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Factors Affecting Agency and Overtime Expenditure in the Irish Health Service

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Executive Summary

Context & Rationale

This paper investigates factors that affect agency and overtime expenditure in the Irish health sector, focusing specifically on the impact of staffing supply and rising demand for healthcare.

Agency refers to the utilisation of temporary staff through a recruitment agency. Agency staff can work across healthcare settings and locations. Overtime refers to hours worked by permanent employees above their contracted hours.

While these flexible staffing arrangements can address short-term staff shortages in the health sector, these methods are more expensive than delivering healthcare using core hours of directly employed staff. Studies have also found that reliance on these kinds of staffing arrangements can lead to worse patient outcomes.

Expenditure on agency and overtime hours have been increasing in recent years. The factors driving this increasing trend are not clear. One potential cause is that rising demand for agency and overtime is driven by staff supply shortages, implying that changes in permanent staffing levels is inversely related to agency and overtime usage. An alternative theory is that rising expenditure on agency and overtime is driven by the rising demand for healthcare, implying that rising agency and overtime expenditure is correlated with higher levels of activity.

This paper provides a thorough analysis of agency and overtime from 2012 to 2019[1], giving consideration to staffing levels, absence trends and activity levels in the health service. It also provides a granular analysis of these staffing mechanisms by different service areas, highlighting different trends in agency and overtime usage. The results from this paper can contribute to improved budgeting, monitoring, and forecasting of agency and overtime expenditure, and adds to the understanding of the underlying drivers of agency and overtime usage.

Key Findings

- Agency expenditure has had an almost constant increase from 2012 (€214.9M) to 2019 (€423.3M), with the only decrease shown in 2015, where expenditure fell 3% (€9M). The overall growth from 2012 to 2019 was a 97% increase (€208M).
- In 2012, overtime expenditure stood at €255.1M. Overtime expenditure fell in 2013 and 2014 but has increased thereafter. Expenditure on overtime increased by a total of 15% (€38M) from 2012 to 2019, and 46% (€92M) from 2014 to 2019.
- Expenditure on agency and overtime has risen more sharply than the average wages over this time period. This suggests that the amount of hours of agency and overtime has increased, pointing to a growing reliance on agency and overtime to deliver healthcare.
- From international research, we have found that high usage of agency staff and overtime hours are a feature of a number of health systems worldwide. Many sources have shown that while agency and overtime can enhance the flexibility of the health sector to respond to changes in staffing or service demands, it is more costly than permanent staff, and overuse can negatively affect staff wellbeing and patient safety.

[1] The year 2020 has been excluded from the analysis due to the large effect the COVID-19 pandemic has had on the health sector, and the large increases in agency and overtime usage because of it.

- Staffing levels, measured in whole-time equivalents (WTE), decreased from 2012 to 2014 but have shown a continuous increasing trend since 2015. From 2012 to 2019, WTE has increased by 14% or 15 thousand WTEs.
- The absence rates of public healthcare staff did not greatly differ over the time period studied, implying that the availability of core hours of work provided by the directly employed workforce did not differ greatly.
- While national trends show almost continuous increases from 2015 to 2019 across staffing levels and agency and overtime expenditure, trends across the six service areas vary considerably.
- Acute Services[2] has seen larger increases in WTE over the period studied than the other service areas, increasing by 24% from 2013 to 2019. Acutes Services also shows the lowest average annual percentage growth (5%) of agency expenditure when compared with other service areas. This may indicate that higher levels of staffing are helping to offset the need for agency staff in this setting, supporting the idea that growth in agency usage is driven by staff shortages.
- Other than Acute Services, all other service areas showed low levels of staff growth and higher average growth in agency expenditure over the period studied. This relative stagnation of WTE growth in certain areas may be driving the need for agency staff. This is further evidence to support the theory that staff shortages are leading to higher agency usage. However, more research is needed to confirm this link.
- Mental Health Services has experienced a significantly higher growth in agency expenditure than any other service area at an average of 30% annually from 2014 to 2019. This service area has the second smallest workforce out of all the health sector service areas (8% of the health sector workforce, as at the end of 2019) but from 2016 onwards had the second highest agency expenditure rates. Mental Health Services also have the second highest expenditure on overtime, and staffing levels show very low growth rates over the time period.
- Further research into the reasons for the lower levels of staffing increases seen in some healthcare settings could uncover causes of the increasing reliance on overtime and agency. Identifying the reasons for low staff growth could help inform policies or targets to reduce reliance on agency and overtime.
- This research found that there is a lack of data related to activity in the community setting and conclusions on the relationship between rising agency and overtime trends and healthcare demand could not be drawn. There is a need for greater data to be collected in the community setting, specifically relating to activity in Primary Care Services, Disability Services, Mental Health Services and Older People's Services. Consistent measurement of the number of people who received care, where that care was provided and a comparable measure for how much care was provided would significantly improve the ability to analyse activity trends in this setting.
- An increase in data linking staffing levels with activity in healthcare settings would allow for further research into this area. Improved activity metrics in the community could feed into the development of workforce to activity ratios which could be analysed over time to give greater understanding of how the use of overtime and agency hours react to surges in demand.

[2] Acute Services include Inpatient Scheduled Care, Unscheduled/Emergency Care, Maternity Care Services, Outpatient and Diagnostic Services.

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1. Introduction

Various staffing mechanisms are utilised to deliver healthcare services. Permanent employees provide a large proportion of the care delivered in the public setting in Ireland, but temporary staffing measures are also used to meet short term challenges in the demand for care. It is important that the healthcare workforce has the flexibility to meet demand surges, staff shortages, and temporary care needs. This paper will focus on two ways in which the health sector workforce remains flexible: through the use of overtime hours for HSE and Section 38[3] employed staff, and the use of agency staff employed through third parties.

Overtime hours are used when the demand for an employee's time is greater than their contracted hours in a specific time period. Overtime hours can increase the amount of care delivered in a week by increasing the hours of work provided. Using overtime hours is relatively common in the Irish public health service, making up 3.4% of all pay expenditure in 2020. Agency staff are regularly utilised when there are shortages due to absences, difficulty in recruiting a post, or there is a short-term critical need for staff. These staff are hired through third party employment agencies on a temporary basis. They are paid using the same salary scales as HSE employees. However, while there is no associated superannuation or sick leave cost, there is an additional cost resulting from an administration fee and a service tax[4] applied to the expense billed to the HSE.

While these flexible working hours form an essential part of the delivery of healthcare in Ireland, they are more costly compared to care delivered by permanent staff in core hours. Policy dictates that overtime hours and agency staff should only be used to fill temporary service gaps, when it is not possible or practical to hire an additional permanent HSE employee to provide the service.

Expenditure on agency and overtime hours have been increasing steadily in recent years. While the COVID-19 pandemic has greatly affected healthcare expenditure trends in 2020 and 2021, prior to this period the reasons for the increased reliance on agency and overtime are not well understood. One theory is that demand for agency and overtime is caused by staff shortages. This implies that changes in permanent staffing levels are inversely related to agency and overtime usage. Another theory that is posited is that the cause for rising agency and overtime expenditure is the rising demand for healthcare due to demographic change. If demand for healthcare is rising faster than the workforce, then the demand for agency and overtime may rise to deliver a higher level of activity in the health sector.

This paper will consider these theories by analysing:

- Trends in agency and overtime expenditure and usage over time, at a national level and broken down by service area.
- Trends in staffing levels and staffing availability, at a national level and broken down by service area.
- How trends in agency and overtime expenditure compare to staffing level trends.
- Available measures of activity by service area and their relationship with staffing trends.

This paper will add to the understanding of the factors that affect agency and overtime usage in the Irish health sector. It will particularly shed light on how trends differ between the six different service areas in the public health sector. This greater understanding will contribute to improved forecasts and budgeting for expenditure related to overtime and agency. The findings can also inform policies to reduce the reliance on agency staff and overtime usage in the future.

[3] Section 38 agencies are funded through the HSE to provide public health services. From this point in the paper, when the HSE is referred to, we are also referring to section 38 agencies.
[4] Value-Added Tax (VAT) is charged and currently stands at 23%.

2. Data and Methodology

This paper primarily uses trend analysis to examine health sector expenditure data, workforce data, and activity data in assessing the research question and drawing conclusions. This paper considers quantitative data and evidence found through the literature review conducted. The review searched both Irish and international research in order to understand the background and context of agency and overtime expenditure in the health sector.

The period since 2012 was chosen, as this is when the most extensive financial data becomes available. Another benefit of this period is that it excludes the transfer of the Department of Children and Youth Affairs in 2011, which removed a portion of staff from the health sector census. The year 2020 has been excluded from the analysis due to the large effect that COVID-19 has had on trends, skewing the overall results.

Expenditure Data

The expenditure data presented in this paper is sourced from the HSE's National Finance - Planning & Performance team. This administrative data is collected through the Consolidated Financial Intelligence (CFI) accounting system, and is collated from financial structures across the HSE and Section 38 locations.

Workforce Data

The workforce data is sourced from the HSE's Strategic Workforce Planning & Intelligence team, and is published online in their monthly Health Sector Employment Reports (HSER)[5]. Staffing levels are collected on a monthly basis through a staffing census, which includes information by grade, service area and location, among other variables. The report collates monthly staff figures provided by individual locations within the public health service, by headcount number and whole-time equivalent (WTE). It contains WTE data by geographical location, by agency, and by service area.

Activity Data

The activity metrics used in this paper are found in the Department of Health's "Key Trends" 2018 paper, which collects a number of different metrics for health sector performance.

Data limitations

The HSER does not capture workforce staffing levels for some healthcare providers such as Section 39[6] agencies and private providers. This limits the analysis as changes in staffing levels of the entire Irish healthcare system are not analysed but may indirectly impact on agency and overtime expenditure in the public setting. A further limitation of this data is that the census records workforce numbers at a point in time. This analysis does not consider fluctuations in the workforce within a given year.

Both agency and overtime are measured in expenditure and not in hours of work provided. While assumptions can be made on the volume of agency and overtime provided, this limits the ability to analyse trends in the usage of these staffing mechanisms.

It was difficult to find meaningful metrics related to activity for the service areas across several years, which is a significant limitation of the analysis. The most useful metrics were found for Acute Services. Only one service metric for Mental Health was identified (in-patient admission) and it covers a small portion of the Mental Health budget.

[5] The monthly HSERs can be found online here: https://www.hse.ie/eng/staff/resources/our-workforce/workforce-reporting/national-reports.html

[6] Section 39 documentation relates to Non-Acute/Community Agencies being provided with funding under Section 39 of the Health Act, 2004.

3. Literature Review

A literature review was conducted on previous research into the use of agency staff and overtime hours in the health sector, both in Ireland and internationally. The literature reviewed is divided into three categories: expenditure on agency and overtime, the reasons for the usage of overtime and agency, and the effects of high overtime & agency usage.

Expenditure Related to Agency and Overtime

Previous Spending Review papers (Mullins, 2015; Connors, 2018) have analysed trends in the health sector pay bill and the composition of pay in terms of basic and premia pay[7], and the overtime and agency expenditure. This research has focused on analysing the differences between actual and estimated expenditure to assess budget management. Mullins (2015) outlined staff and expenditure trends in the Irish health sector, including overtime and agency expenditure, in early 2015. It detailed how expenditure on agency had fallen in 2015 compared to the same period in 2014, but overtime expenditure was higher than the previous year. It concludes that pay expenditure in excess of what was profiled was driven by higher than anticipated agency costs and to a lesser extent overtime expenditure.

Connors (2018) analysed expenditure trends in pay costs in the health sector and looked at agency expenditure as a driver of this expenditure. The paper outlined that from 2015 to 2017, expenditure on agency was consistently higher than the budgeted expenditure, stating that there may be weaknesses in the assumptions underlying the profiles. This paper assumed that increasing staffing levels should lead to a decrease in the reliance of agency staff, but did not provide evidence to support this claim. These previous Spending Review papers analysed agency expenditure over a very short time period, thus limiting the results of their analysis.

Several research papers have analysed the Irish health sector workforce in terms of changing composition and staffing trends in response to the recession and austerity measures. Due to financial constraints, a general moratorium was placed on recruitment and promotions in March 2009 and continued until its gradual roll back in 2015 (Wall, 2014). Although consultants, therapy grades, ambulance staff and social workers were exempt from these measures, growth in a significant amount of the workforce was constrained. Williams & Thomas (2017) analysed staff trends between 2008 and 2014 to assess the impact of these austerity measures on the health sector workforce. The authors found that WTE levels fell in response to this moratorium but expenditure on agency staff increased by 320%. The authors suggest that the impact of the moratorium in terms of cost-effectiveness was limited due to the increased need for temporary, more expensive forms of staff.

The Framework for Safe Nurse Staffing and Skillmix produced by the Office of the Chief Nurse (2018) also supported this link and found that when wards were sufficiently staffed consistently, taking into account the number of beds and complexity of patients' cases, staff costs were lower due to lower expenditure on agency staff. The Taskforce that produced the report also found that patients in such wards had better treatment outcomes.

Usage of Agency & Overtime Staff

The use of agency and overtime in the health sector has been studied across many countries. Agency staff are seen as a convenient method to use to fill temporary shortages but are more costly for the longer term.

A Swedish study (Fagefors, Lantz & Rosén, 2020) investigated the ways in which workforce flexibility is achieved in the health service. The study notes that Sweden struggles with insufficient capacity to meet service demands, thus it is comparable with the Irish health service. Through analysing results of a questionnaire which was sent to healthcare managers in one region of Sweden, the authors determined that overtime, external agency staff, and deploying staff to different units are some of the main ways short-term flexibility is maintained. The authors differentiate between short term fluctuations in demand and longer term fluctuations, and highlight that these flexibility solutions can work well for short term changes to staff, but can be costly when used for long term

[7] Premia payments refer to allowances paid for working unsocial hours in addition to basic pay. Examples include weekend pay, on call payments, public holiday payments and nightshift payments.

needs. It is noted that overtime is an easy option for temporary or unexpected staff shortages, as the employees are already rostered and on site. However, overtime is both costly and potentially harmful to patient outcomes. Agency staff can also be utilised to fill gaps, but are also expensive, and can lead to a less productive work environment as they are transient to the ward. The authors conclude that if healthcare providers take a more proactive approach to capacity management, such as having cross-trained personnel or staffing pools which can be drawn from when needed, it could be a more cost-efficient way of creating flexibility in the workforce.

In 2018, the NHS reported increasing staff shortages (6.5% vacancy rate) and rising demand. A study (Dall'Ora and Griffiths, 2018) was undertaken to review the efficacy of various flexible staffing arrangements. These arrangements included: agency staff, overtime, and deploying existing staff to other units with an increased need for staff (floating). The authors found mixed evidence for floating, with some evidence suggesting that it can reduce overtime and agency costs, but may also result in patient safety issues.

Effects of High Overtime & Agency Usage

There have been multiple studies conducted on the excessive use of overtime, particularly for the Nursing and Midwifery category. These studies have found that with the increased use of overtime, there is a higher risk of burn out and increased patient safety problems with worse patient outcomes.

Bae (2012) conducted a survey of registered nurses across hospitals in the United States, in states where the use of mandatory overtime is regulated and states where it is not. She found no notable differences between the use of overtime between those states. In West Virginia, mandatory overtime is only permitted when there are unforeseen emergency circumstances, yet 47% of nurses reported that their mandatory overtime was never in response to such circumstances. Furthermore, hospitals in West Virginia were more likely to report chronic staff shortages, indicating that long term understaffing may increase the use of overtime more than temporary and unavoidable staff gaps. Bae also found that a greater number of overtime hours worked led to higher rates of fatigue and adverse patient outcomes.

Griffiths et al. (2014) investigated hospitals across 12 countries, including Ireland, using a cross-sectional survey of over 30,000 registered nurses working in 488 hospitals across the countries. It was found that over 73% of shifts in Ireland were over 12 hours long. This is likely largely due to many nurses changing from 8-hours shifts to 12-hour shifts, with an extra day off. Their findings concluded that in the countries with greater levels of overtime, nurses more frequently rated the quality of care provided and patient safety as ‘fair’ or ‘poor’, and reported more tasks left uncompleted.

Dall'Ora and Griffiths (2018) support the concerns that excessive overtime can lead to worse patient outcomes. This has also been concluded by multiple studies, including Bae (2012), Ball et al. (2015), Griffiths et al. (2014), Dembe et al. (2009), Cho et al. (2016), and Sharp et al. (2008). Dall'Ora and Griffiths (2018) also note that some studies have linked agency staff to a disruption in the continuity of care and poorer team communication, along with being a more expensive option. The utilisation of existing staff can reduce this risk.

Literature Summary

Previous Spending Review papers have highlighted that expenditure on agency and overtime staff has increased in Ireland in recent years. While increases in certain years may have been driven by policy decisions, such as the recruitment moratorium, the drivers behind the persistent increases are not well understood. Thus, it is difficult to forecast agency and overtime expenditure and to formulate a fully informed budget. From researching international experiences and perspectives, we have found that high usage of agency and overtime staff are a feature of a number of health systems worldwide. Many sources have shown that while agency and overtime can enhance the flexibility of the health sectors to respond to changes in staffing or service demands, it is more costly than permanent staff, and excessive overtime can negatively affect staff wellbeing and patient safety.

4. Policy Context

There have been a number of policy changes over the years that have altered rates of basic pay, which had knock on effects on agency and overtime costs in Ireland. There were also attempts to curb agency and overtime usage after the recession, which may have impacted expenditure trends. Furthermore, pay agreements have knock-on effects on the cost of agency staff, as agency staff cannot be paid less than permanent staff. Thus, when the basic pay of HSE employed staff is changed, the cost of agency staff changes alongside it. This section will outline the various policy changes and pay agreements that have changed aspects of public pay.

A moratorium was placed on certain recruitment after the financial crash in order to reduce public spending. As previously highlighted, this moratorium started in March 2009 and continued, until its roll back from 2015. Although consultants, therapy grades, ambulance staff and social workers were exempt from these measures, growth in a significant amount of the workforce was constrained. Following the moratorium, recruitment was closely monitored and restricted in order to remain in expenditure limits, and budgets allowed for only small amounts of staff increases.

The COVID-19 crisis in 2020 led to the health sector requiring much larger numbers of staff. This led to greater resources being provided in order to meet the staffing needs of the health sector. Budget 2021 saw the expansion of the health sector workforce as a priority in order to meet growing service demands. At the time of publication, the workforce has increased by 9% above end 2019 levels. The demand for agency and overtime has grown due to COVID-19 in 2020 and 2021, which will skew trends for these years. However, in future research it will be interesting to see how agency and overtime usage are affected by this workforce expansion going forward.

The Public Sector Stability Agreement 2013-2016 (a.k.a. the Haddington Road Agreement) sought to ensure public spending was within affordable limits given the financial constraints following the recession. This agreement introduced an increase in basic contracted hours across public service grades (Fórsa, n.d.). Within the HSE, contracted hours increased without a change in salary. Hours for consultants, administrative grades, and health and social care professional grades increased from 35 hours to 37 hours per week, and Nursing and Midwifery grades increased from 37 hours to 39 hours. This increase in hours came into effect in July 2013. The effect of changing contracted hours led to a decrease in the hourly wage, which affected any payment rate based on the basic hourly rate, such as overtime payments. This change also impacted the number of overtime hours supplied as many of the hours which would have been counted as overtime were now counted as basic contracted hours.

The Haddington Road Agreement attempted to curb spending on overtime. An overtime premium rate is paid when part-time or full-time employees work above their contracted hours (Health Service Executive, 2017). The rate of overtime pay varies by staff category and grade but for the majority of eligible staff, overtime rates vary between 1.25 times basic wage to 1.5 times basic wage.

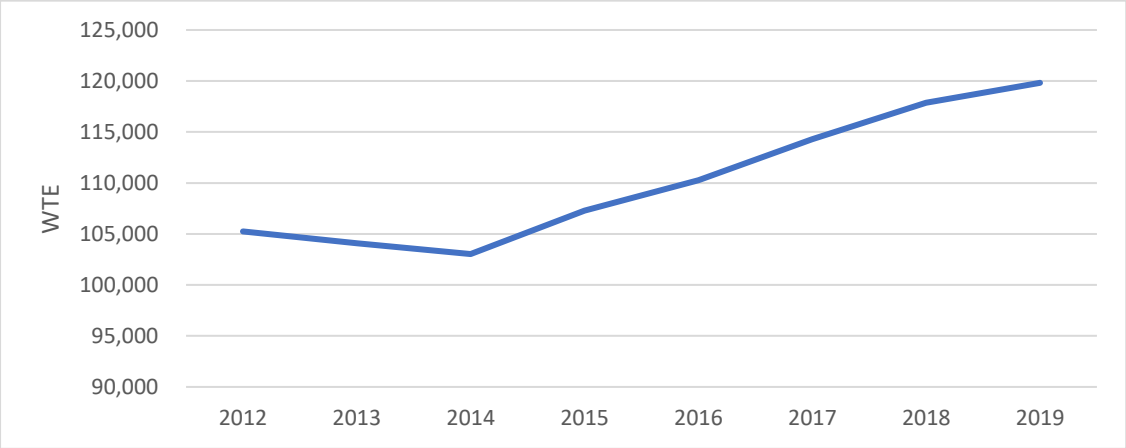
The Lansdowne Road Agreement of 2016 began the process of pay restoration after 2013 pay cuts. The 2018-2020 Public Service Stability Agreement provided for further pay restoration to public service employees.

5. Staffing Levels and Staff Shortfalls

Staffing Levels

Figure 1 shows the change in staffing levels measured in WTE from 2012 to 2019. Total staffing levels decreased from 2012 to 2014 but there has been an upward trend since 2014. The dip in WTE in 2013 is likely due to cost saving measures implemented, such as the moratorium on recruitment and retirement incentives. WTE have consistently increased since 2014, showing a total increase of 16% from 2014 to 2019.

Figure 1. Total WTE, 2012 to 2019



Source: Health Service Employment Report, HSE

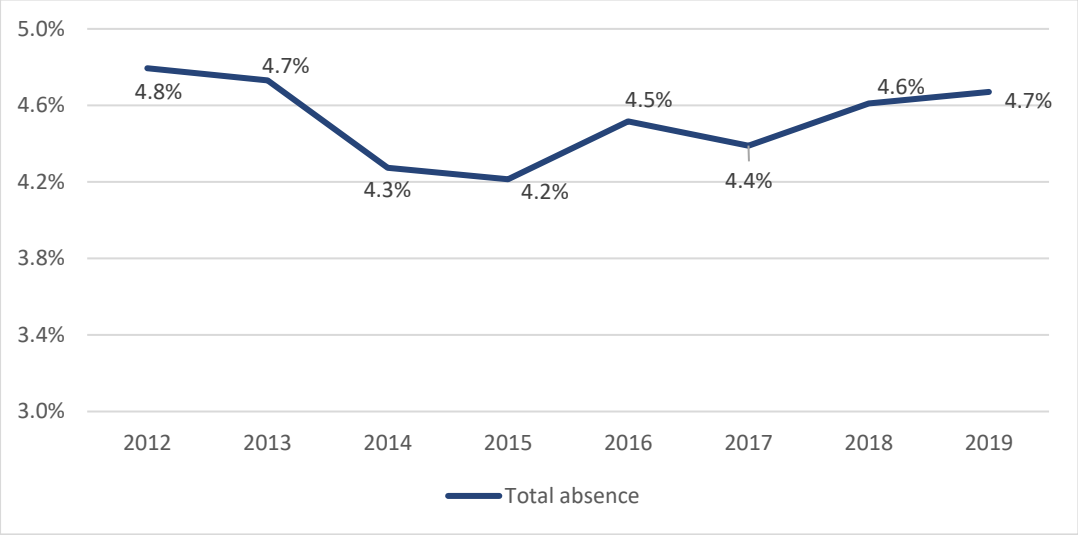
Absence Trends

To analyse the number of hours delivered, it is important to examine whether absence rates have changed. Changes in the number of staff on leave will impact the number of staff available to work but will not necessarily change the WTE figure reported in the staff census. Absence data is recorded by individual locations and collected centrally to develop a monthly report[8]. There are a number of types of leave, including sick leave, maternity/paternity leave and long-term sick leave. HSE absence reports include absences due to certified and self-certified sick leave, and unexplained absences. They do not include maternity leave, carers' leave, or other statutory leave. Without collated national data on these forms of leave, it is not possible to measure these fluctuations across the total workforce.

There have been some changes to policies around leave and absences in this time period. In 2014, access to sick leave with full pay was reduced from six months to three months, and access to sick pay on half pay was reduced from six months to three months. Despite this, absence levels have remained relatively steady throughout 2012 to 2019. In 2012, the average absence level across staff categories was 4.8%, which was also the highest rate during this period. Its lowest level was 4.2% in 2015. It rose across the period and in 2019 the rate reached 4.7%.

[8] Monthly absence reports can be found online here: https://www.hse.ie/eng/staff/resources/our-workforce/workforce-reporting/national-reports.html

Figure 2. Percentage of Workforce Absences, 2012-2019



Source: Monthly Absence Reports, HSE

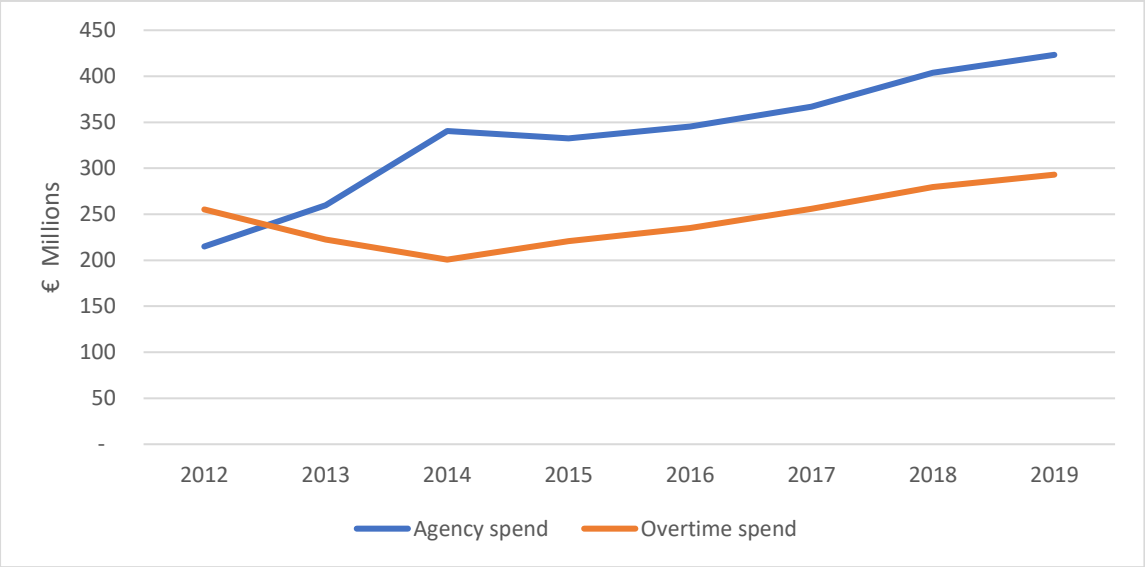
While acknowledging the amount of absence types not captured by this measure, this steady absence rate over the years would suggest that absences did not lead to a significant change in the number of hours provided. Thus, overall WTE levels are a reliable indication of the total workforce available. The next section will discuss the agency and overtime trends over this period, and discuss the levels of growth of the hours provided to the health service.

6. National Agency & Overtime Trends

National Expenditure Trends

Figure 3 shows expenditure trends in agency and overtime from 2012 to 2019. Combined expenditure has increased continuously from 2012 to 2019. Between 2012 and 2019, agency increased by 49%, and overtime increased by 22%. Agency expenditure has had an almost constant increase from 2012, with a decrease only in 2015. The overall growth from 2012 to 2019 was a 97% increase (€208M). Overtime fell in 2013 and 2014 but has increased thereafter. Expenditure on overtime increased by a total of 15% from 2012 to 2019, and 46% from 2014 to 2019.

Figure 3. Agency and overtime expenditure trends, 2012-2019



Source: HSE, Consolidated Financial Intelligence Data

The decrease seen in overtime in 2013 and 2014 is likely influenced by the Haddington Road Agreement, which saw an increase in basic contracted hours across public service grades (Fórsa, n.d.). As previously discussed, this increase in hours came into effect in July 2013, which is reflected in the small decrease in 2013 followed by an increase after 2014.

Agency expenditure shows an inverse trend to overtime expenditure from 2012 to 2015, with expenditure increasing by 58% from 2012 to 2014. This relationship was highlighted by Williams & Thomas (2017) who concluded that due to the curb on overtime usage under the Haddington Road Agreement and the moratorium on staffing increases, the continued need for additional staff drove the large increases in agency expenditure in these years. Agency expenditure experienced a slight decrease in 2015, but increased once again thereafter, increasing by 31% between 2015 and 2019.

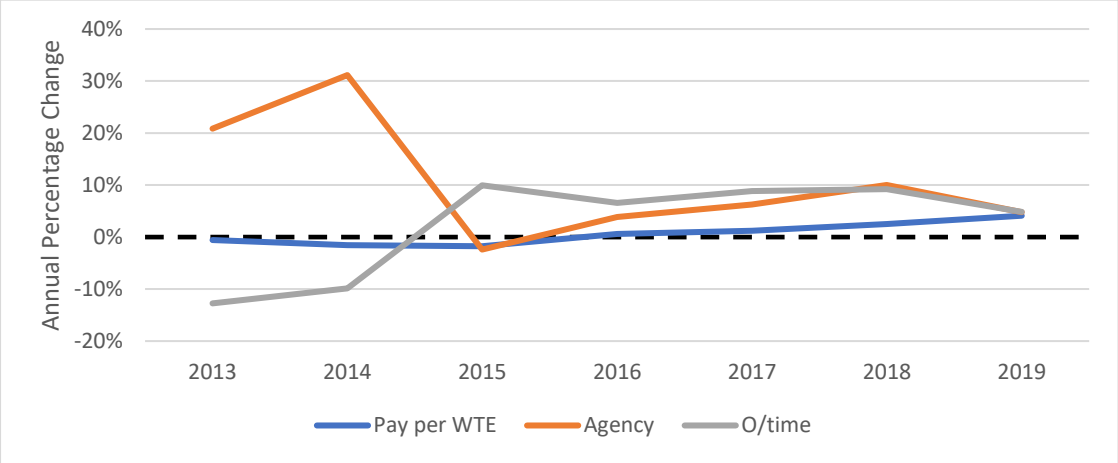
By comparing these trends in agency and overtime expenditure to the WTE trends in the previous section, we see that since 2014, there have been consistent increases in WTE, agency hours and overtime hours. As absence trends have remained at a stable rate over the years examined, the upward trends of overtime, agency, and WTE show a large and constant increase in the amount of healthcare provided.

National Agency & Overtime Volume Trends

The expenditure increases shown in Figure 3 are a function of both the cost of providing agency and overtime hours and the volume of hours provided. The change in cost of providing these hours is largely exogenous to the healthcare system itself, as pay costs are determined by national pay agreements, pay awards and in the case of agency staff, national service taxes[9]. The number of hours of agency and overtime care provided, on the other hand, should be a function of the demand and supply for healthcare. An increase in the number of hours provided implies that the health system is becoming more reliant on these flexible staffing arrangements.

Although data on agency and overtime is recorded by the HSE in expenditure rather than hours provided, we can deduce trends in hours provided by analysing percentage increases in expenditure on overtime and agency against changes in the average pay cost.

Figure 4. Annual Percentage Change in Agency Expenditure, Overtime Expenditure and Payroll Cost per WTE, 2013 - 2019



Source: DOH calculations on HSE Consolidated Financial Intelligence Data

Figure 4 shows the percentage increase in pay costs per WTE[10], alongside percentage increases in agency and overtime expenditure from 2013 to 2019. As previously discussed, following from the Haddington Road Agreement and other cost saving measures, the cost per WTE decreased from 2013 to 2015. After 2015, pay per WTE has been rising. After the growth in pay cost per WTE turned positive in 2016, the cost grew at an average of 2% each year.

As overtime is a function of basic pay costs, it is understandable that the cost would be positively correlated with the average cost per WTE. However, Figure 4 shows that in 2013 and 2014, overtime expenditure decreased by a much larger percentage than pay per WTE, implying that the hours of overtime provided decreased. Similarly, since 2015 overtime expenditure has been growing at a much higher percentage than cost per WTE, implying that the volume of overtime hours has been increasing.

Agency expenditure grew by a much larger percentage than average cost growth in 2013 and 2014, showing that the volume of agency hours increased greatly during these years. Since 2015, agency expenditure shows a similar trend to overtime with annual growth higher than the growth of cost per WTE. This shows that, like overtime, cost is a factor contributing to the rise of agency expenditure but the volume of hours of agency staff are also increasing within the health system. This implies that there is a growing reliance on agency and overtime hours to deliver healthcare in the Irish healthcare system.

[9] The standard VAT rate has remained constant at 23% for the period included in the analysis. The cost of agency staff is also affected by an admin fee. We are assuming this admin fee has remained constant at 7% for the time period analysed.

[10] Pay costs are inclusive of basic pay, premia payments and employers' PRSI.

7. Agency & Overtime by Health Sector Service Area

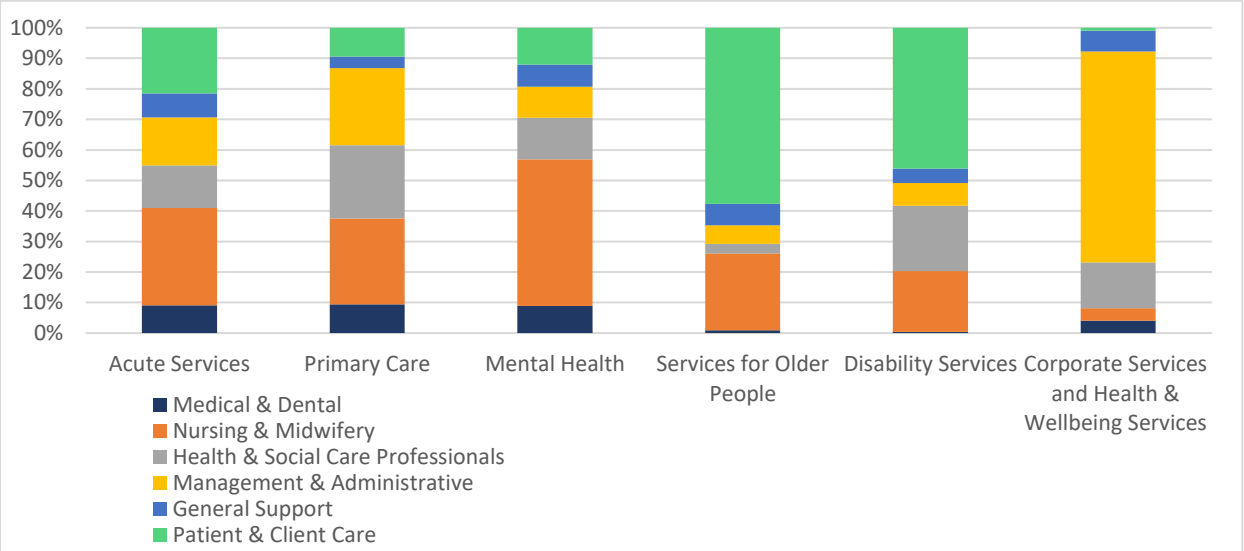
The public sector health workforce is the largest workforce in the state. It is therefore likely that there would be significant variation in the staffing needs and staffing arrangements in different parts of the health system. This section will look at the usage of agency and overtime in different service areas to provide a more detailed landscape of how these flexible staffing arrangements are used differently across healthcare settings.

This section analyses trends in agency, overtime and staffing by the following service areas:

- Acute Services, including National Ambulance Service
- Primary Care Services
- Mental Health Services
- Disability Services
- Older Persons Services
- Corporate Services and Health & Wellbeing Services

Acute services includes care provided in hospital settings while Primary Care, Mental Health, Disability and Older Persons Services include health services provided in the community, outside of the acute hospital setting care. Corporate Services and Health & Wellbeing Services are predominantly administrative functions of the health service. These service areas differ by size, the type of care provided, the setting in which care is provided and the staff needed to deliver healthcare. Figure 5 shows the differences in the composition of the workforce in each service area by staff category at end December 2019.

Figure 5. Composition of Workforce by Staff Category for Each Service Area, 2019



Source: Health Service Employment Report, HSE

When considering the six staff categories in the health sector, service areas differ in terms of the composition of their workforce. Acute Services, Primary Care and Mental Health Services show broadly similar staff composition, with similar shares of each staff category. Comparatively, Primary Care shows a slightly larger proportion of administrative staff and Health & Social Care Professionals[11]. Mental Health Services shows a slightly larger proportion of nurses and midwives. Services for Older People and Disability Services show large

[11] This staff category includes a number of different professions including occupational therapists, speech and language therapists, social workers, radiographers and psychologists.

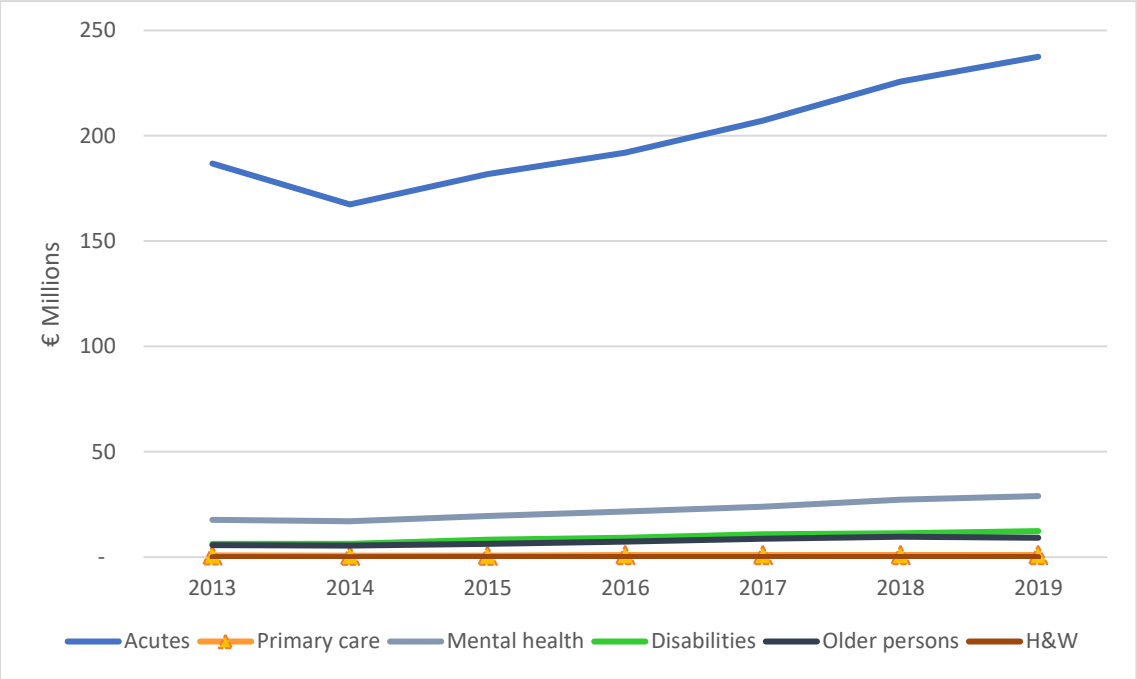
proportions of staff in the patient and client care[12] category. In terms of average wage per WTE, the Medical and Dental staff category has a significantly higher average cost compared to the other five staff categories.

The staff categories also differ in terms of agency and overtime spend. The Medical & Dental category has had significantly larger expenditure on overtime than the other staff categories, followed by Nursing & Midwifery and Patient & Client Care. In terms of agency expenditure, the aforementioned staff categories all show high levels of agency expenditure, with the other staff categories showing lower levels of agency expenditure over time.

Overtime Expenditure by Service Area

Figures 6 & 7 show the breakdown of overtime expenditure from 2013[13] to 2019 broken down by the service areas.

Figure 6. Overtime expenditure by service area, including Acute Services

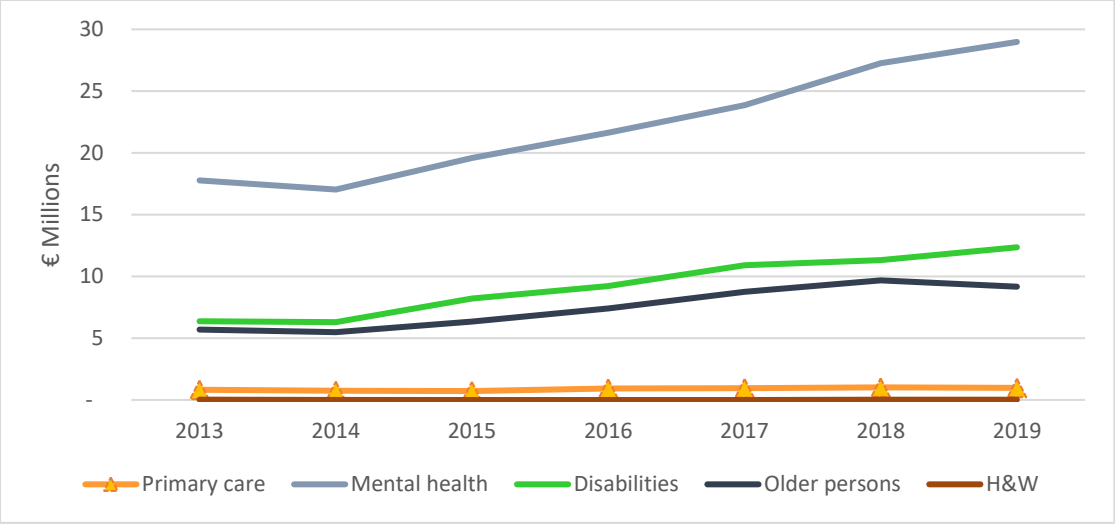


Source: HSE, Consolidated Financial Intelligence Data

In terms of overtime, Acute Services show significantly larger expenditure compared to any other service area. This reflects both the large portion of the workforce situated in the acute setting and the relatively higher average wages compared to other settings. Acute overtime expenditure decreased in 2014, which coincides with the implementation of additional working hours and decreases in paid overtime in the Haddington Road Agreement. After 2014, expenditure continued upwards to 2019, with an increase of 42% over the period.

[12] The Patient and Client Care Category encompasses roles that are associated with the care and support of patients and client groups, including health and social care assistants.
[13] 2012 data is not available by service area

Figure 7. Overtime expenditure by service area, excluding Acute Services



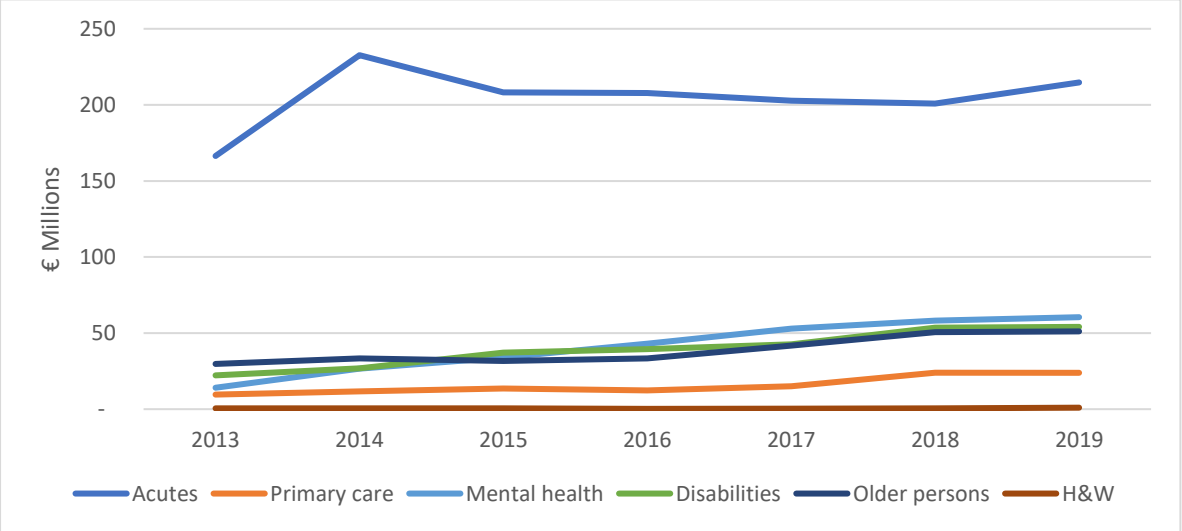
Source: HSE, Consolidated Financial Intelligence Data

Mental Health has the second highest spend on overtime, despite it only being fifth in the amount of WTE it employs. There was a 4% decrease in expenditure in 2014, but increased steadily thereafter. Mental Health services showed 135% more expenditure on overtime in 2019 than in Disability Services, the next largest expenditure group. In 2019, Disability Services employed 83% more WTE than Mental Health, indicating that Mental Health employees commit more hours to overtime in proportion to their counterparts in other service areas. However, it is important to note that the average wage in Mental Health is much higher than in Disability Services (€67,924 and €33,951 respectively) due to the different compositions of staff grades in the two service areas, thus reducing the starkness of the difference in hours committed to overtime.

Agency Expenditure by Service Area

Figures 8 & 9 show the breakdown of agency expenditure from 2013[14] to 2019 broken down by the various service areas.

Figure 8. Agency expenditure by service area, including Acute Services



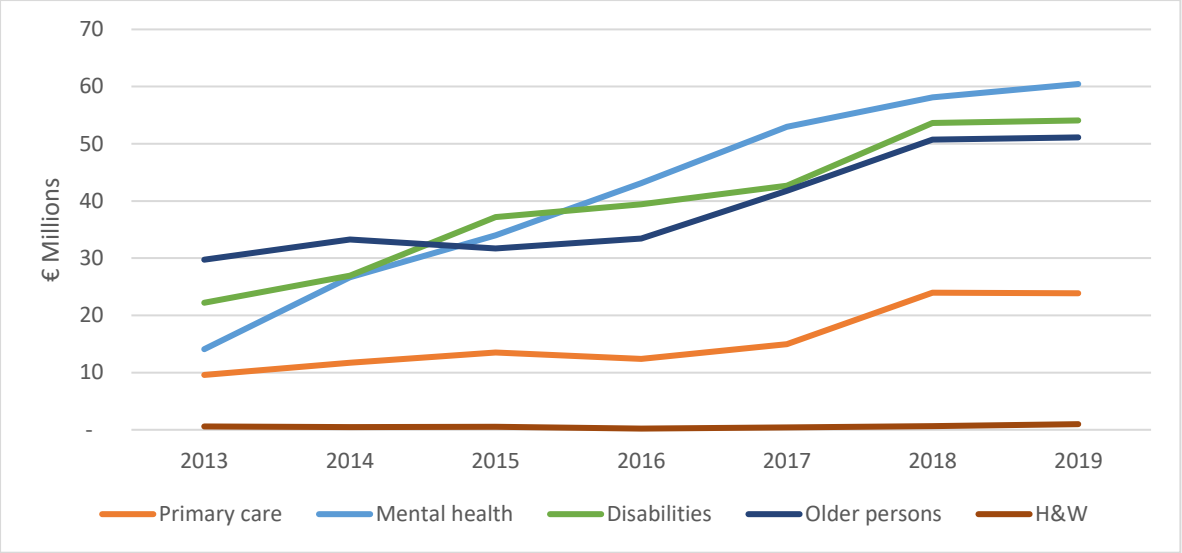
Source: HSE, Consolidated Financial Intelligence Data

[14] 2012 data is not available by service area

Similar to overtime expenditure, Acute Services shows a significantly larger spend on agency staff than any other service area. Acutes experienced a large increase of 40% in agency expenditure in 2014, which decreased steadily from 2015 to 2018, albeit maintaining agency spend at a greater level then 2013.

Other service areas did not follow this trend, with most seeing modest increases in 2013, and much larger growth in the following years. There was a levelling off of agency expenditure from 2018 to 2019 across all service areas shown in figure 9.

Figure 9. Agency expenditure by service area, excluding Acute Services



Source: HSE, Consolidated Financial Intelligence Data

Primary Care shows relatively low growth in agency expenditure until 2018 where a 60% rise is shown compared to the previous year. This higher level of expenditure is maintained in 2019 also.

Disability Services and Services for Older People both show largely consistent increases in expenditure each year over the time period analysed.

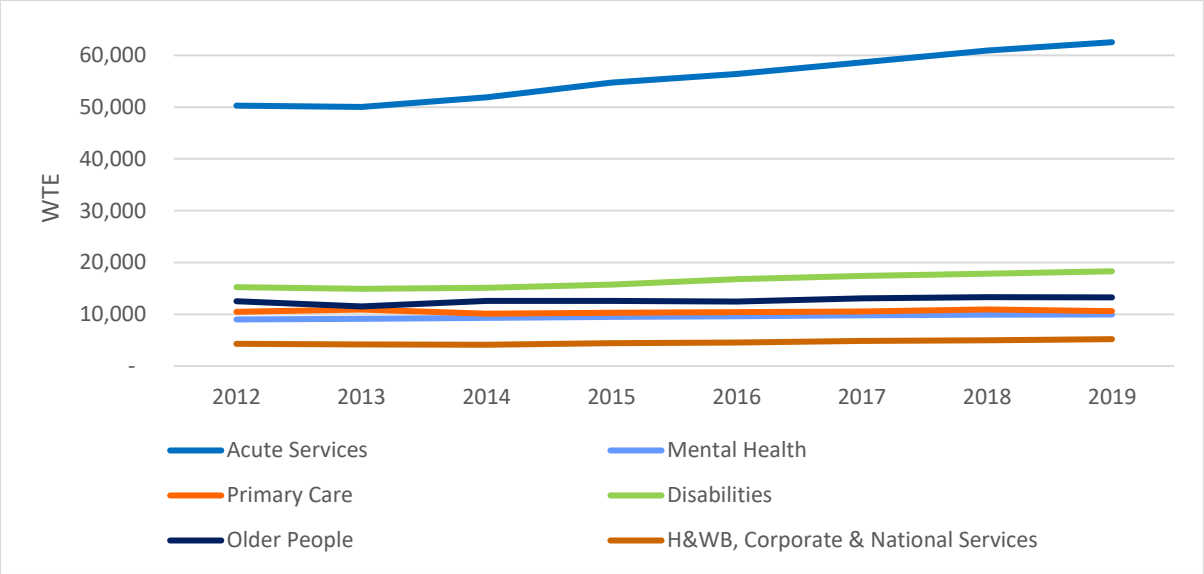
In 2013, Mental health services had the third lowest expenditure on agency but by 2016, they had surpassed the other service areas and continued to rise. Between 2013 and 2019, Mental Health had increased their agency spend by 329%, increasing an average of 30% each year. Mental Health services shows a worrying trend in terms of absolute level of agency expenditure compared to other services in the community setting, and also showing a significantly higher average growth rate than any other service area.

The trends in agency expenditure for all service areas show increases between 2013 and 2019, but the size and rate of growth differs by year and by service area. To fully understand trends in agency expenditure, looking at trends more granular than the national picture shows important insights into how agency staff are used in different sectors and how the reliance on agency staff is changing across different healthcare settings.

Staffing Levels by Service Area

Figure 10 shows the breakdown of WTE by service area over time. As highlighted, the acutes sector has the highest level of agency and overtime expenditure, but also has the highest share of the total heath workforce. Staffing levels in the acute setting have been increasing at a rate faster than other service areas, increasing by an average of 3% per year between 2012 and 2019.

Figure 10. WTE by service area, including Acute Services



Source: Health Service Employment Report, HSE

Most service areas had a slight decrease in WTE in 2013 and either grew slightly or remained stable from 2014 onwards. However, Primary Care experienced an increase in 2013, and a decrease in 2014. It grew slightly thereafter, but continued to be below their 2012 WTE until 2017. Mental Health is the second highest spender in both agency and overtime despite being comparatively low in terms of total WTE numbers. Their WTE has remained relatively stable over the course of 2012 to 2020.

Looking at the growth in WTE across service areas shows a contrast between what is happening in the acute setting and what is happening in community settings (Primary Care, Mental Health, Disabilities, Older People). While the acute setting has shown relatively high growth in WTE over the period, services in the community setting have shown little growth in permanent staffing. While overtime expenditure has increased across the majority of settings, agency expenditure shows a different trend. Agency expenditure in the acute setting has shown limited growth from 2014 onwards, while agency growth in community settings has shown large increases over this time. The stagnation of growth in permanent staff in the community setting may be leading to the growing reliance on agency staff, and similarly, the high growth in staff in the acute setting may be offsetting the need for higher agency usage. This will be explored further in the discussion section of the paper.

8. Service Activity Levels

The paper has examined the expenditure trends for agency and overtime, and staffing level changes in the same period. Expenditure on agency staff seems to fluctuate considerably more than can be explained by changes in staffing levels alone. To further investigate fluctuations in agency and overtime expenditure, we examined activity levels across the health sector to determine whether changes in activity coincide with changes in agency and overtime usage, and whether this can aid in our understanding of overtime and agency trends.

The lack of relevant data proved to be a significant challenge to investigating activity measures in different healthcare service areas. Activity measures in the community setting were particularly difficult to identify. The lack of data in the community setting has been well documented in previous studies (Wren, et al., 2017), (Brick, et al., 2020), (Department of Health, 2018). While a number of indicators were identified in the acute setting, without the ability to measure activity in the community setting, we lack a meaningful comparison and therefore cannot draw solid conclusions. Many of the metrics that have been recorded for a number of years are used to measure demand for, rather than supply of, a service, for example the number of people on waiting lists. Activity could be better measured by supplying data on the number of patients seen in a service, or the number of hours provided.

In our analysis, activity measures across all service areas were researched. However, this section focuses on two of these areas: Acute Services which was shown to have the lowest average increase in agency staff expenditure, and Mental Health Services which had the largest average growth in agency expenditure in the time period studied.

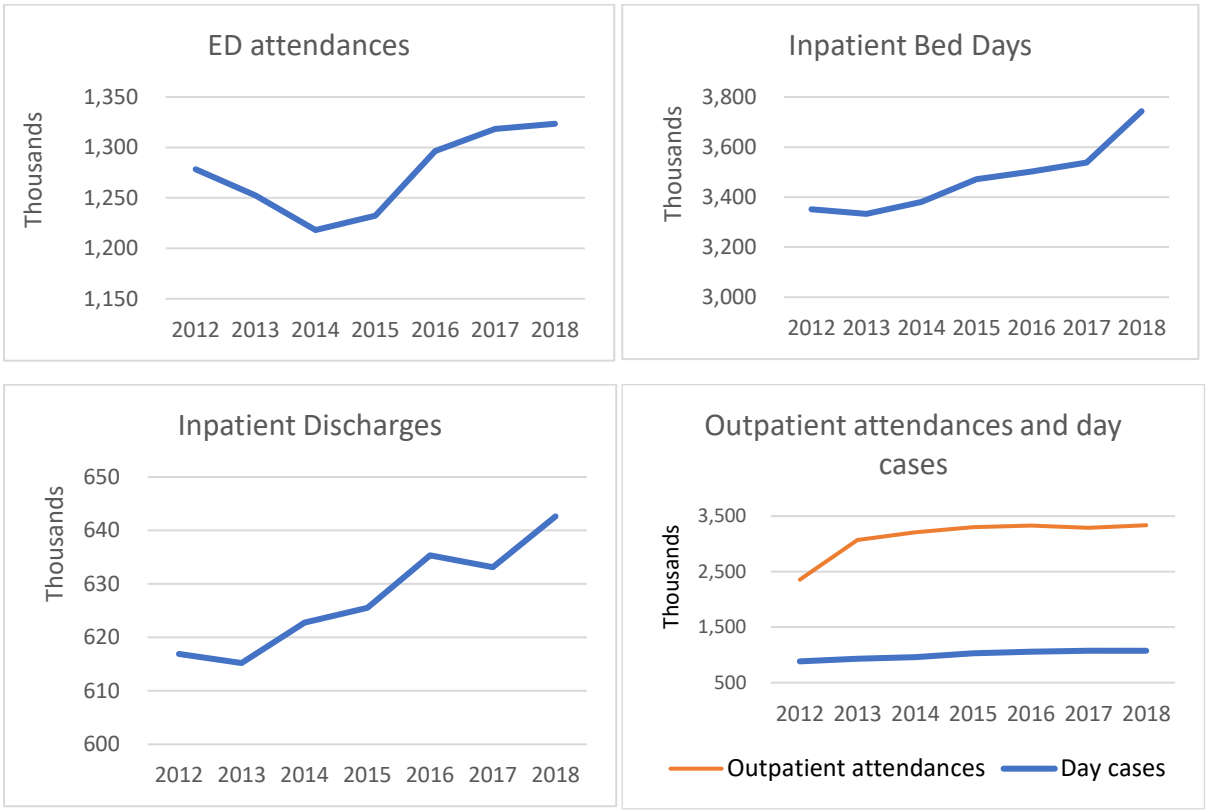
It should be noted that changes to service activity may also be impacted by demographic shifts. Ireland's population is growing and the average age is rising. An ageing population puts additional pressures on a health service (World Health Organization, 2018), as demand for services increase and the complexity of cases rise. When the Irish Longitudinal Study on Ageing began in 2010, it was forecast that people over the age of 65 would account for 11.4% of the population in 2011, and rise to 14.1% by 2021. The 2020 population estimates (CSO, Population Estimates) show that 14.4% of the total population are over the age of 65. Analyses of demand for healthcare in Ireland have projected that Ireland's changing demographics will increase the reliance on the health service, particularly in settings which provide care for the elderly such as long term care facilities and home care packages (Wren, et al., 2017).

As demand for healthcare rises, and the hours of care delivered by contracted employee hours, agency staff and overtime hours increase, the level of activity delivered in the health sector should correspond to this trend. Fluctuations in activity measures may illuminate the large changes seen, particularly in the use of agency staff in different healthcare settings annually.

Acute Services Activity Levels

As much of our healthcare system has revolved around the acute setting historically, data available for these services are relatively abundant and reliable. Figures include trends in emergency department (ED) attendances (those who present at an emergency department seeking care), inpatient and day case discharges, outpatient attendances and inpatient bed days (the number of days a bed is occupied by an inpatient).

Figure 11 to 14. Public hospital yearly activity metrics



Source: Department of Health, "Health in Ireland: Key Trends 2018"

All of the metrics examined for acute hospitals show an increase from 2012 to 2018. Inpatient bed days and day cases have had relatively large increases between 2012 and 2018. Outpatient attendances had an increase in 2014, with a stabilisation thereafter.

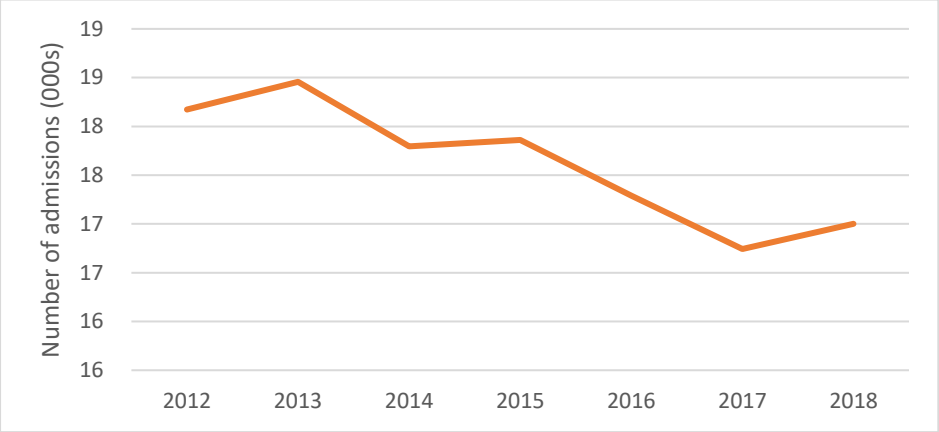
The overtime expenditure for Acute Services mirrors the trend in ED attendances, and the general increases from 2013 to 2018. Agency expenditure has less of a correlation with the activity metrics used, but has a general and more gradual upward trend after 2015.

Future research could develop metrics to more closely link activity measures with staffing resources used. For example, workforce to activity ratios could be developed which would take into account how resource intensive certain activities are in terms of staffing need and the types of staff required to carry out the activity. This would significantly improve analysis of the relationship between activity and overtime and agency hours over time.

Mental Health Services Activity Levels

As previously stated, the availability of activity measures in the area of mental health is a key limitation of this analysis. In a study researching utilisation measures in specialist mental health services, the ESRI found that while there is reliable inpatient data in the acute setting, data detailing mental health services in the community setting was not detailed enough for their purposes (Brick, 2020). This study has found similar results in terms of data availability. While there may be relevant service measures contained in the monthly HSE Management Data Reports, many have only been introduced in the last three to four years and are not sufficient to include in this analysis. Some measures exist to estimate the amount of demand for a service (for example, the number of people on a waiting list), rather than the amount of service delivered. For our purposes, we are only concerned with measures that reflect activity occurring in the health sector. The most robust metric we found for the time period was the number of in-patient admissions.

Figure 15. Yearly number of in-patient admissions to public psychiatric hospitals



Source: Department of Health, "Health in Ireland: Key Trends 2018"

Inpatient psychiatric admissions have decreased by 6.9% between 2012 and 2018. Between 2013 and 2017, there was a decline of 10.2%, with a slight increase in 2018 (+2%). This service activity metric has the opposite trend of agency and overtime expenditure, which both had substantial increases over these years.

This decrease in activity seen may be showing the switch to provide more mental health services in the community setting rather than the acute setting. The need for services to become community based has been a cornerstone of mental health policies since 2006 (Government of Ireland, 2006). As this decreasing trend does not necessarily signal a decrease in activity in Mental Health services, it is difficult to ascertain the link to agency expenditure in this area.

There is a lack of a reliable service metrics for Mental Health services, particularly those measuring activity in the community setting. Thus, it is not possible to ascertain the full activity of mental health services and whether activity levels can help explain the large fluctuations in agency expenditure over this time. Improvements in activity measures in not only Mental Health Services, but all services operating in the community setting, is needed to determine whether the trends in activity or demand for services can explain the large changes seen in agency expenditure.

9. Discussion

By analysing high level trends for the whole public health service, we have found that total expenditure, as well as the total volume of agency and overtime hours have increased across the period studied. This implies that the reliance on agency staff and overtime hours to deliver healthcare is increasing. Previous studies have found that not only are these temporary staffing arrangements a more expensive way to deliver healthcare in the long term, but they have also been linked to adverse patient outcomes. For these reasons, a decrease in the reliance on these staffing arrangements should be pursued.

The increase in agency and overtime expenditure has coincided with a steady increase in the workforce from 2014 onwards. Total staffing levels in the public health service have increased by 16% from 2014 to 2019. Despite changes to absence policies during this time, average absences have remained relatively stable, meaning that available staffing has increased during this time period.

This finding on its own does not help to substantiate the theory that staff shortages are driving the increase in agency and overtime usage, as all three variables show increasing trends. However, when these national trends are broken down by service area, key differences emerge. Although expenditure on overtime and agency staff, as well as staffing levels, have increased on average across every service area in the time period studied, the extent of the increase has varied greatly between service areas. Table 1 compares the average annual increase in WTE, overtime and agency expenditure from 2014 to 2019.

Table 1. Average Annual Growth in WTE, Overtime and Agency from 2014 - 2019

	Average Annual WTE Growth	Average Annual Overtime Growth	Average Annual Agency Growth
Acute Services	4%	4%	5%
Disability Services	3%	12%	17%
Older Persons Services	2%	9%	10%
Mental Health Services	1%	9%	30%
Primary Care	0%	-1%	17%

Acutes has shown a consistently high level of overtime and agency expenditure, which is to be expected given the high levels of services delivered and hours required, along with a higher average wage. In terms of growth rate however, the acute setting has experienced a high growth rate in WTE and low growth in agency and overtime expenditure when compared with other service areas. This may indicate that higher levels of staffing are helping to offset the need for agency staff and overtime in this setting.

All service areas other than Acutes show much larger average increases in agency expenditure over this time and higher average overtime expenditure increases, with the exception of Primary Care services. These service areas have also shown lower average growth in staffing levels over this time period.

Mental Health Services and Primary Care Services have experienced very low average growth rates in staffing levels with annual increases of 1% and close to 0% respectively. Mental Health Services have only the fifth largest number of WTE of the service areas (comprising 8% of the total public workforce) but from 2016 onwards they experienced the second highest expenditure in both agency and overtime. Mental Health Services also show the largest average increase in agency over the time period with expenditure growing an average of 30% each year. This is significantly higher than any other service area, and particularly stark when compared to the average increase of 5% annually in the acute setting.

The relative stagnation in WTE numbers in Mental Health and Primary Care services may drive their need for additional agency staff. This stagnation in WTE growth continues to be seen past the end point of this analysis. In 2021, a large expansion of the health sector workforce was funded and approved in the National Service Plan 2021. This detailed a growth of approximately 16,000 WTE across the health sector workforce, in all service

areas. At the time of completing this research in Q3 2021, large growth in the workforce had been seen on a national scale. However, when assessed by service area, a large proportion of this growth in WTE had occurred in the acute setting with relatively smaller workforce growth in the community. This is despite the target that the majority of this increase would take place in the community setting. While there are a number of factors affecting recruitment in 2021, including the continuing impact of COVID-19, this is further evidence to suggest that there are barriers to increasing the workforce in the community setting.

While it is beyond the scope of this paper to analyse the reasons for the lower levels of staffing increases seen in the community setting, further research into this issue could uncover some of the factors causing the increasing reliance on overtime and agency. Identifying the reasons for low staff growth could help inform policies or targets to reduce reliance on agency and overtime.

The relationship between staffing levels and activity in the health sector has also been considered in understanding the rising trends of agency and overtime expenditure. While overall staffing levels are increasing, it is possible that the demand for staff exceeds the increase in staffing levels seen due to increases in the demand for healthcare.

Studies and projection models have highlighted the rising demand for healthcare in Ireland due to demographic change. However, a demand model for staff to meet this rising healthcare need is yet to be developed. Therefore, it is difficult to determine whether staffing level increases have been sufficient to meet demand for healthcare. The Strategic Workforce Planning Unit in the Department of Health are working with the EU Commission to establish a project to commence development of a Health Workforce Planning Strategy and Planning Projection Model to define the health workforce planning needs across the entire health sector, including both public and private health care provision, into the future. This will significantly aid in the assessment of appropriate staffing levels across the different service areas.

An increase in staffing levels, whether it's through higher levels of WTE, increased overtime, increased agency or a combination of the three, should correspond to an increase in activity levels in the health service. Measures of activity have been considered to try to understand how staffing level changes contributed to changes in healthcare output.

Relevant activity measures have been difficult to source. Without sufficient data on activity linked to staffing across the health service, it is difficult to ascertain how staffing levels affect healthcare output and whether this is a factor leading to the rise in agency and overtime expenditure. To allow for future research into staffing changes and the relationship with activity in the health sector, more and improved data is needed. Specifically, the community would benefit from monthly metrics for the number of patients seen in a service, and the number of hours provided by specific services, such a psychotherapy or occupational therapist hours. This is particularly necessary in the community setting where activity measures were scarce and were rarely available for a sufficient time period. An increase in reliable and regularly collected measures of activity in the community setting would greatly aid in our understanding of the relationship between staffing levels and healthcare output, and in particular the factors affecting the rise in agency and overtime expenditure across different healthcare settings.

10. Conclusion

This paper has examined the agency and overtime expenditure trends in the public health service between 2012 and 2019, and some of the factors that might drive those trends. Both agency and overtime expenditure have risen continuously from 2014 onwards. Previous literature has examined the reasons why health services internationally may use these options to increase workforce capacity and flexibility. Studies have found that high usage of agency staff is not only more costly but can also be associated with negative patient outcomes.

In general, expenditure on agency staff and overtime has shown an increasing trend over the period analysed. This has happened alongside an increase in total staffing levels in the health sector. When expenditure is broken out by the different service areas, we found that trends vary by area. While overtime has had a gradual increase across the service areas relatively evenly, agency expenditure has seen variable trends over time and by service area.

There has been no singular factor found that determines fluctuations in agency and overtime expenditure. However, service areas with higher average staffing level growth have been found to have lower average growth in agency expenditure. More targeted research by service area is needed to determine whether higher staffing level growth in some service areas could lead to a lower reliance on agency staff in future. The reasons for low levels of workforce growth in service areas is beyond the scope of this paper but is an important factor to consider when determining policies to decrease reliance on agency staff.

The lack of activity data available in the community setting hindered this research in analysing the reasons for fluctuations in agency and overtime expenditure. If more activity metrics are collected across the service areas, it might be possible to see correlation and to consider causation. Many activity metrics collected in the HSE's Management Data Report are relatively new, and only cover the period from 2017 or 2018 onwards. It is clear that agency and overtime expenditure in the health service is not easily predicted and depends on a number of factors. Greater availability of data in future will allow for greater analysis of these factors to further improve our understanding of the drivers of agency and overtime in different service areas.

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