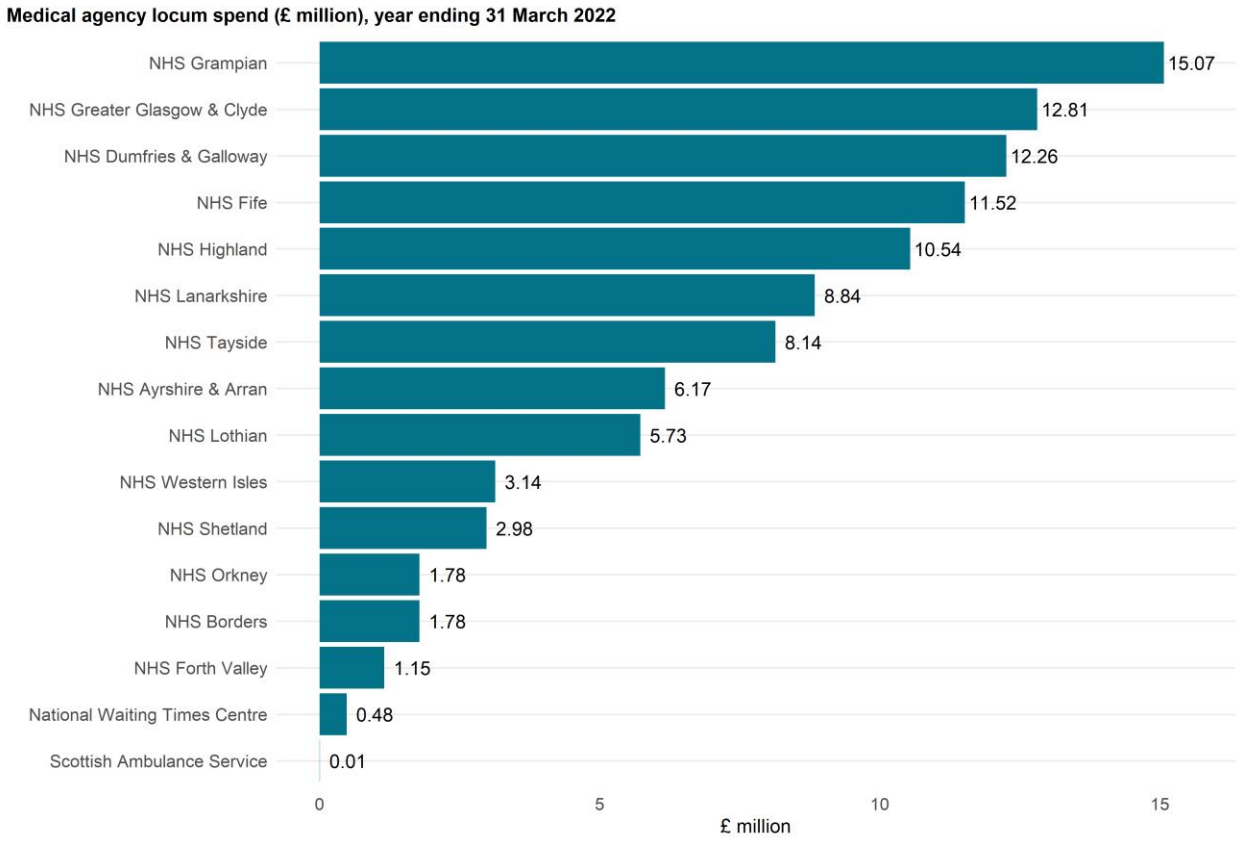


Data Source: NSS Financial Systems

There is an annual decrease for three NHS Boards for the year ending 31 March 2022 (Figure 15): NHS Forth Valley decreased by 31.4% to £1.2 million, NHS Orkney decreased by 27.7% to £1.8 million, and NHS Lanarkshire decreased by 17.9% to £8.8 million.

The remaining 13 NHS Boards who used medical locums had an annual increase in spend for the year ending 31 March 2022. The largest relative increase was NHS Western Isles with £3.1 million spend, an increase of 446.8%. NHS Grampian had the highest medical agency locum spend for the year ending 31 March 2022 with £15.1 million (an increase of 15.8%).

Figure 15: The medical agency spend varies by NHS Board over the last financial year



Data Source: NSS Financial Systems

Nursing bank and agency

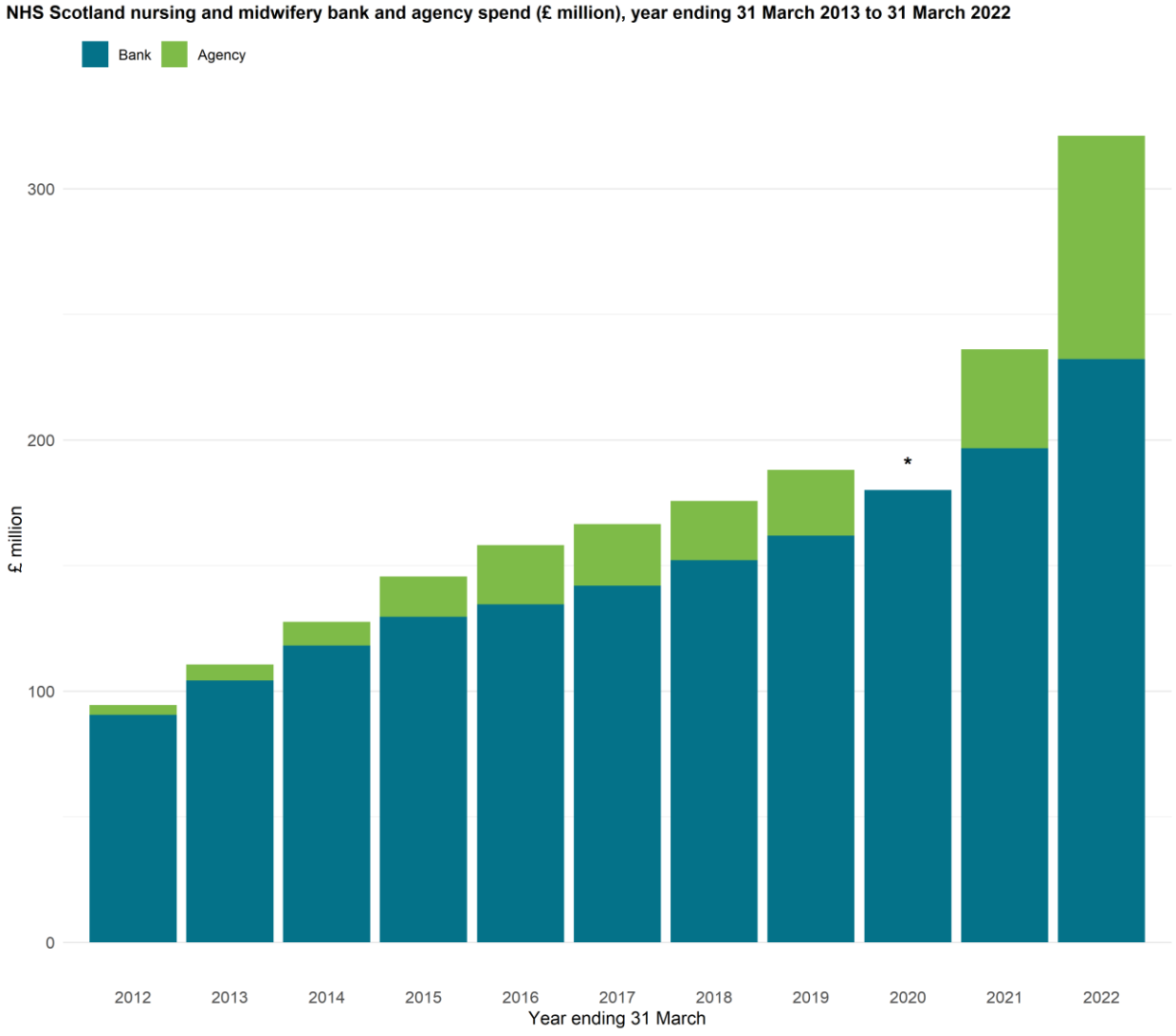
NHS Boards use supplementary staff to temporarily fill vacant posts, to cover sickness absence and maternity/paternity or annual leave, and to provide additional temporary

capacity. Bank staff are NHS employees while Agency staff are employed by private companies.

Bank staff figures for year ending 31 March 2022 show an increase for the tenth consecutive year (Figure 16). NHS Scotland spend on bank staff rose by 156.4% over the last decade to £232.2 million (a 18% increase on the 2020/21 spend).

Spend on agency staff increased by 126.2% over the past year to £88.9 million for the year ending 31 March 2022.

Figure 16: The nursing bank and agency spend has increased over time



Data Source: SWISS (Bank) and NES Board Collection (Agency)

Footnote: For the dates marked with an asterisk (*) data provided are incomplete and we therefore have not calculated a Scotland value.

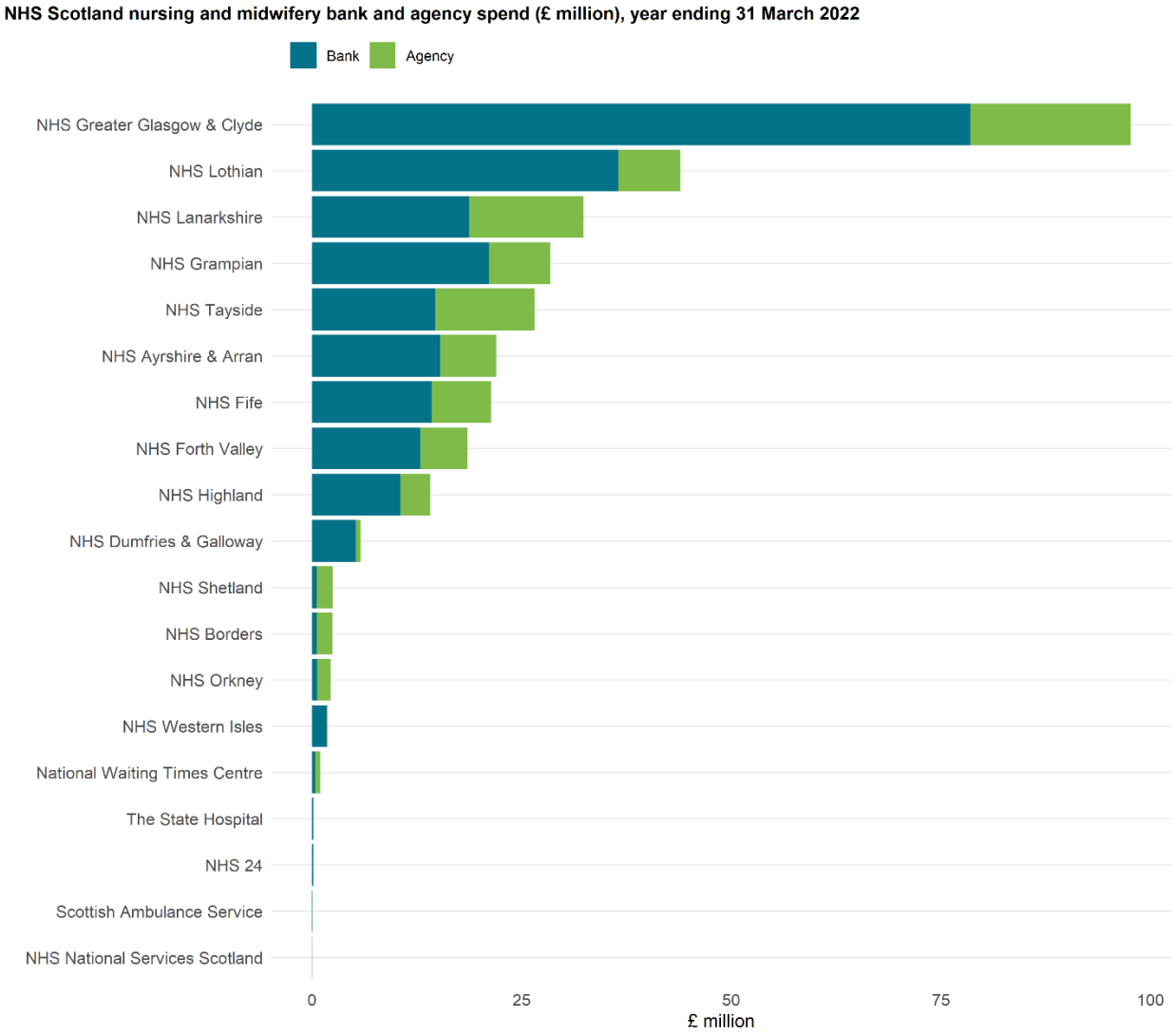
Expenditure on nursing and midwifery bank and agency staff varies between NHS Boards.

For the year ending 31 March 2022, approximately a third of the total spend on bank staff was in NHS Greater Glasgow & Clyde (£78.5 million, a 17.9% annual increase).

Of the 19 NHS Boards who used bank staff, two territorial NHS Boards had a decrease in spend compared with the previous year: NHS Borders decreased by 56.7% to £0.6 million, and NHS Orkney decreased by 15.5% to £0.6 million. NHS Western Isles had the largest relative annual increase for the year ending 31 March 2022 to £1.7 million (a 55.7% increase).

In the year ending 31 March 2022, 15 Boards used nursing and midwifery agency staff. Similar to the bank spend, the highest agency spend was in NHS Greater Glasgow & Clyde (£19.1 million, a 92.3% annual increase). NHS Dumfries & Galloway showed the largest relative annual increase of 645.2% to £0.5 million. NHS Western Isles was the only Board to record an annual decrease in agency spend for the year ending 31 March 2022 (30.5% to £0.1 million).

Figure 17: The nursing bank and agency spend varies between Board



Data Source: SWISS (Bank) and NES Board Collection (Agency)

Users can explore the bank and agency data in the **NHS Scotland workforce dashboard on the Turas Data Intelligence website**.

4. Special Reports

4.1. Using routinely collected information to provide one measure of the demand for qualified midwives

Introduction

The supply-and-demand model is a valid approach for workforce data analysis. A key element used to predict the future required midwifery workforce is the expected number of births for the coming years. The supply (workforce) and the demand (births) are directly correlated, and this connection might result crucial for workforce planning. The ratio between number of births and midwifery establishment for different census dates is the measure used to highlight the equilibrium points.

The Scottish Government recommends the six steps of workforce planning as a framework. Two of these steps are service demand and labour demand. For many health services the demand for services is difficult to measure. In midwifery a key determinant of the demand for services is the number of births. One measure of the demand for midwives is the establishment, which is the sum of employment, funded and filled posts, and vacancies, funded and filled posts. This paper examines the future demand for midwives by examining the relationship between the demand for midwives and births in the past, and by projecting the number of births.

National Records of Scotland (NRS) regularly publishes data and predictions about the Scottish population and vital events, including natality numbers and rates. On the other side, establishment (the sum of WTE employment and WTE vacancies) is sourced from **SWISS** and vacancy data is sourced from NHS Board returns.

Birth projections

Two main factors influence the future number of births in the population: the number of women aged 15-46 and their fertility rate. The number of women in reproductive years is a subgroup of the entire population and - hence - it follows the same rules in calculating its own projection. A population projection is calculated based on mortality rate by sex and single year of age, net migration (local or international migration) by sex and single year of age and total fertility rate by age for women in reproductive years.

The latest available rates have been used and keep them constant to predict the number of women aged 15-46 in the period 2021-2030. General rates and mid-year population estimate

for 2020 Scottish population have been published by **Office for National Statistics (ONS)**, while the latest **mid-year population estimates** and **birth rates** by NHS Board have been published by NRS for 2018 data. The population projections by NHS Board as at mid-year 2020 were used as a base.

Three different factors affect the population projection:

Mortality rate: Scottish general mortality rate by single year of age and sex for 2020 has been used for all the council areas since there are no published data by council area for this element and the rates for women aged 15-46 are very low.

Net migration: Absolute net migration values by single year of age for mid-year 2020 of the NRS 2018-based population projections have been used for each council area since there are detailed data by age and sex for emigration and immigration flows and rates only for the general Scottish population.

Fertility rate: Scottish general fertility rate by single year of age (of the mother) and grouped by 5-years age are available for 2020, while the fertility rates by council area are only available for the 5-years age groups for the same year. For these reasons, the fertility rate by single age for each council area has been calculated as follows:

$$Y_{X,ZW} = \frac{Y_{XW}}{Y_{Scotland,W}} * Y_{Scotland,ZW}$$

where

Y = Fertility rate

X = Council Area

W = age group of the mother (15-19, 20-24, 25-29, 30-34, 35-39, 40-46)

ZW = Single age of the mother in a specific age group

For example, the fertility rate for women aged 23 in NHS Highland can be calculated using the following formula i.e.

$$Y_{Highland,23} = \frac{Y_{Highland,20-24}}{Y_{Scotland,20-24}} * Y_{Scotland,23}$$

The population projections by NHS Board, single year of age and sex have been built year by year for the period 2021-2030 based on the latest population estimates (mid-year 2020) and the three elements and respective assumptions described above.

Birth projections

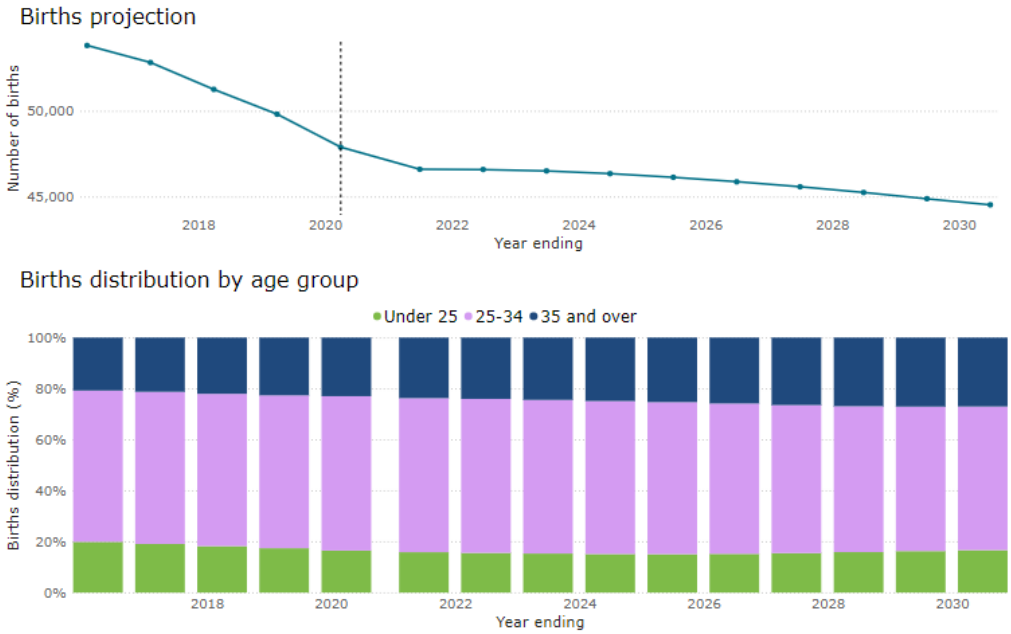
The number of births by council area have already been calculated for the population projections and they refer to the fertility rate assumption. It is a common practice to use a coefficient of 0.4878 for females and 0.5122 for males to split the number of births by sex.

Projected method of delivery

Public Health Scotland (PHS) publishes **number of births by method of delivery**, council area, age group and financial year. These have been linked to the birth projections using for the entire period 2021-2030 the proportion of number of births by age group and method of delivery for each council area for the financial year 2020/21. Since PHS uses larger age groups (under 25, 25-34 and 35 and over) than those used to determine the fertility rate by council area, the birth projections by age group have been adequate to the same groups used by PHS.

PHS data are extracted from the Scottish Morbidity Record (SMR02) which has a 98.5% completeness compared to the NRS data. To account for this, the estimated number of births have been rebalanced with a stable factor of 100/98.5 for the period 2016-2020.

Figure 1. Births projection and births distribution by age group for the period 2016-2030 for Scotland.

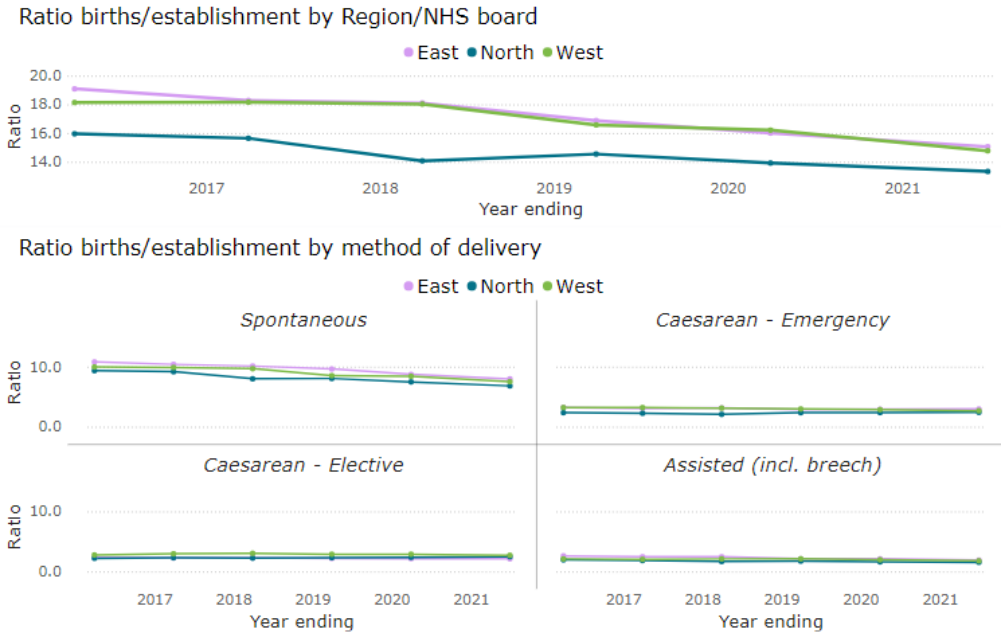


Births to midwifery establishment ratio

The ratio compares the estimated number of births per financial year with the establishment as at 31 March of each year for the period 2016-2020. It estimates how many pregnancies ended with a live birth have been followed from each midwife on average by year.

These figures were split down by region and council area to give further details on the geographical distribution and method of delivery since some methods require more worktime (i.e. screenings, appointments etc.) or different skills for the midwifery workforce than other methods. Please see Figure 2. for the births to midwifery establishment ratio by year, region, and method of delivery.

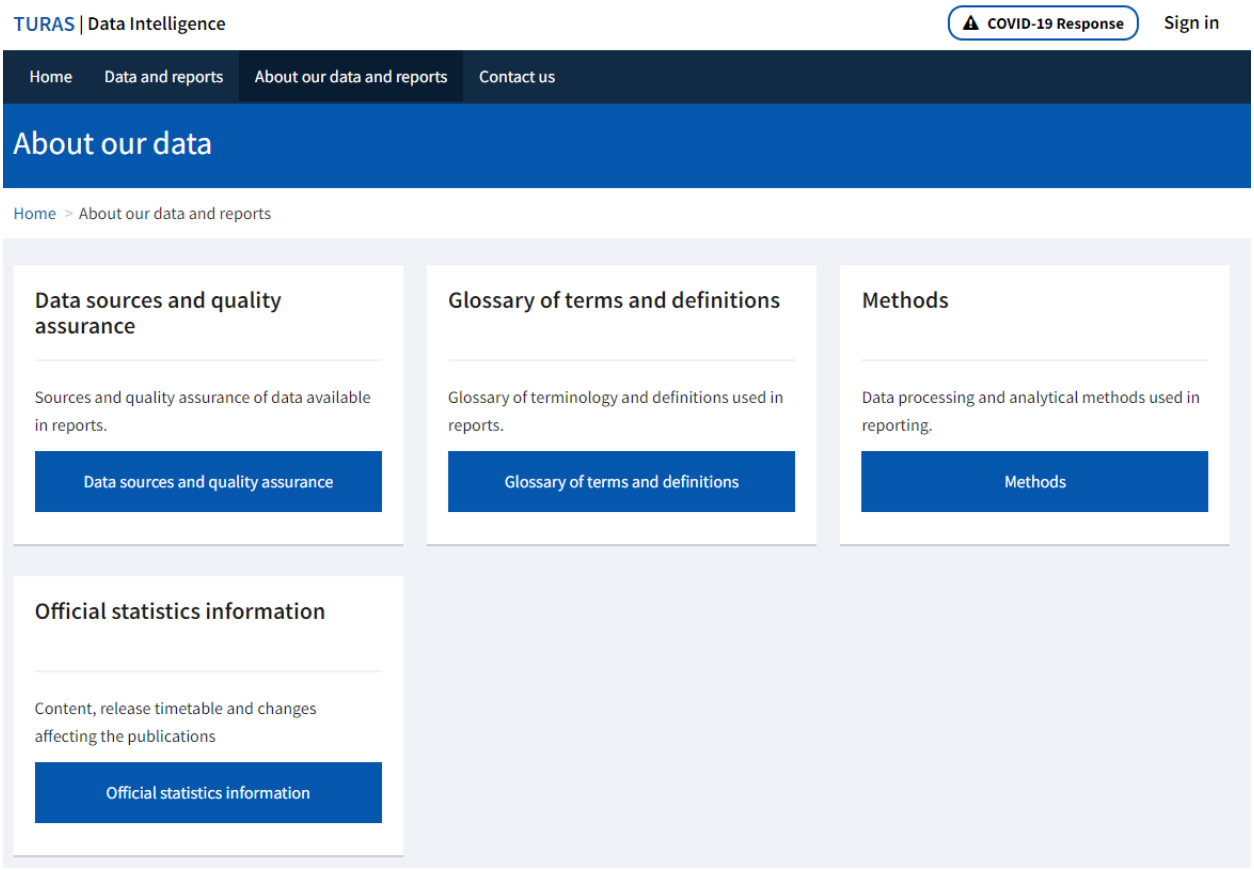
Figure 2. Births to establishment ratio by year, region, and method of delivery for the period 2016-2021.



While there may be several other determinants of the **demand for qualified midwives** this special report has shown how routinely collected population, employment and vacancy data can be used to develop the evidence base for workforce planners

Appendix 1: About our data

NES publishes a wide range of data and information on **Turas Data Intelligence (TDI)**, Scotland's official source of information on the NHS workforce. In addition to using our **Report catalogue** to help you navigate content on TDI, you will find information on all our data sources, our data quality assurance processes, and our statistical methods in our **About our Data and Reports** pages.



Data sources

The employment and training data published by NES are derived from a number of different sources. A brief overview of the data sources used in official statistics publications is available on our **Data sources and quality assurance** page, with more detailed information on specific data sources available in linked sub-pages, for example, **Vacancy surveys** and the **Scottish Workforce Information Standard System**.

The main source of workforce statistics is the **Scottish Workforce Information Standard System (SWISS)**. SWISS brings together HR and Payroll information into a single data repository.

The national HR system is the **Electronic Employee Support System (e:ESS)**.

From 30 September 2018, the employment model for Doctors in Training (DiTs) changed to a Lead Employer model, with a small number of Boards directly employing all DiTs. An implication of this for workforce reporting was that DiTs' Board of Placement, as opposed to Board of Employment, was not stored in SWISS and had to be sourced from a different system, Turas People (maintained by NHS Education for Scotland). For doctors in training, SWISS is merged with Turas People.

From 30 September 2018, staff on Locum Appointment in Training (LAT) and Locum Appointment in Service (LAS) grades were included in the NHS Scotland medical workforce figures for the first time. This change impacts trend figures for the doctor in training grade (staff on a LAT grade) and the other grade (staff on a LAS grade).

Further information on current data sources and collections can be found on the **Turas Data Intelligence Data sources and quality assurance**.

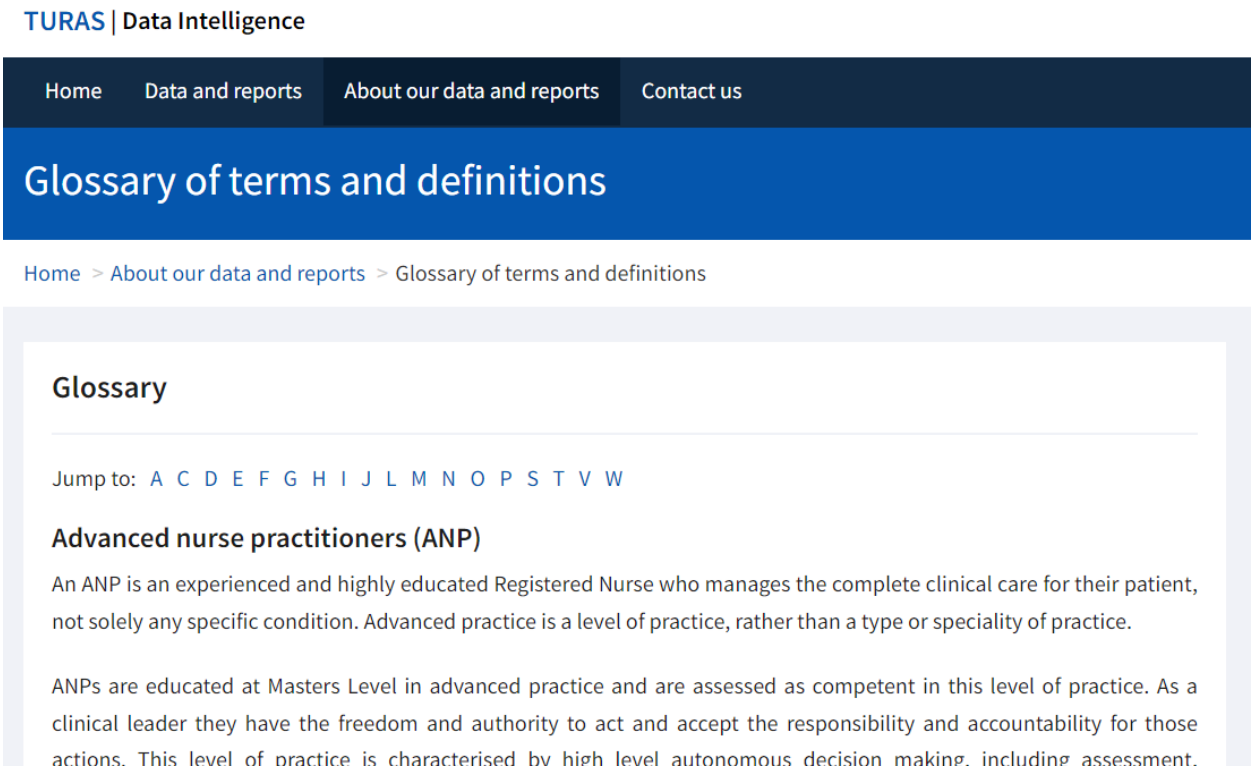
Glossary of terms and definitions

We publish an **A-Z listing** of important terms to help our users understand and interpret our statistics. Many of these definitions include signposts to more detailed information or related topics elsewhere on TDI.

Data processing and analytical methods

The **methods pages** on TDI describe the methods for processing and analysing the data behind the statistics reported in our dashboards, reports, and summaries. Here you will find information on how we source and merge data on **Doctors in Training** with the SWISS employment data, how we compile data on the **Dental workforce** from different sources, and how we calculate **staff turnover** and **sickness absence rates**.

Vacancy reporting



Vacancies are defined as posts that have been cleared for advert after being through the redeployment process (internal or external advert) and remain as a vacancy until an individual starts in the post.

The number of vacancies is a measure of how many posts are being recruited to. Figures may reflect a variety of circumstances within a Board such as a gap in staffing or growth of services in which new staff are being recruited to. However, note that a post marked as a vacancy may still be occupied by the previous incumbent and so also included within the staff in post figure. In contrast, some NHS Boards may not recruit where the post is currently being covered by a locum.

Job Train is the new national job recruitment system all NHS boards in Scotland now use. All NHS Boards were using the system by 9th December 2019.

Net turnover

The methodology for turnover was revised in 2016 and historical figures were refreshed accordingly. At a NHS Scotland level:

- Leavers are defined as employees who were employed as at 31 March year n-1 and not in post at 31 March year n.
- Joiners are defined as employees who are employed as at 31 March year n and were not in post at 31 March year n-1.
- Turnover is calculated as the number of leavers divided by staff employed as at 31 March year n-1.

Net turnover is the rate at which employees leave the workforce and is calculated by dividing the number of net leavers over the year by the staff employed at the start of the period. The term 'net' is employed as the methodology does not account for staff who leave and join (or vice-versa) within the two census points.

More detail on the turnover calculation is available on **TDI**.

Sickness absence rate

Sickness absence is defined as an absence belonging to one of the following groups: normal sick leave, unpaid sick leave, industrial injury, accident involving a third party, and injury resulting from a crime of violence. The NES Data Group extract these data from SWISS by which is fed from Scottish Standard Time System (SSTS). SSTS records all time and attendance information, but only sickness absence data flows to SWISS.

COVID-19 absences data are recorded as "special leave" (so it does not affect pay) which does not flow to SWISS, and we are therefore not currently able to extract these data.

The sickness absence data is for all staff directly employed by NHS Scotland. For Information Governance reasons, these data have not been through the same processing as the staff reported. Therefore, the staff included in these data might be slightly different compared with the employment data. For example, any doctors in training will be included in the Board as recorded in SWISS (Board of Employment).

Sickness absence rate is the working hours lost divided by total contracted hours, where: * the working hours lost is the days lost, multiplied by weekly contracted hours, and divided by 5 (days - a working week); and * the total contracted hours is the weekly contracted hours multiplied by 52.179.

More detail on the sickness absence calculation is available on **TDI**.

Data quality

NHS Board data sources

Workforce information is sourced from each NHS Board's HR and payroll systems. These are live, operational systems in which data can and does change over time. It is recognised that the published information does not always reflect the data used at local and regional level when Boards are engaged in planning and reporting on the workforce. Accuracy of data coding is crucial to the quality and credibility of the data, and NES works to minimise data inaccuracies arising from local differences in practice. However, responsibility for data accuracy lies with the NHS Boards providing the data.

The NES Data group work with Boards throughout the year to improve data quality. Published information may change over time to reflect these improvements. e:ESS was introduced across NHS Scotland in phases. When NHS Boards migrated their data to e:ESS, this affected data on location of service delivery, medical grade, and medical specialty. Changes have been seen in these as Boards review their data as part of the migration process.

Public Health Scotland was formed on 1 April 2020. This Special NHS Board was formed of staff and functions previously based in NHS Health Scotland and NHS National Services Scotland (NSS). Changes to staff numbers in these organisations can be seen in the data from the 30 June 2020 census date.

Review into location of service delivery and country of qualification data

We have completed a review into the Location of Service Delivery (LoSD) and Country of Qualification data in the NHS Scotland Workforce publication to ensure it meets the Official Statistics standard. This means checking the Trustworthiness, Quality and Value as outlined in the **Code of Practice for Statistics**. Following engagement with our data providers and users we have taken the following action from August 2021.

In its current state, LoSD has reduced value to our users because of the quality of data. However, reporting grouped location data would be of value to many users if it can be robust.

Whilst a further assessment is assessment is undertaken, we will continue to publish LoSD with a note identifying that it is under review.

Responses from data providers highlighted that there are two places which CoQ can be sourced: (i) the professional body section in eESS and (ii) the GMC interface. The first is currently used to report the data. Respondents overwhelmingly do not use CoQ data from this source for reporting or analysis because there is no business need. Therefore, these data have not been reported as part of the NHS Scotland workforce official statistics publication from the December 2021 release. We will continue to monitor information requests which could be answered using these data.

A full report is available on **TDI**.

Challenges of COVID-19 for NHS Scotland workforce data

Throughout 2020 there have been significant challenges in collecting data on the workforce as it adapted and grew. As Doctors in Training were moved from their main specialty training programme to areas that were more focused on treating patients with COVID-19, often the field used to categorise their specialty was updated to a Not Known, causing a large increase in this category and decreases in others. As the year as gone on, many of these doctors have returned to their main specialty training programme.

In the early stages of the pandemic, a process known as COVID Accelerated Recruitment Programme (CARP) sent out an appeal for anyone with medical, nursing, or other relevant experience to provide their details and if appropriate they would be recruited. In addition to the members of the public, nurses and medical students in their final year were also recruited as nurses and doctors, and nursing students in their second year were employed as health care assistants. Due to the speed of this process, some of the larger boards did not add these students to their HR systems, and only recorded them on their payroll systems. Due to the way NES combines data from these systems, an individual must have records in both to be included in our employment data.

Many of the final-year students will have taken up permanent employment in August when they were due to graduate and will have been included in subsequent employment figures.

The members of the public that were recruited were often employed as bank staff which are also not included in our employment figures. These two factors mean that our employment figures are likely an underestimate of the actual workforce over the past year.

There are additional data we report that are collected using bespoke data collection systems, such as vacancies and nursing agency data which are collected using a manual survey completed by the NHS Boards. As this requires some manual input from the boards when they had many other pressures, some NHS Boards indicated that they would not be in a position to supply these data for 31 March, 30 June, and 31 December 2020 census. The NHS Boards that could not supply the data are noted in the notes sections of the **excel tables and dashboards on Turas Data Intelligence**.

Community nursing review

A review of community nursing staff data, including district nurses and health visitors, was undertaken in 2014/15 to ensure the availability of more accurate and consistent data reporting for these staff groups. The main section of the review is now complete and workforce information for these staff groups is now available in a separate table. Please see the relevant nursing and midwifery tables for further information.

Health and social care integration

NHS Highland and Highland Council are currently developing an integrated model for health and social care. Staff involved in the delivery of core integrated services started to transfer from Highland Council to NHS Highland in June 2012. Staff that have already transferred into NHS Highland but have not yet been assimilated to AfC are currently recorded as unallocated / not known.

A proportion of NHS Highland's health visitors are employed by Highland council and not by the Board and are therefore not included in the health visitor figures for the Board and, by extension, for NHS Scotland.

Appendix 2: Official statistics information

These pages provide information to explain and support our role as a provider of Official Statistics. As a provider, we adhere to the **Code of Practice for Statistics** and are regulated by the **Office for Statistics Regulation**. In this section you will find more information on the **Code of Practice**, our protocols for **Early and Pre-release Access** to our publications, reports

on **events impacting our publications**, our **publication timetable**, and information on how and when we **receive data from our data suppliers**.

Early release for quality assurance and management information

Publication outputs are released to key stakeholders in NHS Boards HR and Workforce directorates ahead of their release to the public. This early release occurs two weeks before the public release of the data and is to support quality assurance. Outputs are made available to a restricted list of people via Turas Data Intelligence (TDI). This list is verified a week before Early Release goes live.

NES works with data providers at NHS Boards prior to this point to understand any data quality issues or significant changes in figures. Therefore, it is unlikely that any unknown issues would arise during the Early Release period. Since NES have been responsible for the official statistics publications (December 2019), there have been no issues reported via Early Release. If a data quality issue were to be made known to NES, we would work with the NHS Board to annotate this within the publication output if it were not possible to update the figures.

We also make data available to named contacts in Scottish Government for management information purposes only and under strict embargo ahead of the publication's release.

Pre-release access to official statistics

Early access details Pre-Release Access Under terms of the "Pre-Release Access to Official Statistics (Scotland) Order 2008", NES is obliged to publish information on those receiving Pre-Release Access ("Pre-Release Access" refers to statistics in their final form prior to publication). The standard maximum Pre-Release Access is five working days.

Named individuals in the following organisations are approved to receive standard Pre-Release Access:

- Scottish Government Health & Social Care Directorate
- NHS Board Chief Executives
- NHS Board Communication leads