Mend the Gap: The Independent Review into Gender Pay Gaps in Medicine in England

March 2020

University of Surrey

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Chair - Professor Dame Jane Dacre, University College London
Research lead - Professor Carol Woodhams, University of Surrey.

With

Professor Carol Atkinson, Manchester Metropolitan University
Dr Ioannis Laliotis, City, University of London
Dr Mark Williams, Queen Mary University of London
Dr Jo Blanden, University of Surrey
Sheila Wild, Equal Pay Portal
Duncan Brown, Institute of Employment Studies.

Produced by APS Group for the Department of Health and Social Care.

First published March 2020.

This publication is available for download at the Department of Health pages of the .gov.uk website: https://www.gov.uk/government/organisations/department-of-health-and-social-care

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1. Background

The Independent Review of the Gender Pay Gap in Medicine was commissioned in 2017 by the then Secretary of State for Health and Social Care, the Right Honourable Jeremy Hunt. This request responded to two primary concerns:

- the gender pay gap in medicine, as reported in the national press, was large for a single professional group
- the new NHS contract for Doctors and Dentists in Training has a potentially negative impact on the pay gap due to a loss of increments during maternity leave

Professor Dame Jane Dacre was appointed to lead the review, and a research team, led by Professor Carol Woodhams from the University of Surrey Business School, was appointed following a competitive process. The research team was given a broad brief to explore many aspects of the gender pay gap in medicine, and they were supported by a steering group representing a broad range of stakeholders.

We define the gender pay gap as the difference in average pay rates for men and women, as a percentage of men's earnings.

The Office for National Statistics (ONS) calculates pay gaps for all employees (currently 17.3%[a]) and pay gaps in hourly rates for those that work full-time (currently 8.9%). Average annual pay is lower among women compared to men across all the groups of doctors we considered. We looked separately at Hospital and Community Health Service (HCHS) doctors, GPs and clinical academics.

2. What we found, in a nutshell

There are gender pay gaps throughout the medical profession. Analysing payroll data reveals basic gender pay gaps of 18.9% for HCHS (mostly hospital) doctors, 15.3% for GPs and 11.9% for clinical academics. These gaps are considerable for a single occupational group. Indicating that grade and hierarchical segregation is at the heart of the gender pay gap, it narrows when we explore typical explanations of gender pay gaps. We create hypothetical like-for-like comparisons of men and women across hours worked, grade, experience and

a https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/genderpaygapintheuk/2019 specialty. Even then, gender pay gaps remain substantive in many comparisons between men and women doctors, especially for GPs.

Our analysis helps to explain the causes and shows that the gender pay gaps we observed are explained by:

Hours. Women are more likely to work less than full-time (LTFT), which helps to explain why their pay is lower. Men report working more unpaid overtime, which means that their effective pay is overstated. When these factors are adjusted for, the gender wage gap is smaller.

Grade and experience. Men doctors are more likely to be older, have more experience and hold more senior positions – all of these characteristics lead to higher pay. Periods of LTFT working have long-term implications for women's career and pay trajectories as they reduce their experience and slow down or stall their progress to senior positions.

Additional payments. Among hospital doctors, we find that gaps in total pay – which include Clinical Excellence Awards (CEAs), allowances and money from additional work – are larger than gaps in basic pay alone.

3. Summary of our main recommendations

Following on from our analysis, our main recommendations to minimise pay gaps are to:

Review pay-setting arrangements

- Among hospital doctors, this means using fewer scale points and greater use of job evaluation. The aim is to ensure that gaps related to grade are justified.
- Encourage more structure and greater transparency in GP pay setting. Decentralised or local practices in pay setting can increase gender pay gaps.

Give greater attention to the distribution of additional work and extra payments

- Increase transparency around additional allowances and individually negotiated pay (for example, for locums or waiting list initiatives). An expanded workforce would reduce dependence on these gender-segregated pay elements.
- Increase basic salaries, which would lead to fewer staff shortages and reduce the need for additional allowances.
- Monitor the gender split of applications for CEAs; change the criteria to recognise excellent work in a broader range of specialties; and encourage more applications from women.

Promote flexible working for both men and women

- Advertise all jobs as available for LTFT.
- Reconsider the structure of LTFT training, so that it focuses on competency not time served, reducing long-term career penalties.

4. How we approached the review

This review was undertaken with a set of values firmly in mind from the outset. We were determined to take an approach that is:

- evidence based

- rigorous
- transparent

This is not the first review to consider women's careers in medicine. However, it marks a step-change in detail and depth of analysis, as the first review to use payroll data for almost all doctors currently working in the NHS (we were not able to capture public health doctors). The 2009 Dacre report *Women and Medicine: The Future* called for better data, and this report provides it.

We have shown the detail in this comprehensive report, so that all can see how we reached our conclusions, and the basis for our recommendations.

We were also determined to ensure that this would be a truly independent review, informed by input from a range of stakeholders with first-hand knowledge of the issues. In our recommendations, we have aimed for clear actions that are practical and achievable, have clear lines of accountability, and are in the best interests of patients, the health service and all doctors, regardless of their gender.

Methodology

Our analysis proceeded in stages. We started with a literature review, to enable us to base our analysis on the current evidence and prevailing wisdom on gender pay gaps in medicine.

We then analysed payroll data, considering three groups of doctors separately (see Table 1).

Table 1. Groups and payroll data sources.

Group of Doctors	Source(s) of payroll data
HCHS (Hospital and Community Doctors)	NHS Electronic Staff Record (ESR), which covers doctors working in NHS trusts
GPs	Records from the NHS workforce census and workforce Minimum Data Set (wMDS), linked to self-assessment tax records collected and held by HM Revenue and Customs (HMRC)
Clinical Academics	Records from the Higher Education Statistics Agency (HESA)

Regression was our main analysis tool. This breaks down pay into the characteristics that individuals have (grade, experience, specialty) and the extent to which these are associated with earnings (for example, how much extra a Consultant earns compared to a Registrar).

Regression analysis enabled us to adjust the gender gaps to compare men and women like for like. It allowed us to answer this question: "If men and women had the same characteristics, how large would the gender pay gap be?"

Then, we used statistical decomposition approaches to discover which characteristics are most important in driving the gap. This step would allow us to state, for example: "20% of the gender pay gap is explained by male doctors occupying higher grades than women doctors, while 5% is because they are in different medical specialties."

The characteristics measured in payroll data do not provide the contextual detail to understand all the factors that lie behind the gender pay gaps. Therefore, we developed the Gender Pay Gaps in Medicine (GPGiM) survey and conducted 30 in-depth interviews with women and men doctors, which helped us to understand the bigger picture. This gave us more qualitative data to add context and provide summaries of doctors' career history and perceptions of gender inequality in medicine.

Finally, we used the GPGiM survey data in an integrative model, which allowed us to demonstrate how the important factors, shown to drive gender pay gaps in the payroll data, are influenced by the individual, family and structural factors, identified from our qualitative data.

5. Context: the potential causes of gender pay gaps in medicine

Our literature review helped us to establish the perceived source of gender pay gaps, which we then test in our analysis. Gender pay gaps in medicine *could* arise for several reasons, which might include:

Higher productivity among men. For example, men might have higher skills because they are more experienced.

Different working patterns. Women might earn less because their working hours are shorter.

Occupational segregation. Men and women are found in different specialties, grades and roles, which might have different pay. Note that this is not necessarily reflective of productivity differences.

Training and pay structures. These reinforce disadvantages arising from women's different working patterns across their lifetimes.

Direct discrimination. This is where men and women are paid a different rate for work of equal value (which is illegal).

In this research, we dig deeply into all explanations for the pay gap, including direct pay discrimination, seeking to understand their importance and using evidence to make recommendations on how each could be ameliorated.

5.1 What we found: gender pay gaps and hours

Using the most recent data available from our three payroll datasets, we compared gender pay gaps across the medical profession. Table 2 shows that the highest pay gap, using a gross annual basic salary measure, is in the primary care sector (33.5%). Gaps are lower, but still substantial, among HCHS doctors (24.4%) and clinical academics (21.4%).

The first factor to account for in our analysis is working hours, which are higher among men. We considered this in two stages; differences in contracted hours from payroll data and then actual (self-reported) working hours from GPGiM survey data.

Table 2: Gender pay gaps in basic gross annual pay with adjustments for hours (%).

	HCHS Doctors	HCHS Consultants	GPs	Clinical Academics
Payroll data				
GPG	24.4	16.9	33.5	21.4
GPG adjusted for contracted hours	18.9	13.0	15.3	11.9
Accounted for by hours adjustment	22.5	22.9	54.3	46.3
GPGiM survey				
GPG	26.8	20.8	32.5	16.0
GPG adjusted for self-reported hours	18.6	6.6	18.4	4.7
Accounted for by hours adjustment	30.1	68.3	43.4	70.1

The larger gender pay gap among GPs is due to high rates of part-time working by women in this sector. Just over half of GPs are women (a much higher proportion than among the other types of doctor) and more than half work LTFT.

Adjusting for contracted hours alters the picture: HCHS doctors now have the largest gender pay gap at 18.9%, with GPs at 15.3% and clinical academics at 11.9%.

A limitation of the payroll data is that the 'hours' measure is based on contracted hours, which can understate actual working hours. To explore this, we use self-reported measures of pay and hours from the GPGiM survey. The unadjusted gender gaps are slightly different here, because the GPGiM data captures more additional payments in the case of GPs and clinical academics.

Our research shows that hours drive more of the gender gap for the HCHS doctors and clinical academics, because men are more likely to be working more than their contracted hours.

This effect is greater among HCHS Consultant grade doctors, where accounting for self-reported hours narrows the gender gap from 20.8% to 6.6%. In contrast, GPs work close to their contracted hours.

6. Gender pay gaps, grade and seniority

Gender pay gaps for HCHS doctors and GPs remain substantial after accounting for differences in hours – women are paid 80-85% as much as men for the same hours.

Digging deeper, there is substantial variation in grade and seniority within these groups. In the hospital sector, men make up around two-thirds of doctors in the two most senior grades (Consultant and Associate Specialist) but are the minority in the most junior grades (FY1 and FY2). Decomposition analysis shows that equalising proportions of men and women across grades would reduce the FTE-corrected pay gap by two-thirds among HCHS doctors.

As we would expect, gender pay gaps within grade are reduced when hours, specialty and age are held constant. However, when using a pay measure that includes bonuses and enhancements, they remain present in some grades; the gap is 10% for Specialty Doctors, 10% for Staff Grade doctors, 8% for Consultants and 7% for Associate Specialists.

Men make up 57% of GP contractors (known as partners), but only 27% of salaried GPs. If men and women were spread across these roles in equal proportion, the observable gender pay gap would reduce by 65%.

We can explain almost all of the gender pay gap in trusts and clinical academia, but about 50% of the gender pay gap in primary care is not predicted by typical factors (age/experience, grade, hours, location and so on). We cannot discount the possibility of direct pay discrimination within individual practices.

Clinical academics are affected by the same phenomena, as their pay is determined by their NHS grade. However, as our data comes from university sources, which uses university grades (professor vs. non-professor), this does not show up as clearly.

7. Gender pay gaps and age

Age is an important determinant of pay within grade, particularly in the NHS where, in some areas, salary scales have many points and individuals receive annual increments.

Progress in attracting women into the profession, and into high-paying grades, will have a gradual impact on pay if the profile of women doctors is currently younger than for men. Decomposition analysis indicates that a quarter of the gender pay gap among HCHS doctors is related to differences in age, and age accounts for a weighty 65% of the gap among clinical academics (where grade is less informative). Similarly, the gender gap among GPs would narrow by a significant proportion if women doctors were the same age as men.

However, differences in age are not driving the whole story with respect to gender pay gaps. Our analysis reveals that ***the pay gap grows with age*** – it is narrow when doctors start their training, and it increases steadily with age. Although we don't have longitudinal data to test this directly, it seems likely that women are falling behind men as they age. Our survey data provides evidence that this starts during the latter parts of training; 84% of men reported they had completed specialty training on time compared with 59% of women. Inflexible training structures and long pay scales make it very difficult for them to catch up.

Decomposition analysis demonstrates that in all branches of medicine, age has a strong connection with the gender pay gap and with grade, explains most of it. If the population of women doctors were of the same mean age as men doctors, the gender pay gap would considerably reduce. If they were equally likely to be promoted to the same grade and scale pay point, the gap would narrow again. Our recommendations focus on reducing the negative relationship between a female doctor's age and her slower career progression.

8. Gender pay gaps and specialty

There is a perception that women cluster in areas of medicine that are less well rewarded. While it is true that women are overrepresented in some areas (as GPs and in non-surgical specialties) this does not drive gender gaps in basic pay. Fully qualified GPs have a pay rate that is comparable to Consultants, and clinical academia (where men are overrepresented) has slightly lower pay due to fewer available non-basic enhancements.

Pay differences across male-dominated and female-dominated HCHS specialities tend to be explained by differences in age, grades and hours. The largest unadjusted basic pay gap is in surgery (24.4%) and it is almost entirely explained by differences between men and women by age, experience and grade. It is almost eliminated when men and women are compared like for like. However, this does not mean there is no cause for concern. This indicates how deeply segregated surgery is as a specialty; women are found in low proportions and are, on average, younger and more junior. This has to be overcome to close the gender pay gap.

9. The role of additional payments and CEAs

The allocation of enhancements, including Clinical Excellence Awards (CEAs), adds considerably to a doctor's wages. In March 2019, NHS Digital data showed ***additional elements of nonbasic pay are worth a mean of 33% on top of basic pay per month***.

Clinical Excellence Awards are highly visible; however, they only represent 22% of the additional enhancements available to Consultants, with payments for "additional activity" (widespread) and "local payments" (rarer) worth more to those who receive them. Other grades of doctor also increase their basic salary by significant proportions through additional activity and local payments. Our analysis shows that non-basic, additional, payments are seen to vary with gender after adjustments are made, with women in specialty doctor, staff and local grades receiving 10% less.

We showed above that specialty does not play a role in explaining gender gaps in *basic* pay. However, most of the perception of unequally-rewarded specialties arises with reference to *total* pay rates. There is some truth in this, as total pay enhancements appear to be unequally distributed across specialties to the disadvantage of women. Decomposition analysis for total pay demonstrates that specialty effects account for 3.4% of the gender pay gap in total pay for the whole workforce. This is small, but notable.

The non-basic allocation of pay then, adds a meaningful boost to basic salary, but runs the risk of indirect pay discrimination if women are disadvantaged in accessing additional payments and their use cannot be objectively justified by business needs (for example, the need to reduce waiting lists or provide cover for unsocial hours work). In interviews, concerns were expressed about women's access to CEAs, and it is the case that women are considerably less likely to receive these enhancements.

> *The sorts of things [for Clinical Excellence Awards] that men tend to find easier to do, like the going, here, there and everywhere on committees. For women, it's more difficult because of childcare arrangements. Women tend to more feel that somebody has to stay behind and look after the patients whereas the man is more likely to say, "I must get to the important meeting."*

10. Beyond the payroll data: motherhood penalties and structural factors

Our literature review highlights how men's and women's different social roles affect gender pay gaps. We are particularly concerned with the impact of motherhood, and how periods of maternity leave and LTFT work affect women's long-term career prospects.

10.1 The motherhood penalty

Our self-report survey noted that the average age for first-time medical mothers was 31.5 years. The ESR data shows that 20 to 25 years after this age, the gender pay gap for HCHS women doctors is still around 14%. And it is another ten years on top of this (when women are about 65 years old) until they start to catch up. This compares unfavourably with other professions, where gender pay gaps close among UK graduates about 15 years after the birth of a first child.

> *It seems like, every time somebody has a baby in the NHS, everyone's completely surprised, as if it's never happened before. We've been having babies for millions of years! Well over 50% of the medical workforce is female, yet we still have not made it possible for women to combine motherhood and being doctors. If the NHS is going to survive ...we need women to be able to reach the top of their careers.*

Our survey data provides more detail at an individual level. By the time a woman doctor's first child is 16 years old, the average woman doctor has had breaks and periods of part-time working that equate to four years less time at work than the average male doctor at the same stage. Our analysis reveals that the pay penalty is far greater than would be expected, likely owing to her disadvantage in reaching the highest grades.

> *I have a colleague... we're the same age, and we both left medical school at the same time, and we are the two consultants in our team. He will always be 10 years ahead of me on the pay scale, even though we do the same job, and I have to accept that ...It's somewhat appropriate because he hasn't had this crazy career that I've had (working LTFT, qualifying via CESR[b]). He's been consistently within the team for 10 years, gaining experience, which is all for the good. Whether he should be paid £10,000 a year more than me, I don't know.*

Implications of changes to maternity pay in the 2016 junior doctors' contract is likely to widen the gender pay gap, and this is important, however the impact is minor in comparison with other aspects of pay policy.

10.2 Structural and cultural factors

Many professional women have children, however, there was speculation from interviewees that medical careers are structured in ways that make combining career progression and motherhood particularly difficult for doctors.

Interviewees often discussed the perception that workplace systems and structures were particularly unsuitable for women. The themes that arose served to illustrate patterns found in the payroll data analysis. Comments highlighted the disadvantages that arise from LTFT working, particularly during the years of training to become a specialist.

> *It's not direct discrimination against individual women, but it's a system that is just not designed to meet the needs of a female workforce.*

Among hospital doctors, there is often a lack of clearly defined career options for those working LTFT. When faced with difficulties in the structure of training, which requires frequent moves and irregular working patterns, some women chose to move into SAS grades, where pay is lower and there is less opportunity for progression.

The Modernising Medical Careers (MMC) reforms to training, implemented in 2005, are especially problematic for women with caring responsibilities, because training programmes specify large geographical areas and do not, in the specialist stage at least, support being co-located with a partner.

> *[A consultant] said she didn't see why trainees thought it was acceptable to only work 24 hours per week, and that that was absolutely unacceptable and incompatible with the career of medicine… that it shows lack of commitment to work part-time… that this shouldn't be happening in medicine. Luckily, people who are so open about their dislike*

[b] CESR = Certificate of Eligibility for Specialist Registration

of less than full-time training are few and far between. But if there are people out there who are willing to say it very openly, there are a lot more people who are thinking it.

As well as these structural features, some of our interviewees described experiences of sexist behaviour and attitudes. A clear picture emerged of a macho culture that disadvantages women. Slightly more women than men reported that bullying held them back in their careers. Interviewees spoke of the importance of role models, mentoring and sponsorship, although our survey data provided little evidence that the presence and importance of these is different for men and women medics.

11. Putting it all together

Direct causes of gender pay gaps in medicine can, for the most part, be explained by observed characteristics. Age, experience and seniority or grade account for the differences in basic pay between men and women doctors. In this report, we have done further analysis to explore why men and women differ in their seniority, by modelling grade and experience (adjusted for history of LTFT working).

We have looked at seven factors to capture different hypotheses about the underlying causes of the gender pay gap.

The factors we consider are:

- additional intersecting identities, primarily race and disability
- career values and priorities
- workplace culture
- structural factors
- family and domestic commitments
- quality of career-enhancing experiences (used for experience within HCHS roles)
- intention to leave medicine (used for experience)

We need to be cautious in our interpretation of this exercise. For example, the intention to leave medicine might be linked to lower motivation, which also has an impact on experience. This could not be distinguished from a direct effect of the desire to leave. We also need to be aware that some of our factors will tend to vary together (perhaps priorities and family commitments), making it harder to separate out effects.

Our findings are very clear. The lion's share of the seniority gap between men and women doctors (both GPs and HCHS doctors) and the lower level of experience among women HCHS doctors, is accounted for by ***a combination of family and structural factors***.

Workplace culture plays a substantial role alongside these factors, in accounting for the lower level of experience among women GPs.

Overall, our results suggest that it is the interaction between women's family responsibilities and an unsympathetic career structure which leads to lower levels of experience and less favourable career paths for women.

Why women are in less favourable grades and have lower experience

We considered the following in our analysis:

Family factors, including LTFT working, the presence of children and other caring responsibilities, being in a long-term relationship (both now and in the past) with another doctor, having the secondary career in a couple, interruptions in training for family reasons and taking maternity leave.

Structural variables, which aim to understand individuals' experience of structures that might reduce their opportunities to reach seniority. For example, this might mean: a perception of being held back by the inflexibility, displacement potential and geographical inconvenience of training structures; experiencing an unsupportive Deanery; feeling a lack of control over one's own job design; negatively experiencing the volume of tasks and notice given for task completion; being in a specialty with a long training career path; and not having opportunities for professional development. The final element in this bundle of factors is whether respondents agreed that they had been in a situation (for example, when undertaking locum duties) to negotiate salary but felt ill equipped to do so.

Workplace culture variables, included reported experience of harassment or bullying, perceived penalties for working LTFT, and the presence or lack of mentors and role models.

12. Recommendations to reduce the gender pay gap

The issues that contribute to the gender pay gap in medicine are complex, and so are the findings that we have reported. However, to ensure that action is timely and effective, our recommendations must be straightforward and include clear lines of accountability.

To meet this challenge, the working group sought key unifying themes, or calls to action, on which to build and organise our recommendations. This process was collaborative and involved consultation with a wide range of stakeholders. Each recommendation was checked against the strength of the evidence from this review and considered in terms of its pragmatism. Ultimately, seven themes emerged.

Theme 1	Address structural barriers to the career and pay progression of women
Theme 2	Make senior jobs more accessible to more women
Theme 3	Introduce increased transparency on gender pay gaps
Theme 4	Mandate changes to policy on gender pay gaps
Theme 5	Promote behaviour and cultural change
Theme 6	Review clinical excellence and performance payments and change accordingly
Theme 7	Implement a programme for continued and robust analysis of gender pay gaps

Under the umbrella of these seven themes, the working group agreed on 47 recommendations, the most striking of which are highlighted above, on the first page of this summary.

In general, these recommendations aim to:

- address the structural barriers to the progression of women in the medical workforce
- prioritise retention and promotion of more women to more senior levels in the workforce
- eliminate the pay and career penalty for those doctors LTFT

Like the underlying issues and the findings of this review, the system in which the gender pay gap operates is also complex. No single organisation can solve the problem on its own: employers, educators, regulators, Royal Colleges and government all have their part to play and they will need to work together in a co-ordinated manner.

The actions we have recommended reflect best practice in education and employment, and will benefit all doctors working in the NHS, regardless of their gender. We also believe these actions will ultimately benefit the service, patients, and the advancement of medicine through teaching and research.

13. Conclusions

The gender pay gap in medicine is large, although largely explainable.

Men in the profession are older on average, and they are employed in more senior positions – this fact explains a significant component of the pay gap. In the near future, the number of women in the medical workforce is likely to balance the number of men in full-time equivalent (FTE) terms, as the ratio of women to men in our medical schools is approximately 60:40. However, this trend does not in any way guarantee that women will make up the pay gap within an acceptable period of time. ***The pay gap is narrowing very slowly, and it will continue to disadvantage women for many years to come, unless we speed things up***.

There are other causes, which are multiple and complex, so they will be challenging to resolve. It will require a root and branch review of career and pay structures and a sustained commitment to wide-ranging measures to make a difference.

Medical careers were originally designed for a predominantly male workforce. The expectation was that doctors would work full-time, without any breaks in service, over many years. It was also assumed that doctors would be free to take on extra commitments to advance their careers. This career pattern has not evolved with changes in the demographic and in working patterns, resulting in a lower average salary for the female medical workforce.

While LTFT working may benefit women in some ways that are important to them, it has a disproportionate effect on their pay, even after accounting for hours worked and periods of leave. ***Women are segregated into different, often secondary career paths,*** because of the career structure in some specialties, and the difficulties with LTFT working. This segregation results in pay penalties, especially in relation to CEAs and additional non-basic pay components.

Ultimately, the ability to manage careers more effectively, flexibly and equally must also be expected to improve opportunities for professional development, productivity and the quality of care. The NHS is suffering from an acute shortage of doctors, and we cannot afford to waste so much of the knowledge, skills and talents of our dedicated and committed workforce.

Chapter 1. Introduction and background to the Independent Review of the Gender Pay Gap in Medicine in England

Contents

1. Introduction

The Independent Review of the Gender Pay Gap in Medicine was commissioned in 2017 by the then Secretary of State for Health and Social Care, the Right Honourable Jeremy Hunt. It responded to two primary concerns. First, that the gender pay gap in medicine, as reported in the national press, was large for a single professional group. Second, that the new NHS contract for Doctors and Dentists in Training would have a potentially negative impact on the pay gap, given the move away from an incremental scale during training, to fixed pay points which could disadvantage those having breaks in training.

The independent review was launched in May 2018. Professor Dame Jane Dacre was appointed to lead the review, and a research team, led by Professor Carol Woodhams from the University of Surrey Business School, was appointed following a competitive process. The research team was given a broad brief to explore many aspects of the gender pay gap in medicine.

The independent review provides the most comprehensive study to date of the causes and complexity of the gender pay gap in medicine in England and provides a robust evidence base from which to tackle it.

2. Aim of the independent review

The overarching aim of the independent review is to understand the causes of the gender pay gap in medicine and to make implementable recommendations to reduce and, ultimately, eliminate it.

A working definition of a gender pay gap is **the difference between the average earnings per hour of men and women expressed as a percentage of men's earnings**[1]. This is expanded on and explored in depth in this review.

The gender pay gap has been analysed using up-to-date and comprehensive data, comprising both existing national datasets and data collected specifically for the review. The review comprises:

- a literature review to obtain evidence on the gender pay gap in medicine that informs wider understanding
- qualitative data from in-depth interviews of selected doctors
- an online survey of a sample of doctors from the General Medical Council (GMC) registered list of medical practitioners
- an analysis of quantitative data from the electronic staff record from NHS Digital, Higher Education Statistics Agency (HESA) and Her Majesty's Revenue and Customs (HMRC)
- discussion of findings, conclusions and recommendations

The research team was supported by a steering group with representation from:

British Medical Association
Department of Health and Social Care
Equal Pay Portal
General Medical Council
Government Equalities Office
Hospital Consultants and Specialists Association
Health Education England

Imperial College London
Institute of Employment Studies
London School of Economics and Political Science
Manchester Metropolitan University
Medical Schools Council
Medical Women's Federation
NHS England and NHS Improvement
NHS Employers
Queen Mary University of London
University College London
University of Surrey

They held two stakeholder events: one near the initiation of the project, to scope the factors that may help to explain the gap; and one towards the end, to formulate the recommendations. The review sets out these evidence-based recommendations that seek to first reduce and then eliminate the pay penalty that women experience.

The remainder of this chapter first provides an overview of women's entry to, and progress within, the medical profession to date. It then sets the wider context for working as a doctor to support understanding of how the gender pay gap has developed.

3. A brief history of women in medicine

> *"Woman as a doctor is a conceit contradictory to nature and doomed to end in disappointment to both the physician and the sick"*
>
> The Lancet, 1878

While throughout history there have been female medical practitioners, for many centuries women were systematically excluded from medical training. Medicine was considered a male-only sphere, and, until comparatively recently, women were in a minority and were obliged to practise outside of or on the periphery of the profession.

It is only in the last 100 years that women have been able to work as doctors. The first school of medicine for women was opened in 1874 and, thereafter, British universities began to allow women to study medicine. However, they admitted only a few and many did not receive training equivalent to that of a man. Such restrictions not only limited women's opportunities to develop their expertise, but also encouraged a perception that a woman's role as a medical practitioner was different from, and possibly inferior to, that of a man, thereby warranting lower pay.

World War I and World War II saw a shortage of male entrants to the profession, prompting several medical schools to open their doors to female students, only to close them again when men returned. Medical women were appointed with the same pay and allowances as medical men, and with "relative rank", but their appointments were "for the duration", that is, temporary. This treatment was not, of course, unique to women doctors, for after World War I and again after World War II, parliament legislated to allow employers to dismiss employees taken on for the duration of the war.

In 1948, with the creation of the National Health Service, all medical schools were opened to women, but many schools applied a quota of around 20% female entrants. It was not until 1975, when the Sex Discrimination Act came into force, that women were accepted into medical schools on the same terms as men.

From the 1960s onwards, part-time (or, as it is referred to in medicine, less than full-time (LTFT)) working was acknowledged as important, as the number of women entering medicine began to rise and the need to combine work and childcare, predominantly then a female responsibility, emerged. Women doctors who had children often worked LTFT, either running general practice partnerships in the family home with their husbands, or stepping off the hospital career ladder and returning to work in assistant roles. In 1962, an advisory service was established to support those married women doctors who wished to work LTFT or to return to practice after a break to have children. By the 1980s, specific, albeit restricted, funding had been identified to support LTFT female trainee doctors. Many subsequent reviews have identified the need to offer both LTFT training and LTFT working to support women's career progression.

Where are we now? By 2015, 45% of doctors were female, which, contrary to the Lancet statement above, is now recognised as being beneficial in creating a more diverse workforce. By 2017, 59% of those entering the profession as medical students were women[2], despite which women's underrepresentation at senior levels continues to be evidenced (Elston, 2009). Some argue that this is a result of women's career trajectories, which often differ from those of men; others suggest that career structures in medicine inhibit women's progression. Certainly, current working practices mean that many women, who continue to shoulder most responsibility for childcare, continue their practice on a LTFT basis. Some see this as a trend that will impose additional costs on the NHS[3], while others regard it as just one of the many challenges for workforce planners to take into account. What both viewpoints have in common is a realisation that a considered response to work and career structures is needed on the part of the NHS and others. This affords an opportunity for changes that will reduce (and ultimately eliminate) the gender pay gap.

4. Employment, training and support structures in the medical workforce

The structure of the medical profession is complex, but this independent review covers three main groups. In England, the majority group is NHS-employed Hospital and Community Health Service (HCHS) doctors. A smaller but substantial group is General Practice (GP, hereafter "GPs") doctors. A third much smaller group is clinical academics, who mainly work in universities on academic contracts, but offer some clinical services to the NHS.

4.1 Employment structures

NHS doctors are employed on NHS-wide contracts[4], either the Consultant or the Specialty Doctor and Associate Specialist (SAS) contracts or the Doctors and Dentists in Training Contract; all being negotiated with the British Medical Association (BMA) and, in the case of the consultant contract, also the Hospital Consultants and Specialist Association (HCSA). The consultant contract was last renegotiated in 2003 and reformed the way consultants were paid from a loose definition of a notional half-day, to a more clearly defined programmed activity (PA) of four hours each, agreed formally in a job plan. The PAs were for direct clinical care (DCC), supporting professional activities (SPA), additional NHS responsibilities, and external duties. The normal number of PAs was ten, representing five days at two PAs per day. At this time, the number of incremental pay points was increased to 19 with eight thresholds for NHS consultants. Provision also exists for Clinical Excellence Awards (CEAs), to reward consultants working over and above the standard expected of their role. These replaced the previous Discretionary Points and Distinction Awards. Local Clinical Excellence Awards will change to local performance payments from 2021. Transfer to the contract was not compulsory and not all current NHS consultants are working on the so-called "new" contract.

The SAS contract was implemented in 2008 and introduced a new Specialty Doctor grade, replacing the former non-consultant career grades, and also closed the Associate Specialist grade. SAS doctors' work plans are also based on PAs and have a long incremental pay scale. Following concerns about the morale of the SAS workforce and issues about opportunities for progression, the BMA and NHS Employers are about to enter negotiations for a reformed contract.

The contract for Doctors and Dentists in Training, which was in need of modernisation as a result of changing training structures, was revised in 2016. A lack of agreement on appropriate terms between the BMA, NHS Employers and the Department of Health and Social Care resulted in an acrimonious industrial dispute and the compulsory introduction of a new contract from 2016. Following further negotiations, agreement was reached in 2019 between the BMA and NHS Employers, and a revised contract is now in place.

GP practices are set up as small businesses within the NHS and GP partners are self-employed and responsible for their staff, which includes salaried GPs. They operate local HR policies supervised within the practices by practice managers.

4.2 Gender balance in medicine

The proportion of female doctors has increased significantly over recent decades and, by 2015, approaching half were female; yet the profession experiences high levels of gender segregation. For NHS doctors, there are distinct specialties and sub-specialties, all with different identities, and each with a different gender balance. This ranges from male dominated specialties that are largely surgical, to female-dominated specialties, which include geriatrics and palliative medicine. Surgery, for example, has the lowest proportion of female doctors (12%), followed by ophthalmology (28%)[5] and two specialties – paediatrics, and obstetrics and gynaecology – have more than 50% female doctors. Gender pay gaps are evident and highest in male-dominated specialties.

By 2015, more than half of GPs were female, and this figure is even higher for salaried GPs. Gender pay gaps are difficult to establish for GPs, as the practices are often too small to have to report pay gap information. This review has used HMRC data to undertake a detailed analysis of pay gaps at individual GP level for the first time.

4.3 Working hours

The increase in the number of women entering the profession has been accompanied by an increase in the number of doctors working and training (see below) LTFT, with an estimated 28% now doing so. The female-dominated GP group has higher levels of LTFT working than other specialties and more female GPs doctors work less than full-time (41% in 2013-14) than male doctors (12% in 2013-14). These patterns need to be considered in the context of doctors' working hours more generally, which are typically long and, for many, incompatible on a full-time basis with responsibilities such as childcare.

The implications of this for the workforce, particularly in relation to its gender balance, have been explored in a number of reviews. The Dacre[6] report, for example, identified the far greater preference of women doctors, compared with men, for LTFT working or other forms of flexible working. Also, that women doctors have a comparative preference for working in specialties that offered more "plannable" working hours. Dacre considered the merits of, and problems associated with LTFT working, which included pay and career detriment. This was confirmed by the Deech review[7], which outlined a series of recommendations to make

LTFT working and training a positive choice for both sexes. Despite this, evidence continues to demonstrate that it is mainly female doctors that work on an LTFT basis, and that they experience career and pay disadvantage as a result.

4.4 Training structures

Changes to training structures

Medical training is a lengthy process, with at least four to five years as an undergraduate, and an extended period of postgraduate training of between three and six years before consultant or GP specialist status is reached. Currently, junior doctors complete two years foundation training, fully registering with the GMC after year one, followed by a two-year core-training programme, and a three-to-six-year specialty programme; there is some variability depending on specialty. It should also be noted that these timeframes are for those who train on a full-time basis and are much longer for those who train LTFT.

There have been concerns about the quality, standards and flexibility of postgraduate medical education and training for at least 25 years. This resulted in a series of reports, all of which made recommendations resulting in changes to medical training, with an impact on junior doctors' contracts, and potentially, the gender pay gap.

Before 1993, junior medics were obliged to complete a year as a house officer (HO), in order to be fully registered with the GMC. Following this, they were eligible to be appointed to a senior house officer (SHO) role, rotating through specialties, while becoming more experienced as a registrar and senior registrar, selecting their chosen career specialty and attaining a consultant role. While, there were some good rotations, there were examples of trainee doctors meandering around SHO posts in a variety of specialties, often not achieving their career aspirations, and ending up in a variety of non-consultant career grades. This was perceived to have more of an impact on women and BAME doctors, but it was not formally measured.

This problem was considered alongside a concern that postgraduate training in medical specialties took longer in the UK than in comparable countries overseas, especially Europe. Post 1993 reforms to postgraduate medical training were designed to formalise career progression, and to standardise training programmes. The design and implementation of these programmes did not consider the specific impact on the female workforce. All of the reforms described below have potential to specifically interact with issues of LTFT working, childcare, geographic mobility, out-of-hours working, and the differential impact on some specialties more than others. This will potentially have had an impact on the gender pay gap, but this has not been formally evaluated.

The 1993 reforms, known as Calman Training[8], sought to create a shorter training programme that trained specialists more quickly. In an attempt to improve workforce planning, trainees were awarded a national training number (NTN), which allocated a consultant post if training was successfully completed, so that the predicted numbers of consultants needed in the specialties could be defined. The NTN also guaranteed training in a specific region. However, there were criticisms of the scheme for being too rigid and inflexible[9]. There were also problems with introducing the programme at the same time as the "new deal"[10], designed to regulate working time, with the result that training time, while becoming more standardised, was reduced. This initiative predated the introduction of equalities impact assessments in 2000, so there is no published data on its impact on female doctors.

Modernising Medical Careers (MMC, 2005) aimed to further refine training, to increase the length and breadth of early (years one and two, or foundation) training and to introduce a computer-matching application system – Medical Training Application System (MTAS).

This was a computer-based application system; it was introduced quickly, but failed. This caused chaos in the application process; reputational damage to MMC; and a massive loss of confidence in the whole training system, from trainee doctors, their consultants and trainers. A 2007 inquiry[11] recommended several changes, increasing training in generalism, and the creation of a training oversight body called Medical Education England (MEE). This subsequently became **Health Education England**.[12] There is no reference specifically to female doctors in the 2007 report's recommendations.

The Shape of Training Review (2013) was part of a continuing effort to improve the training structures, led by Sir David Greenaway[13]. It made additional recommendations to reform training, to make it more generic and better focussed towards modern clinical practice, without lengthening training time. This was approved by government ministers in 2013; new curricula are currently being written, and are undergoing GMC approval for subsequent implementation.

A common feature of all the reviews is a long period of training, together with a long progression through a pay structure. This has an impact on the gender pay gap, as it makes it difficult for women to catch up after periods of time out of the workforce, or when working LTFT. Workforce planning has been notoriously difficult, with accurate predictions being elusive, and changes to doctors' training pathways making it even more difficult. This flux makes the investigation of trainee doctors' pay extremely complex.

Less than full-time training

Less than full-time training is informed by EU law, and the GMC. In 1993, the EU Directive (93/16/EEC) stated that hospital training on a LTFT basis should be at least 50% of full-time training arrangements. In 2005, EU Directive 2005/36/EC[a] changed this by allowing the decision on the minimum percentage for LTFT training to be taken by the competent authorities in each individual member state, as long as "the overall duration, level and quality of such training is not less than that of continuous full-time training". At that time, the Post Graduate Medical Education and Training Board, as the then UK competent authority, chose not to set a minimum basis for LTFT training. However, in response to Directive 2005/36/EC, a new approach was introduced that was intended to go hand in hand with the promotion of a better work-life balance for all doctors. *Doctors in flexible training*, published by NHS Employers in 2005, opened up flexible training to all doctors, with a view to achieving a balance between LTFT arrangements, educational requirements and service needs.[14]

In 2011, the GMC, by then the competent authority, undertook a review of the minimum percentage for LTFT training, and concluded this should be 50% and that only in exceptional circumstances should training be undertaken at less than 50% of full-time. The principles adopted then are still current[14].

Any junior doctor, male or female, is eligible to apply for LTFT training. Those applying must show well-founded individual reasons why training on a full-time basis would not be practical for them; it is for the deaneries, who manage training programmes, to determine whether the request is well-founded. In practice, deaneries use two main categories to assess eligibility:

> Those doctors in training with: disability or ill health; responsibility for caring for children; and responsibility for caring for an ill or disabled partner, relative or other dependant.
>
> Those doctors in training with: unique opportunities for their own personal/professional development, for example, training for national/international sporting events; or

[a] In the interim, the Part Time Workers (Less Favourable Treatment) Directive Regulations 2000 had come into effect, putting less than full-time workers on a par with colleagues working full-time, and making it unlawful to put them at a disadvantage at work or in training for work.

short-term extraordinary responsibility, for example, a national committee; religious commitment – involving training for a particular religious role which requires a specific amount of time commitment; non-medical professional development.

Other reasons may be considered, but agreement is dependent on the particular situation and the needs of the specialty in which the individual was training[b]. While in theory LTFT training is available to both male and female junior doctors, it is taken up to a much greater extent by women and provides the means of minimising the disruptive effect of motherhood on a female doctor's earning capacity. Yet the evidence suggests that while the mechanisms are in place and their effectiveness is being kept under review, they are not yet achieving what they are intended to achieve. As Health Education England has noted, culture presents the biggest barrier to change: the NHS is not used to offering flexibility, and there is local and regional variability in the way in which flexible working operates.

4.5 Childcare and support for carers

For those with childcare and other caring responsibilities, the provision of support is often a crucial factor in remaining and thriving in a medical career. In 2004, a one-off survey of childcare in the NHS[15] found that almost all (97%) of the responding organisations had access to a childcare co-ordinator, and 11,700 nursery places for under five year olds were available to NHS staff. NHS statistics for the same year show a total of 1,260,860 staff, of whom 86,996 were medical or dental staff[16]. The figures suggest a considerable shortfall in childcare places. Over three quarters (78%) of responding organisations intended to extend their existing provision of childcare support. The survey has not been repeated, so NHS workforce planners have no recent information about the way in which access to childcare might affect the availability of key groups of staff, including doctors. There is a similar lack of evidence on support for other caring responsibilities, for example, elder care. While there has been increased childcare support since the 2004 survey, evidence suggests that demand still out strips supply and that formal childcare can be unaffordable for those who need it at non-standard times[17]. Adequate support for care is essential in enabling equality at work; and lack of it, given women's disproportionate responsibility for caring, makes a major contribution to the pay gap between men and women.

5. Legal and regulatory context

Action to put female doctors on a par with their male colleagues, both in terms of career development and earnings, has been initiated in response to external prompts, such as European Directives or UK equality legislation. A summary is provided here for context.

The Equal Pay Act (1970) came into effect in 1975, with employers having been given a five-year period within which to bring women's pay up to the level of that of men doing equal work. The Act made it possible for women to claim equal pay when they were doing the same work as a male colleague. In 1983, the Act was amended to include the concept of equal pay for work of equal value, thereby enabling women to claim equal pay with men doing different but equally demanding work.

The Sex Discrimination Act (1975) came into effect at a time when some 20% of doctors were female. The Act gave girls a free choice of subjects at school, so over the next few

[b] The new 2019 contract, which postdates data collection for this independent review, made additional provision to recognise the additional costs of those working LTFT and also provided a fifth pay point for doctors on the longest training paths. The contract has a strong emphasis on safe working hours with a system of exception reporting when hours scheduled for work are exceeded, overseen by a guardian of safe working hours in each trust. The 2019 agreement means that employers of junior doctors will be required to appoint a champion of flexible training, where they do not already have one in place.

decades substantially more women could apply for medicine. It also made quotas on the number of women studying medicine unlawful, and enabled women to formally challenge matters such as the impact of the revalidation regime on women doctors working LTFT.

The Equality Act (2010) incorporated the provisions of both the Equal Pay and the Sex Discrimination Acts. It also incorporated the **Gender Equality Duty 2006** (implemented in 2007) which put the onus on public sector employers, including the NHS, to prevent unlawful discrimination and harassment, and advance equality of opportunity. This legislation raised the profile of gender equality issues in the workplace, and heightened awareness of the extent of the gender pay gap and of any causal or linking factors. The Duty required public bodies, including NHS trusts, to analyse the effect of existing and new policies in relation to gender equality. While many NHS trusts introduced equal pay policies, some of which are still current, these are not necessarily effective for doctors who are not part of the Agenda for Change pay system, which was introduced for all other NHS staff to achieve equal pay for work of equal value. This Duty has now become the **Public Sector Equality Duty** that covers gender and other protected characteristics. It maintains the requirement on public bodies to analyse the effect of existing and new policies and practices, publish the evidence and set priorities. The obvious inference is that, given the known existence of a gender pay gap in medicine, action should have been taken, but there is little evidence of this.

Gender Pay Gap Reporting (2017) The 2017 announcement of the Independent Review of the Gender Pay Gap in Medicine coincided with the introduction, in April 2017, of a requirement on all organisations employing more than 250 people to report on their gender pay gaps. The 250 employee threshold means that the requirement does not impact on all doctors, as it will not, for example, apply to the overwhelming majority of GP practices. Trainee GPs may, however, be covered under certain circumstances, for example, lead employer arrangements.

6. Current challenges to the medical workforce

The NHS is under tremendous strain, in spite of being recognised globally as one of the best health systems[18]. Pressures include: demand for health care outstripping supply; increased patient expectations; an ageing population and the system struggling to cope with the resulting increase in patient volume, many with multiple comorbidities. There has also been an increased focus on patient safety, with a reduced tolerance of error and the well-recognised annual winter pressures.

All this increases the workload of doctors, resulting in psychological morbidity, reduced well-being and burn-out[19]. Indeed, recruitment and retention of medical staff is being seen by several medical royal colleges as a crisis[20] and staffing shortages result from a number of factors. First, the 2016 pension changes, as a result of which some consultants and GPs have received large tax bills for additional work and, as a consequence, are choosing to work less or retire early. This, together with earlier pay freezes for doctors, has compounded current recruitment shortfalls in acute specialties and GPs. The added problems, described above, of working LTFT and finding appropriate child care have increased the pressure on the medical workforce. Employers also face great difficulty in organising safe rotas in this overstretched environment and are increasingly offering additional work opportunities to fill rota gaps in on-call shifts, or providing additional waiting list initiative support. This has the potential to influence the total gender pay gap, as men and women may have different opportunities to take on these extra roles, depending on their specialty and caring responsibilities.

7. Structure of the independent review

The independent review explores in depth the issues raised in this chapter, plus others identified in the literature review (Chapter 2), which gives an up-to-date analysis of the published evidence in relation to the gender pay gap in medicine. Chapter 3 outlines the methods used for the collection and analysis of the research data.

A mixed-methods approach has been used to include qualitative information collected from in-depth interviews, and the results of a survey sent to 40,000 doctors from the GMC list of registered medical practitioners. This has been analysed in parallel with large datasets supplied by HESA, HMRC and NHS Digital. Chapter 4 focuses on gender pay gaps in HCHS doctors, and Chapters 5 and 6 on GPs and clinical academics, respectively. Chapters 7 and 8 explore the causes of pay gaps from the perspective of; the individual, including family and career (Chapter 7); and the workplace, structural and cultural elements (Chapter 8).

Chapter 9 pulls together, into an integrative model, all the known contributors to gender pay gaps together across the different groups, and provides conclusions on the causes of the gap based on the evidence presented. Finally, Chapter 10 summarises the conclusions and makes recommendations for change. The recommendations are based on interpretation of the evidence, and collated into a structure that is accessible and supports successful implementation. Its aim is to reduce, and ultimately eliminate, gender pay gaps in medicine.

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Chapter 2. Literature and policy review

Contents

Figures

1. Introduction

You cannot easily fit women into a structure that is already coded as male; you have to change the structure[1].

The aims of this chapter are: to build a picture of what is already known about factors that contribute to the gender pay gap in medicine, to shape the direction of analysis, and to inform recommendations for future action.

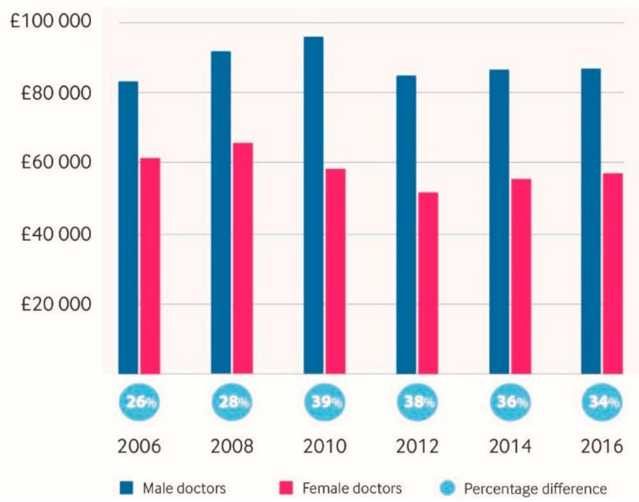
The number of research papers within the health sector and initiatives within the NHS having a bearing on the gender pay gap over the past two decades is considerable. This literature review comprises a structured search of academic published papers from the UK and overseas plus previous reports by Royal Colleges, representative and regulatory bodies. We also looked at the advice and guidance produced in response to workplace issues which may have an impact on the gender pay gap.

This chapter is delivered in three main sections; the first details statistics of the gender pay gap in medicine, the second outlines an analysis of the causes of gender pay gaps in medicine, and the final section summarises previous reports from the NHS context that have recommended ways to reduce the gap.

2. The gender pay gap in medicine

Gender pay gaps in UK medicine are a long-standing issue. Data on median gross annual pay from the Office for National Statistics (ONS) show that, in 2016, female doctors working full-time earned 34% less a year than their male counterparts[2]. Overall, the pay gap in medicine has grown over the past decade. Back in 2006, female doctors earned 24% less than their male colleagues (Figure 1). The gap rose to 39% in 2010 and fell again to 34% in 2016. Since 2008, published data shows that female doctors working full-time have consistently earned a third less than male doctors.

Figure 1. Gender pay gaps in UK medicine 2006 to 2016[2]*.*



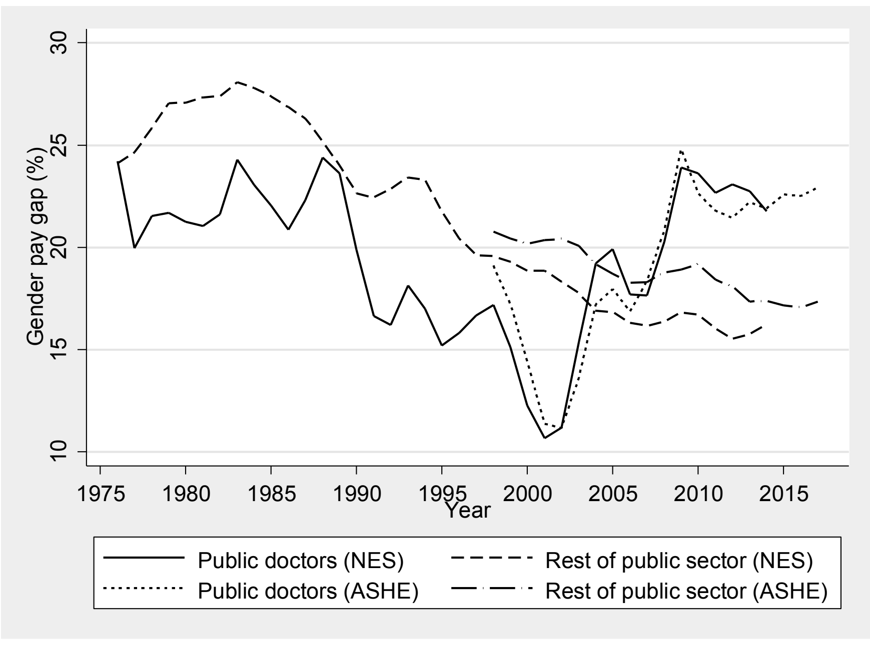
Fluctuations in the gross annual gender pay gap in medicine will have many causes. One of them is likely to be increased proportion of lower-salaried female medical graduates and the increased uptake of part-time working[3].

There are also differences in gender pay gaps across different branches of medicine. Gender pay gaps for hospital doctors (HCHS) are lower than the average medical pay gap and are lower still, once the effect of part-time working is removed. The HCHS gender pay gap was 15% in 2018 on a whole-time equivalent salary basis[4]. GPs have a large gender pay gap. NHS Digital (2018) reported a mean gross annual pay gap for GPs of 33.5%, which is 22.7% among contractor/partner GPs and 31.3% for salaried GPs. Reduced-hours working is likely to explain a proportion of this, however, these figures are not readily available.

An analysis of hourly earnings for the UK medical profession (for employees only) using UK secondary data[a] requested by the research team to provide a background to this review, shows the hourly gender pay gap in medicine stood at about 23% in 2018. This does not compare well with the rest of the public sector. Figure 2 charts the gender pay gap in mean basic hourly pay among public sector doctors and compares it with the rest of the (non-doctor) public sector workforce from 1975 to 2018. Note that this data is based on employees only, but represents the most robust earnings data covering such a long span of years. The data shows that medical gender pay gaps after 2000 run counter to the trend of a general reduction in gender pay gaps in the UK public sector, instead showing a steep rise.

It is likely that these trends reflect a number of structural changes in the medical profession such as: increased numbers of junior women doctors graduating from medical school from 2000 onwards; a considerable pay increase in 2003 for full-time consultants of around 24% at the bottom of their pay scale and 28% at the top[5]; plus the implementation of the European Working Time Directive that (intitially) increased the pay-to-hour ratio for senior doctors by reducing their working week to about 50 hours and later, from 2004, 2007 and 2009, did the same for junior doctors. The reduction in the gender pay gap from 2010 may be related to the promotion of steadily increasing proportions of female doctors throughout the workforce, and outcomes from the implementation of more flexible ways of training and working recommended in the Donaldson, Dacre and Deech reviews (see below).

Figure 2. The gender pay gap in mean basic hourly pay among public sector doctors 1975 to 2018 (NES/ASHE).



It is likely, then, that the gender pay gap in medicine is influenced by structural changes to the terms and conditions of sub-groups of doctors. These changes, while seemingly gender-neutral and uniformly applied, have a disproportionate impact on the pay of one gender in relation to the other because of the uneven distribution of men and women doctors across sub-groups. For example, more men than women are consultants and benefited from the 2003 contract changes. The next step in all gender pay gap analysis, then, is to remove ("adjust") the data for the influence of sub-group membership.[b]

Very few analyses of the medical profession in the UK have done this, however those that have, demonstrate that gender pay gaps remain. Adjustment has been shown to narrow the pay difference between US men and women physicians, but doesn't eliminate it [6,7,8]. A recent analysis of doctors in New Zealand[9] suggests that the 12% gender pay gap is not eliminated after accounting for specialty, age, time since qualification and family responsibilities. The *Pay Gap for Women in Medicine and Academic Medicine, an analysis of the WAM (Women in Academic Medicine) Database*[10] used self-report pay data to calculate a raw mean pay gender gap of 18% and then adjusted for related factors. Factors that influenced the gender pay gap included grade, hours worked, experience, administrative roles and specialty. For example, the benefit of having been employed in the Consultant grade for longer than ten years was a significantly higher salary for men than women. The report estimated that controlling for factors so that one doctor was compared with another of similar background suggested a true gender pay gap among consultants of 5.6% (worth £5,500 per annum) and among trainees of 4.1% (worth £2,000 per annum). Furthermore, a portion of the gender pay gap remained "unexplained". For consultants there was a 13% gender pay gap, about 40% of which was unexplained. For medical trainees, differences in experience, grade and other factors explained only half the reported salary differences.

In the UK, HCHS doctors are salaried employees working to national terms and conditions. Across specialties, the same salary progression scales apply. Clinical academics' salaries are predominantly determined by the same scales. In theory, we would expect the gender pay gap to be adequately explained by factors other than gender, such as branch of medicine, specialty, job grade/role, plus the doctor's age and years of experience.

To provide a firm basis for our investigation we now look at explanations for gender pay gaps in medicine.

3. Explanations for the gender pay gap in medicine

Theoretical explanations for gender pay gaps in medicine have a long history of development within sociology, psychology, management and economic academic disciplines. We now undertake a brief review of key findings according to six perspectives: social role theory, human capital theory, segmentation theory, a socio-economic analysis of reward, plus institutional, structural and cultural theories.

3.1 Men and women doctors pursue different medical careers according to social role and gendered expectations

Many researchers argue that, influenced by their early adoption of gendered social roles, men and women doctors follow different routes through their medical careers, resulting in a pay gap. A great deal of research supports that women and men trainee doctors have different early-career priorities, with women doctors showing a preference for specialties with high levels of patient contact[11] and part-time or other forms of flexible working[12] even in gender-progressive Sweden[13]. They prefer working in "controllable lifestyle specialties"[14] that offer "plannable" working hours[11]. Unsurprisingly, given levels of work flexibility, many women medics pursue a career as GPs in primary care[15,16], paediatrics or psychiatry[11].

b For example, branch of medicine, specialty, job grade/role, age/years of experience.

Another noteworthy feature of the medical workforce is the influence of marriage or long-term partnership in dual-career families on doctors and their progression, especially where marriage is between doctors. Studies that have examined dual-career doctor families[17,18,19] noted how career choices, made by women doctors married to another doctor, resulted in pay detriment in comparison both with women married to other professionals, and men married to women doctors.

However, notions of "choice" are constrained by social pressures and expectations. In the absence of adequate state and workplace provision for childcare and eldercare, many women doctors, who still bear the primary responsibility for caring duties, have little option but to take part-time work as full-time hours are incompatible with family life.[c] In addition, female medical students feel they have been excluded from their first-choice specialty[20]. During surgical residencies, women were more likely to experience sex discrimination and less likely to meet a role-model[21,22]. So, the origins of gender pay gaps in medicine might lie with factors of "choice", but also active discouragement.

3.2 Men and women doctors differ in skills, knowledge and job experience

It has long been stated that the gender pay gap is chiefly the result of women having lower "human capital" than men – that is, lower knowledge, skills and/or job experience[23,24,25]. This gives rise to lower productivity and thus lower wages for women. Men, it is argued, have a comparative advantage when it comes to investing time and resources in their education and careers.

While this might be applicable to the wider labour market, given the broadly equal investment made by men and women in their medical education at the point that they enter the workforce, differences in human capital should be limited. Men and women also (on the face of it) have equal access to employment training opportunities and career grades. However, gender pay gaps may still result from unequal stocks of workplace experience and productivity.

Evidence on these points is inconclusive. A study in 2008[26] published in Royal Society of Medicine claims that female consultants working in the NHS saw approximately 160 fewer patients per year than men; making them 20% less productive than their male counterparts. The measurement of productivity is finished consultant episode per year comparing men and women on full-time or maximum part-time contracts. However, the study doesn't account for differences in hours working outside contracted hours that might be more available to men and might account for these differences. Furthermore, when possible gender differences in productivity rates are standardised between medics[27], gender pay differences remain. Other "productivity" studies show women physicians linked to significantly lower patient mortality rates and lower readmission rates compared with male physicians at the same hospital[28].

Productivity rates, then, may not be as important to gender pay gaps as workplace experience for medics. Years of service have been shown to be positively associated with higher men's salary in a multitude of studies in a medical context[29,30] arguably because the impact of women taking maternity leave and having primary caring responsibility leads to diminished experience. The link between experience and family, the so-called "motherhood gap"[31,32], is well-evidenced in the medical profession. Sasser shows that wages are lower for mothers due to a reduction in the number of hours worked[33]. Hinze, and Wang and Sweetman's research shows that on average, both marriage and parenthood tend to reduce labour market hours among women doctors[34,35].

This is not peculiar to medicine. Olsen and Walby found that 19% of the gender pay gap could be attributed to differential gendered work histories[36]. Manning and Swaffield show that the gender pay gap rises over women's careers peaking in mid to late career, although the gap itself declines from earlier to later cohorts[25]. However, in a single-employer context, where the detriment of lower experience can be monitored, contained and even compensated through positive action measures, the question is whether women NHS doctors are disproportionately penalised for their lower human capital stocks of experience over and above their pro-rata reduction in workplace attendance.

From a sociological traditional, human capital theory has been severely criticised for not accounting for workplace discrimination in its explanation. We cover this perspective in the final section.

3.3 Men and women doctors are segregated into different medical grades and specialties

Patterns of segregation can be both "vertical", that is men occupying higher positions within an occupation, and "horizontal", that is men and women working in different occupational groups. Vertical segregation highlights the problem of the "glass ceiling" as a barrier to women reaching senior positions. Both can give rise to gender pay gaps if a) the occupational groups and b) the hierarchical strata where women predominate, are less well paid. It is typical that when women enter male-dominated professions, they become both horizontally and vertically segregated[37,38]. As evidenced within Chapter 1, women have a comparatively short history in medicine.

Vertical segregation of women into different levels within the medical hierarchy continues to be a feature. The picture is slow to change. Women now make up 36% of consultants, compared with 30% in 2009[39]. The general influx of women into medicine in England appears to be slowly reducing gender-based vertical segregation as women begin to filter through into higher grades in medicine[15]. However, the trend is slower than anticipated[40] especially in consultant posts and very senior medical leadership roles[41] due, in part, to the length of time needed to reach this level. Taylor and colleagues suggest that male doctors' more rapid career progression may largely be a reflection of more women working part-time or taking career breaks to have a family, rather than direct sex discrimination[42]. After adjusting for full or part-time work and career breaks, they found no statistically significant difference in the career progression of male and female doctors that had always worked full-time.

Patterns of horizontal segregation are also evident in the medical profession[43]. The most recent workforce data[44] shows the gender split within specialties is uneven; many specialties are dominated by a particular gender. For example, only 14.5% of surgeons in the UK are female[45]. If specialties are also associated with uneven levels of promotion or reward between genders, there will be implications for the gender pay gap. There is some evidence of this in both the UK and the US. For example, a study by McManus and Sproston of several UK hospital specialties found "little evidence for disproportionate promotion of women, although in surgery, hospital medicine and obstetrics and gynaecology, fewer women seemed to progress beyond the SHO grade, and in anaesthetics there were deficits of women at each career stage"[46]. Their analysis of career preferences and intentions suggested that disproportionate promotion cannot readily be explained as differential choice by women and there was evidence of a glass ceiling in some specialties. In the USA, where medicine is a private sector profession, there is evidence of adjusted salaries being highest in male-dominated orthopaedic surgery, surgical subspecialties and general surgery, and lowest in female-dominated specialties such as infectious disease, family medicine and neurology[29].

Research has shown that patterns of horizontal segregation are compounded by uneven opportunities for less-than-full-time (LTFT) training and working. The General Medical Council's (GMC) State of Medical Education and Practice 2017 report shows a wide variation in LTFT training within specialties. For example, in paediatrics, 21% of trainees worked LTFT in 2017, in general practice this was 17%, but in surgery it was only 5%.

Segregation is decreasing with the feminisation of medicine. However, there is a broader ongoing debate over the feminisation of the medical profession and the downgrading that might occur as a consequence. Former president of the Royal College of Physicians, Carol Black, caused controversy when she questioned how the profession would retain its influence following feminisation and the increased proportions of part-time working that would follow[47]. Feminisation has negative connotations linked to the loss of men's power and status as they are threatened with being reduced to the same status as female workers, whose work is typically synonymous with lower pay, lower security and lower status[48]. It would be unsurprising if feminisation caused structural friction and resistance.

3.4 Pay practices are socially constructed and reward certain types of behaviour

Reward strategies and pay practices respond to economic, political and social change and, in that sense, are socially constructed. Pay rates and structures for medics are influenced by social values and norms as well as pressures from government, employers and trade unions. To be meaningful, a gender pay gap analysis should take account of ways in which pay and pay structures are a) determined and b) sensitive to external pressures.

3.5 Pay determination

The biggest shake-up for the way NHS pay is determined for all except doctors, dentists and very senior managers came with the introduction of Agenda for Change (AfC) pay scales. In 2004, influenced by the number and size of equal pay claims in the local authority sector that posed a risk to the NHS, the objective of AfC was "to deliver fair pay for non-medical staff based on the principle of 'equal pay for work of equal value'". It remains the case that job evaluation is not in place to support either internal or external comparisons for medical staff despite the recommendations in a full review of pay determination[49]. Without this exercise, doctors' pay structures cannot be said to be "equality-proofed" against internal gender anomalies. The pay of those on NHS national agreements is reviewed annually by the independent Doctors' and Dentists' Review Body (DDRB). The DDRB has consistently raised matters of gender equality and gender pay gaps in its reports but until now there is no evidence that it has specifically addressed any in its policy recommendations to the government.

Officially, GP practices employ their salaried GPs within a standard pay range that is also reviewed each year by the DDRB. Primary care health providers (GPs) receive a set amount of money per patient per year from the NHS to provide for their primary healthcare needs. This is calculated on the population served, not attendance at the surgery. GP partners own the business of the practice and are "independent contractors" to the NHS. GP partners are self-employed. Many members of staff at the surgery, including some of the doctors, will be employed (salaried), but by the surgery not by the NHS.

Unlike the case with HCHS and clinical academic doctors, there is no pay scale for salaried GPs. However, there is guidance. For salaried GPs employed under the model salaried GP contract, the salary range set out by the DDRB applies. Current (2018 to 2019) rates are for a full-time salaried GP working 37.5 hours or nine sessions per week, a minimum of £57,655 for 2018 to 2019 (plus London weighting for those working in London). For a doctor working LTFT, this salary is calculated on a pro-rata basis (for example, if working 20 hours per week then the minimum salary would be £30,147). The DDRB pay range for salaried GPs extends to £87,003 for 2018 to 2019, however in practise it is recognised that there is no upper limit. The BMA state that the GP pay range is "outdated" and "does not reflect the actual salaries of

GPs and should not be used as a guide or benchmark in salary negotiations"[50]. GP partners split the profits of the practice between them in a pre-determined ratio.

In a context of chronic GP understaffing, increased demand for services, failing GP practices, and local competition for staff; competition for GP appointments is high[51]. Upward pressure on GP salaries determined at local practice level is to be expected. "In the GP-depleted environment they can negotiate higher pay, work part-time"[52]. The BMAs webpage for salaried GPs on "negotiating your salary"[53] reinforces the scope for variability and market influence. But, the Equality and Human Rights Commission (EHRC), warns, "organisations that don't have formal internal grading structures, instead basing the pay of all or most of their employees on the market rate for the particular type of work, are at 'high risk' of pay inequality".[d]

The potential for unequal pay to exist within universities is, in theory, low. Pay within higher education institutions (HEI) is determined by a national pay structure for academics up to professor level. Progression on 51-point multi-grade broad-banded pay scale can be influenced by educator skill, but generally research outputs are emphasised. The scale is common to almost all HEI in the UK. There is considerable variation in the allocation of levels of staff grades to the scale across universities, but not between faculties in the same university. Beyond the national structure, professors are typically organised in three to four bands based on reputation/influence and publications, with world-class reputation/influence being the highest level.

However, most clinical academics are not paid according to this pay structure. According to UCEA data cited in Brown, Bevan and Rickard 2016, about 2,000 clinical academics are paid on the NHS consultant scale; about 200 GPs are on the GP clinical educator scale (NHS); and around 500 post-CCT doctors and dentists are paid on the on the clinical lecturer scale[49]. The remainder are subject to the individual HEI's own clinical academic scales. Clinical academic pay rates tend to be matched to the corresponding point of the NHS scale that would determine pay in clinical practice, being higher than HEI pay scales. For this reason, clinical academics are typically excluded from research analyses of higher education pay[54,55] due to their outlier status. Within the HEI sector the presence of a medical school is linked to wider gender pay gaps[56].

One of the most widely debated aspects of medical pay is the allocation of Clinical Excellence Awards (CEA). The 2018 Annual Report by the Advisory Committee on Clinical Excellence Awards (ACCEA) notes that CEAs are likely to be magnifying the effect of the gender pay gap because "the clear majority of awards go to men". In 2017, 259 awards went to men, and 59 to women. This underrepresentation is exacerbated at higher award levels as award holders must progress in sequence, from Bronze to Silver to Gold. The report goes on to state that this is not the full picture, for when female consultants do apply, their percentage success rate is generally comparable to the success rate of their male colleagues. In 2017, 30.3% of male applicants received new awards, compared to 26.8% of female applicants. The small gap in success rates reassures the ACCEA that both its scoring mechanisms and the subcommittees carrying out the scoring are not biased towards either gender. However, it is well known that one of the issues that reinforces the gender pay gap is the differential evaluation of types of advanced job skill and performance that are worthy of bonuses. Sociological analysis suggests, for example, that social and nurturant skills have negative rates of income return[57]; devalued because of their traditional association with women[58]. The ACCEA analysis also does not reveal if the pool of applications is reflective of those that are eligible to apply. Monitoring this would assist in understanding if the criteria for a CEA,

d www.equalityhumanrights.com/en/advice-and-guidance/risky-practices or application of those criteria, is disproportionately excluding applications from women and therefore at the heart of the unequal success rates.

3.6 External pressures

Several recent examples of external social, economic and political pressures influencing changes to pay in medicine have potentially influenced the pay gap including:

- concern from the 2001 to 2005 Blair Labour government that it was losing NHS-trained consultants to private practice resulted in changes to consultant terms and conditions. In 2003, the NHS added (among other changes), several pay points to the consultant pay scale. Pay scales now recognise 19 total years of service. Long pay scales or bands with thousands of pounds difference from minimum to maximum and/or with many incremental points are considered by the EHRC to be "risky pay practices that may lead to unequal pay"
- between 2003 to 2005, GP partners saw a 58% average pre-tax pay rise (National Audit Office, 2008 cited in Gregory, p. 6) alongside a four-hour reduction in their working week[59,60]. The majority of GP partners are men
- the influence of public sector pay policy recognising performance, in the form of "responsibility" thresholds, as opposed to incremental progression for Specialty Doctor and Associate Specialist doctors. Once again, the EHRC warns that discretionary pay systems are "high risk"
- similarly, the 2016 Junior Doctor Contract introduced an amended two-point pay scale that enabled newly-promoted consultants to progress from a starting or "development" point to a "rate for the job" after an average of five years. This notion of a starting or "development rate" leading to a "rate for the job" is predicated on the assumption that as each jobholder takes time to become fully proficient at what they do, they should not immediately be paid the same as a more experienced employee. The 2016 contract is intended to provide access to higher earnings (base pay) much earlier in a consultant's career. This might be seen as beneficial to junior doctors who are disproportionately female. However, the reduction in remuneration for out-of-hours working in the contract has potential to worsen the situation for women doctors in respect of their ability to afford out-of-hours childcare. This alteration also meant that automatic incremental progression during periods of extended break, including maternity, was removed

3.7 Institutional and structural barriers can disproportionately hinder doctors with family responsibilities, less geographic mobility or who work less than full-time

Institutional/structural discrimination occurs when a workforce management policy, for example, recruitment, promotion, training, appraisal or reward is inherently biased against one group of people in comparison to another. For example, if a policy rewards hours spent at work, rather than competencies that are achieved, it will (albeit unintentionally) be biased against women who are more likely to work fewer hours. Deploying an "institutional discrimination" analysis in the US health sector, Boulis and Jacobs, suggest that "industry and organisation characteristics and the behaviours of other key groups in the health services workforce are responsible for the disparities between male and female physicians"[61].

In the UK, numerous structural and institutional barriers have been identified by Health Education England (HEE)[62] including:

- requirements for mobility; trainees are required to move training location repeatedly during training

- a lack of flexibility on slot-share arrangements to enable LTFT working
- late rota and fixed-leave notification
- financial difficulties, including increased overall training costs, as training takes longer; increased length of student loan borrowing; reduced pension contributions; and the costs of out-of-hours childcare

Plus, GP partner roles that require long-term commitment and limit future flexibility[63].

Real and perceived service needs mean that structural barriers based on LTFT training and working are especially resistant to change. In response to EC Directive 2005/36/EC, a new approach to LTFT training "Doctors in Flexible Training"[64] opened flexible training to all doctors, with a view to achieving a balance between LTFT arrangements, educational requirements and service needs. In 2011, the GMC undertook a review of the minimum percentage for LTFT training. The Council concluded this should be 50% and that only in exceptional circumstances should clinical training be undertaken at less than 50% of full-time. The principles adopted then are still current. Most of the reports focusing on medical workforce that we review in the final section have focused on trying to achieve this balance, but, as we will see, problems persist.

Time away from work and the systems of "relicensing" and "recertification" creates another structural barrier. The then Chief Medical Officer, Sir Liam Donaldson, in *Good Doctors, Safer Patients*, 2006, recommended the establishment of a procedure whereby doctors' competencies could be revalidated on a rolling five-year basis. Concerns were raised both about how women doctors who had taken time out to have children would fare under the proposed revalidation procedures, and about whether doctors working part-time would be able to meet the suggested evidence requirements. These concerns are supported by the findings of an impact study, which found that deferral of revalidation is more likely among younger doctors, women, and doctors from black and minority ethnic backgrounds[65].

Kanter's work on "structural differences"[66] can be applied in a medical context where gender divisions, in terms of unequal social relations, for example, in power and status, are enacted through differential access to mentorship[67], sponsorship[68] and networks where key decisions are made. Women are less likely to succeed where decision-making over workplace training opportunities and promotion are subjectively made, and especially where the work is perceived to be challenging or unsuited to women.

3.8 Sex discrimination and cultural barriers create pay disadvantage

Finally, there is evidence that differences in pay might have origins in poor workplace behaviours. Female medics are much more likely to experience bullying and sexist cultures in medicine, that negatively impact their careers[69,70,71,72,73,74,75,76,77]. In a UK context, this was identified as long ago as 1993 in the Calman report on specialist training, which, for example, found that "Women were especially affected by a pervasive competitive atmosphere, a process of 'teaching by humiliation' and the pressure to get good jobs"[78]. These problems have not been resolved. In 2016, one in five doctors noted having experienced bullying in the previous 12 months, but only a third reported it[79]. Furthermore, women doctors suffer from the application of stereotypes that they lack commitment[80], are unsuited to a career in surgery[81] or a medical leadership position[82]. Patient behaviour can also undermine women doctors' careers as they are at greater risk of sexual harassment[83] and the need to spend time establishing their legitimacy[84]. In this context, opportunities for promotion, progression and retention are unequal, and detriment to salary is an inevitable consequence.

Negative perceptions can be exacerbated by working and training LTFT. "Doctors in Flexible Training"[64] recognised that changes to facilitate flexibility require a significant change of culture within medicine but did not explain how such a culture change was to be achieved or who was to be responsible for achieving it. Similarly, HEE's annual report on Enhancing Junior Doctors' Working Lives[62] notes that:

> *"Cultural change is perhaps the biggest barrier. In an NHS system that is not used to offering flexibility, overcoming this to introduce new training patterns is difficult and will take time. More specialties want to support flexibility, so there is further work to be done to explore how to make this possible, without impacting adversely on patient care." [Enhancing Junior Doctors' Working Lives, a Progress Report, 2018]*

4. Key reports on women in medicine

Recommendations to enable greater participation of women doctors in the NHS have been made previously via the commissioning of national reviews of the challenges facing the medical workforce. These have not focused on improving the gender pay gap directly, although each is focused on fulfilling the potential of the female medical workforce and therefore has relevance. In this section we review key national reports, noting how policy and practice implementation gaps are partially responsible for the continued disadvantage of female doctors. We also summarise the outcomes from a sample of 2018 and 2019 mandatory gender pay gap reports.

4.1 Women in Medicine: Opportunity Blocks, Donaldson, 2006[85]

In 2006, the Annual Report of the Chief Medical Officer, Sir Liam Donaldson, contained a chapter headed *Women in Medicine: Opportunity Blocks*[e]. Donaldson noted that the problem was no longer how to get women into medical school, but rather how to ensure that the female medical workforce was able to fulfil its potential once in employment.

To counter the disadvantages being experienced by women Donaldson recommended that:

- the number of flexible training places for doctors should be expanded
- a national working group should be established to recommend changes to workplace childcare provision which are matched to the needs of women doctors
- in surgery and other specialties where the proportion of women is low, mentorship schemes should be reinforced

Opportunity Blocks also briefly considered pay, and Donaldson expressed the view that over time women would begin to receive financial rewards on a par with men. He said:

> *"While superficially it may seem that women receive less financial reward and recognition for their service, as demonstrated through clinical excellence awards, analyses that control fully for other factors, such as length of service, disprove this. The clinical excellence award scheme is … strongly linked to length of service. Those who became consultants between 1962 and 1976 are over 500 times more likely to be recipients of awards than those who gained consultant posts between 1997 and 2001. Since women make up less than 10% of the workforce in the oldest consultant cohort, mainly due to previous restrictions on medical school acceptances, they tend to receive fewer awards. If year of appointment to consultant grade is controlled for, then they do*

e http://www.psychiatry.severndeanery.nhs.uk/assets/Policies--Procedures/Women-in-medicine.pdf *not fare worse than their male counterparts. As women begin to make up more of the consultant pool, they should receive the equivalent proportion of awards."*

Women in Medicine: Opportunity Blocks, 2006, page 50

4.2 Women and Medicine: The Future, Dacre, 2009

An early review of Donaldson's recommendations was commissioned by the then Royal College of Physicians President, Carol Black (now Dame Carol Black), and was led by Professor Dame Jane Dacre[f] with Mary Ann Elston. *Women and Medicine: The Future* was the result of two years' collation and analysis of data relating to various aspects of a medical career, and its aim was to guide the profession and policy makers towards the development of a high-quality workforce. The data analysis suggested that the main area for policy development should encompass workforce redesign to enable the rising number of women doctors to be incorporated into the workforce in an effective and productive manner.

Dacre noted that the increased feminisation of medicine would affect the future organisation and delivery of patient care, requiring innovative planning and financial modelling. Dacre recommended both that the organisational implications of changing workforce patterns and preferences, with respect to working hours and specialty choices, both of which are important to the gender pay gap, should be urgently examined, and that the funding consequences of a potentially substantial increase in flexible working should be subject to detailed analysis.

Dacre also called for critical information gaps to be addressed, with a specific need to strengthen the adequacy and accessibility of cross-sectional and longitudinal data on the working patterns of doctors, and noted that this would require far closer co-ordination between the many agencies responsible for data provision.

4.3 Women doctors: making a difference, Deech, 2009[40]

Following the Opportunity Blocks report, Sir Liam Donaldson invited Baroness Ruth Deech to chair a National Working Group on Women in Medicine to consider the opportunities available to women working in the medical profession. Donaldson noted that in recent years a number of studies had looked at the issues surrounding women in medicine, and that these had been, in the main, focused on barriers in particular specialties or work areas. His intention was that Deech should draw out the threads common to all these reports in order to recommend a programme of action to improve opportunities for women in all fields of medicine. He also noted that it was not just women who were affected by the issues, but that both men and women would benefit from a more equitable pattern of work, recognition and reward.

In his foreword to the Deech report[g], Donaldson acknowledged that while the issues raised were not new, tackling them would require not only a step change in how the medical workforce behaved, but also an acceptance of different patterns of working and training for all medical staff, not just women.

The Deech report emphasised that LTFT employees should be entitled to the same continuing professional development support as their full-time colleagues and recommended the promotion of more positive attitudes to part-time working.

In brief, Deech recommended the NHS should:

- improve access to mentoring and careers advice
- encourage women into leadership

f www.rcr.ac.uk/sites/default/files/RCP_Women_%20in_%20Medicine_%20Report.pdf

g https://www.nwpgmd.nhs.uk/sites/default/files/WIMreport.pdf

- improve access to part-time and flexible training
- ensure that arrangements for revalidation are clear and explicit
- encourage women to apply for the Clinical Excellence Awards scheme
- ensure that the medical workforce planning apparatus takes account of the increasing number of women in the medical profession
- improve access to childcare
- improve support for carers
- make strenuous efforts to ensure these recommendations are adopted through the identification of champions

The Deech report was followed by a number of studies and in-house reviews from a range of medical bodies, representative and regulatory, as well as those with a responsibility for workforce planning. All made similar findings and recommendations: make LTFT working and training a positive choice for both sexes; open up access to women at all levels and in all specialties; and improve access to childcare and support for carers. Ten years on, it is clear that the report did not have the intended positive effects.

4.4 The gender imbalance in academic medicine, Sidhu et al, 2009[86]

Some reports have looked specifically at the position of women within medical specialties. One such was *The gender imbalance in academic medicine: a study of female authorship in the United Kingdom*[h]. This was the first study to consider authorship of academic medical literature as a surrogate marker of gender imbalance within the UK.

The data was encouraging, as female authors listed first on publications had increased threefold from 10.5% in 1970 to 36.7% in 2004, but the study showed that variations existed within subspecialties. The authors suggested the disparity may represent the number of women within the different subspecialties – the more women within a subspecialty, the more likely there will be prominent female authors. The report cited previous studies which had suggested a lack of role models as having a negative effect on career progression, and that career breaks and part-time working could have a detrimental effect on women's research activity.

To address this gender imbalance the report suggested: incorporating more part-time options into the currently available research training programmes; making career paths in academic medicine more flexible and less narrowly defined; and making appropriate advice and guidance readily available from identifiable individuals within every institution.

4.5 Gender pay gap reports from NHS trusts

Compulsory gender pay gap reports from NHS trusts, although written with broader terms of reference than only medical pay, have been uploaded to the government's website (www.gov.uk/report-gender-pay-gap-data) since April 2018 and provide insight into what is understood about the causes of gender pay gaps in medicine. We used the Department of Health and Social Care list of trusts, cross-referencing to the Gender Pay Gap Viewing Service site, which provides a link to a narrative account of their gender pay gap to get a sense of what is already known.

Even by the second year of reporting, one third of trusts failed to provide a link to what they were saying about the gender pay gap, suggesting that the importance of a narrative has

[h] www.ncbi.nlm.nih.gov/pmc/articles/PMC2726808/

yet to be recognised. Where trusts stripped out data for staff on AfC terms and conditions, they found that the pay gap for doctors makes a substantial contribution to the trust's overall pay gap, and this has led them to ask why this might be. Relevant factors largely fell into two categories – factors associated with the underrepresentation of women in senior and/or higher paying roles, and factors to do with the complex determination of medical pay. The supporting narratives suggest that employers have a better understanding of the underrepresentation of women than they do of factors associated with medical pay determination. Insight was limited. We found that the predominance of men in higher paid medical posts is taken as a sufficient explanation in itself, without questions being asked about why, or why those posts are more highly paid. Perhaps surprisingly, the potential impact on the gender pay gap of part-time, flexible, or LTFT working was not specifically addressed. Of the various components that go to make up doctors' pay, trusts consider that the data analysis points to the contribution made by CEAs, and one or two trusts intend to examine this further. It is unclear which aspects of the CEA – national and/or local will be examined.

Only a small minority of trusts produced action plans, with several more expressing a reliance on existing initiatives. Evidence that actions were explicitly written in response to the analysis of the gender pay gap data could only be found in a handful of trusts. Given that the gender pay gap across all trusts is largely synonymous with the gender pay gap in medicine, to address the gap in medicine it will be important to ensure that the actions flow from the data.

Gender pay gap reporting has the potential to provide an overview of the gender pay gap for doctors across the NHS, and also to provide insight into its causes, but it will only do so if the published reports consider many more of the contributory factors.

5. Conclusion

The national and local reports summarised in this section have generally similar findings, conclusions and recommendations, which serves to illustrate how women's differential progression in medicine is a persistent problem which will contribute to the gender pay gap. Perspectives taken within the national reports recognise all of the theoretical drivers of gender pay gaps; the role of gendered socialisation and choice, the importance of maximising and equalising human capital, the role of horizontal and vertical workforce segregation, structural, cultural and institutional factors including sexism, plus, to a lesser extent, how medical pay is determined. Rehearsed within all of the recommendations are ways that training and working on an LTFT basis is seen as key to workforce retention and career success and in this context, especially to women's ability to progress in medicine. Their recommendations, had they been fully implemented, would have served to reduce the gender pay gap by removing the obstacles women doctors face. The evidence suggests that, while the mechanisms are in place and their effectiveness is being kept under review, these reports are not yet achieving what they were intended to achieve.

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Chapter 3. Methods and analysis

Contents

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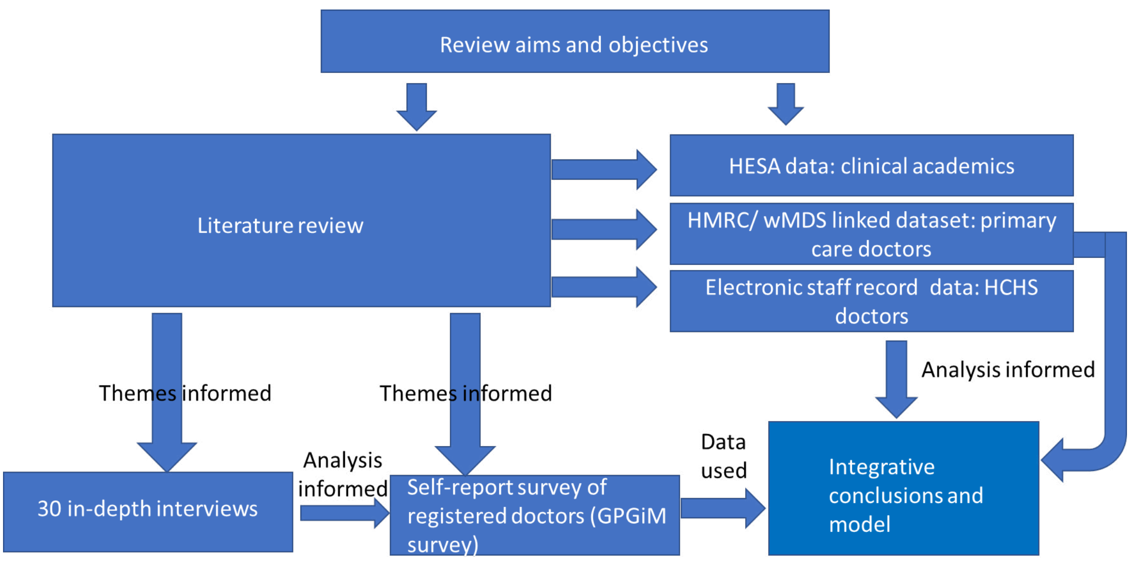
1. Methodological strategy

The broad aim of this review is to uncover the sources of the gender pay gap in medicine which, despite initiatives aimed at improving gender equality over the past few decades, reportedly remains a feature of doctors' employment. This chapter sets out the methods followed by the research team. The general strategy in understanding the causes was to use qualitative and quantitative methods to approach the issue from complementary perspectives. Following a literature review (Chapter 2), information about gender pay gaps in branches of medicine was derived from five data sources:

- Electronic Staff Record data for Hospital and Community Health Services (HCHS) is used to analyse gender pay gaps in the hospital/doctor workforce and reported in Chapter 4
- records from the NHS workforce census and workforce Minimum Data Set (wMDS) linked to Self-Assessment tax records collected and held by HM Revenue and Customs (HMRC) for primary care are used to analyse gender pay gaps in primary care within Chapter 5
- Higher Education Statistics Agency (HESA) records are used to calculate gender pay gaps in clinical academia for Chapter 6
- a self-report internet-based Gender Pay Gaps in Medicine (GPGiM) survey informs findings in Chapters 7, 8 and 9
- 30 in-depth interviews are analysed in Chapters 7 and 8

We conclude with an integrative chapter and model. We analysed our data according to the following strategy:

Figure 1. Methodological strategy.



This chapter will outline: key concepts used in the report, the five sources of data, the achieved research samples, common methods of analysis and ethical procedures.

2. Defining key concepts

2.1 Pay

Pay is taken as a measure of salary before tax and other outgoings. For HCHS doctors basic pay corresponds to the salary point on Pay and Conditions Circular.[1] The measure of total pay includes basic pay plus Clinical Excellence Awards and other allowances, pay premia and supplements.[a,2] In this research, we have not included employer pension contributions.

Clinical academics are doctors employed by universities and other research organisations. By long-standing agreement between the employers and supported by the government, the pay of those medical academics who also do clinical work in the NHS is based on the same salary scale. For GPs, pay is defined as taxable income before pension contributions are deducted, made up of gross earnings minus total expenses, also known as net income.

2.2 Gender pay gaps

There are many ways to define and measure gender pay gaps. Broadly speaking, gender pay gap calculations measure the difference in average men's and women's pay rates as a percentage of men's earnings. The Office for National Statistics (ONS) calculates pay gaps for all employees (currently 17.3%[3]) and pay gaps in hourly rates for those that work full-time (currently 8.9%). The ONS gender pay gap for all employees is considerably larger than the full-time or part-time pay gaps because a much higher share of women than men are employed part-time. The hourly rate calculation helps to reduce the influence of part-time hours within the pay gap. The ONS calculation excludes overtime.

This review occasionally reports gender pay gaps in annual, or gross, pay which corresponds to the ONS "all employees" measure. However, our primary calculations of the gender pay gap use a pro-rated whole-time or full-time equivalent (FTE) measure which "corrects" pay for hours worked. As above, we also use a measure of total pay that includes CEAs, allowances, pay premia, overtime and supplements. At times we note that women's outgoings and expenditure are disproportionately higher, for example when associated with less than full-time work, however this is not defined as part of the gender pay gap within this review.

2.3 The difference between gender pay gaps and unequal pay

Equal pay means equal pay for equal work, whereas a gender pay gap median is the difference in hourly[b] pay expressed as a percentage of men's pay. Mean and medium pay comparisons provide useful information about men's and women's earnings; however, they do not reveal differences in rates of pay for comparable jobs. Unequal pay for a job that is the same or rated the same under a job evaluation scheme constitutes unlawful pay discrimination. Gender pay gaps may contain pay discrimination, however, the concepts are not interchangeable. Gender pay gaps can incorporate several other factors which a) influence pay, and b) can differ between men and women, for example, in working hours, grade or length of service.

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[a] We do not include financial elements that are part of the overall reward package such private health insurance and pension arrangements. This is in line with ACAS/GEO guidance on the gender pay gap which states "Employer pension contributions go directly to a pension fund, so these are not part of gender pay gap calculations". We do not evaluate the gender differences that might arise from the current pension cap, the overall career pension detriment for women nor that the employers pension contribution may be inversely related to PAs/hours at work.

[b] Or other standard unit.

2.4 Mean versus the median

Both the mean and the median can be used to calculate average earnings, and each produces a different result. The ONS prefers to use median hourly earnings because the median is not affected by extreme values, such as changes in the earnings of small numbers of very high earners. However, the mean is also important as there are more men doctors than women doctors among the very high earners, and even high-earning women do not earn as much as some high earning men. Official gender pay gap reporting requires the calculation of both mean and median measures. The Equality and Human Rights Commission uses the mean.

The regression and decomposition methods we use are based on estimation methods which primarily base predictions at the mean. Occasionally, where appropriate, we also report the median.

2.5 Hours of work

Typically, we use contracted hours, programmed activities (PAs) or sessions to indicate hours of work. As outlined above, our empirical chapters report both annual gross and FTE-corrected pay and FTE-corrected gender pay gaps. Using an FTE-corrected measure standardises the differences in hours worked between genders, such that the unit of analysis is no longer individual doctors and their differing working hours, but comparable units of work (that is, 1 FTE). This is complex in the case of GPs. There is no formal definition of how many contracted hours is equivalent to 1 FTE among GPs. However, our analysis of the ESR, which contains an FTE variable, shows that the majority of HCHS doctors with 1 FTE contract are contracted to work 37.5 hours. We therefore adopt the 1 FTE = 37.5 contracted hours definition for the analysis in the ESR and for the GP chapter. The standard working week for clinical academics is 37 hours.[c] Inaccuracies in assumptions about the number of hours in a working week will marginally affect calculations of the value of pay, but as all are equally affected, it will not make a difference to the pay gap. Chapter 9 supplements our understanding of working hours, especially the influence of unpaid overtime on the gender pay gap, with an analysis based on self-reported hours.

3. Data sources

The review uses data from five sources: The Electronic Staff Record (ESR) data set covering Hospital and Community Health Services doctors, HM Revenue and Customs (HMRC) linked to the workforce Minimum Data Set (wMDS) covering general practitioners, the Higher Education Statistics Agency (HESA) dataset covering clinical academics, data from the self-report online Gender Pay Gap in Medicine (GPGiM) survey plus a set of research interviews. More details are given below.

3.1 The Electronic Staff Records dataset

In Chapter 4 we make use of administrative information available in the Electronic Staff Records data provided by NHS Digital. The ESR is a human resources and payroll database system and it is used by 99% of NHS organisations in England and Wales. It is a large rich

[c] FTE-corrected pay was calculated for each observation using the following formula: FTE-corrected pay = annual pay / (hours/37.5 or hours/37 for clinical academics). The accuracy of the 37.5 hour working week is not important as its function is as a standard denominator. To illustrate what this means for GPs and HCHS doctors with an example: suppose we have three doctors with each one earning £60,000, £100,000, and £120,000 respectively and their contracted weekly working hours are 22.5, 37.5, and 45 hours respectively. Their FTE-corrected pay will all be identical (£100,000) given their FTEs are 0.6, 1, and 1.2 respectively. Actual (self-report) hours of work and the impact on the gender pay gap is explored in Chapter 9.

source of monthly data on doctors employed by English NHS providers. We analyse data for the period between September 2009 and September 2018. The ESR contains detailed information on a series of personal, professional and pay-related characteristics.

3.2 Sample

As originally provided, the ESR data consisted of 18,044,471 observations within 573 organisation codes (trusts). Individual doctors within this dataset were identified through their unique NHS identifiers. In total, we were able to identify 259,372 individuals observed for at least one month between September 2009 and September 2018.

Following consultation with data experts from NHS Digital and our independent methodological adviser at the ONS, we went through a data cleaning process, to end up with an individual-level working dataset that would allow us to explore issues related to the gender pay gap for doctors in English hospitals (Appendix A). We excluded data from trusts not in England and observations not belonging to the medical group, that is those classified as dental staff and those classified under supportive or administrative areas of work, such as corporate, estates and facilities. This left us with observations classified into one of the following primary areas of work: clinical oncology, clinical support, general acute, imaging, medicine, no area of work specified, obstetrics and gynaecology, occupational health, pathology, psychiatry, public health medicine, and surgery.[d] This cleaning process resulted in 10,539,635 substantive cases.

A summary table of data fields for this and other datasets can be found in Appendix B. The table of sample characteristics for the final ESR sample is located in Appendix C.

3.3 HRMC linked wMDS data

Chapter 5 analyses gender pay gaps for general practitioners.

While the ESR comprehensively covers almost all HCHS doctors working in the NHS in England, no equivalent single administrative dataset exists for GPs. Pay and employment data of GPs in this chapter came from a specially-created dataset that links records from the NHS workforce census and wMDS, collected and held by NHS Digital to Self-Assessment tax records, collected and held by HMRC. While the NHS Digital data contains detailed information on personal and professional characteristics of individual GPs such as gender, age, GP type, and length of service, it does not contain any information on pay. Records from NHS Digital are then transferred to HMRC who match the records by National Insurance numbers and other characteristics to tax records on declared income and expenses. We refer linked wMDS to this combined dataset that provides the basis to this chapter as the NHS Digital/HMRC dataset.

NHS Digital, with the assistance of HMRC, has been publishing reports and aggregate figures based on these data for several years (available on NHS Digital's website) primarily for remuneration negotiations and reviews.

There are some limitations to the NHS Digital/HMRC dataset. First, given it links to HMRC Self-Assessment records, it excludes contractor GPs with no self-employment income and salaried GPs with solely self-employment income. Some further cases are also removed for data quality reasons even if a successful match was made[3]. Given this design, HMRC implements a weighting procedure so that estimates from it are more representative of the population of salaried and contractor GPs. This report only reports the weighted estimates, although in the case of the multivariable analysis, we explored unweighted estimates and found they did not substantively alter any specific qualitative conclusion.

d The specialty categories are derived from the ESR and may not conform to other organising schemas.

Second, even with weights, estimates exclude a small number of other GP types. The dataset only includes successfully-matched contractor GPs, salaried GPs, and GPs that also work as a Primary Care Organisation Medical Director. Fixed-share partners bound to a practice via the partnership agreement are included in the contractor group[3]. However, it excludes GPs who work solely as locums and freelancers[e,3]. Furthermore, it only covers those on either General Medical Services (GMS) or Personal Medical Services (PMS) contracts, excluding those on Alternative Provider Medical Services (APMS) contracts.

Third, self-assessment data does not contain information on pay components such as overtime pay, or how hours are split between contracted and overtime hours. Moreover, this Review is based on a single tax year (2016/17), so the researchers were unable to explore trends.

Finally, the team did not have direct access to the data. It was not possible to produce more detailed analysis in the timeframe for this review. The research team liaised and provided code to NHS Digital and HMRC on the relevant figures and analysis needed. NHS Digital constructed the dataset while HMRC linked it to earnings data and ran the code. HMRC then checked the outputs for disclosure/sensitivity risk before releasing them to the research team. Neither NHS Digital nor HMRC are responsible for these outputs, nor do they endorse any figures or interpretation of them.

The NHS Digital/HRMC dataset is the best possible administrative data source available for calculating broad gender pay gaps for GPs. Given earnings data comes directly from tax records, the data are very high quality and have low rates of missingness.

3.4 Sample

Analysis was restricted to NHS GPs working in England. The sample includes only salaried and contractor GPs reporting earnings from self-employment. The final sample size for the NHS Digital/HMRC estimates is 15,999. Characteristics of the sample can be found in Appendix D.

3.5 Higher Education Statistics Agency dataset

Chapter 6 analyses gender pay gaps using data obtained from the Higher Education Statistics Agency (HESA). HESA provided data for two academic years (2016/17 and 2017/18) in respect of characteristics of staff employed under a contract of employment reporting to a Higher Education institution (HEI) in the UK. A member of staff may be employed under a single contract of academic employment or a few separate contracts. This happens frequently. Doctors who are employed by universities to teach, undertake research and treat patients have substantive contracts with the HEI – but also hold honorary contracts with the trust where they see patients, so that they are covered by NHS Indemnities. Universities bill the trusts for the time the academics spend in the NHS seeing patients. The job is seen as a single employment, albeit with two employers. Their total pay rate is captured within the HESA data. The same is the case for doctors that undertake part-time lecturing duties for a HEI.

The reporting record was 1 August to 31 July for each year of data collection. The data was restricted to academic staff – defined as holding one or more contract of employment for an academic function. The dataset excluded agency staff, self-employed staff, honorary contracts where the contract is not deemed to be a contract of employment, and staff not employed by the Higher Education provider, but by companies consolidated into the Higher Education provider's accounts (see www.hesa.ac.uk/support/definitions/staff#staff-coverage for further details).

e Locum data drawn from the GPGiM survey supplements the GP data in Chapter 5.

3.6 Sample

The data was restricted to clinical academics registered with the General Medical Council (GMC), excluding those whose healthcare professional specialty was dentistry, and who either joined or left their Higher Education Institution during the academic period of interest (see Appendix E).

The final total sample is 9,430 clinical academics for both years.

3.7 Interviews

Qualitative analysis forms the basis of Chapters 7 and 8. Quotes are derived from interviews. We set out to interview 10 male and 20 female GP, clinical academic and hospital doctors, stratified by early, mid and late career stages and grade. Invitation to take part in the interviews was circulated via the BMA and other members of the steering group. Calls for interest were also put out on social media. While not representative of the doctor community, this method afforded coverage of important groups, allowed for exposure to a wide range of career experiences and assisted us in the creation of a wider survey instrument.

3.8 Sample

The achieved sample comprised 13 men and 17 women stratified for role and career stage (see Table 1 and Appendix F for further participant details).

Table 1: Interview stratification matrix.

	Early career	Mid-career	Late career
Consultant (M)		1	1
Consultant (F)		2	1
SAS Doctor (M)		1	1
SAS Doctor (F)		2	1
Partner GP (M)		1	1
Salaried GP (F)		2	1
GP Training pathway (M)	1	1	
GP Training pathway (F)	1		
Locally-employed trust Doctor (M)		1	1
Locally-employed trust Doctor (F)		1	1
Specialty Trainee (M)		1	
Specialty Trainee (F)		1	
Foundation Year 2 (M)			
Foundation Year 2 (F)			
Foundation Year 1 (M)	1		
Foundation Year 1 (F)			

3.9 Interview methods

Data was collected via twenty-six telephone interviews and four face-to-face interviews. Informed consent was sought by email prior to each interview. Conversations were digitally recorded via an app. Interviews took place between July to September 2018. Themes were derived from the literature review and based on the review objectives. We asked about participants' working lives and career experiences to date, exploring the choices made and the factors that influenced participants' historic and current pay rates. We drew out demographic information including gender, age, job role, caring responsibilities, ethnicity, full-time/less than full-time status and whether participants had a permanent/fixed-term contract (see Appendix G for interview schedule).

3.10 Self-report internet survey

Based on themes emerging from the literature and interviews, the research team devised an original self-report survey called the Gender Pay Gap in Medicine (GPGiM) Survey. This comprised an online survey using open and closed response questions seeking facts plus opinions/perceptions. The survey was designed to provide generalisable information about factors that underlie the gender pay gap. We grouped factors into sections about pay and working time, grade, role and employer, personal identity and values, experiences of organisational culture, training and other structural elements, plus time away from work, family and domestic responsibilities. The survey was accompanied by a participant information sheet (Appendix H) and a consent form (Appendix I) linked to the survey covering letter (Appendix J) and hosted online. The survey was developed and early drafts were reviewed by members of the steering group. We circulated an online pilot (n=29) and made changes to the survey based on the feedback.

3.11 Sample

The sampling frame was the GMC's list of Registered Medical Practitioners, which is a register of all 242,433 licensed doctors in the UK (England, Wales, Scotland and Northern Ireland).

The GMC randomly selected 40,680 doctors on the register. Selected participants were given two weeks to opt-out of having their details (salutation and email) passed onto the research team. Figures provided by the GMC showed that 1.7% opted out and this was more or less constant across age groups, broad specialties, detailed specialties, registration type, UK regions, region of primary medical qualification, and the genders within each of these fields.

A total of 39,978 emails with survey links were sent out in the second week of November 2018. The survey was open for four weeks, with a follow-up reminder (Appendix K) sent in the penultimate week to those who had not responded by that point.

A small fraction of selected participants no longer worked in medicine or the contact details held by the GMC were not up to date and their email bounced. We received 6,602 survey responses. Of these, 5,367 successfully completed the survey, representing a survey completion rate of 81.3% and a useable response rate of 13.4%. In the review, we only focus on the 4,854 respondents working in England at the time of the survey.

Information about the representativeness of the achieved GPGiM survey sample, relative to the NHS Digital/HMRC and ESR administrative datasets and the consequences for pay and the gender pay gap, is given in Appendix L. Details of the achieved sample characteristics for the GPGiM survey are given in Appendix M.

4. Quantitative data analysis

In this section we review data treatments that are common to all quantitative datasets, and the methods of analysis used, including limitations.

4.1 Descriptive analysis: measuring the gender pay gap

Descriptive data tables create simple comparisons of means between men and women's pay rates using the whole of any sample or its subsamples. Within the report we refer to this type of analysis as "raw" or "unadjusted". Raw pay comparisons are made using a mean measure of salary, referred to in the report as "gross, or annual pay", or by comparing a measure of pay that is standardised for the differences in hours that is worked between genders referred to as "FTE-corrected" pay.

4.2 Multivariate analysis

To remove the influence of confounding variables we undertake ordinary least squares (OLS) regression analysis. This will isolate gender implications for pay. It is useful in providing a hypothetical simulation of the difference between men and women's pay if characteristics of men and women doctors are identical; that is "adjusted" for differences. Residual differences between men's and women's pay following this procedure could be interpreted as wage discrimination. However, interpretation is limited by the quality and quantity of the observed variables. Both methods, therefore, are imprecise on if, and to what extent, each variable contributes to the actual pay gap, in other words, which of the characteristics would need to be equalised between men and women to close the gender gap. For this we turn to an Oaxaca-Blinder decomposition (OBD) analysis. Though it is not without limitations (see below), the OBD is a useful technique for moving beyond both "raw/unadjusted" and "adjusted" gender pay gap comparisons.

4.3 Oaxaca-Blinder decomposition (OBD)

The Oaxaca-Blinder decomposition, is a standard econometric technique used in wage gap decomposition analysis. It can be deployed to reveal the different drivers of the gender pay gap[4]. As a starting point, an OBD procedure estimates the earnings structures of men and women, using separate men's and women's ordinary least squares estimations. This produces estimates of the meaningfulness of differences in personal and job characteristics for men and women in terms of earnings, alongside the average values of those characteristics for men and women (referred to as "endowments"). Second, the decomposition produces an estimate of rewards, referred to as the "coefficients" effect. Here the estimate measures differences in financial returns for men and women holding equal measures of the same characteristic. For example, it estimates different returns for men and women relating to holding a doctorate (Chapter 6) or being a surgeon (Chapter 4). This can be considered to be discrimination. The coefficient effect also includes the constant in the model, which captures unobserved attributes associated with the pay gap. Third, the decomposition produces an interaction effect being a measure of the effect of combining the endowment and coefficient effects for each variable. The output produced by the combination of two variables may be higher than the sum of the output that can be produced by each of the two individually (positive interaction). It may also be the case that two variables fully or partly offset each other when they are jointly present as compared to when they are present in isolation (negative interaction).

The Oaxaca-Blinder decomposition equation we use is:

$$ln(W_{Mi}) = X_{Mi}\beta_M + \varepsilon_{Mi}$$
$$ln(W_{Fi}) = X_{Fi}\beta_F + \varepsilon_{Fi}$$

$$\overline{ln(W_M)} - \overline{ln(W_F)} = (\bar{X}_M - \bar{X}_F)\hat{\beta}_M + \bar{X}_F(\hat{\beta}_M - \hat{\beta}_F) + (\bar{X}_M - \bar{X}_F)(\hat{\beta}_M - \hat{\beta}_F)$$

Where M = male and F = female. The first term on the right-hand side reflects the difference in endowments between men and women, the middle term reflects the difference in the slope in the regression term of male and female wages, that is, differences in the structure of rewards to these endowments, and the final term reflects the interaction of the two.

4.4 OBD limitations

It has been debated whether the unexplained constant term can be considered as a proxy for discrimination[5,6]. Our interpretation is that it is the portion of the pay gap where, if discrimination (other than is revealed within the coefficient effects) takes place, it would in theory be captured. It also includes variation in pay explained by personal/job characteristics not observed in the data. For instance, the ESR data analysis does not control for experience or length of service due to high levels of missingness in that variable. We use "age" as a proxy variable and the relationship between the two is close, but not perfect. Evidence suggests that an individual's job experience has an impact on their earnings[7]. Had we been able to include a measure of this in our model, we would have expected the explained portion of the pay gap to further increase. For this reason, we supplement our understanding of the pay gap from the administrative datasets (ESR, HMRC linked to wMDS and HESA) with our own more comprehensive survey data. A final criticism of the OBD is it makes assumptions of separate labour markets for men and women which overlooks the gendered and "segregated" way men and women are "allocated" to those labour markets. To overcome this, we also give space to qualitative accounts of ways that internal labour markets in medical are constructed and consolidated.

4.5 Summary

Overall it is our view that the OBD is a useful means of gaining an understanding of the gender pay gap. Though it is not without limitations, it allows for a nuanced interpretation of the factors which influence male and female doctors' pay.

5. Qualitative data analysis

Interviews were fully transcribed using a GDPR-compliant transcription service. Responses were confidential and anonymised. Only the researchers had access to interview data. It was managed to ensure compliance with GDPR data processing and storage requirements. Interviews were imported into a qualitative analysis software package (NVivo11) and subjected to coding. Priori codes were derived from interview questions, and additional codes were added as required according to interview content. Codes were then drawn together into themes. Coding was undertaken by two of the research team working collaboratively.

6. Ethical approval

The project underwent full ethical review by the University of Surrey.[f] Within quantitative outputs, minimum cell sizes are observed to prevent unlawful disclosure. Qualitative data is sufficiently anonymised. Participants of both the survey and interviews were advised of their option to withdraw their data and the means provided for them to do so. Six completed survey responses were removed under this procedure. One interviewee requested their transcript, reviewed their text and made redactions. Data management procedures provided physical security via University of Surrey servers, no raw quantitative data was shared with university partners. Raw data will be deleted at the expiry of the contract between DHSC and the University of Surrey.

[f] UEC/2018/048/FASS

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Chapter 4. The gender pay gap among hospital doctors in England

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Executive summary

- The current (September 2018) mean gender pay gap in overall annual gross basic pay among HCHS doctors in England is 18.4%, while the median gender pay gap is 34.7%. Corresponding figures for total pay (including CEAs and enhancements) are 24.4% and 28.7%.
- Differences between men and women and contracted working hours explain some of the gender pay gap.
- FTE-corrected mean gender pay gaps have declined over the years of available data. At the start of the data collection period in September 2009, the mean FTE-corrected basic pay gap was 17.2% and it had declined to 11.7% by September 2018. Respective figures for the mean total pay gap are 22.8% declining to 16.8%.
- There is variation of the gender pay gaps across working patterns, grades and medical specialties. The largest gender pay gaps are found among those who work 60-80% of full-time hours, are Consultants or specialty doctors, and those who work in surgical specialties.
- Larger gender pay gaps are generated in later stages of doctors' careers rather than at the beginning.
- There is no significant variation of the gender pay gap across the country, although it is lower for hospitals located in London. There is a higher proportion of women doctors in London.
- Adjusting for differences in workplace, work and personal characteristics reduces gender pay gaps to 1.3% in basic pay and 5.7% in total pay to men's advantage.
- Oaxaca-Blinder decomposition analysis reveals that most of the gender pay gap is explained by gender differences in age and grade. That pay rises with grade and age, and men are, on average, older and in better-paid grades, explains the majority of the FTE-corrected pay gap.
- The gender gap in who is in receipt of a Clinical Excellence Award is not fully explained by factors of age/experience and specialty. Women Consultants are much less likely to be in receipt of CEA payments, however, no gender differences on the level of monthly CEA payments are detected. Overall, Clinical Excellence Awards (CEAs) explain approximately 20% of the gender pay gap in total pay for Consultants.

1. Introduction

The National Health Service (NHS) in England employs about 1.5 million people. It is the biggest employer in the country and the fourth biggest employer across the globe, both private and public sectors considered. Overall, women represent 77% of the total NHS workforce[1]. As at September 2018, the vast majority of the NHS staff worked in the Hospital and Community Health Service (HCHS) as direct employees or local commissioners providing a wide range of healthcare services. There are about 111,000 HCHS doctors in the NHS and 45% of them are women[1,2]. This chapter presents an analysis focusing on the gender pay gap, analysing the gender balance across different grades, regions and so on; and a formal multivariate analysis combining a range of factors that explain the majority of the gender pay gap.

Before this descriptive and empirical analysis, the chapter provides an overview of the treatment of the data. The data source for this analysis is the Electronic Staff Record (ESR) dataset outlined in Chapter 3.

2. Measurement of variables

The ESR data contains a wide range of information on individuals regarding their pay, working patterns, location, grade, specialty; and demographic characteristics, such as gender, ethnicity, age and so on. For details of each of these data fields, please see Appendix A and Appendix C.

3. Descriptive analysis

Methodological note

For the descriptive analysis of the gender pay gap among hospital doctors we will be using information from the September 2018 extract; the most recent data available. After applying the data-cleaning process outlined in Chapter 3, the sample size for this specific month is 106,075 individuals observed in 220 NHS providers for basic pay and total pay, and 105,962 individuals in 220 providers for FTE-corrected basic and FTE-corrected total pay, due to a few missing values in the contracted FTE field.

It should be noted that the pay statistics reported in Section 4 should be considered as indicative only. They are calculated using the total cleaned sample of individuals for September 2018, but in a different format from those in Sections 5 to 7. In these sections we take account of the fact that pay distributions in the ESR data are left censored at zero and right skewed; that is, there are more values at the higher end of the distribution than the lower end, meaning that average pay values and mean gender pay gap figures are upward biased. In the regression-based results that are discussed in Sections 5 to 7, the lower and upper 1% of the pay distributions are trimmed and pay variables are log-transformed[a]. Section 4 provides an initial descriptive picture of the data provided to us and reports descriptive statistics using the full cleaned non-trimmed non-log-transformed ESR sample for September 2018.

We start by analysing raw gender pay gaps in line with our two definitions (see Chapter 3 Defining key concepts: gender pay gaps), one using monthly gross salary and the other using an FTE-corrected measure.

[a] As further explained below, this will ensure that those estimates of the gap will be closer to the mean effects and they will not be distorted by extreme values.

4. The overall gender pay gap among hospital doctors

According to the ESR cleaned[b] extract for September 2018, women represent 44.4% of all hospital doctors (Table 1). The mean monthly gross basic pay for all doctors is £5,031 and mean monthly gross total pay is £6,702. Both basic and total pay are lower for women relative to men. The gender pay gap is 18.4%, and for total pay the gender pay gap is 24.4%. It is highly likely, however, that women doctors on average work fewer hours than men.

Mean monthly FTE-corrected basic pay increases to £5,352 and mean monthly FTE-corrected total pay increases to £7,130. Because women doctors are more likely to work less than full-time, the time-corrected measure decreases the gender pay gap to 13.8% and the gender pay gap for FTE adjusted total earnings to 18.9%. An important part of the wage difference is associated with differences in working hours.

Table 1. Mean monthly pay by gender, September 2018.

	Share of workforce (%)	Monthly gross basic pay (£)	Monthly gross total pay (£)	FTE-corrected basic pay (£)	FTE-corrected total pay (£)
Men	55.6	5,477	7,515	5,702	7,782
Women	44.4	4,472	5,683	4,913	6,313
Gap (%)	-	18.4	24.4	13.8	18.9
All	100.0	5,031	6,702	5,352	7,130

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Median monthly figures for overall basic and total pay, both gross and FTE-corrected, are lower. For example, the median monthly FTE-corrected basic pay is £5,290 and the median monthly FTE-corrected total pay is £6,461 (Table 2). However, the median monthly gender pay gaps are higher. For example, when considering the FTE-corrected figures for basic and total pay, women doctors earn 41.6% and 26.4% less than men, respectively. This is likely to reflect the underrepresentation of women in highly paid grades/specialties.

Table 2. Median monthly pay by gender, September 2018 (£).

	Basic pay	Total pay	FTE-corrected basic pay	FTE-corrected total pay
	[1]	[2]	[3]	[4]
Men	5,893	7,001	6,597	7,458
Women	3,851	4,990	3,851	5,491
Gap (%)	34.7	28.7	41.6	26.4
All	4,074	5,795	5,290	6,461

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Since it is likely that the different distribution of women doctors across work characteristics such as grades, geographic regions, specialty, contracted hours and so on, explains some,

[b] Non-trimmed, non-log-transformed.

or even all the pay gap, we now review each characteristic in turn for different employment patterns between men and women.

4.1 The gender pay gap by working patterns among hospital doctors

Table 1 indicated that there are likely to be differences in working patterns between men and women doctors. Overall, according to September 2018 data, the mean contracted[c] full-time equivalent is 0.97[d] for men doctors and 0.92 for women doctors, giving mean total monthly working hours of 156.4 for men compared with 151.7 for women. Both differences are statistically significant at the 1% level.

Table 3 reports results on female representation, working hours, and basic and total pay adjusted for contracted FTE. Doctors working less than 0.6 of contracted FT hours (panel A) are quite balanced between genders; women represent 52% of this subsample. Regarding pay gaps for this less than full-time (LTFT) category, women earn lower basic and total pay relative to men by 10.6% and 12.8%, respectively. However, on average, within this category, women report more total working hours than men, so it is likely that on a matched-hours basis, the real gender pay gap is larger.

Women doctors are over represented in the group of individuals with contracted hours between 0.6 and 0.8 of FT (panel B). They constitute 80% of this subsample. Here, the gender pay gap is high, being 27.1% as a comparison of basic pay and 25% in total pay. Men doctors represent the majority, 58.3%, of those working 0.8 and above contracted FT hours (panel C). Women and men report working similar hours. The gender pay gap in basic pay drops to 15.8% and the gender pay gap in total earnings drops to 21.8% for this subgroup.

The largest pay gaps are found in those that are currently working between 0.6 and 0.8 of FT hours. However, there may be several explanations for this, which we come to below.

[c] These calculations are based on contracted hours only. Actual working hours may not correspond to contracted working hours – see Chapter 9.

[d] Mean of contracted hours FTE is less than 1 because some doctors work part-time.

Table 3. Mean monthly working hours and pay by gender and FTE, September 2018.

	Share (%)	Working hours	Basic pay (£)	Total pay (£)
	Panel A: <0.6 FTE (3.8% of sample)			
Men	48.0	56.13	2,574	3,006
Women	52.0	63.71	2,301	2,619
Gap (%)	-	-	10.6	12.9
All	100.0	60.07	2,432	2,805
	Panel B: 0.6-0.8 FTE (6.0% of sample)			
Men	20.1	102.73	4,773	5,569
Women	79.9	106.65	3,478	4,177
Gap (%)	-	-	27.1	25.0
All	100.0	105.86	3,739	4,457
	Panel C: >0.8 FTE (90.2% of sample)			
Men	58.3	161.06	5,593	7,715
Women	41.7	162.00	4,712	6,035
Gap (%)	-	-	15.8	21.8
All	100.0	161.45	5,226	7,014

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Table 4 gives data, again from September 2018, with respect to gender differences by type of contract, that is, fixed-term temporary contract (panel A) and permanent contract (panel B). Men and women doctors are balanced in the proportions of those working under fixed-term contracts – women represent 51% of this subgroup. However, men doctors are better rewarded in terms of FTE-corrected basic and total pay. According to the September 2018 data, women doctors with temporary contracts earn 8.9% and 6.3% lower basic and total pay, respectively, relative to their male counterparts.

On the other hand, female doctors are underrepresented in the subgroup of doctors working under permanent contracts. They represent only 37.8% of this subsample. This could be another indication of women's underrepresentation in better-paid medical grades. Men doctors with permanent contracts work more hours compared to women, although those working under permanent contracts report fewer working hours than those working under fixed-term ones, regardless of gender. Despite fewer average working hours, reward is considerably higher relative to those working under fixed-term contracts for both genders. Women doctors with permanent contracts earn 4.3% less basic pay and 15.4% less total pay, respectively, relative to their male counterparts. Although this pay gap may seem slight in comparison to others, it is women's underrepresentation in the higher paying group that adds to the overall gender pay gap.

Table 4. Mean monthly working hours and pay by gender and work type, September 2018.

	Share (%)	Working hours	FTE-corrected basic pay (£)	FTE-corrected total pay (£)
	Panel A: fixed-term temporary contract (50.6% of sample)			
Men	49.2	167.75	3,745	5,091
Women	50.8	162.49	3,401	4,770
Gap (%)	-	-	8.9	6.3
All	100.0	165.08	3,575	4,928
	Panel B: Permanent contract (49.4% of sample)			
Men	62.2	147.19	7,284	9,956
Women	37.8	136.83	6,973	8,428
Gap (%)	-	-	4.3	15.4
All	100.0	143.27	7,166	9,378

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

4.2 The gender pay gap by grade among hospital doctors

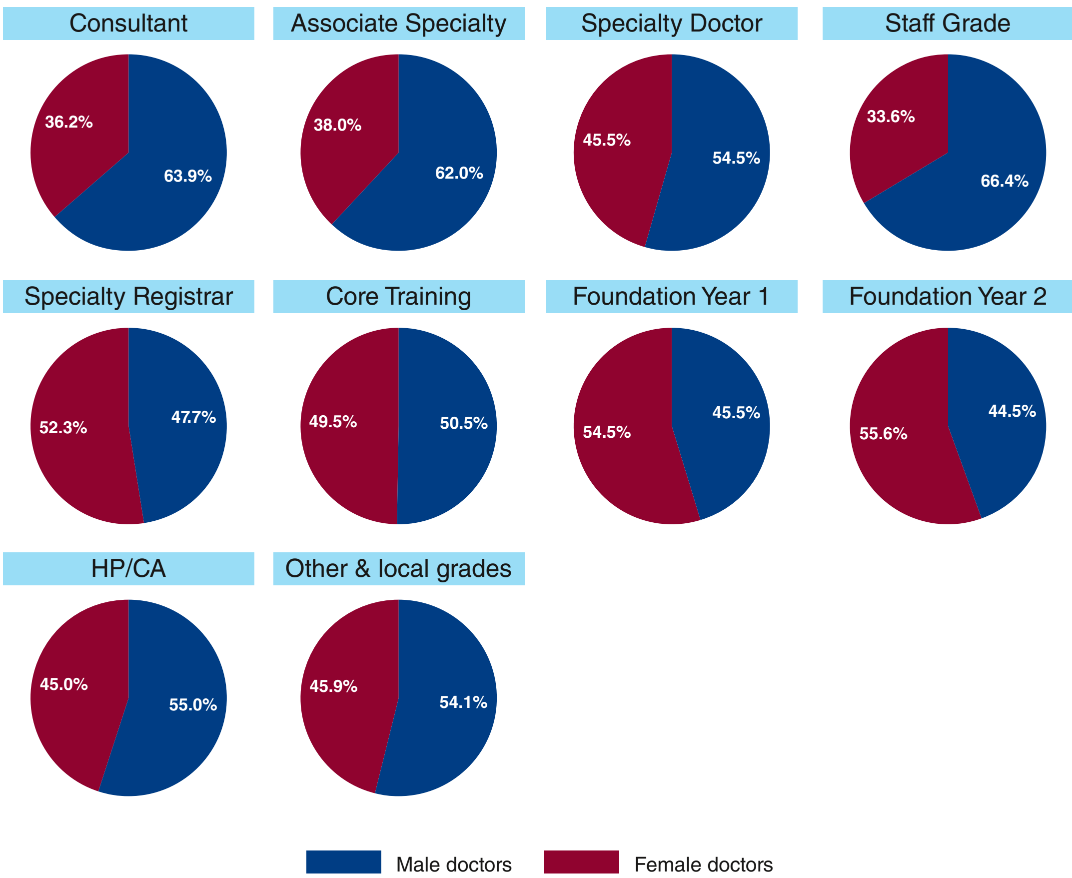
Apart from differences in working hours, the descriptive analysis so far has also provided some indication of women doctors being underrepresented in preferential grades. This subsection provides a descriptive analysis of the gender pay gap by grade. It shows that women doctors are found in low proportions in high-paying grades, for example, Consultant (36.2% women), and Associate Specialist (38% women), while their share is over 50% in low-paying grades, for example, Specialty Registrar and Foundation Year 1 and 2. The correlation coefficient between the share of women in a grade and the mean monthly pay (both genders) is -0.81 for both FTE-corrected basic and total pay, indicating that we are less likely to observe a woman doctor in grades with higher mean pay (Figure 1).

Table 5: Mean monthly pay by grade, September 2018.

		Women	FTE-corrected basic pay (£)				FTE-corrected total pay (£)			
Grade	**(%)**	**(%)**	**All**	**Men**	**Women**	**Gap (%)**	**All**	**Men**	**Women**	**Gap (%)**
Consultant	44.2	36.2	7,545	7,618	7,418	2.6	9,843	10,329	8,984	13.0
Associate Specialist	1.8	38.0	6,874	6,894	6,842	0.8	8,402	8,894	7,602	14.5
Specialty Doctor	6.4	45.5	5,075	5,163	4,969	3.8	6,365	6,921	5,700	17.6
Staff Grade	0.1	33.6	4,915	4,854	5,034	-3.7	6,224	6,438	5,800	9.9
Specialty Registrar	26.0	52.3	3,553	3,605	3,506	2.6	5,256	5,227	5,283	-1.1
Core Training	9.3	49.5	3,198	3,224	3,171	1.6	4,380	4,462	4,297	3.7
Foundation Year 1	5.8	54.5	2,226	2,223	2,227	-0.2	2,870	2,871	2,870	0.0
Foundation Year 2	5.1	55.6	2,584	2,586	2,583	0.1	3,458	3472	3,447	0.7
HP/CA	0.2	45.0	5,825	6,092	5,498	9.8	6,929	6,944	6,910	0.5
Other & local grades	1.1	45.9	6,230	6,297	6,151	2.3	7,531	7,796	7,218	7.4
Total	100.0	44.4	5,352	5,702	4,913	13.8	7,130	7,782	6,313	18.9

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Figure 1. Gender composition across grades, September 2018 (%).



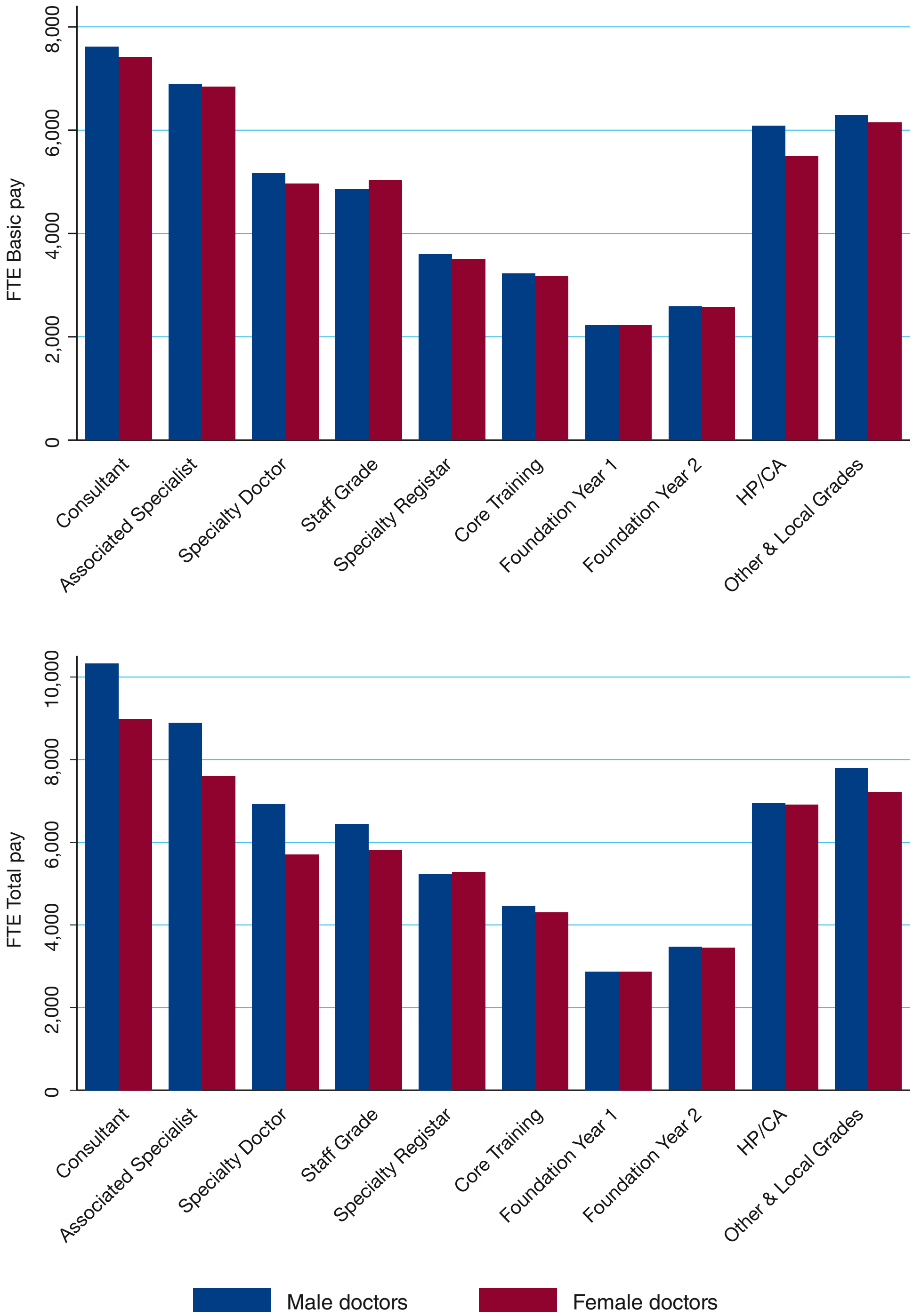
Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

There is a positive, weak, relationship between the gap in FTE-corrected basic pay and the share of women doctors within a grade; the correlation coefficient is 0.14. For example, the gender pay gap in basic pay is only 2.6% for Consultants where there are fewer women, but it is 9.7% for those in the HP/CA grade where there are more. Mitigating the trend, are the early career stages, for example, in Foundation Years 1 and 2 grades, in which the share of women is higher than men and the gender pay gap in basic pay is close to zero.

However, if we look instead at total pay, there is a strong and negative correlation between within-grade female representation and the FTE-corrected gender pay gap. In other words, the more women within the grade, the lower the gender gap in FTE-corrected monthly pay.

For example, women doctors are underrepresented in the Consultant (36.2%) and Associate Specialist (38%) grades and they earn 13.0% and 14.5% lower total pay than their male counterparts in these grades, respectively. Similarly, Staff Grade women represent about 33.6% and they earn 9.9% less in this grade. Counter to this trend, the biggest gap in total pay (17.6%) is observed in the Specialty Doctor grade where women doctors represent nearly 46% of the doctors. As in the basic pay case, no significant differences in total pay are observed for early career grades, such as Foundation Year 1 and 2, and Core Training (Figure 2). This is important, as the highest density of women doctors is found within these grades.

Figure 2. Mean monthly pay by gender and grade, September 2018.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

4.3 The gender pay gap by specialty among hospital doctors

Another important work-related dimension to be considered is medical specialty. Although specialty is recorded in a quite detailed way in the ESR data, to introduce the analysis this subsection presents indicative descriptive statistics using only the primary area of work ESR field. Using September 2018 data, Table 6 displays the distribution of doctors, the proportion of women doctors and mean values of basic and total monthly pay for each primary area of work.

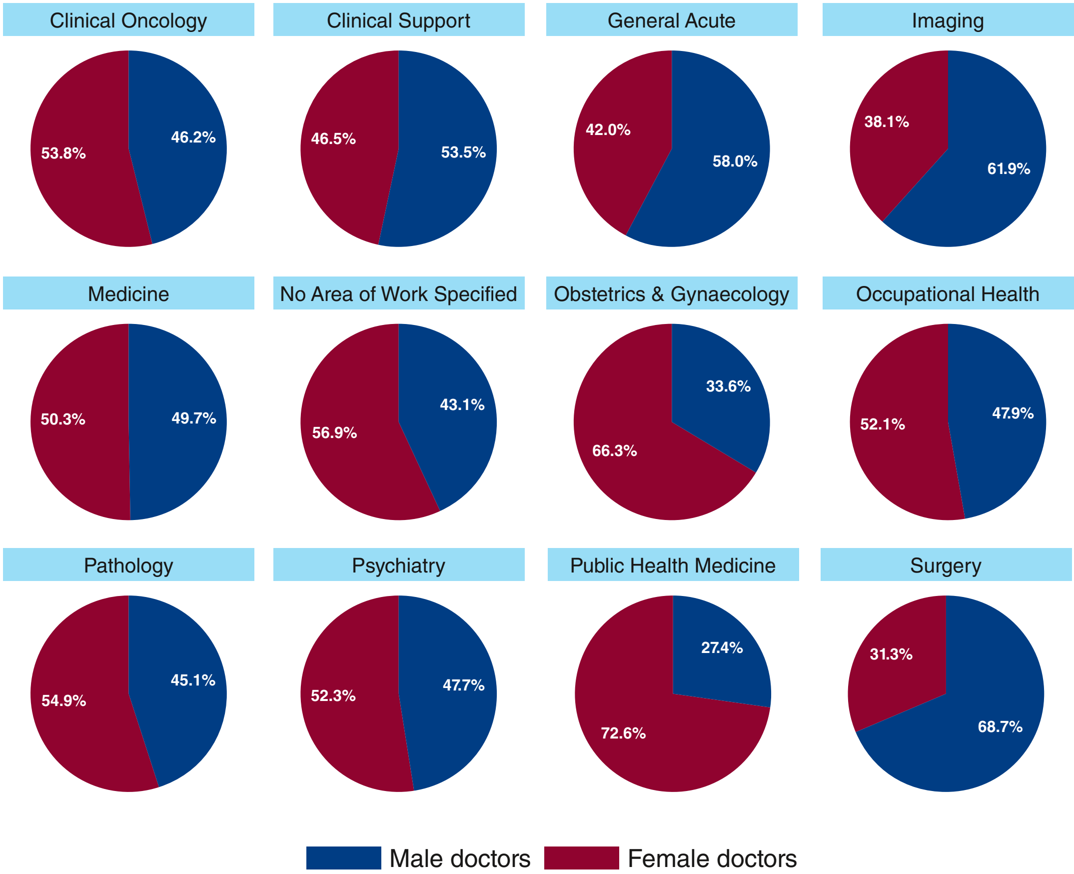
The majority of HCHS doctors work in either medicine or surgery. Women represent half of the medical workforce in medicine (50.2%) but they are underrepresented in surgery (31.3%). They are considerably overrepresented in obstetrics and gynaecology and public health medicine where their share is 66.4% and 72.6%, respectively (see also Figure 3). For both FTE-corrected basic and total pay, there is a negative relationship between mean overall monthly pay and the share of women in the specialty. The correlation coefficient between mean monthly FTE-corrected basic pay (for both genders) and females in the specialty is -0.45. The corresponding figure for FTE-corrected total pay is -0.65.

Table 6: Mean monthly pay by primary area of work, September 2018.

Primary area of work		Women	FTE-corrected basic pay (£)				FTE-corrected total pay (£)			
	(%)	(%)	All	Men	Women	Gap (%)	All	Men	Women	Gap (%)
Clinical Oncology	1.1	53.8	5,733	6,032	5,474	9.3	7,120	7,738	6,586	14.9
Clinical Support	0.9	46.5	5,731	6,045	5,368	11.2	7,320	7,983	6,553	17.9
General Acute	7.1	42.0	4,691	5,034	4,217	16.2	6,531	7,110	5,731	19.4
Imaging	4.1	38.1	6,416	6,526	6,237	4.4	8,536	9,048	7,702	14.9
Medicine	36.3	50.3	5,090	5,453	4,731	13.2	6,795	7,425	6,170	16.9
No area of work specified	0.4	56.9	5,182	5,318	5,079	4.5	6,225	6,507	6,011	7.6
Obstetrics & Gynaecology	6.1	66.4	5,211	5,867	4,878	16.9	7,008	8,136	6,435	20.9
Occupational Health	0.1	52.1	6,851	7,523	6,234	17.1	7,431	8,165	6,757	17.3
Pathology	3.7	54.9	6,298	6,626	6,028	9.0	8,019	8,729	7,435	14.8
Psychiatry	7.5	52.3	5,689	6,046	5,363	11.3	6,881	7,495	6,320	15.7
Public Health Medicine	0.3	72.6	3,483	3,477	3,485	-0.2	3,910	3,806	3,949	-3.8
Surgery	32.5	31.3	5,484	5,785	4,821	16.7	7,466	8,009	6,273	21.7
Total	100.0	44.4	5,352	5,702	4,913	13.8	7,130	7,782	6,313	18.9

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Figure 3. Gender composition across primary area of work, September 2018 (%).



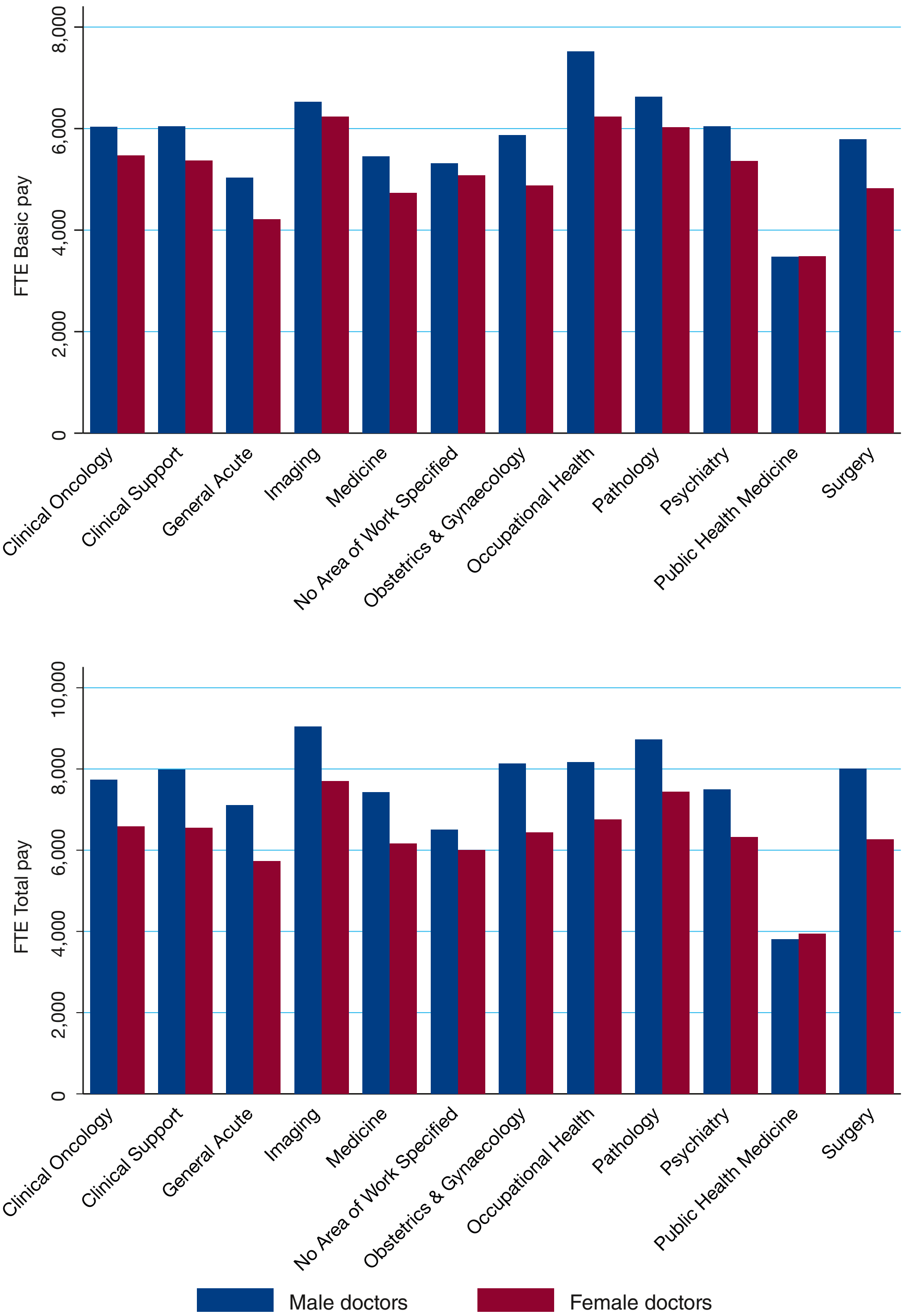
Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Similarly, the within-specialty gender pay gap in FTE-corrected basic pay is higher in specialties with a low female representation. For example, the basic pay gap in the public health medicine area of work is zero and women represent more than 70% of doctors in that area. This could reflect the fact that it is more likely for women to be in senior grades within this specialty. On the other hand, women represent only 32.5% of doctors in surgery and this is the specialty where the highest gender pay gap in basic pay is observed, that is, women surgeons earn 16.7% lower basic pay than their male counterparts.

A similar pattern emerges for FTE-corrected total pay. In this case, women doctors in public health medicine earn 3.7% more than men in terms of total pay.

However, we need to be cautious about findings here as the two negative correlations between FTE-corrected basic and total pay are likely to be driven by patterns in public health medicine – which should be regarded as an outlier. For example, women doctors are over represented in obstetrics and gynaecology, however, they earn a considerable 16.9% and 20.9% less than their male counterparts in terms of basic and total pay, respectively. If we recalculate, ignoring public health medicine, which represents only 0.3% of the total number of doctors, the negative relationships are weakened.

Figure 4. Mean monthly pay by gender and primary area of work, September 2018.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

4.4 The gender pay gap by region among hospital doctors

There are also regional discrepancies regarding the distribution of women doctors across the country as well. To examine this issue, NHS organisations were grouped into ten broad geographical regions, that is, Strategic Health Authorities (although these are no longer active and have been replaced by Clinical Commissioning Groups) to present descriptive statistics regarding the distribution and gender composition of doctors across the country, as well as the mean monthly values with respect to the FTE-corrected basic and total pay. As expected, London is the region with the highest share of hospital doctors (21.9% in September 2018); while about 15% of all doctors work in hospitals located in the North West of England. The North East and East Midlands are the regions with the lowest concentration of doctors (Table 7).

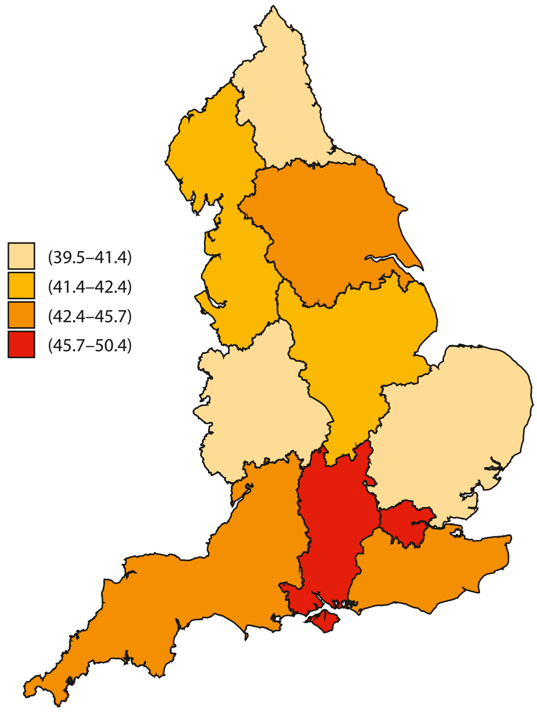
Table 7: Mean monthly pay by region, September 2018.

		Women	FTE-corrected basic pay (£)				FTE-corrected total pay (£)			
Region:	(%)	(%)	All	Men	Women	Gap (%)	All	Men	Women	Gap (%)
North East	4.1	39.6	6,051	6,341	5,608	11.6	7,997	8,809	6,756	23.3
North West	14.8	42.3	5,290	5,666	4,777	15.7	7,444	7,828	6,920	11.6
Yorkshire & The Humber	9.7	42.6	5,315	5,639	4,879	13.5	7,144	7,827	6,222	20.5
East Midlands	6.7	41.8	5,328	5,652	4,876	13.7	7,132	7,881	6,089	22.7
West Midlands	9.3	39.5	5,465	5,839	4,891	16.2	7,384	8,179	6,165	24.6
East of England	9.2	41.4	5,390	5,687	4,969	12.6	7,321	7,992	6,371	20.3
London	21.9	50.4	5,205	5,517	4,898	11.2	6,749	7,274	6,230	14.4
South East Coast	7.7	45.1	5,247	5,634	4,776	15.2	6,856	7,549	6,012	20.4
South Central	8.5	45.9	5,442	5,782	5,041	12.8	7,026	7,692	6,241	18.9
South West	8.0	45.7	5,402	5,819	4,907	15.7	6,983	7,765	6,055	22.0
Total	100.0	44.4	5,352	5,702	4,913	13.8	7,130	7,782	6,313	18.9

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

There are regions where women are underrepresented, for example, in the North East, West Midlands, plus the East of England and East Midlands (Figure 5). In general, there seems to be a north-south divide regarding the concentration of female doctors in English hospitals.

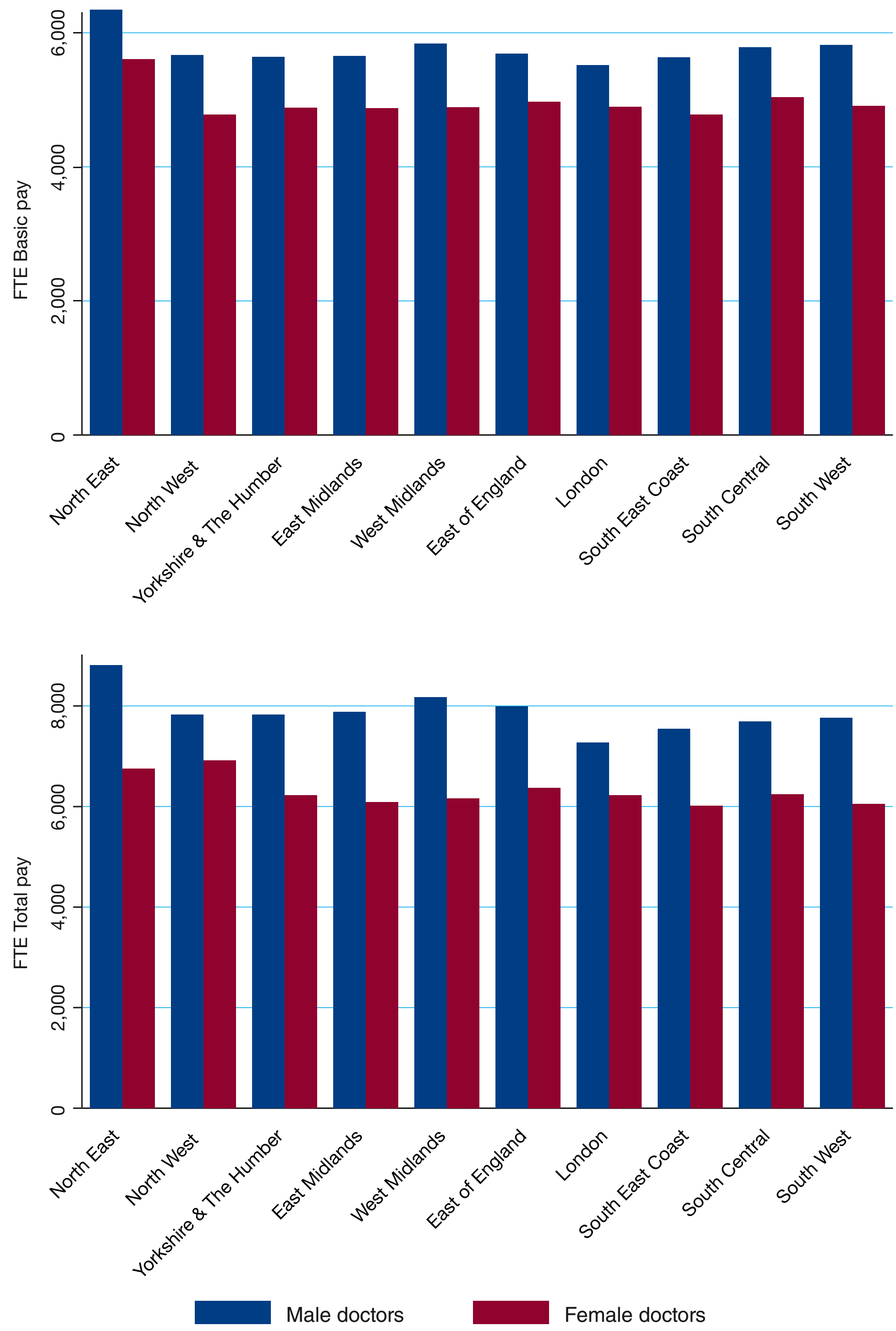
Figure 5. Distribution (%) of female doctors across the country, September 2018 (%).



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

However, disparities in the geographical distribution of female doctors across the country does not seem to have implications for the size of either the FTE-corrected basic or total pay gap (Table 7). In all ten regions, the gender pay gap for FTE-corrected basic pay ranges from 11% (London) and 16% (West Midlands). Regarding FTE-corrected total pay, in eight out of ten regions, the total pay gap ranges between 19% (South Central) and 25% (West Midlands). The exceptions are hospitals located in the North West and in London where total pay gap for women doctors is 11.6% and 14.3% lower than men respectively (Figure 6).

Figure 6. Mean monthly pay by gender and region, September 2018.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

4.5 Gender differences in personal characteristics among hospital doctors

So far it has been established that men and women doctors differ in aspects related to their hours of work, their grade and progression within the system, their medical specialty and their distribution across different locations and hospitals in England. Although these factors can potentially explain a large proportion of the variation in individual (basic and total) pay as well as the size of the raw gender pay gaps, there might be gender differences in a series of other characteristics that can also determine individual pay and affect the gender pay gap. This section uses September 2018 ESR data to examine whether men and women doctors are different in terms of personal and demographic variables. Table 8 displays the results.

Table 8. Gender differences in personal characteristics, September 2018.

	All	Men	Women	Difference (men-women)
Age (years)	40.4	42.2	38.1	4.1***
Nationality: British or Irish (%)	68.0	66.1	70.3	-4.2***
Nationality: other (%)	26.9	28.2	25.3	2.8***
Nationality: unknown/not disclosed (%)	5.1	5.7	4.3	1.4***
Ethnicity: white (%)	52.6	49.0	57.2	-8.2***
Ethnicity: BAME (%)	41.0	44.4	36.6	7.8***
Ethnicity: unknown/not disclosed (%)	6.4	6.6	6.1	0.4***
Religion: Christian (%)	22.6	18.9	27.3	-8.4***
Religion: other (%)	32.9	34.5	31.0	3.5***
Religion: unknown/not disclosed (%)	44.4	46.7	41.7	5.0***
Sexual orientation: heterosexual (%)	56.8	54.2	60.0	-5.8***
Sexual orientation: homosexual, bisexual (%)	1.4	1.8	1.0	0.8***
Sexual orientation: unknown/not disclosed (%)	41.8	44.0	39.0	5.0***
Disabled: yes (%)	1.1	0.9	1.3	-0.4***
Disabled: no (%)	66.4	63.7	69.8	-6.1***
Disabled: unknown/not stated (%)	32.5	35.4	28.9	6.5***

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

According to the data, the average age is slightly above 40 years old. Men doctors are, on average, significantly older than females, 42 versus 38 years old. This could be part of the reason why men doctors are more likely to be observed in more senior grades, which in turn, affects both pay and the gap.

Nearly 68% of the medical workforce in hospitals are British or Irish. The remainder are of any other nationality (27%) or have not stated their nationality (5.1%). Women doctors are more likely to be British relative to men, and less likely to be of an alternative nationality. Nearly 53% of hospital doctors belong to a white background ethnic group, the remaining 41% belong to some other ethnic group (for example, Indian, black, mixed and so on). A small proportion of doctors (6.4%) have not disclosed any information regarding their ethnicity. Women doctors are more likely to be white than men doctors. Regarding their religion, 22.6% of doctors reported to be Christian, 33% stated some other religion, although 44.4% preferred not to say. Women are more likely to nominate themselves as Christian and less likely to have another religious belief, or to not have disclosed any information. Almost 57% of doctors report to be of heterosexual sexual orientation. Women doctors are statistically more likely to be heterosexual and slightly less likely to have some other sexual orientation than men. Finally, 66.4% of all doctors declared they are not disabled. The non-declaration figure for disability, religion and sexuality is high.

This section provided some figures regarding the distribution of all doctors over a range of work-related and personal characteristics, as well some descriptive evidence regarding both individual pay and the gap. As described in our outline of methods in Chapter 3, the next section will perform a statistical analysis with all factors that affect both individual pay and gender pay differences, using multivariate OLS regression and Oaxaca[3]-Blinder[4] decomposition to (a) assess the size of the gap once all factors are being accounted for and (b) decompose the factors in the gender pay gap among hospital doctors.

5. Estimation of the gender pay gap

Methodology

The first stage of the empirical analysis employs a multivariate regression framework to assess the size of the adjusted gender pay gap. Within this framework, gender pay gaps are explored through pay determination models at the individual level. This is done using OLS regressions where the dependent variables are the logarithms of the FTE-corrected basic and FTE-corrected total pay. The use of logarithmised dependent variables is standard practice in econometric analysis. It assists in interpreting the mean effects of explanatory variables, for example, gender, in relative terms and avoids problems caused by outliers, that is, from individuals lying at the extremes of the pay distribution (in other words those with very small or extremely large values of reported pay)[e].[5] Such models have been among the most reliable and widely used tools in applied research on pay determination and they explain most of the variation in the data[6,7].

Further, regarding the issue of individuals lying at the extremes of the pay distributions posing threats to the uncovering of mean effects, the estimation sample will be trimmed to exclude those lying below 1% or above 99% of the pay distributions. In Table 9, baseline gender pay gap results will be reported using the non-trimmed and the trimmed samples to ensure comparability.

The sample for estimating gender pay gaps covers the total period between September 2009 and September 2018.

In undertaking regression analysis, FTE-corrected basic and FTE-corrected total pay will be controlled for the effects of a series of personal and job-related characteristics. These include: a female binary indicator that will assess the size of the gender pay gap and where men will be the reference gender; and a variable measuring age in years and a squared age in years variable[f]. The age variables also serve as proxies regarding the impact of experience/length of service in pay[g]. We also include a set of grade binary variables that control for different stages of progression within the medical careers, with Consultant serving as the reference grade, plus a set of secondary area of work binary indicators to control for different specialties with accident and emergency as the reference specialty. We include a binary indicator regarding the type of contract, that is, fixed-term temporary vs permanent, with those under fixed-term temporary contracts being the base group. A binary indicator denotes whether the individuals

e In other words, models will be resembling Mincer earnings' functions where log earnings are expressed as functions of a series of individual characteristics[5].

f This second order polynomial in age will capture the effect of age on individual pay and for possible non-linearities in the relationship between age and pay because, for example, productivity or hours of work might fall with age.

g There were many missing values in the length of service variable in the original ESR data, so rather than restrict the sample to only those with valid entries, we chose to ignore the field and use age as a proxy.

are assigned to one or more than one assignment in a given month, with those being assigned to just one being the reference category. The recoding of nationality follows steps given above, and British is the reference nationality. A similar procedure is followed for a set of ethnicity indicators, that is, white, other, not disclosed, where those coming from a white ethnic background are the reference group. We have derived similar controls for religious belief, sexual orientation and disability status.

The OLS model specifications also control for a set of year binary indicators, that is, year fixed effects, in which 2009 will be the reference year. These variables will control for time trends that affect the pay variables, they are common for all individuals and they cannot be controlled for by the other explanatory variables, for example, inflationary pressures. Similarly, the models include a set of month binary indicators, with January being the reference month, which will pick up seasonal trends in the dependent variable. Models also control for a full set of hospital fixed effects to control for permanent differences across hospitals over time, such as geographical allowances, local amenities and so on. In all the models, the estimated standard errors will be corrected for heteroscedasticity and clustering by hospital. These three control variables (year, month and hospital fixed effects) are included in all estimations.

For the analyses that follow, two types of empirical specifications will be presented. In the first one, individual FTE-corrected pay is regressed upon a female binary indicator and a full set of year, month and hospital fixed effects. This will reveal the magnitude of the FTE-corrected gap after removing influences that are common over time and geography (as above) and is referred to as “the raw gap”. In the second one, models will additionally control for the full set of personal, work and job-related characteristics (that is, grade, age/experience, specialty, ethnicity, sexual orientation and disability). This is referred to as “the adjusted gap”.

5.1 Estimation of the overall gender pay gap among hospital doctors

Establishing the validity of trimming: comparing trimmed and non-trimmed samples; basic and total pay.

Table 9 displays the regression results regarding the raw and adjusted gender pay gap for FTE-corrected basic pay (panel A) and FTE-corrected total pay (panel B) using the total sample from 2009 to 2018. Full results are available in Appendix O, Table O1. Columns 1 and 2 in panel A use the total, non-trimmed, sample for basic pay. The estimated OLS coefficient on female status is negative and statistically significant at the 1% level of significance (column 1, panel A). It is equal to -0.22[h] and it suggests that, over the period under consideration, women doctors are paid 21.9% less than men[i].[8]

Adjusting for individual and work-related controls (column 2, panel A), using non-trimmed data, contributes to explaining a large part of the gap. The estimated coefficient reduces to -0.03; still statistically significant at the 1% level, suggesting that the adjusted gap in FTE-corrected basic pay between women and men doctors is quite small and equal to -2.9%. In other words, after controlling for factors (see Section 5) determining individual pay, women doctors earn 2.7% less basic pay than men.

In columns 3 and 4 of panel A, the trimmed version of the cleaned sample is used, that is, after removing individuals at the extremes of the FTE-corrected basic pay distribution. Only a few observations are lost, however, the results gain in precision and explanatory power regarding the adjusted gap, and they get closer to the true mean effect. After accounting

h Coefficients reported in text are rounded to two decimal places.

i To be precise about the interpretation of binary indicators in models where the dependent variable is measured in logarithms, the suggestions of Halvorsen and Palmquist[8] have to be followed. A more precise interpretation would be that ignoring the influence of personal and work-related variables, female doctors earn 19.7% less than their male counterparts.

for the influence of other variables in the equation, the estimated female coefficient is -0.013 indicating that women doctors earn about 1% less basic pay than men. Furthermore, as can be seen in the table, the results are more precise; the standard errors are smaller, and they explain better the variation in individual pay, as shown by higher R-squared parameters. Using the full-trimmed model, including all individual controls and fixed effects, explains 94.8% of the variation in individual FTE-corrected basic pay.

Panel B presents the same comparisons using FTE-corrected total pay. The first two columns use the total cleaned sample. The estimated female coefficients for raw and adjusted gap are -0.26 and -0.08, respectively. They suggest that FTE-corrected raw and FTE-corrected adjusted pay for all female doctors are 22.8% and 7.4% lower than their male counterparts, respectively. The results obtained using the trimmed version of the cleaned sample (column 3, panel B, suggest that the gap in FTE-corrected-total pay is 20.5% when no individual controls are used; the estimated female coefficient is -0.23. When the models include a set of personal and job-related characteristics (column 4, panel B), the estimated adjusted gap in FTE-corrected total pay is 5.7% in favour of male doctors. Moreover, 81% of the variation (R-squared) in individual FTE-corrected total pay is explained using the trimmed sample instead of just 44.3% explained when using the non-trimmed one.

Table 9. Estimation of the overall gender pay gap.

	Total sample		Trimmed sample	
	Raw gap	Adjusted gap	Raw gap	Adjusted gap
Column	[1]	[2]	[3]	[4]
	Panel A: FTE-corrected basic pay			
Female indicator	-0.219*** (0.005)	-0.030*** (0.002)	-0.200*** (0.005)	-0.013*** (0.001)
Observations	10,365,953	10,365,953	10,179,248	10,179,248
R-squared	0.055	0.471	0.096	0.948
	Panel B: FTE-corrected basic pay			
Female indicator	-0.259*** (0.006)	-0.077*** (0.002)	-0.229*** (0.006)	-0.059*** (0.002)
Observations	10,365,953	10,365,953	10,159,019	10,159,019
R-squared	0.059	0.443	0.094	0.810
Personal controls	No	Yes	No	Yes
Work-related controls	No	Yes	No	Yes
Hospital fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Month fixed effects	Yes	Yes	Yes	Yes

Source: Electronic Staff Records (ESR), NHS Digital. Author’s calculations.

Notes: OLS estimates. FTE-corrected basic and FTE-corrected total pay are measured in logarithms. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

This analysis has demonstrated three important points. Firstly, that the total pay gap is larger than the basic pay gap, and we need to know how this occurs. Secondly, it seems that accounting for differences among individuals’ work, employment and personal features explains most of the gap. However, there is still a statistically significant 1% and a 5.7% wage penalty in basic and total earnings for women doctors that is explained by gender only.[j] Thirdly, that trimming the sample for outliers and reporting in log pay values, helps us explain a greater level of variability in individual wages. For the remainder of the empirical analysis, estimates using the trimmed sample will be reported.

The remainder of Section 5 will review, using regression analysis, the impact of other variables in the dataset on the gender pay gap; year of data collection, contracted working hours, grade, age, specialty and geographic region.

Gender pay gaps September 2009 to September 2018.

One of the most interesting questions we can address using ESR data is how gender pay gaps for women and men hospital doctors have evolved over time.

To undertake this analysis OLS regressions were estimated separately for each month using both types of pay (FTE-corrected basic and FTE-corrected total[k]) and both types of empirical model specifications, that is, one referring to the raw and one referring to the adjusted gap. Figure 7 displays the results. The month-specific gender pay gaps (solid black lines) are displayed with their 95% confidence intervals (shaded areas). Figures also show the mean effects with their 95% confidence intervals (dashed horizontal lines).

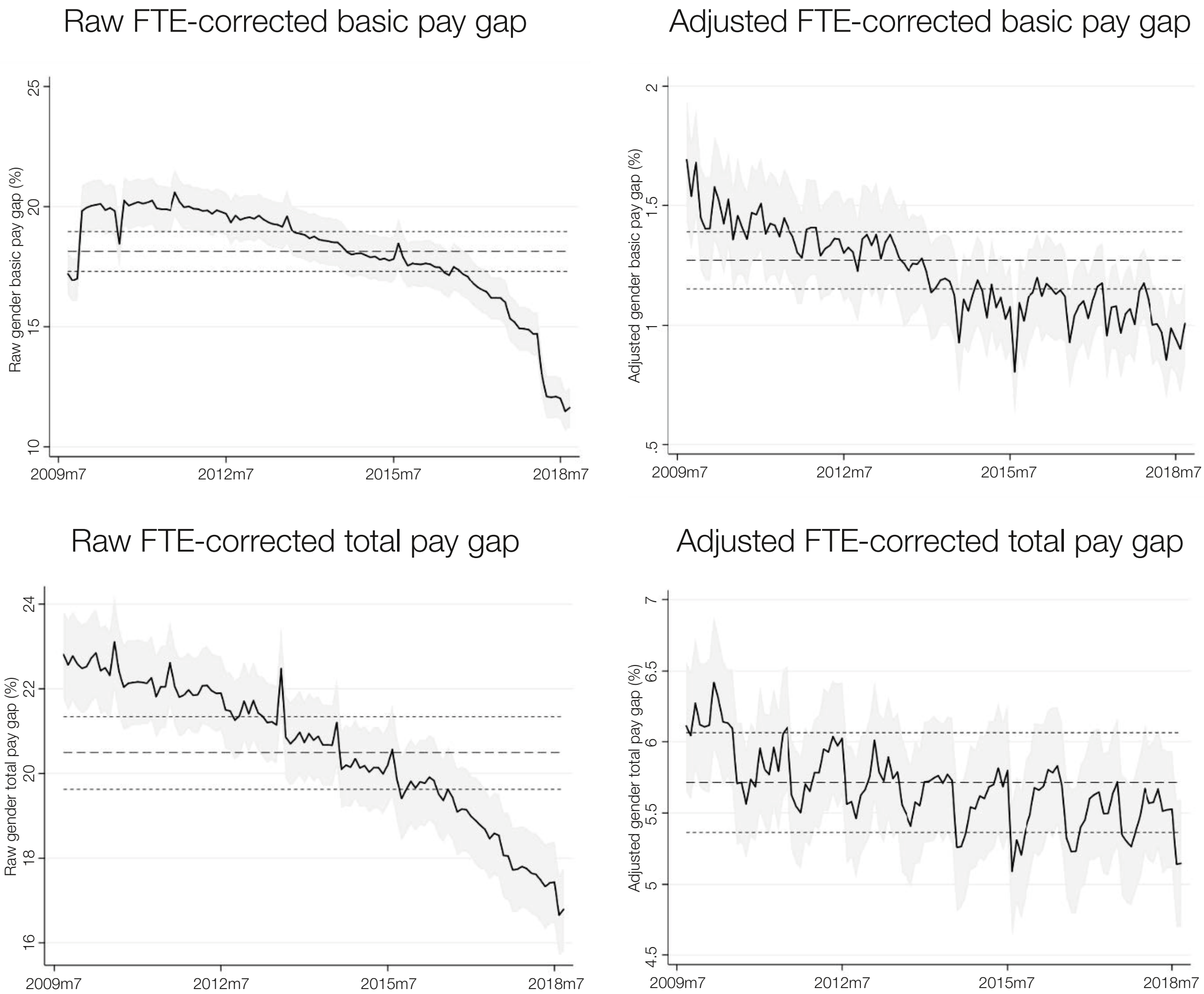
Both raw and adjusted gender-related gaps in basic and total pay are decreasing over time. The raw basic pay gap was around 17.2% in September 2009 decreasing to 11.7% by September 2018. The adjusted basic pay gap was 1.7% at the beginning of the period decreasing to around 1% in September 2018. The raw total pay gap was 22.8% at the beginning of the period, dropping to 16.8% in September 2018. The adjusted total pay gap is also decreasing, although not very fast. It oscillates between 6 and 6.5% during the first months of the period under consideration and is approaching 5% towards the end of it[l]. Implementation of gender equality policies, as well as progression of women doctors within the system, could be driving the reduction in the pay gap.

j Full OLS results regarding the regressions presented in Table 9 are provided in Appendix O. Table O1 reports results for basic pay and Table O2 for total pay.

k Using the trimmed sample and logarithmic pay

l Regarding the September 2018 figures for raw FTE-corrected basic (11.7%) and raw FTE-corrected total (16.8%) pay gaps in Figure 7, these are slightly lower than the ones reported in Table 1 (columns 5 and 6). In Table 1, the raw FTE-corrected basic pay and raw FTE-corrected total pay were 13.8% and 18.9%, respectively. The difference is explained because pay variables used in Table 1 were not logged and non-trimmed for outliers. Therefore, they were more affected by extreme values in the pay distribution, especially in the upper tail. The pay gaps depicted in Figure 7 have been corrected so they are not affected by extreme pay values.

Figure 7. The overall gender pay gap by month.

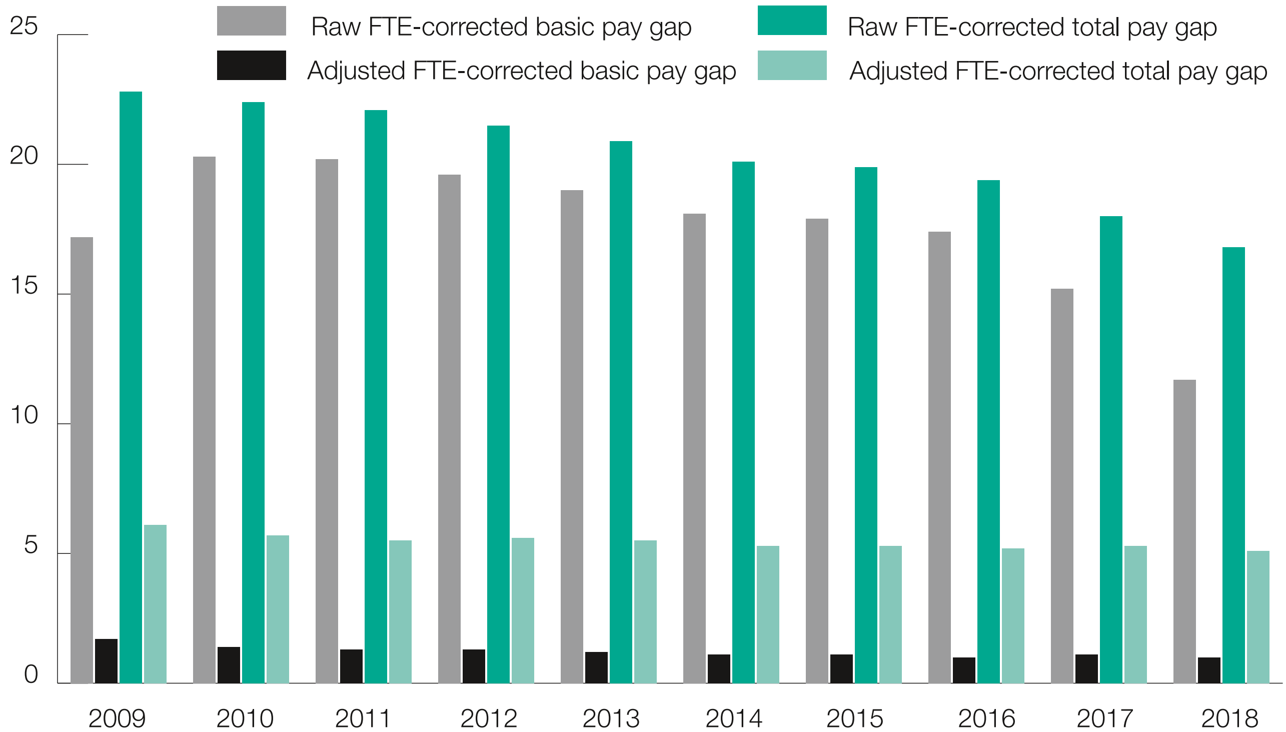


Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: Based on OLS estimates. Dashed horizontal lines correspond to the average gender pay gap and their 95% confidence intervals. Shaded areas are the 95% confidence intervals for the month-specific gender pay gap (black solid lines).

For a more readable representation, Figure 8 gives the reduction in the gender pay gaps in basic and total pay reduced to only ten points of time (September of each year). It clearly seems that all types of gender pay gaps follow a steadily declining trend over time.

Figure 8. The overall gender pay gap by month (September) (%).



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: Based on OLS estimates from Figure 7.

5.2 Estimation of the gender pay gap by working pattern among hospital doctors

Table 3 highlighted some notable differences in working patterns between genders, that is, women doctors are more likely to work less than full-time relative to men. This could be associated with the size of the gender pay gap. Although for the majority of the time we use a full-time equivalent measure that reduces the influence of contracted hours on pay, it is worth analysing the extent to which contracted hours is the source of variation between men and women doctors.

To examine this, the total sample of ESR doctors is split into twelve categories, based on their contracted hours, and the models are estimated separately for each subgroup. Table 10 reports the OLS regression results. Women doctors are more likely than men to work 0.5 FTE to 0.9 FTE, while men doctors are more concentrated within very low and very high FTE values, including 1.0 FTE. A clear majority of both genders (85.4%) work on a 1.0 FTE contract.

In agreement with Table 3 which uses an non-trimmed dataset, Table 10 shows that the raw gender gap in basic pay is higher in medium FTE values (over 0.5 and under 0.7 FTE) as well as for those with 1.0 FTE. However, adjusting for personal and job-related characteristics reveals firstly, that almost all gaps are reduced to near 0% and reverse in favour of women working in two categories over 0.7 contracted hours, and secondly, that the gender gap in basic pay is larger for low FTE values. For those with 1.0 contracted FTE, the gender pay gap in basic pay is nearly identical to the overall effect documented before, that is, 1.6% in favour of men doctors.

Table 10. Estimation of the gender pay gap by contracted FTE.

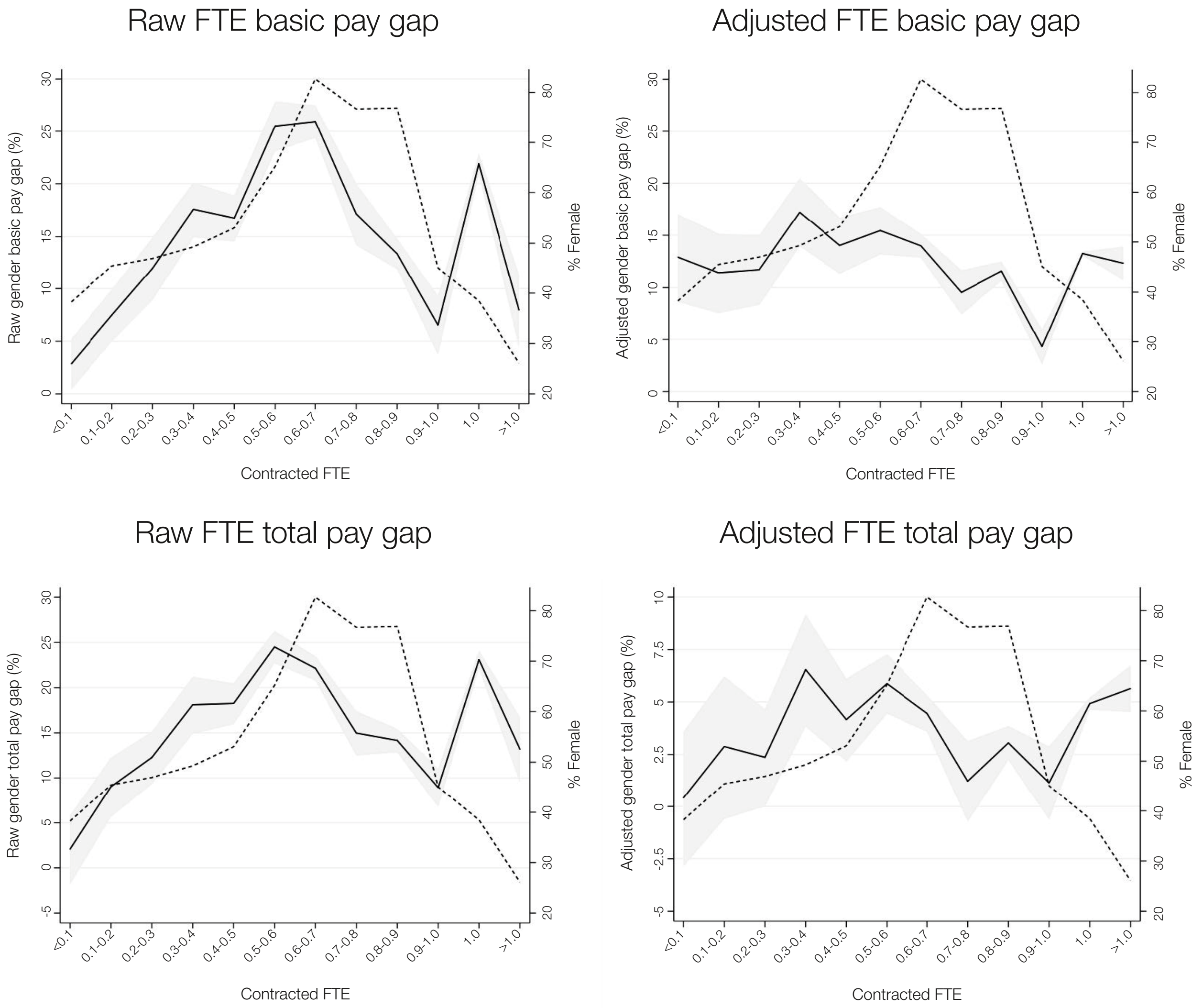
	% of HCHS workforce	Women (%)	Basic pay		Total pay	
			Raw gap	Adjusted gap	Raw gap	Adjusted gap
Contracted FTE	[1]	[2]	[3]	[4]	[5]	[6]
<0.1	0.5	38.2	-0.029** (0.012)	-0.015 (0.011)	-0.021 (0.020)	-0.004 (0.016)
≥0.1 – <2.0	0.6	45.5	-0.078*** (0.013)	-0.007 (0.010)	-0.095*** (0.018)	-0.029 (0.018)
≥0.2 – <0.3	0.6	47.0	-0.127*** (0.017)	-0.008 (0.008)	-0.131*** (0.017)	-0.024** (0.012)
≥0.3 – <0.4	0.4	49.3	-0.193*** (0.016)	-0.037*** (0.009)	-0.200*** (0.020)	-0.068*** (0.015)
≥0.4 – <0.5	0.6	53.1	-0.183*** (0.013)	-0.020*** (0.007)	-0.202*** (0.014)	-0.043*** (0.010)
≥0.5 – <0.6	1.3	65.2	-0.295*** (0.016)	-0.028*** (0.006)	-0.281*** (0.012)	-0.061*** (0.008)
≥0.6 – <0.7	4.4	82.7	-0.300*** (0.011)	-0.020*** (0.003)	-0.250*** (0.009)	-0.046*** (0.005)
≥0.7 – <0.8	0.7	76.71	-0.188*** (0.018)	0.002 (0.005)	-0.162*** (0.015)	-0.012 (0.010)
≥0.8 – <0.9	3.6	76.9	-0.143*** (0.008)	-0.008*** (0.002)	-0.153*** (0.008)	-0.031*** (0.004)
≥0.9 – <1.0	1.0	45.1	-0.067*** (0.015)	0.028*** (0.004)	-0.094*** (0.012)	-0.011 (0.009)
=1.0	85.4	38.5	-0.247*** (0.007)	-0.016*** (0.000)	-0.263*** (0.007)	-0.050*** (0.002)
>1.0	0.8	26.1	-0.083*** (0.019)	-0.012*** (0.004)	-0.142*** (0.021)	-0.058*** (0.006)

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: OLS estimates. Basic and total pay are measured in logarithms. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. All models include year, month and hospital fixed effects. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

Regarding total pay, when not accounting for individual characteristics of doctors, the raw gap is higher for those with low and medium values of contracted FTE and also for those with contracted FTE equal to 1.0. Adjusting for personal and work-related variables significantly reduces the magnitude of the female OLS coefficient, that is, explains a large part of the raw gap. The gap in total pay, for those with contracted FTE equal to 1.0, is close to the overall gender pay gap documented in previous results, as these individuals constitute by far the largest group. Figure 9 presents a graphical representation of the OLS results for both pay variables and for both types of the gender pay gap, that is, raw and adjusted.

Figure 9. The gender pay gap by contracted FTE category.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: Based on OLS results. Dashed lines correspond to the share of female doctors for each contracted FTE category (measured on the right-hand side vertical axis). Shaded areas are the 95% confidence intervals for the contracted FTE-specific gender pay gap (black solid lines) that are measured on the left-hand side vertical axis.

In conclusion, looking within bands of contracted FTE hours, we find gender pay gaps within bandings in both basic and total pay, reinforcing that hours of work are not only the source of raw gender pay gaps. After adjusting for grade, specialty and so on, we see that gender pay gaps are worse for those that hold contracts of around 0.3 or over full-time. There are not many women in the latter group.

5.3 Estimation of the gender pay gap by grade among hospital doctors

Table 11 presents the estimation results regarding the gender pay gap in terms of basic and total pay by grade. There is considerable variation across grades. For example, the raw gender pay gap in basic pay ranges from zero (Foundation Year 1, Foundation Year 2, HP/CA), and the highest is 4.6% for those in the Specialty Registrar grade. Moreover, controlling for individual characteristics explains a large part of the gap for some grades, for example, Consultants and Specialty Registrars, but has little or no explanatory power for others, for example, Specialty Doctors, Core Training, Staff Grade and Other & Local Grades. It is notable that some of these grades have locally-determined terms and conditions; the implication being that there is less predictability outside NHS terms and conditions.

Table 11. Estimation of the gender pay gap by grade.

Grade	FTE-corrected basic pay		FTE-corrected total pay	
	Raw gap	Adjusted gap	Raw gap	Adjusted gap
Consultant	-0.023*** (0.001)	-0.008*** (0.001)	-0.113*** (0.003)	-0.084*** (0.003)
Associate Specialist	-0.005* (0.003)	-0.002 (0.003)	-0.112*** (0.007)	-0.071*** (0.006)
Specialty Doctor	-0.033*** (0.004)	-0.033*** (0.003)	-0.128*** (0.005)	-0.105*** (0.004)
Staff Grade	-0.013 (0.011)	-0.008 (0.010)	-0.131*** (0.020)	-0.101*** (0.018)
Specialty Registrar	-0.047*** (0.002)	-0.012*** (0.001)	-0.074*** (0.002)	-0.031*** (0.001)
Core Training	-0.016*** (0.001)	-0.010*** (0.001)	-0.040*** (0.002)	-0.029*** (0.002)
Foundation Year 1	0.000 (0.000)	0.000** (0.000)	-0.006*** (0.001)	-0.005*** (0.001)
Foundation Year 2	0.001** (0.000)	0.001*** (0.000)	-0.014*** (0.001)	-0.012*** (0.001)
HP/CA	-0.008 (0.012)	-0.011 (0.011)	-0.014 (0.017)	-0.020 (0.017)
Other & local grades	-0.046*** (0.012)	-0.040*** (0.008)	-0.086*** (0.012)	-0.071*** (0.009)

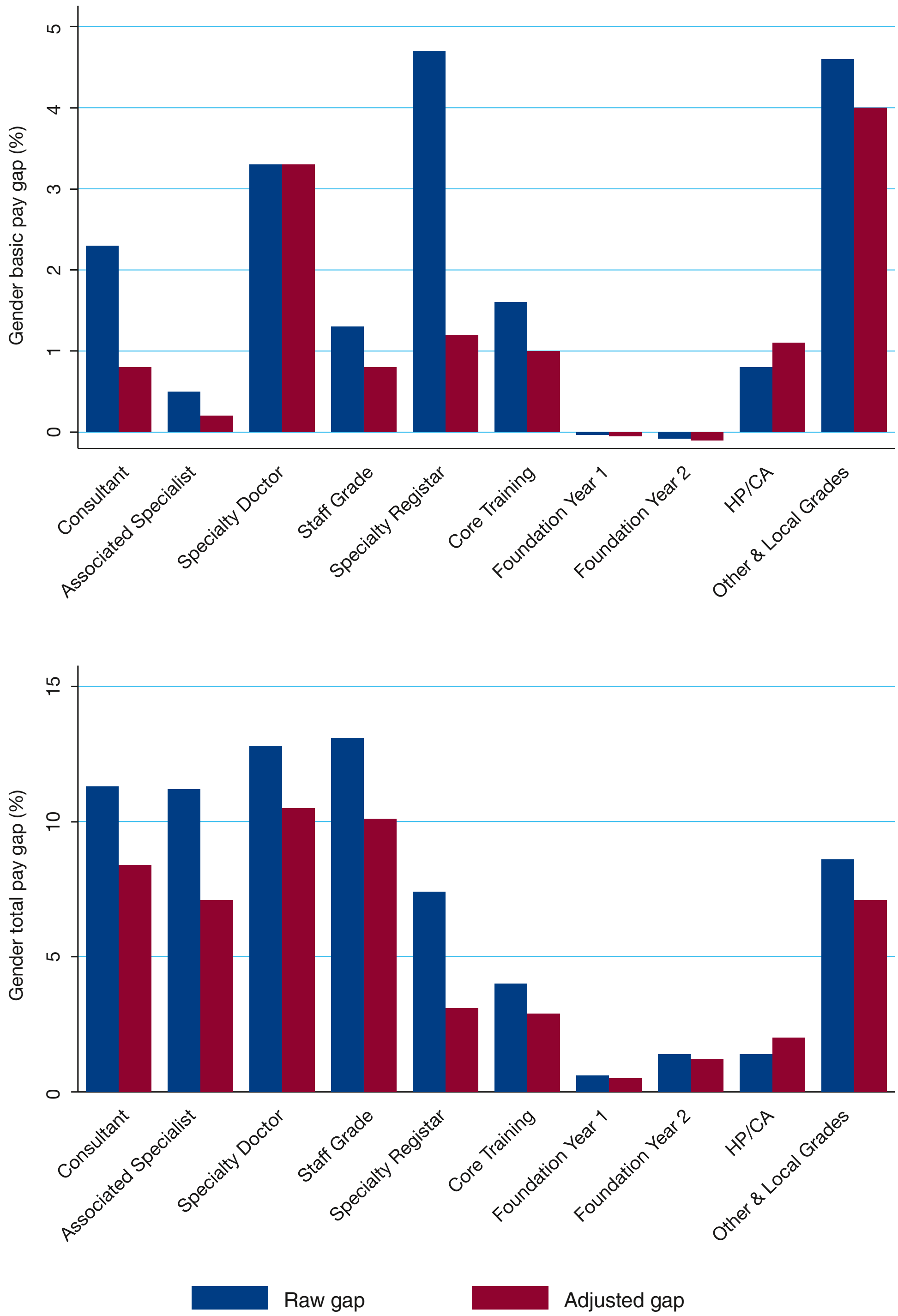
Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: OLS estimates. FTE-corrected basic and FTE-corrected total pay are measured in logarithms. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. All models include year, month and hospital fixed effects. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

Regarding FTE-corrected total pay, the raw gap ranges from a very small 0.6% (Foundation Year 1) up to 12.3% for those classified into Staff Grade. It is not significantly different from zero for HP/CA. Again, controlling for personal and work-related characteristics contributes in explaining part, even if a smaller part, of the gap in nearly all grades, especially for Consultants, Associate Specialists and Specialty Registrars. In the models adjusting for personal characteristics, the gender pay gap in total pay ranges from 0.5% (Foundation Year 1) to 10% (Specialty Doctors). The gender pay gap in total pay for HP/CA remains statistically not significant.

Figure 10 translates the estimated OLS coefficients of Table 11 into relative pay differences between genders.

Figure 10. The gender pay gap by grade.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: Based on OLS results.

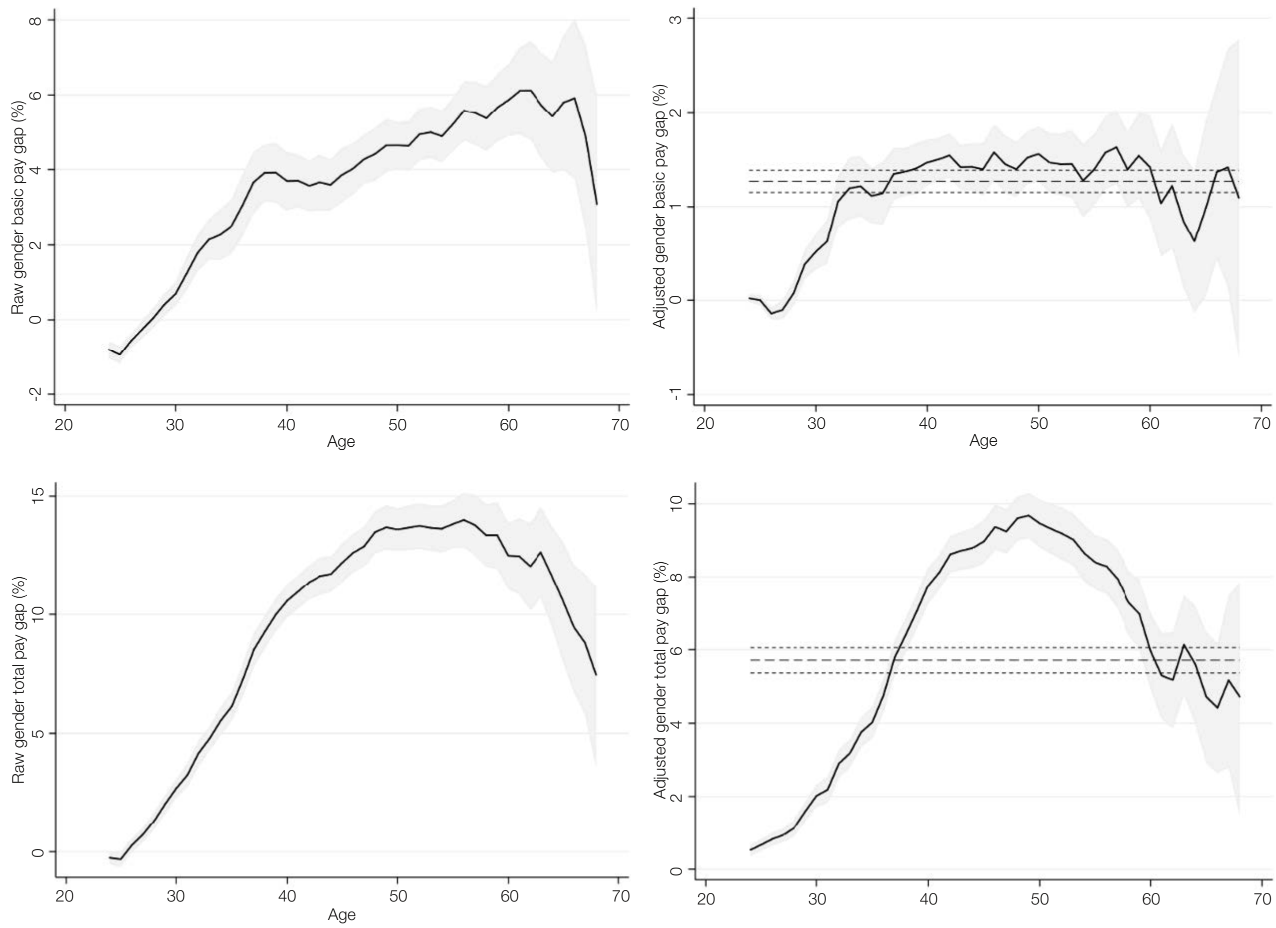
5.4 Estimation of the gender pay gap by age among hospital doctors

The analysis of the gender pay gap by grade in the above section indicated that pay differences between men and women doctors are practically zero in early-career grades, implying that the observed overall gender pay gaps in basic and total pay are generated in later career stages. Therefore, we now estimate gender pay gaps separately for each age, examining how they evolve over the age span 21 to 70 years old.

Figure 11 provides a graphical illustration of the results for basic and total pay (both are FTE-corrected), and for empirical models excluding and including individual characteristics, that is, raw gap and adjusted gap, respectively. It is important to note that in all cases the gender pay gap commences at zero in early career years, with the estimates being quite precise, that is, their associated 95% confidence intervals are narrow.

The gap in basic pay increases with age, up to a point before starting decreasing for those older than 60 years old. The adjusted gender pay gap is never higher than 2%. Similarly, the gap in total pay increases with age, however, it stops increasing a bit earlier, that is, after 50 years old. It never climbs above 10% (adjusted gap).

Figure 11. The gender pay gap by age.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculation.

Notes: Based on OLS estimates. Dashed horizontal lines correspond to the average gender pay gap and their 95% confidence intervals. Shaded areas are the 95% confidence intervals for the age-specific gender pay gap (black solid lines).

5.5 Estimation of the gender pay gap by primary area of work among hospital doctors

Regarding the size of the gender pay gap by primary area of work, the results in Table 12 suggest that it ranges from zero (public health medicine) to 21.7% (surgery) when considering FTE-corrected basic pay and models that do not control for individual characteristics.

Controlling for demographics and job-related variables explains a large proportion of the gap in basic pay. In this case, the biggest adjusted gap is observed for general acute medicine and it is equal to 2.0%. Regarding FTE-corrected total pay when no individual controls are included, the gender pay gap ranges from zero (public health medicine) to 26.2% (surgery). Controlling for individual characteristics explains most of the raw gap, however, there is a gap in total pay ranging from 4.8% (obstetrics and gynaecology) to 7.5% (imaging), while it remains close to zero in the public health medicine group.

Table 12. Estimation of the gender pay gap by primary area of work.

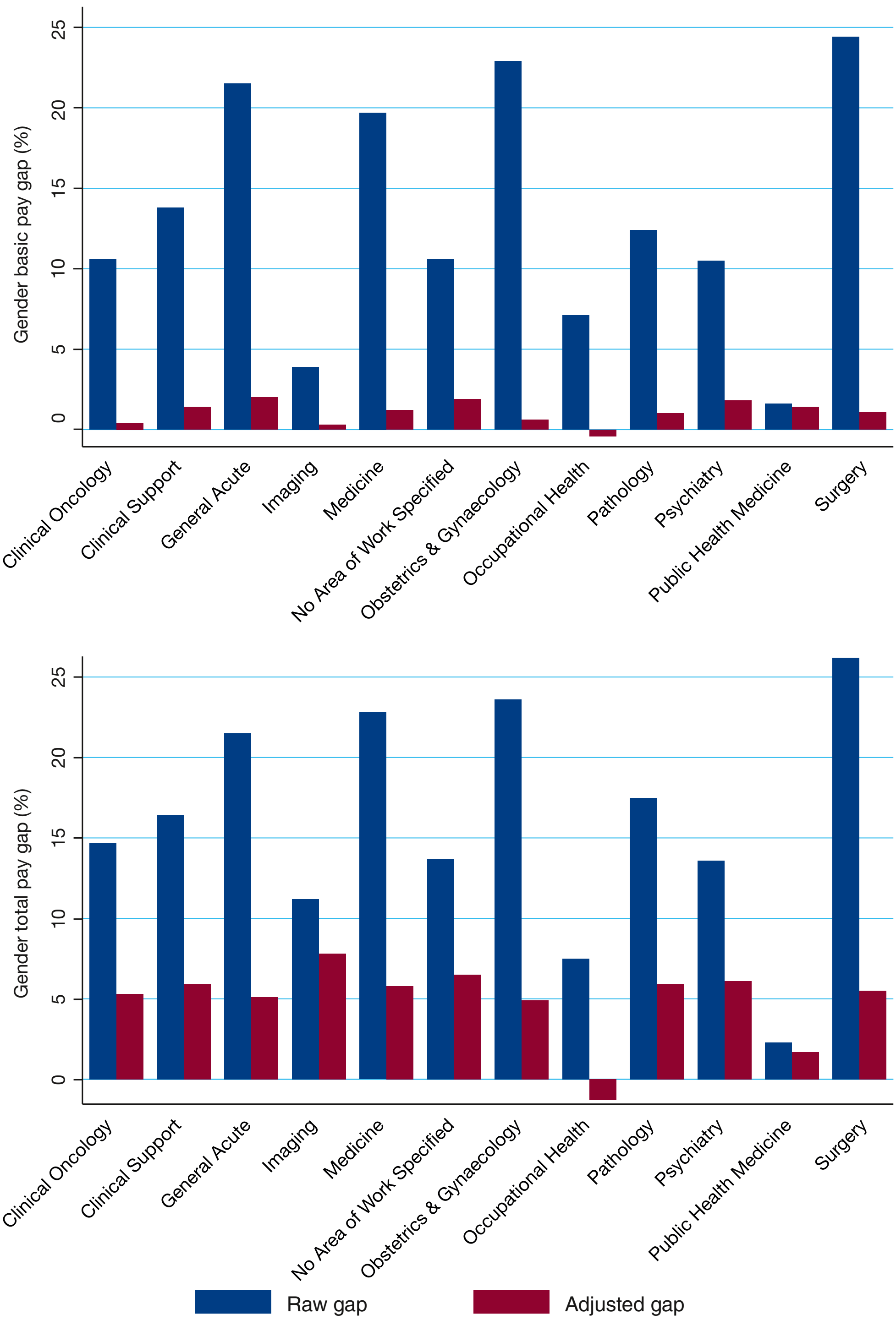
	FTE-corrected-basic pay		FTE-corrected-total pay	
Primary area of work	Raw gap	Adjusted gap	Raw gap	Adjusted gap
Clinical Oncology	-0.106*** (0.020)	-0.004 (0.003)	-0.147*** (0.019)	-0.053*** (0.006)
Clinical Support	-0.138*** (0.021)	-0.014*** (0.004)	-0.164*** (0.017)	-0.059*** (0.008)
General Acute	-0.215*** (0.009)	-0.020*** (0.002)	-0.215*** (0.009)	-0.051*** (0.003)
Imaging	-0.039*** (0.007)	-0.003 (0.002)	-0.112*** (0.009)	-0.078*** (0.006)
Medicine	-0.197*** (0.006)	-0.012*** (0.001)	-0.228*** (0.007)	-0.058*** (0.002)
No area of work specified	-0.106*** (0.013)	-0.019*** (0.004)	-0.137*** (0.015)	-0.065*** (0.006)
Obstetrics & Gynaecology	-0.229*** (0.009)	-0.006*** (0.002)	-0.236*** (0.008)	-0.049*** (0.004)
Occupational Health	-0.071 (0.044)	0.004 (0.011)	-0.075 (0.046)	0.013 (0.022)
Pathology	-0.124*** (0.010)	-0.010*** (0.002)	-0.175*** (0.011)	-0.059*** (0.004)
Psychiatry	-0.105*** (0.008)	-0.018*** (0.002)	-0.136*** (0.007)	-0.061*** (0.004)
Public Health Medicine	-0.016 (0.031)	-0.014 (0.015)	-0.023 (0.032)	-0.017 (0.016)
Surgery	-0.244*** (0.007)	-0.011*** (0.001)	-0.262*** (0.007)	-0.055*** (0.002)

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: OLS estimates. FTE-corrected basic and FTE-corrected total pay are measured in logarithms. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. All models include year, month and hospital fixed effects. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

Figure 12 translates the estimated OLS coefficients of Table 12 into relative pay differences between genders. This has been done for both types of FTE-corrected pay, that is, basic and total, and provides a graphical representation of the gender pay gap, indicating the importance of including characteristics of adjustment. Especially for the case of FTE-corrected basic pay, the gender pay gap is negligible after controlling for individual differences in personal, job and work-related characteristics. This could be reflecting the fact that only small differences should be expected in settings where pay is regulated, that is, in public services.

Figure 12. The gender pay gap by primary area of work.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: Based on OLS results.

5.6 Estimation of the gender pay gap by secondary area of work among hospital doctors

To create a more detailed picture of the influence of specialty, the gender pay gap is also estimated by secondary area of work (Table 13). The raw basic gender pay gap ranges from 52% in urology and in the 40% range for surgical specialties (for example, trauma and orthopaedic surgery (46.2%) and general surgery (40.6%)), to zero (for example, medical physics and palliative medicine). It is high (30% and above) in cardio-thoracic surgery, cardiology, gastroenterology, neurology, otolaryngology and surgery. However, once again, controlling for individual characteristics explains most of the gender differences in basic pay across specialties. Moreover, there are also some specialties where the difference in basic pay is negligible and in favour of female doctors, such as in blood science, however, these cases lack statistical significance.

Table 13. Estimation of the gender pay gap by secondary area of work.

Secondary area of work	FTE-corrected-basic pay		FTE-corrected-total pay	
	Raw gap	Adjusted gap	Raw gap	Adjusted gap
	[1]	[2]	[3]	[4]
Accident & Emergency	-0.214*** (0.009)	-0.021*** (0.002)	-0.212*** (0.009)	-0.052*** (0.003)
Allergy	-0.061* (0.032)	0.013 (0.011)	-0.106*** (0.036)	-0.037*** (0.012)
Ambulance Services	-0.123*** (0.030)	-0.019*** (0.005)	-0.131*** (0.024)	-0.048*** (0.006)
Anaesthetics	-0.117*** (0.007)	-0.008*** (0.001)	-0.148*** (0.006)	-0.061*** (0.003)
Audiological Medicine	-0.066 (0.042)	-0.003 (0.011)	-0.141** (0.054)	-0.096*** (0.015)
Blood Sciences	-0.116 (0.091)	0.069 (0.042)	-0.284* (0.149)	0.056 (0.035)
Breast Screening	-0.107** (0.047)	0.006 (0.013)	-0.211*** (0.070)	-0.067* (0.037)
Cancer Support	-0.118*** (0.037)	-0.005 (0.005)	-0.143*** (0.016)	-0.053** (0.024)
Cardio-thoracic Surgery	-0.326*** (0.029)	-0.027*** (0.005)	-0.347*** (0.029)	-0.062*** (0.009)
Cardiology	-0.343*** (0.018)	-0.017*** (0.002)	-0.356*** (0.016)	-0.050*** (0.005)
Cellular Science	-0.191*** (0.021)	-0.012 (0.008)	-0.182*** (0.024)	-0.039*** (0.011)
Chemical Pathology	-0.187*** (0.035)	-0.013* (0.007)	-0.243*** (0.040)	-0.059*** (0.019)
Child & Adolescent Psychiatry	-0.047*** (0.013)	-0.017*** (0.002)	-0.088*** (0.012)	-0.058*** (0.006)
Clinical Genetics	-0.069* (0.036)	-0.000 (0.005)	-0.153*** (0.046)	-0.060*** (0.019)
Clinical Haematology	-0.135*** (0.027)	-0.001 (0.002)	-0.165*** (0.025)	-0.042*** (0.009)

Secondary area of work	FTE-corrected-basic pay		FTE-corrected-total pay	
	Raw gap	Adjusted gap	Raw gap	Adjusted gap
Clinical Neurophysiology	-0.130*** (0.039)	0.010 (0.010)	-0.167*** (0.049)	0.002 (0.027)
Clinical Oncology	-0.106*** (0.019)	-0.004 (0.002)	-0.147*** (0.018)	-0.053*** (0.006)
Clinical Pharmacology & Therapeutics	-0.218** (0.088)	-0.038*** (0.011)	-0.259** (0.099)	-0.094*** (0.025)
Clinical Psychology	-0.071 (0.081)	-0.024* (0.012)	-0.103 (0.067)	-0.054*** (0.012)
Clinical Radiology	-0.039*** (0.008)	-0.003* (0.002)	-0.113*** (0.010)	-0.080*** (0.006)
Clinical Support	-0.196*** (0.064)	-0.012 (0.010)	-0.220*** (0.058)	-0.040*** (0.014)
Complementary Medicine/Therapy	-0.171 (0.057)	-0.043 (0.008)	-0.166 (0.065)	0.046 (0.031)
Dermatology	-0.085*** (0.014)	-0.007 (0.004)	-0.112*** (0.014)	-0.042*** (0.007)
Elderly Care Medicine	-0.224*** (0.013)	-0.010*** (0.001)	-0.238*** (0.013)	-0.049*** (0.003)
Endocrinology & Diabetes Mellitus	-0.228*** (0.019)	-0.011*** (0.002)	-0.270*** (0.019)	-0.062*** (0.006)
Forensic Psychiatry	-0.098*** (0.022)	-0.016*** (0.004)	-0.131*** (0.018)	-0.065*** (0.011)
Gastroenterology	-0.339*** (0.016)	-0.013*** (0.002)	-0.367*** (0.014)	-0.062*** (0.004)
General Acute	-0.062** (0.030)	-0.008 (0.007)	-0.075*** (0.026)	-0.023** (0.011)
General Medicine	-0.182*** (0.012)	-0.012*** (0.001)	-0.198*** (0.012)	-0.048*** (0.002)
General Pathology	-0.047 (0.029)	-0.010*** (0.002)	-0.161*** (0.040)	-0.127*** (0.023)
General Psychiatry	-0.136*** (0.011)	-0.017*** (0.002)	-0.152*** (0.011)	-0.055*** (0.004)
General Surgery	-0.406*** (0.013)	-0.008*** (0.001)	-0.418*** (0.013)	-0.043*** (0.002)
Genito Urinary Medicine	-0.166*** (0.021)	-0.011** (0.004)	-0.218*** (0.024)	-0.050*** (0.009)
Haematology	-0.140*** (0.016)	-0.005** (0.002)	-0.180*** (0.018)	-0.046*** (0.006)
Histopathology	-0.109*** (0.016)	-0.013*** (0.002)	-0.162*** (0.018)	-0.059*** (0.006)
Imaging	-0.020 (0.015)	-0.002 (0.003)	-0.086*** (0.019)	-0.073*** (0.010)
Immunology	-0.138*** (0.044)	-0.014 (0.009)	-0.233*** (0.044)	-0.104*** (0.034)

Secondary area of work	FTE-corrected-basic pay Raw gap	FTE-corrected-basic pay Adjusted gap	FTE-corrected-total pay Raw gap	FTE-corrected-total pay Adjusted gap
Infectious Diseases	-0.197*** (0.042)	0.000 (0.003)	-0.220*** (0.040)	-0.021*** (0.006)
Intensive Care Medicine	-0.194*** (0.017)	-0.011*** (0.002)	-0.199*** (0.017)	-0.037*** (0.005)
Maternity	-0.193*** (0.012)	-0.017 (0.010)	-0.218*** (0.019)	-0.074*** (0.019)
Medical Microbiology & Virology	-0.094*** (0.027)	-0.007 (0.004)	-0.123*** (0.025)	-0.035*** (0.009)
Medical Oncology	-0.124*** (0.016)	-0.005 (0.003)	-0.153*** (0.013)	-0.042*** (0.009)
Medical Ophthalmology	-0.028 (0.054)	-0.009 (0.013)	-0.062 (0.039)	-0.044* (0.021)
Medical Physics	-0.015 (0.018)	-0.011*** (0.004)	-0.087*** (0.027)	-0.081*** (0.015)
Medical Psychotherapy	-0.145** (0.057)	-0.020* (0.011)	-0.164*** (0.057)	-0.061* (0.033)
Medicine	-0.197*** (0.033)	-0.009*** (0.003)	-0.216*** (0.030)	-0.051*** (0.007)
Neonatal Intensive Care	-0.171*** (0.019)	-0.010** (0.004)	-0.181*** (0.022)	-0.052*** (0.008)
Neurology	-0.192*** (0.020)	-0.010*** (0.003)	-0.216*** (0.018)	-0.054*** (0.008)
Neurosurgery	-0.320*** (0.028)	-0.019*** (0.005)	-0.308*** (0.024)	-0.039*** (0.007)
No area of work specified	-0.106*** (0.012)	-0.019*** (0.004)	-0.137*** (0.015)	-0.065*** (0.006)
Nuclear Medicine	-0.025 (0.062)	-0.003 (0.005)	-0.071 (0.064)	-0.058** (0.022)
Obstetrics & Gynaecology	-0.233*** (0.009)	-0.006*** (0.002)	-0.240*** (0.008)	-0.048*** (0.003)
Occupational Health	-0.070 (0.043)	0.004 (0.011)	-0.0751 (0.0459)	0.013 (0.0221)
Old Age Psychiatry	-0.105*** (0.014)	-0.021*** (0.004)	-0.151*** (0.014)	-0.075*** (0.005)
Operating Department	-0.034*** (0.001)	-0.006*** (0.001)	-0.124** (0.052)	-0.093** (0.041)
Ophthalmology	-0.155*** (0.013)	-0.013*** (0.003)	-0.200*** (0.013)	-0.071*** (0.005)
Orthoptics/Optics	-0.021* (0.009)	-0.022 (0.018)	-0.034*** (0.009)	-0.033 (0.033)
Otolaryngology	-0.373*** (0.017)	-0.020*** (0.003)	-0.355*** (0.016)	-0.058*** (0.006)
Paediatric Cardiology	-0.247*** (0.044)	-0.022*** (0.006)	-0.283*** (0.039)	-0.083*** (0.013)

Secondary area of work	FTE-corrected-basic pay		FTE-corrected-total pay	
	Raw gap	Adjusted gap	Raw gap	Adjusted gap
Paediatric Surgery	-0.250*** (0.031)	-0.016*** (0.004)	-0.254*** (0.029)	-0.045*** (0.009)
Paediatrics	-0.163*** (0.008)	-0.011*** (0.001)	-0.186*** (0.007)	-0.059*** (0.003)
Pain Management	-0.128*** (0.034)	-0.009 (0.009)	-0.185*** (0.048)	-0.078** (0.031)
Palliative Medicine	0.004 (0.024)	0.004 (0.005)	-0.020 (0.023)	-0.010 (0.010)
Pathology	-0.104*** (0.020)	-0.010** (0.004)	-0.169*** (0.024)	-0.066*** (0.013)
Plastic Surgery	-0.218*** (0.020)	-0.011*** (0.003)	-0.209*** (0.017)	-0.038*** (0.006)
Psychiatry	-0.116*** (0.013)	-0.014*** (0.003)	-0.148*** (0.013)	-0.059*** (0.006)
Psychiatry of Learning Disability	-0.048* (0.026)	-0.013** (0.005)	-0.092*** (0.034)	-0.052*** (0.015)
Psychotherapy	-0.154*** (0.054)	-0.013 (0.020)	-0.168*** (0.051)	-0.053** (0.025)
Public Health Medicine	-0.016 (0.030)	-0.014 (0.015)	-0.023 (0.031)	-0.018 (0.016)
Rehabilitation	-0.234*** (0.027)	-0.018*** (0.005)	-0.252*** (0.025)	-0.062*** (0.009)
Renal Medicine	-0.244*** (0.016)	-0.013*** (0.002)	-0.284*** (0.016)	-0.068*** (0.007)
Respiratory Medicine	-0.265*** (0.018)	-0.013*** (0.002)	-0.289*** (0.018)	-0.054*** (0.004)
Rheumatology	-0.152*** (0.016)	-0.010** (0.004)	-0.203*** (0.017)	-0.070*** (0.008)
Sport & Exercise Medicine	-0.077** (0.035)	-0.023 (0.027)	-0.072* (0.037)	-0.023 (0.029)
Surgery	-0.349*** (0.026)	-0.010*** (0.003)	-0.371*** (0.024)	-0.047*** (0.009)
Trauma & Orthopaedic Surgery	-0.462*** (0.015)	-0.024*** (0.002)	-0.426*** (0.014)	-0.049*** (0.003)
Urology	-0.520*** (0.019)	-0.016*** (0.003)	-0.513*** (0.019)	-0.046*** (0.005)

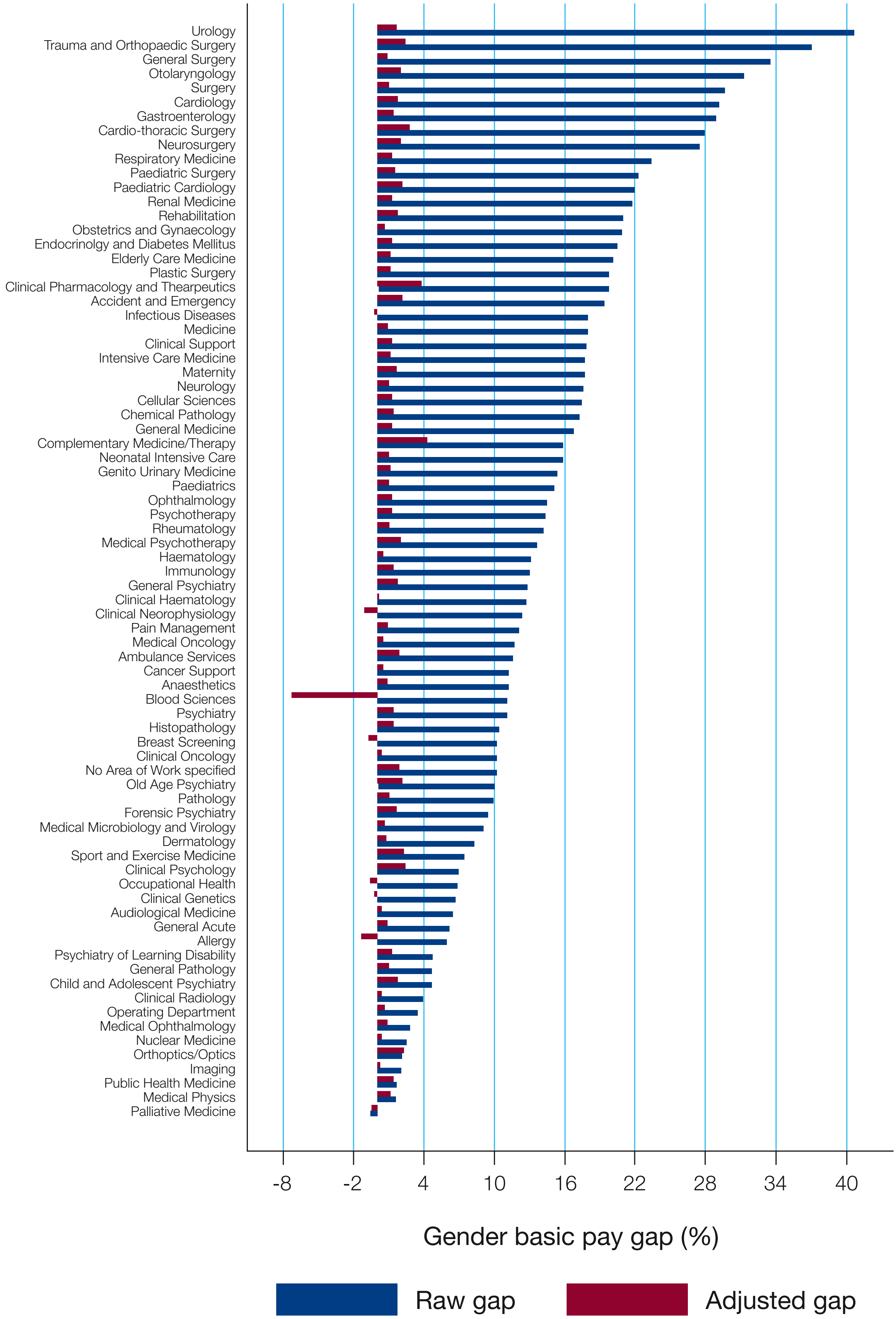
Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: OLS estimates. FTE-corrected basic and FTE-corrected total pay are measured in logarithms. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. All models include year, month and hospital fixed effects. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

A similar picture emerges in the case of the gender pay gap in FTE-corrected raw and adjusted estimates using total pay (columns 3 and 4, Table 13). As in the case of basic pay, raw differences in total pay are adequately explained when individual characteristics are being controlled for, although the gaps are higher than the ones observed in basic pay. The gender pay gap in adjusted total pay ranges between 12% (general pathology) to zero, for example, in sports and exercise medicine, palliative medicine and orthoptics/optics. Again, any differences in total pay in favour of female doctors (blood sciences, complementary medicine/therapy, occupational health), are not statistically significant at any conventional level.

It is easiest to see this graphically, so Figures 13 and 14 reproduce the data in the table giving the estimated OLS coefficients, with specialties being ordered from large to small raw gaps.

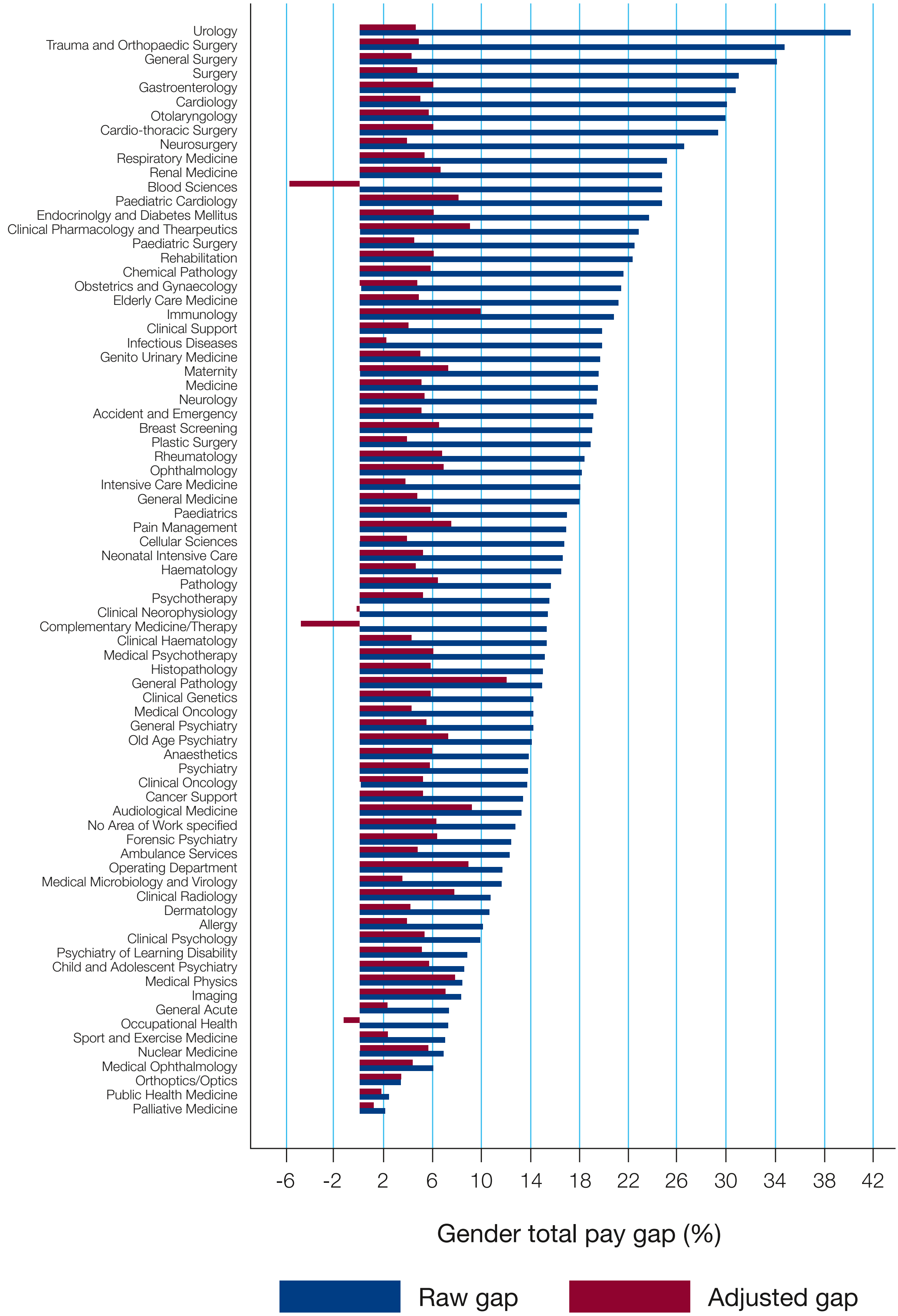
Figure 13. The gender pay gap in basic pay by secondary area of work.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: Based on OLS results.

Figure 14. The gender pay gap in total pay by secondary area of work.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

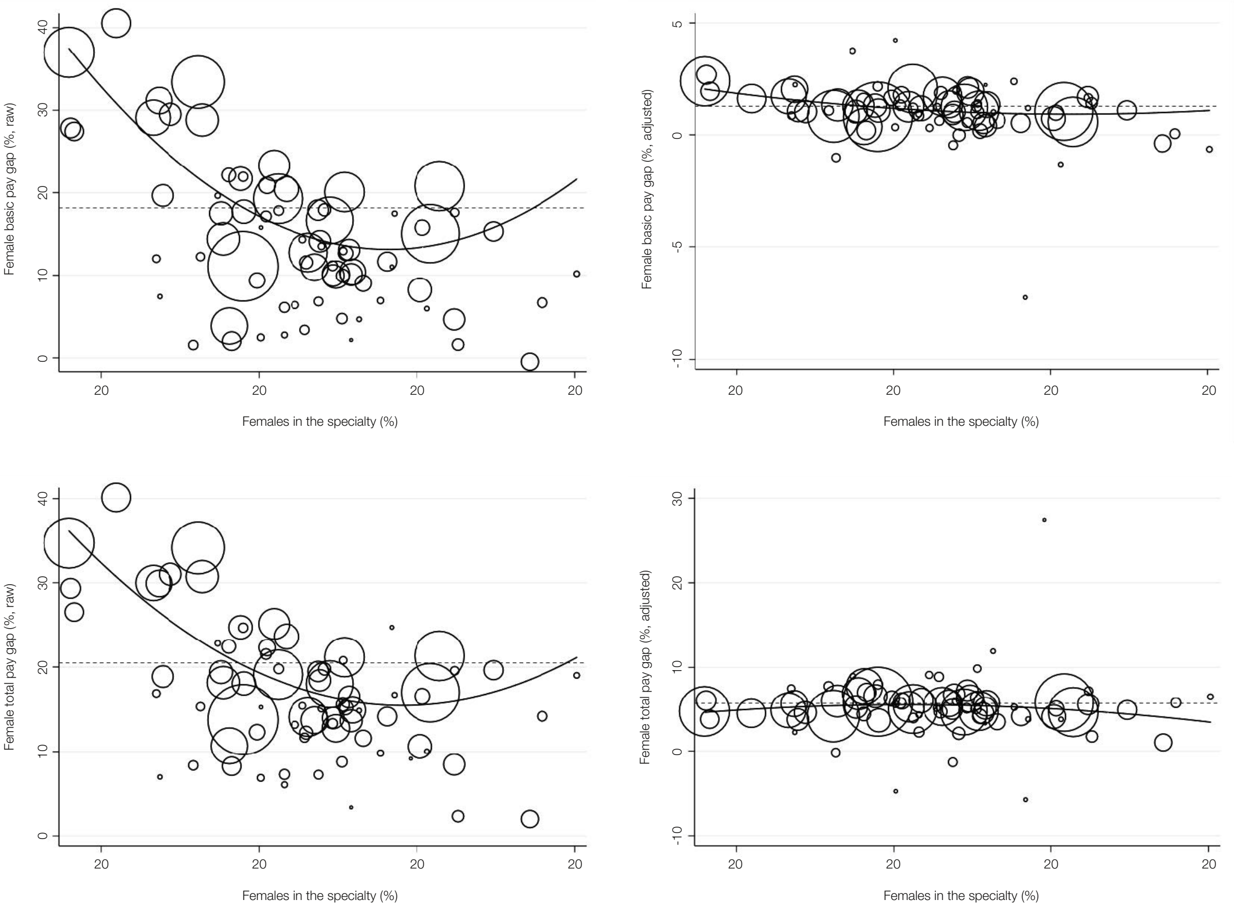
Notes: Based on OLS results.

The figures exploring secondary areas of work show that there is much more variation within these subspecialties in raw pay gaps than when subspecialties are aggregated into primary areas of work. Some of them, for example, urology and variants of surgery have very large pay gaps, and this will add to the overall pay gap, especially if the subspecialty is large.

Drawing from correlations above on the important relationship between female-dominated specialties and gender pay gaps, we now examine whether the size of the gender pay gap is related to the representation of female doctors within the specialty. To address this issue, the proportion of women doctors within each specialty has been plotted against the estimated gender pay gap.

Figure 15 displays the results. Although there seems to be a negative correlation between female representation and the size of the gender pay gap (in both basic and total pay), the negative trends disappear once we control for personal and work-related variables.

Figure 15. Gender pay gap and female representation within the secondary area of work.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: Vertical axes are based on OLS results. Horizontal dashed lines represent the overall mean gender pay gap. Black solid lines are quadratic trends. Circles are weighted by size of the specialty.

5.7 Estimation of the gender pay gap by region among hospital doctors

The final set of estimations we undertake is to analyse the gender pay gap by region (Table 14). Our analysis shows that there is not much differentiation across regions. The raw gender gap in FTE-corrected basic pay ranges from 15% in London to slightly over 20% in hospitals located in North East, South East Coast, South West and West Midlands. Once individual characteristics are controlled for, the estimated gender pay gap in basic pay is less than 2% in favour of men doctors in all areas across the country.

Regarding raw gender differences in FTE-corrected total pay, these range between about 15% in London to 25% for those working in the North East. However, once personal and job-related variables are included in the model, most of the gap in total pay is explained. The gender pay gap in this case ranges between 3.7% in London to 7.9% in the North East.

Table 14. Estimation of the gender pay gap by region.

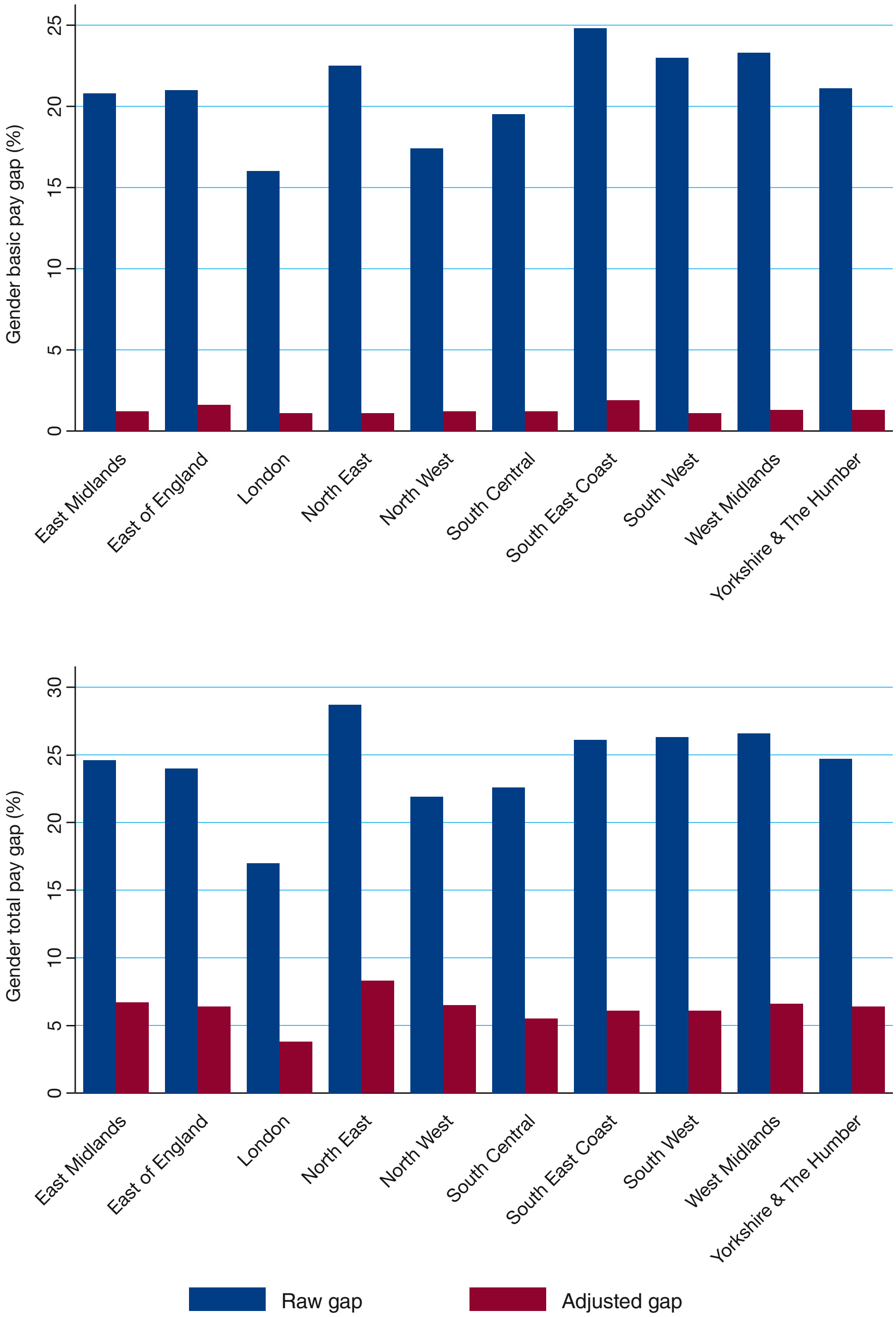
	FTE-corrected basic pay		FTE-corrected total pay	
Strategic Health Authority	Raw gap	Adjusted gap	Raw gap	Adjusted gap
North East	-0.225*** (0.025)	-0.011*** (0.002)	-0.287*** (0.022)	-0.083*** (0.004)
North West	-0.174*** (0.017)	-0.012*** (0.001)	-0.219*** (0.021)	-0.065*** (0.009)
Yorkshire & The Humber	-0.211*** (0.012)	-0.013*** (0.002)	-0.247*** (0.012)	-0.064*** (0.007)
East Midlands	-0.208*** (0.016)	-0.012*** (0.001)	-0.246*** (0.014)	-0.067*** (0.004)
West Midlands	-0.233*** (0.010)	-0.013*** (0.002)	-0.266*** (0.008)	-0.066*** (0.003)
East of England	-0.210*** (0.014)	-0.016*** (0.02)	-0.240*** (0.012)	-0.064*** (0.003)
London	-0.160*** (0.007)	-0.011*** (0.001)	-0.170*** (0.006)	-0.038*** (0.002)
South East Coast	-0.248*** (0.013)	-0.019*** (0.001)	-0.261*** (0.013)	-0.061*** (0.003)
South Central	-0.195*** (0.014)	-0.012*** (0.002)	-0.226*** (0.012)	-0.055*** (0.004)
South West	-0.230*** (0.015)	-0.011*** (0.002)	-0.263*** (0.015)	-0.061*** (0.004)

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: OLS estimates. FTE-corrected basic and FTE-corrected total pay are measured in logarithms. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. All models include year, month and hospital fixed effects. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

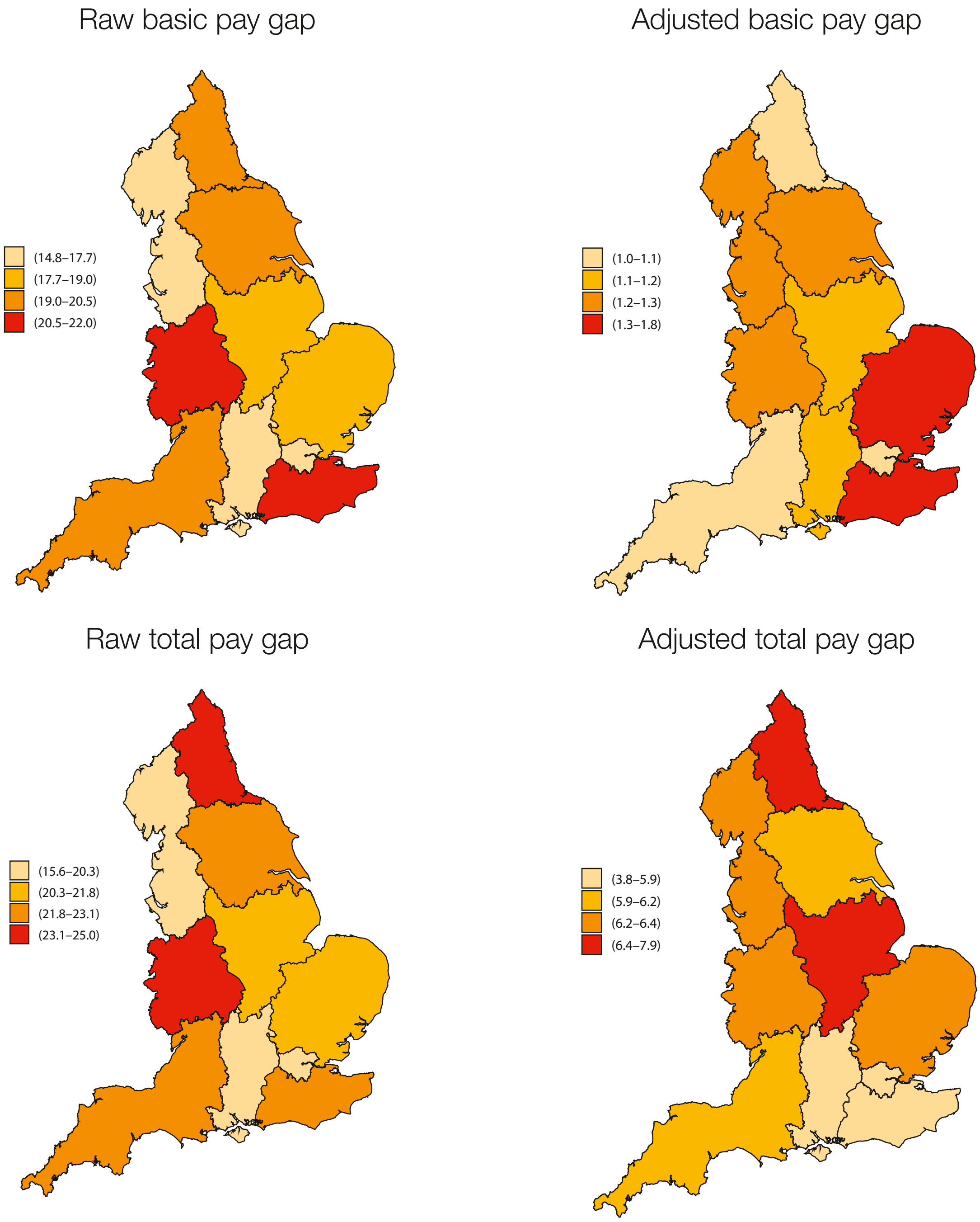
Figure 16 graphically illustrates the estimated OLS coefficients in relative pay differences between male and female doctors in each geographical region. Again, it seems that, except for London, where the gaps are lower, there is not a significant geographical differentiation regarding the magnitude of the gaps. Moreover, including personal and job-related controls seems to have a similar explanatory power over the size of the gender pay gap in all the regions considered here. Figure 17 maps the results of gender pay gap range using these geographical classifications. Differences between regions are small and not important to the gender pay gap.

Figure 16. The gender pay gap by region.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.
Notes: Based on OLS results.

Figure 17. The gender pay gap across the country (%).



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: Based on OLS results. Figures indicate percentages.

The results presented in this section indicate that the ESR data help us explain most of the gender pay gap in basic and total pay. More specifically, regarding FTE-corrected basic pay, the overall gender gap is 18.1% (that is the OLS coefficient is -0.20) when no individual and job-related controls are included. Controlling for those characteristics narrows the gender gap to 1.3% (that is the OLS coefficient is -0.01). Therefore, adjusting for the differences between men and women in grade, age specialty and so on, helps to reduce the gap by 92.8%. Moreover, controlling for individual characteristics explains 94.8% of the variation in FTE-corrected basic pay.

Regarding FTE-corrected total pay, we explain 81% of the variability in wages in the ESR data. Without controlling for individual characteristics, the gender gap is 20.5% (that is, the OLS coefficient is -0.23) and when those characteristics are included we are left with a gender gap equal to 5.8% (that is, the OLS coefficient is -0.06), suggesting an improvement of 72%. These results provide an indication of the success of a regulated pay system in reducing (potentially discriminatory) pay allocation. Pay variance is related to contracted hours of work, age, and grade and to a lesser extent, specialty and geographic region.

We have shown that pay gaps are not uniform across hospital doctors. Gender pay gaps are high in surgical specialties, among staff grades and locally employed doctors, among staff between 30 and 50 years old and those that work around 0.3 of a full-time contract. But men and women also differ in ways that is not revealed by like-for-like comparisons, such as those undertaken above. There are broader differences in men and women's distribution across categories, for example, high and low-paid grades, specialties, ages and contract types that add to the overall gap. The final section examines if, and in what measure, each of these factors contributes to the overall gap.

6. Decomposition of the gender pay gap

6.1 Decomposition of the overall gender pay gap among hospital doctors

The previous section indicated a sizeable gender pay gap which can be accounted for by differences in personal and job-related characteristics such as age, grade and specialty; it showed that men and women doctors are different in terms of characteristics. We need to know how differences in those characteristics affect individual pay. Therefore, this section will perform an analysis based on Oaxaca-Blinder decompositions (OBD).

The raw pay gap between men and women doctors will be divided into three components. The first component amounts to the part of the raw pay gap that is attributed to differences in personal and job-related characteristics between male and female doctors. As detailed in Chapter 3, these differences are the "endowments effect" – referred to also as the "explained part". The second component is attributed to differences in the way those characteristics are being remunerated for male and female doctors, that is, differences in the "coefficients" of those characteristics in the pay determination models. The third component is an interaction term accounting for the fact that differences in endowments and coefficients exist simultaneously between the two groups, that is, male and female doctors[9]. The sum of the second and third elements is referred to as the "unexplained" part.

For a more compact presentation, the pay determination factors used in earlier OLS regressions have been classified into groups of variables in the following manner: age includes both age and age squared; grade includes the full set of binary indicators for grade; specialty includes the full set of binary indicators for secondary area of work; work characteristics include binary variables on whether someone works under a fixed-term contract or not and whether they have more than one assignment in a given month; and personal characteristics include the full set of binary variables on nationality, ethnicity, religion, sexual orientation and disability status. Moreover, all models include binary indicators for month, year and hospital (location) fixed effects. In this way, the contribution of each group of variables, as well as the contribution of each of the three components in generating the gender pay gap, can be calculated.

Table 15 displays the OBD results for the total sample of doctors. Both types of pay, that is, FTE-corrected basic and FTE-corrected total, are considered.

Table 15. Decomposition of the overall gender pay gap: estimation results.

	FTE-corrected basic pay				FTE-corrected total pay			
	Difference	Endowments	Coefficients	Interactions	Difference	Endowments	Coefficients	Interactions
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	0.2006***	-	-	-	0.2319***	-	-	-
	(0.0048)				(0.0052)			
Age		0.0513***	0.0130	0.0031***		0.0580***	0.3784***	0.0091***
		(0.0015)	(0.0127)	(0.0005)		(0.0017)	(0.0199)	(0.0007)
Grade		0.1288***	0.0065***	-0.0011*		0.0863***	0.0131***	-0.0026***
		(0.0033)	(0.0020)	(0.0006)		(0.0026)	(0.0025)	(0.0008)
Specialty		0.0004	-0.0132***	0.0013***		0.0078***	-0.0014	0.0016***
		(0.0003)	(0.0017)	(0.0003)		(0.0005)	(0.0030)	(0.0005)
Work characteristics		0.0084***	-0.0027***	-0.0010***		0.0124***	0.0168***	0.0061***
		(0.0007)	(0.0010)	(0.0004)		(0.0009)	(0.0015)	(0.0005)
Personal characteristics		-0.0009***	-0.0031	0.0006***		-0.0008***	0.0033	0.0003
		(0.0002)	(0.0042)	(0.0001)		(0.0002)	(0.0077)	(0.0003)
Total		0.1854***	0.0116***	0.0036***		0.1625***	0.0516***	0.0178***
		(0.0047)	(0.0007)	(0.0005)		(0.0039)	(0.0024)	(0.0010)
Constant term			0.0145				-0.3397***	
			(0.0148)				(0.0232)	
Observations	10,179,248	10,179,248	10,179,248	10,179,248	10,159,019	10,159,019	10,159,019	10,159,019

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: OLS estimates. FTE-corrected basic and FTE-corrected total pay are measured in logarithms. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. All models include year, month and hospital fixed effects. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

The table indicates that, with respect to basic pay (columns 1-4), the raw difference between men's and women's pay is marginally over 20%. This is nearly identical with the raw gender gap in basic pay estimated in the previous section, that is, 19.7%[m]. The gap associated with differences in endowments is 0.1854. This is the expected change in female doctors' mean basic pay if female doctors had male doctors' observable characteristics levels. What this shows is that 92.4% (that is, 0.1854 divided by 0.2006) of the raw gap in basic pay is attributable to differences in endowments. If men and women doctors were identical in their grade/seniority, age/experience, contracts and specialty, the gap would close by 92.4%.

The statistic associated with coefficients is 0.0116. This statistic indicates the expected change in women doctors' basic pay if they had the same financial return to their endowment characteristics as men doctors. In other words, 5.8% of the difference in basic pay is due to gender differentials in the recognised value of the same characteristics between men and women doctors.

Finally, the coefficient associated with interactions is 0.0036 and it accounts for differences in endowments and coefficients that exist concurrently between the two doctor groups. It is quite small, accounting for about 1.8% of the difference in FTE-corrected basic pay. In other words, together with the 5.8% due to differences in coefficients, the results suggest that 7.6% of the gap is not due to differences in endowments, and is unexplained under the current model specification.

Table 16 presents the OBD results in a less technical manner calculating the percentage that each factor explains of the gender pay gap. Regarding basic pay (column 1 and Figure 18), differences in grade explain the largest part of the gap (64.2%). In other words, most of the

[m] The two estimates are not identical because in the OLS models the raw gap was already adjusted for year, month and hospital (location) fixed effects, while here it is not. However, as can be seen, this makes practically no difference.

gender pay gap in basic pay is due to the fact that men and women doctors are not equally distributed across grades. Men are in higher-paying and women in lower-paying grades. Differences in age are also important, explaining about 26% of the raw basic pay gap. Men, on average, as seen in Table 8 are significantly older. Specialty, work and personal characteristics are not as important in explaining gender differences in basic pay.

With respect to FTE-corrected total pay (columns 5-8 in Table 15), the estimated difference between men's and women's pay (the raw gender pay gap) is higher, but the explanation is not as comprehensive. Differences in total endowments explain about 70% of the raw gap, as the overall gap is 0.23 and the coefficient associated with total endowments is 0.17. Again, the most important factors are grade and age. Specialty is more important in explaining differences between men and women in total pay, although its contribution is still small, that is less than 4%. The outcome associated with differences in coefficients is 0.05 (column 7 in Table 15), meaning that the different way that observable characteristics are rewarded between men and women doctors accounts for 22.3% of the total gender difference in FTE-corrected total pay (Table 16 and Figure 19). The large coefficient associated with the constant term implies a significant total pay penalty for just belonging to the group of women doctors. This is not the case for FTE-corrected basic pay where pay is more regulated. There is also a substantial age effect implying that female doctors would be much better off in terms of total pay if age was rewarded the same way it is for men doctors, for example, in terms of progression, promotions and so on[n].

While only 7.6% is attributed to differences in coefficients and interactions in the case of basic pay, these two components account for nearly 30% of the raw gender pay difference in total pay. What this means is that 30% of the total pay gap is not predicted by the factors that we can control for.

[n] Reasons for this are suggested in Chapter 9.

Table 16. Decomposition of the overall gender pay gap (%).

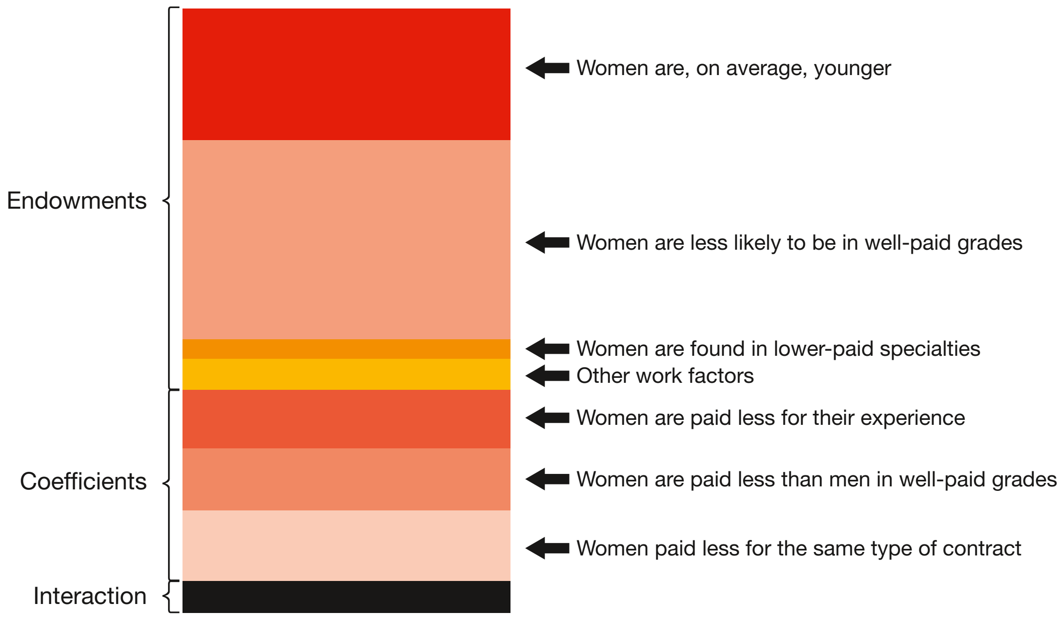
	FTE-corrected basic pay	FTE-corrected total pay
% of the gap due to differences in:	[1]	[2]
Total endowments	**92.4**	**70.0**
Age	25.6	25.0
Grade	64.2	37.2
Specialty	0.2	3.4
Work characteristics	4.2	5.4
Personal characteristics	-0.5	-0.3
Total coefficients	**5.8**	**22.3**
Age	6.5	163.2
Grade	3.2	5.7
Specialty	-6.6	-0.6
Work characteristics	-1.4	7.3
Personal characteristics	-1.6	1.4
Constant	7.2	-146.5
Total interactions	**1.8%**	**7.7%**

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: Based on OB estimates.

Figure 18. Decomposition of FTE-corrected gender basic pay gap for HCHS doctors.

Figure 19. Decomposition of FTE-corrected gender total pay gap for HCHS doctors.



7. The role of Clinical Excellence Awards

It is often argued that Clinical Excellence Awards (CEAs) play an important role in determining doctors' total earnings and that they are an important factor behind the observed gender gap in total pay[10]. There are two types of awards; national CEAs, awarded by the Advisory Committee on Clinical Excellence (ACCEA) and local award schemes, managed by individual employers in England[11]. The system rewards doctors who perform over and above the expected standards, while fulfilling the requirements of their role in their post.

The ESR data does not hold information on applications for a CEA, but only data for those who subsequently receive CEA monthly payments.[o] However, there are two pay fields associated with national and local CEAs in the ESR data. Under the guidance of NHS pay experts, the values of local and national CEAs were identified in the ESR database and these can be used to provide descriptive answers to several questions, such as the gender split of CEAs, how CEAs affect total pay, and their implications for the size of the gender pay gap in total earnings. For the remainder of this section, we will be exploring the implications that CEAs and payments might be having for pay, focusing on the subsample of Consultants, as the only ones eligible to apply.

This section opens with descriptive statistics on the proportions of men and women Consultants in receipt of a CEA by specialty, geographic region and year, plus the value of these. The analysis at the end of this section looks at the gap between male and female doctors and the likelihood of holding a CEA, given the usual set of covariates.

7.1 Overall descriptive statistics on CEAs

Figure 20 and Table 17 give basic descriptive CEA statistics for September 2018. From the total sample of ESR Consultants only a small fraction of them was awarded (or renewed) a CEA, that is, 7.7% or 3,599 individuals. This is broadly in line with other estimates[12]. The clear majority of awarded Consultants are men (80.3%), indicating a considerable gender discrepancy in holding a CEA. These results are perfectly in line with figures reported in recent ACCEA reports. The mean monthly value of a CEA award is £4,399 and there is a small (2.3%) gap in favour of men doctors in the value of awards. The median monthly CEA value is £3,370 and there is an approximate 4.5% gender gap.

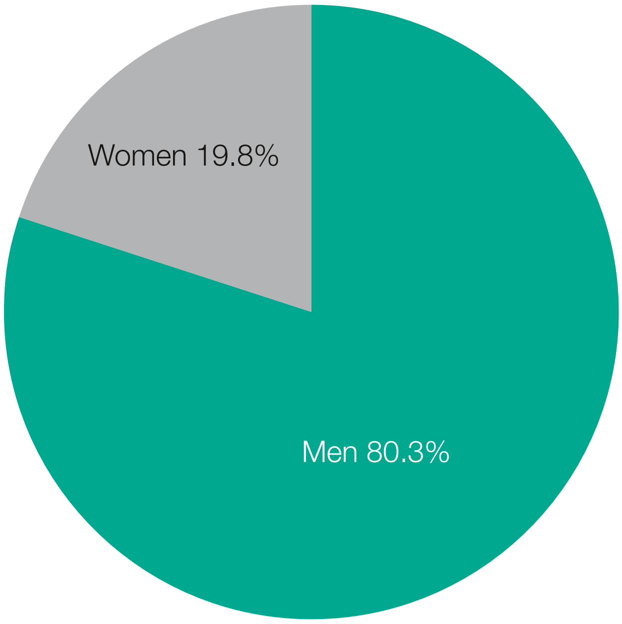
Table 17. Descriptive statistics on Clinical Excellence Awards, September 2018.

	CEA award (%)	Share (%)	Mean CEA (£)	Median CEA (£)
	[1]	[2]	[3]	[4]
Men	-	80.2	4,420	3,315
Women	-	19.8	4,320	3,471
Gap (%)	-	-	2.3	4.5
All	7.7	100.0	4,400	3,370

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

o This limits us in providing a formal and robust analysis regarding the role of CEAs in determining total pay and their implications regarding the size of the gender pay gap. However, the 2018 ACCEA Annual Report displays some national figures that could help in getting a raw picture. There were 1,078 application in 2017. Women made up 20.5% of the applicants and 79.5% of them were men. In total, 318 CEAs were awarded; 18.6% went to women and 81.4% went to men applicants, reflecting the imbalanced picture in the application procedure. Success rates were more balanced, that is 26.7% for females and 30.2% for males.

Figure 20. Descriptive statistics on Clinical Excellence Awards, September 2018.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

7.2 CEAs by primary area of work among hospital doctors

Table 18 gives descriptive statistics on CEAs by primary area of work for September 2018. imaging[p] attracts the most CEAs (9.7% of all allocated) with none allocated to public health medicine in that particular month.

Women are not well represented in ranks of surgical specialties (see Table 6) and this may be an explanation for the low proportion of women Consultants in surgery holding a CEA. Only 12% of the awards in this specialty went to women. On the other hand, 66.7% of awards in occupational health were given to female doctors. However, these figures refer to a rather small samples of individuals. For example, public health medicine and occupational health represented 0.3% and 0.1%, respectively, of all doctors in September 2018 (see Table 6). The gender gap in the value of awarded CEAs ranges from 59.4% in clinical support in favour of men Consultants, to being reversed in favour of women Consultants in oncology, pathology and surgery.

[p] Includes breast screening, imaging, clinical radiology, and nuclear medicine.

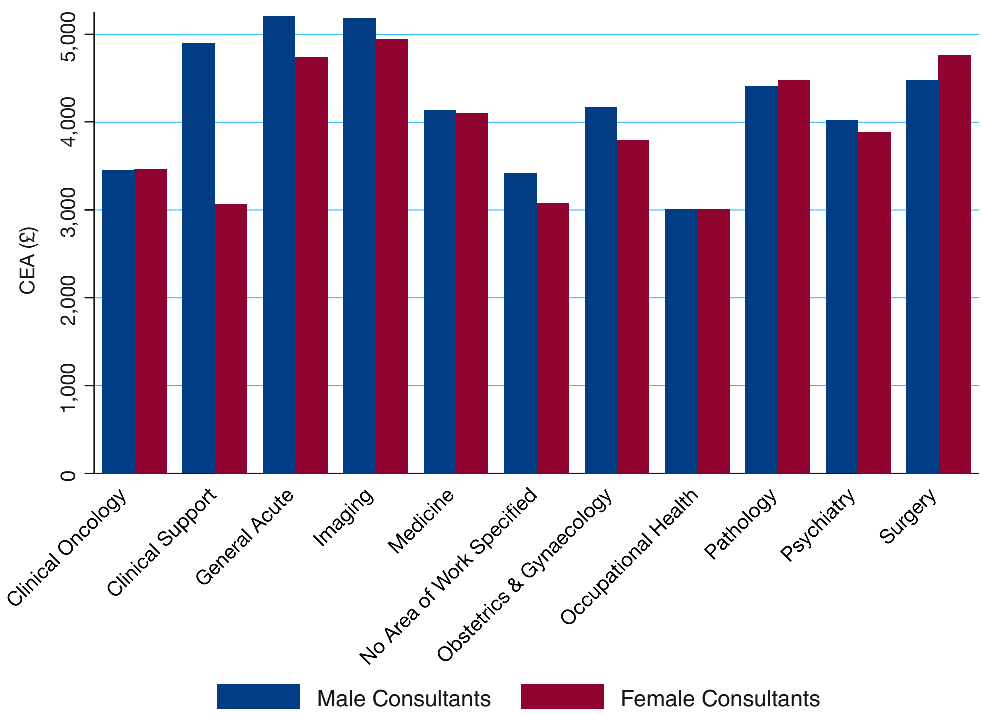
Table 18. Mean monthly CEA payments by primary area of work, September 2018.

	Overall (%)	Women (%)	All (£)	Men (£)	Women (£)	Gap (%)
Primary area of work:	[1]	[2]	[3]	[4]	[5]	[6]
Clinical Oncology	5.2	27.3	3,460	3,457	3,468	-0.3
Clinical Support	8.6	18.4	4,560	4,896	3,072	59.4
General Acute	8.8	20.1	5,112	5,206	4,741	9.8
Imaging	9.7	21.1	5,135	5,184	4,950	4.7
Medicine	7.8	20.4	4,132	4,140	4,102	0.9
No area of work specified	2.2	33.3	3,310	3,425	3,083	11.1
Obstetrics & Gynaecology	8.0	35.6	4,040	4,175	3,796	10.0
Occupational Health	4.2	66.7	3,016	3,016	3,016	0.0
Pathology	7.7	34.7	4,435	4,411	4,480	-1.5
Psychiatry	4.4	30.9	3,984	4,025	3,893	3.4
Public Health Medicine	0.0	-	-	-	-	-
Surgery	8.0	12.0	4,511	4,476	4,767	-6.1
Total	7.7	19.8	4,000	4,420	4,320	2.3

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Aside from the likelihood of being in receipt of a CEA, we also consider the value of them. Figure 21 provides a graphical illustration of mean monthly CEA values by primary area of work, indicating that, in the main, gender differences are small.

Figure 21. Mean monthly CEA payments by gender and primary area of work, September 2018.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

7.3 CEAs by region among hospital doctors

Table 19 presents descriptive CEA statistics by region for September 2018. The highest proportion of Consultants receiving a CEA is observed in hospitals located in East Midlands and South Central (8.6%) and the lowest in hospitals located in London (6.5%). Women are more likely to be observed with a CEA in London where 28.1% of CEAs awarded, compared with only 7.4% in the North East.

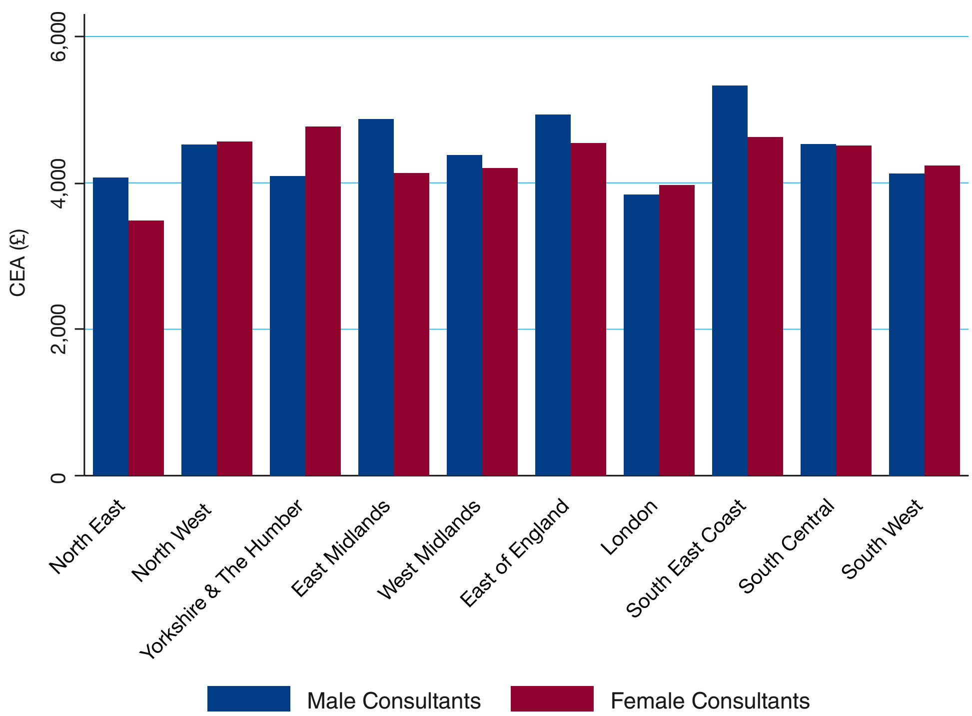
In terms of the values of awards in columns 4 and 5, Table 19, there are regions where in September 2018, the gender gap in CEAs favoured male doctors, for example, North East, South East Coast, East Midlands and East of England, and regions where the gap in mean monthly CEA payments was in favour of female doctors, for example, Yorkshire and The Humber and London. Figure 22 displays the mean values of monthly CEAs by region and gender in September 2018. No significant gender pay differences are observed.

Table 19. Mean monthly CEA payments by region, September 2018.

	Overall (%)	Women (%)	All (£)	Men (£)	Women (£)	Gap (%)
Region:	[1]	[2]	[3]	[4]	[5]	[6]
North East	8.4	7.4	4,026	4,069	3,484	16.8
North West	8.3	8.9	4,530	4,522	4562	-0.9
Yorkshire & The Humber	6.9	15.4	4,198	4,095	4,766	-14.1
East Midlands	8.6	14.6	4,761	4,868	4,135	17.7
West Midlands	7.4	14.6	4,353	4,379	4,199	4.3
East of England	8.2	19.5	4,855	4,930	4,545	8.5
London	6.5	28.1	3,874	3,838	3,967	-3.3
South East Coast	7.5	21.2	5,180	5,331	4,622	15.6
South Central	8.6	24.9	4,523	4,527	4,510	0.4
South West	8.3	20.8	4,150	4,127	4,235	-2.5
Total	7.7	19.8	4,400	4,420	4,320	2.3

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Figure 22. Mean monthly CEA payments by gender and region, September 2018.



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

7.4 Gender differences in receiving CEA payments

Results above indicate that CEAs are not equally distributed across genders, that is in September 2018 only 19.8% of Consultants who received a CEA payment (local or national) were women. This is also the case when considering the total period covered by the ESR data

(September 2009-2018) where women doctors represent only 17.5% of doctors associated with CEA-related pay in the dataset. This could be due to the fact that male doctors (a) apply more frequently, (b) are more likely to be Consultants than their female counterparts and/or (c) are more successful with their applications. As seen in aggregate national data from the ACCEA report, rates of CEA success are quite balanced across genders. Unfortunately, these conjectures cannot be tested using the ESR data.

However, we can shed light on whether the probability of a doctor receiving a CEA-related payment in a month is related to observable personal and job-related characteristics, such as specialty and age/experience. To test this assumption, a binary variable, indicating whether an individual Consultant received a CEA payment, was regressed on the full set of personal and work-related characteristics used in models of pay determination analysed earlier. Table 20 presents the results regarding the relationship of receiving a monthly CEA payment with the doctor's gender. Full results on how other characteristics affect the CEA probability are provided in Appendix O Table O3.

According to the results (see Table 20), specialty, age and experience do not fully explain the probability gap. The raw probability for a female Consultant to be receiving a CEA payment is 6.7 percentage points lower relative to a male Consultant, that is, the estimated coefficient is -0.067, and this is statistically significant at the 1% level. Controlling for a series of personal and work-related characteristics, for example, age, grade, specialty, and so on explains a part of this gender-based disparity. The estimated coefficient becomes equal to -0.052 and is still statistically significant at the 1% level. This suggests that conditional on a series of characteristics, the probability of observing a female Consultant being observed to receive a CEA-payment in a given month is 5.2 percentage points lower relative to a male Consultant.

Table 20. Gender gap in the probability of receiving CEA payments.

	Raw gap		Adjusted gap	
	Coefficient	Standard error	Coefficient	Standard error
Female indicator	-0.067***	(0.003)	-0.052***	(0.002)
Observations	4,320,135		4,320,135	
R-squared	0.026		0.073	
Personal controls	No		Yes	
Work-related controls	No		Yes	
Hospital fixed effects	Yes		Yes	
Year fixed effects	Yes		Yes	
Month fixed effects	Yes		Yes	

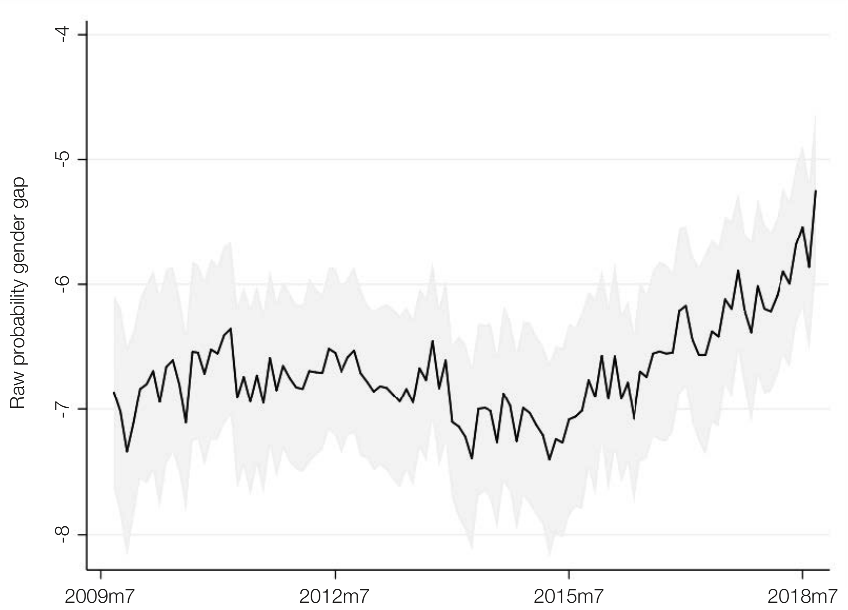
Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: Linear probability model estimates. FTE-corrected basic and FTE-corrected total pay are measured in logarithms. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

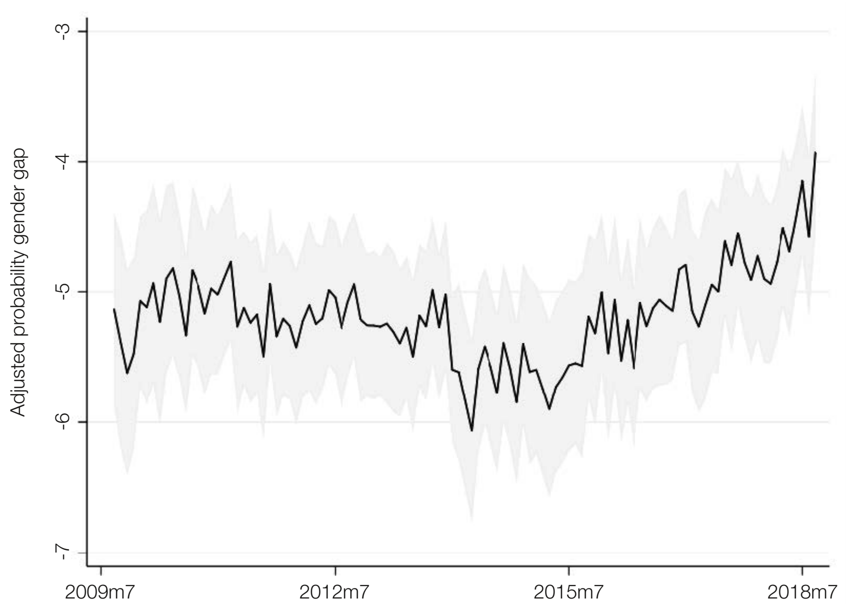
While the probability of women being in receipt of a CEA is improving, it seems that it has always been lower for women Consultants. Figure 23 presents how this gender difference has evolved over the period covered by the ESR data extract. When not controlling for personal and job-related variables, the probability for females is lower, ranging between 5 and 7 percentage points lower, although it has been decreasing since 2015. Adjusting for a series of personal and job-related characteristics explains a part of this gap, but the probability of women is still lower throughout the period, ranging around 4-5 percentage points.

Figure 23. Gender gap in the probability of receiving a CEA payment by month.

(a) Raw probability gender gap



(b) Adjusted probability gender gap



Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: Black solid lines represent the mean probability for a female doctor to receive a CEA payment in a month, relative to male doctors. Shaded areas represent the 95% confidence intervals.

7.5 The role of CEAs in the total gender pay gap for Consultants

If male Consultants are in receipt of a higher proportion of CEA payments, then this will have a part in explaining the gender gap in FTE-corrected total pay. Findings show that this part is not considerable and not as great as other salary enhancements within the total pay element.

Previous OLS regression models used to estimate the size of the gender gap in total pay for Consultants have been re-estimated, including an additional binary indicator variable on whether an individual Consultant received a CEA-related payment in a given month. If CEA payments affect the gender gap in total pay, then controlling for receiving them should explain the observed gender pay gap, or at least a part of it. If controlling for CEA payments does not explain the observed gender pay gap, or at least part of it, the gender pay gap is caused by other factors.

Table 21 presents the results. Column 1 reproduces the raw gap in FTE-corrected total pay. The estimated raw gender gap for Consultants is 10.7% (based on the estimated female coefficient of -0.113)[q]. Controlling for whether a Consultant receives a CEA-related payment (column 2), only slightly reduces the size of the gap to -0.090 – a gender gap in total pay equal to 8.6%. CEAs reduce the raw total pay gap by only 2.1 percentage points, explaining about 19.5% of the raw total gender pay gap when considering this group of doctors.

As we previously showed, adjusting for factors such as women Consultants having lower age/less experience reduces the pay gap. After inserting these controls, the estimated coefficient is -0.084 – giving a gender pay gap in total pay between male and female Consultants of 8.1%[r]. Controlling additionally for a CEA-payment indicator (column 4), again explains part of the adjusted gap. The estimated coefficient is -0.069 suggesting that the gender pay gap in FTE-corrected total pay, after considering CEA payments, is 6.7%. CEA payments reduce the adjusted gap in total pay by 1.4 percentage points, explaining only about 17.7% of it.

Table 21 also shows that CEA payments increase the level of individual monthly total pay by approximately 38%, on average (the estimated coefficient is 0.324).

Table 21. Consultants gender pay gap in total pay and CEA payments.

	Raw gap	Raw gap controlling for CEA	Adjusted gap	Adjusted gap controlling for CEA
	[1]	[2]	[3]	[4]
Female indicator	-0.113*** (0.003)	-0.090*** (0.003)	-0.084*** (0.003)	-0.069*** (0.002)
CEA payment indicator	No	0.396*** (0.003)	No	0.324*** (0.003)
Observations	4,221,746	4,221,746	4,221,746	4,221,746
R-squared	0.083	0.296	0.342	0.478
Personal controls	No	No	Yes	Yes
Work-related controls	No	No	Yes	Yes
Hospital fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Month fixed effects	Yes	Yes	Yes	Yes

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: OLS estimates. FTE-corrected basic and FTE-corrected total pay are measured in logarithms. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

q See also Table 11.

r See also Table 11.

7.6 Gender differences in CEA payments

Although the above analysis indicated that female Consultants are less likely to be associated with CEA-related monthly payments, there was not much difference between genders regarding the amount of CEA payments received, overall, by specialty and by region. However, in order to provide some further supporting evidence, the value of a CEA payment is now used as an outcome variable in order to examine if there are any significant gender differences. To undertake this, the subsample of those individuals who actually received a CEA monthly payment is being used. It should be noted, however, that these results should be interpreted with caution, as this might not be a random sample from the total population of Consultants in the ESR data. In other words, it could be the case that more skilled or experienced Consultants apply more often to CEA schemes, and gender might not be equally represented among the applicants; for example, as it was indicated by previous evidence in this chapter and the ACCEA reports.

Table 22 presents the results. The sample size is considerably smaller, that is, 411,689 observations during the total period, as it consists only of Consultants that have received a CEA payment at some point between 2009 and 2018. It seems that regardless of whether the model adjusts for personal and job-related variables, the gender gap, with respect to the level of received monthly CEA payments, is zero. The estimated OLS coefficients are extremely close to zero and not statistically different from it. Full results regarding the effects of all covariates are provided in Appendix O Table O4.

Table 22. Gender pay gap in CEA payments.

	Raw gap		Adjusted gap	
	Coefficient	Standard error	Coefficient	Standard error
	[1]	[2]	[3]	[4]
Female indicator	-0.009	(0.007)	0.004	(0.006)
Observations	411,689		411,689	
R-squared	0.080		0.166	
Personal controls	No		Yes	
Work-related controls	No		Yes	
Hospital fixed effects	Yes		Yes	
Year fixed effects	Yes		Yes	
Month fixed effects	Yes		Yes	

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

Notes: OLS estimates. FTE-corrected basic and FTE-corrected total pay are measured in logarithms. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

8. Conclusion

Analyses of the gender pay gap for NHS hospital and community services doctors have demonstrated that there is a sizeable raw pay gap. All measures – including the most recent dataset, the full sample, trimmed and non-trimmed and expressed in logarithms, or not – have produced gender pay gaps. Gender pay gaps are found within contracted hours, working patterns, specialties, grades and regions; showing that in all groups, with very few exceptions, women earn less than men. They also vary by age, being zero at the beginning of doctors' careers. Furthermore, the gender pay gap in total pay is larger than the gender pay gap in basic pay. No gender-based differences are observed regarding mean CEA values. CEAs explain only a small part of the gender pay gap in total pay, because women Consultants are less likely to receive CEA payments.

The most important factors in explaining the gender pay gaps, given the variables in the ESR dataset, are hours, age and grade. Men doctors are more likely to work full-time, be Consultants and have more experience. Specialty explains a small proportion of total pay. Other personal intersecting characteristics do not explain the pay gap, in fact, they reverse it slightly. Nevertheless, women doctors have a lower like-for-like financial return for certain characteristics including age, and this accounts for 5% of the gap in basic pay and 22% of the total pay gap.

Both types of gender pay gap are declining over time and, in most circumstances, are reduced once differences in personal and job-related characteristics are considered. In basic pay, these characteristics explain almost all the gap. In total pay, a residual gap of 5% is unexplained. For many commentators, this information will be enough to fully explain gender pay gaps in basic pay for HCHS NHS doctors. However, this review recognises that the root cause of the gender pay gap may lie deeper within the gendered experience of factors that have been used to explain it, for example, grade and specialty. (We will add to our understanding of causes of the gender pay gap for HCHS doctors in Chapters 7-9.)

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Chapter 5. The gender pay gap among general practitioners in England

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Executive summary

- The mean gender pay gap in annual pay among GPs in England is 33.5%. The FTE-corrected mean gender pay gap in annual pay is substantially smaller at 15.3%.
- There is variation in gender pay gaps across GP types. The mean FTE-corrected gender pay gap pay is greater among salaried GPs (22.3%) than contractor GPs (7.7%), while it is close to zero among GP registrars and locum GPs.
- Oaxaca-Blinder decomposition analysis of annual pay among all GPs demonstrates that differences in working hours and GP type (probability of being a contractor GP versus a salaried GP) explain most of the gender pay gap in annual pay.
- Oaxaca-Blinder decomposition analysis demonstrates that the majority of the FTE-corrected gender pay gap for contractor GPs is due to the coefficient effect (men and women getting paid differently for given characteristics). However, it remains largely unexplained.
- Oaxaca-Blinder decomposition analysis demonstrates that the majority of the FTE-corrected gender pay gap for salaried GPs is also due to the coefficient effect. The coefficient effect here is mostly attributable to differences in pay for a given age, holding other factors constant.

1. Introduction

Doctors on the GP register account for about one in four of all doctors on the combined GMC registers in England. This chapter presents a gender analysis of GPs with a specific focus on the gender pay gap, the gender balance across GP types, working patterns by gender, and a multivariable analysis that combines all the factors together in accounting for the gender pay gap in both annual pay and FTE-corrected pay. The chapter first gives an overview of the datasets used before moving on to these specific points of focus.

2. Datasets

Information about the datasets used to analyse the gender pay gap for GPs can be found in Chapter 3.

3. Measurement of key variables

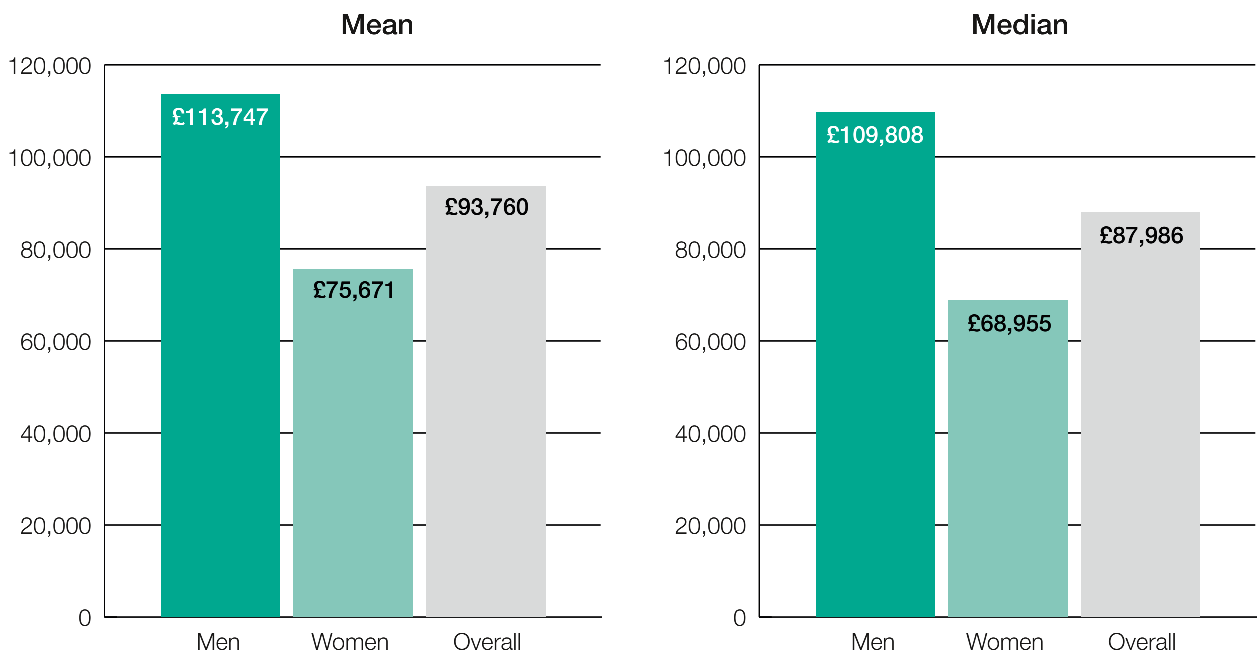
Pay refers to “taxable income before pension contributions are deducted, made up of gross earnings minus total expenses, also known as net income” for the 2016 to 2017 tax year[1]. Salaried GPs’ gross earnings includes employment and self-employment earnings. The second central variable to consider in calculating gender pay gaps is working hours. There are two measures: contracted hours and standard hours. Contracted hours are the number of hours a GP is contracted to do. Where a GP does not have set sessions/hours, those filling out the survey on behalf of the practice are advised to enter the “total usual number of hours” spent on practice activities in a working week for the GP concerned. The contracted hours variable has some missing values. There is also a “standard hours” variable, which, again, refers to “usual average working hours”. This variable had a larger number of missing values than contracted hours, therefore we use contracted hours as the main hours variable and supplement it with "usual hours" where "contracted hours" was missing. The third central variable to consider is GP type. NHS Digital categorises GPs into contractor GPs and salaried GPs based on the job role selected for a particular GP when the practice is submitting information about their staff. The job roles of "salaried by practice" and "salaried by other" are coded as salaried GPs. The job roles of "partner/provider" and "senior partner" are coded as contractor GPs.

In comparing the NHS Digital/HMRC data and the Gender Pay Gaps in Medicine (GPGiM) internet survey, there are various advantages and disadvantages with how the key constructs are measured as well as the richness of the data. We conducted most analyses reported here on both surveys where possible and found broadly similar results. Given the sample sizes are much larger, we mostly report the NHS Digital/HMRC figures only (other analyses available from the research team). We supplement the NHS Digital/HMRC figures with those from the GPGiM survey only in instances where only the latter can provide information (such as the gender pay gap among locums). The source of data for each table is noted below.

4. The gender pay gap among contractor and salaried GPs

Our analysis commences with a review of the gender pay gaps in gross annual pay. Analysis of NHS Digital/HMRC data in Figure 1 shows that the mean annual pay of GPs in England for the 2016 to 2017 tax year was £93,760. Contractor GPs earn substantially more than salaried GPs on average (£109,853 vs. £56,404) and contractor GPs make up the majority (70%). NHS Digital reports that 53% of all GPs in England are women. Nonetheless, women are overrepresented among the lower-paid salaried GP group relative to men, accounting for 73% of this group. Conversely, women are underrepresented among the higher-paid contractor GP group, accounting for only 43% of this group.

Figure 1. Mean and median annual pay by gender among contractor and salaried GPs.



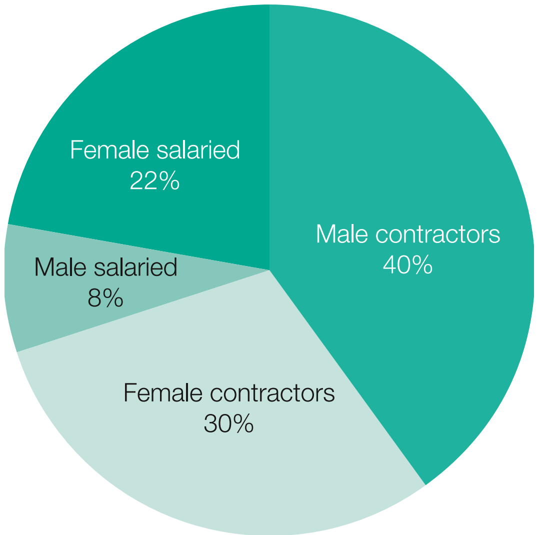
Source: NHS Digital/HMRC (commissioned analysis).

Table 1. Mean and median annual pay by gender among contractor and salaried GPs (£).

	Mean			Median		
	Men	Women	Overall	Men	Women	Overall
Overall	113,747	75,671	93,760	109,808	68,955	87,986
Contractor GPs	121,735	94,253	109,853	116,866	89,060	104,528
Salaried GPs	73,292	50,465	56,404	69,067	48,255	52,627

Source: NHS Digital/HMRC (commissioned analysis)

Figure 2. Composition of the GP profession.



Source: NHS Digital/HMRC (commissioned analysis).

Moving on to estimates of the overall gender pay gap among GPs in Table 2, the mean gender pay gap in annual pay is 33.5%. One reason for the large gender pay gap is that women GPs are less likely to be contractor GPs: 48% of women GPs are contractor GPs, whereas the corresponding figure for men is 83%. This uneven representation across GP types may explain some of the overall gender pay gap, however, an important finding from Table 2 is that there are substantial gender pay gaps within GP types.

Table 2. Gender pay gaps in annual pay among contractor and salaried GPs (%).

	Mean	Median
Overall	33.5	37.2
Contractor GPs	22.6	23.8
Salaried GPs	31.1	30.1

Source: NHS Digital/HMRC (commissioned analysis).

The gender pay gap among contractor GPs is 22.6% and is 31.1% among salaried GPs. This indicates that there are other factors contributing to the overall gender pay gap among GPs other than the uneven representation across GP types between genders. One of these is differences in working hours. The next section will investigate.

5. The gender pay gap by working hours among contractor and salaried GPs

Mean weekly hours for men GPs is 34.4 hours and 26.8 hours for women GPs, a difference equating to approximately 7.5 hours (Table 3), or a standard working day. There are also differences in working hours between GP types. Salaried GPs – the GP group where women GPs are mostly concentrated – work nine fewer hours per week on average relative to contractor GPs.

Table 3. Mean and median weekly working hours by gender among contractor and salaried GPs.

	Mean			Median		
	Men	Women	Overall	Men	Women	Overall
Overall						
Contracted hours	34.4	26.8	30.4	37.0	25.1	30.0
Contractor GPs						
Contracted hours	35.7	29.7	33.1	37.5	29.3	35.0
Salaried GPs						
Contracted hours	27.5	22.9	24.1	28.5	23.0	24.0

Source: NHS Digital/HMRC (commissioned analysis).

Not only are there gender differences in average working hours, there are differences in their distribution (Table 4). Women GPs are about 2.5 times more likely than men GPs to work short hours (<22.5), and about 2.5 times less likely to have long working hours (>37.5) than men GPs. Similar patterns are found when these figures are further broken down by GP type (Table 4).

Table 4. Distribution in weekly working hours by gender among contractor and salaried GPs (%).

	Overall			Contractor GPs			Salaried GPs		
Hours	Men	Women	Overall	Men	Women	Overall	Men	Women	Overall
<22.5	12.2	30.1	23.0	8.4	22.1	14.3	31.1	48.6	43.3
22.5 up to 37.5	40.2	50.8	45.3	39.4	53.5	45.5	44.4	44.6	45.0
>=37.5	47.6	19.1	31.6	52.2	24.4	40.2	24.4	6.8	11.7

Source: NHS Digital[1].

Differences in working hours between men and women are therefore likely to be one reason for the overall gender pay gap and gender pay gaps within GP types. As might be expected, those that are working longer hours, earn more (Table 5). However, it is also evident there is a gender pay gap within each banding of hours (Table 6). It is least severe for contractor GPs working long hours (19.9% for those over or equal to 37.5 hours) and most severe among salaried GPs working short hours (under 22.5) where it is 36.7%. One contributing reason for this is might be that even within the hours bandings, women GPs work fewer hours.

Table 5. Mean annual pay by weekly working hours and gender among contractor and salaried GPs (£).

	Overall		Contractor GPs		Salaried GPs	
Hours	Men	Women	Men	Women	Men	Women
<22.5	80,185	54,933	87,100	71,200	70,800	44,800
22.5 up to 37.5	108,623	78,581	117,100	93,500	70,900	54,500
>=37.5	126,356	106,941	130,500	115,800	81,900	65,600

Source: NHS Digital[1].

Table 6. Mean gender pay gap by weekly working hours among contractor and salaried GPs (%).

Hours	Overall	Contractor GPs	Salaried GPs
<22.5	31.5	18.3	36.7
22.5 up to 37.5	27.7	20.2	23.1
>=37.5	15.4	11.3	19.9

Source: NHS Digital[1].

For this reason, as in the previous chapter, we report FTE-corrected pay and FTE-corrected gender pay gaps. This is to standardise for the differences in working hours between genders such that the unit of analysis is no longer individual GPs, but standardised units of work (that is, 1 FTE).[a] To illustrate what this means with an example: suppose we have three GPs with each one earning £60,000, £100,000, and £120,000 respectively, and their weekly working hours are 22.5, 37.5, and 45 hours respectively. Their FTE-corrected pay will all be identical (£100,000) given their FTEs are 0.6, 1, and 1.2 respectively.

Turing to FTE-corrected pay and gender pay gap estimates in Table 7 and Table 8, the gender pay gap for all GPs is about half the size as the uncorrected gap based on annual pay (Table 2). The FTE-corrected mean gender pay gap is substantially lower for contractor GPs, being about one-third of the annual mean gender pay gap (22.6% vs. 7.7%). For salaried GPs, the FTE-corrected mean gender pay gap is lower than the annual one, but by a much smaller degree and is still large by relative standards (31.1% vs. 22.3%). This indicates that differences in working hours are more important for accounting for the gender pay gap among contractor GPs than salaried GPs, where a large gender pay gap still remains once correcting for hours. Interestingly, the FTE-corrected median gender pay gap for salaried GPs is 13.1% which is considerably lower than the mean gender pay gap. Given that the mean is more sensitive to salary outliers, this suggests there are some particularly high earning men and/or low earning women driving the FTE-corrected mean gender pay gap.

[a] While there is no formal definition of how many working hours is equivalent 1 FTE among GPs, our analysis of ESR, which contains an FTE variable, shows that the vast majority of HCHS doctors with 1 FTE contracts are contracted to work 37.5 hours. We therefore adopt the 1 FTE = 37.5 hours definition for the analysis in this chapter. FTE-corrected pay in the NHS Digital/HMRC data was calculated for each observation using the following formula: FTE-corrected pay = annual pay / (working hours/37.5). We note the reported FTE-corrected pay rates but not the FTE-corrected gender pay gaps are conditional on FTE being defined as 37.5 hours.

Table 7. Mean and median FTE-corrected pay by gender among contractor and salaried GPs (£).

	Mean			Median		
	Men	Women	Overall	Men	Women	Overall
Overall	134,578	113,938	123,744	118,969	100,650	110,108
Contractor GPs	136,297	125,804	131,761	123,214	117,159	120,777
Salaried GPs	125,867	97,843	105,134	89,080	77,433	80,306

Source: NHS Digital/HMRC (commissioned analysis).

Table 8. Gender pay gaps in FTE-corrected pay among contractor and salaried GPs (%).

	Mean	Median
Overall	15.3	15.4
Contractor GPs	7.7	4.9
Salaried GPs	22.3	13.1

Source: NHS Digital/HMRC (commissioned analysis).

We need to note at this point that FTE-corrected pay estimates using NHS Digital/HMRC data is not without issue. Pay information is annual for the whole year. It therefore assumes that working hours are the same each week and does not take into consideration absences and non-standard working patterns (such as term-time working). Moreover, given that the pay in the NHS Digital/HMRC data refers to annual pay and hours to weekly working hours tied to a particular GP practice; the gender pay gaps may also be partly driven by pay coming from other work hours or pay sources not directly connected to the contracted hours of the job captured in the wMDS. Examples include overtime hours (and associated pay), additional jobs, and other (self-employed) work related to medicine. Unfortunately, the NHS Digital/HMRC data only collects data on "contracted hours" and "standard hours" while the pay refers to total annual pay attached to the individual. This makes calculating accurate FTE-corrected pay potentially problematic, given the pay from HMRC records might include pay unconnected with basic contracted hours. Additionally, on a more abstract level, the notion of "contracted hours" makes less sense for self-employed workers (as most GPs are); they generally have much greater autonomy in their work hours but also the additional demands of being business owners.

To explore sensitivity to these sorts of issues, we also explored FTE-corrected gender pay gaps in the GPGiM survey (which collects information on self-reported usual weekly hours, including overtime, as well as contracted hours (calculated from reported core and additional session numbers), and pay in NHS jobs related to medicine) to see if defining the key concepts in calculating gender pay gaps alters observed gender pay gaps (Table 9).

Table 9. Gender pay gaps in FTE-corrected pay among contractor and salaried GPs (%).

	Contracted hours FTE-corrected pay		Usual hours FTE-corrected pay	
	Mean	Median	Mean	Median
Overall	14.6	21.6	15.4	17.8
Partner GPs	2.4	2.2	7.0	8.0
Salaried GPs	16.7	8.1	17.6	14.2

Source: GPGiM survey (author's calculations).

In general, there is little substantive difference between FTE-corrected gender pay gaps when "FTE" is defined in terms of contracted hours versus usual hours for salaried GPs, where the gender pay gap is generally the largest, but there is more of a discrepancy for partner GPs (contractor GPs). This highlights that using contracted hours to adjust for differences in hours worked may under or overstate the actual hour-for-hour gender pay gap for groups where most or all pay is derived from self-employment versus groups where pay is derived mostly from employment. Nonetheless, the general pattern of there being a much larger FTE-corrected gender pay gap among salaried GPs is confirmed.

6. The gender pay gap among locum and registrar GPs

As mentioned earlier, one disadvantage of the NHS Digital/HMRC data is that it does not cover locum and registrar GPs. In the GPGiM survey, we received 124 responses from locum GPs and 82 responses from registrar GPs working in England with non-missing pay and hours data. While these numbers are too small for multivariable analysis, we can calculate simple univariate and bivariate statistics such as averages and gender pay gaps. The mean gender pay gap in annual pay among locum GPs is 23.3% – similar in magnitude to the gender pay gap observed among contractor GPs. The mean gender pay gap in annual pay among registrar GPs is much smaller at 11.3%, although the median gender pay gap is much larger. Once we correct for usual hours (defined here in terms of usual rather than contracted hours, given the nature of locum and registrar work), the gender pay gaps in both groups become almost zero, and if anything, becomes very slightly positive in favour of women in terms of the mean gender pay gap.

Table 10. Mean and median annual and FTE-corrected pay by gender among locum and registrar GPs (£).

	Annual pay				Usual hours FTE-corrected			
	Mean		Median		Mean		Median	
	Men	Women	Men	Women	Men	Women	Men	Women
Locum GPs	76,963	59,050	75,000	57,000	88,888	90,385	84,375	81,250
Registrar GPs	45,626	40,453	47,566	38,461	41,415	42,136	42,991	42,500

Source: GPGiM survey (author's calculations).

Table 11. Gender pay gaps among locum and registrar GPs (%).

	Annual pay		Usual hours FTE-corrected pay	
	Mean	Median	Mean	Median
Locum GPs	23.3	24.0	-1.7	3.7
Registrar GPs	11.3	19.1	-1.7	1.1

Source: GPGiM survey (author's calculations).

Given that gender pay gaps remain between different groups of GPs even after correcting for working hours, we now look at the possible influence on the gender pay gap of other personal, work and workplace characteristics.

7. Gender differences in personal, work, and workplace characteristics among contractor and salaried GPs

The analysis in the previous sections showed that differences in hours may be one reason for the overall gender pay gap given that FTE-corrected gender pay gaps – including within GP types – are generally smaller. Although smaller than the uncorrected gender pay gaps, substantial gender pay gaps remain for both contractor and salaried GPs. Here we look at why this might be. Given there is a myriad of "other factors" that are measured in the NHS Digital/HMRC, they are classified into three broad groups: personal, work, and workplace characteristics (Table 12).

According to the NHS Digital/HMRC dataset, relative to male GPs; women GPs are on average less likely to identify with a non-white ethnicity and more likely to identity with white ethnicity, are 4.3 years younger, have 4.3 years lower job tenure, slightly more likely to be on a PMS contract, and slightly more likely to be working in London. All these factors are likely to influence pay levels and so account for some of the gender pay gap. Other characteristics are broadly similar.

Table 12. Gender differences in characteristics among contractor and salaried GPs (%).

	Contractor GPs			Salaried GPs			Total		
	Men	Women	Difference	Men	Women	Difference	Men	Women	Difference
Personal characteristics									
White ethnicity	56.8	66.7	9.9	50.3	61.8	11.5	55.8	64.6	8.8
Non-white ethnicity	31.5	21.3	-10.2	35.5	24.1	-11.4	32.2	22.5	-9.7
Missing ethnicity/prefer not to say	11.7	12.0	0.3	14.2	14.1	-0.1	12.0	12.9	0.9
Age (mean)	49.5	46.9	-2.6	42.6	40.1	-2.5	48.3	44.0	-4.3
Work characteristics									
Length of service (mean)	14.5	11.6	-2.9	3.7	4.1	0.4	12.7	8.4	-4.3
Registered interest	9.8	8.9	-0.9	11.8	7.6	-4.2	10.1	8.4	-1.7
Missing registered interest	31.5	30.5	-1.0	27.5	28.0	0.5	30.9	29.4	-1.5
Contractor GP (vs. salaried GP)	100	100	0.0	0.0	0.0	0.0	83.5	57.6	-25.9
Workplace characteristics									
PMS contract (vs. GMS)	27.3	27.2	-0.1	39.3	37.7	-1.6	29.3	31.6	2.3
London	11.7	14.0	2.3	19.9	20.6	0.7	13.1	16.9	3.8
Yorkshire and Humber	11.1	10.9	-0.2	10.4	8.5	-1.9	11.0	9.9	-1.1
Lancashire and South Cumbria	3.5	2.8	-0.7	3.0	1.6	-1.4	3.4	2.3	-1.1
Greater Manchester	4.9	5.0	0.1	6.5	4.4	-2.1	5.2	4.7	-0.5
Cumbria and North East	5.2	5.6	0.4	6.3	6.4	0.1	5.4	6.0	0.6
Cheshire and Merseyside	5.0	5.8	0.8	5.6	4.8	-0.8	5.1	5.4	0.3
North Midlands	8.6	7.8	-0.8	5.8	5.5	-0.3	8.2	6.8	-1.4
West Midlands	7.3	6.2	-1.1	8.9	7.7	-1.2	7.5	6.8	-0.7
Central Midlands	9.1	7.8	-1.3	5.8	5.8	0.0	8.6	7.0	-1.6
East England	7.6	7.1	-0.5	6.2	5.9	-0.3	7.4	6.6	-0.8
South West South	5.8	4.8	-1.0	4.1	4.9	0.8	5.5	4.8	-0.7
South West North	4.0	5.0	1.0	4.4	6.2	1.8	4.1	5.5	1.4
Hampshire, Isle of Wight and Thames Valley	6.3	8.2	1.9	5.7	8.4	2.7	6.2	8.3	2.1
Kent, Surrey, Sussex	9.9	9.0	-0.9	7.4	9.3	1.9	9.5	9.1	-0.4
Dispensing practice	17.8	16.4	-1.4	12.9	16.1	3.2	17.0	16.3	-0.7

Source: NHS Digital/HMRC (commissioned analysis).

The next two sections put all the factors considered so far to the test, through an Oaxaca-Blinder decomposition analysis of the overall mean gender pay gap among contractor and salaried GPs combined and mean gender pay gaps within these two groups separately. A decomposition analysis is a useful way of considering all factors that influence the gender pay gap at the same time to disaggregate the influence of each.

8. Decomposition of the gender pay gap among contractor and salaried GPs

Given the previous sections showed that GP type and working hours appear to be an important consideration in understanding the overall gender pay gap and that gender pay gaps varied by these factors; Oaxaca-Blinder decompositions are presented for both contractor and salaried GPs, expressed as total annual pay and FTE-corrected pay. Note that in the analyses on total annual pay, contracted working hours are included as an explanatory factor but are not included in the FTE-corrected decompositions.[b]

8.1 All GPs – annual pay

The summary results decomposing the gender pay gap for all GPs in annual pay (Table 13, column 1 and Table 14, column 1) demonstrate that 64.5% of this gender pay gap is explained by endowments (differences in observed characteristics between genders). Table 14, column 1 shows that almost all the endowment effect is accounted for by differences in work characteristics between genders. Important here are differences in contractor/salaried GP status and contracted hours between genders (see detailed results in Appendix P Table P1). Men are more likely to be contractor GPs and be contracted to work longer hours relative to women GPs. If men and women were the same across these two measures, the gender pay gap in annual pay would reduce by 57.4%. Personal and workplace characteristics account for only a small fraction of the endowment effect in explaining the gender pay gap in annual pay for all GPs.

Turning to the coefficient effect, 52.8% of the gender pay gap is explained by men receiving higher rewards than women for a given set of characteristics. Men, for example, tend to be paid more than women for a given age. Gender differences in pay according to age explain most of the coefficient effect. However, some of this is offset by women getting paid slightly more for a given number of hours than men, holding other factors constant (see detailed results in Appendix P Table P1).

Finally, turning to the interaction effect, which accounts for the simultaneous differences in endowments and coefficients between men and women, it offsets the disadvantaging endowment and coefficient effects by 17.3 percentage points.

8.2 All GPs – FTE-corrected pay

Turning to the narrower FTE-corrected gender pay gap (Table 13, column 2 and Figure 2), we find, as expected, because the gender difference in working hours has been standardised, that the overall difference in pay is reduced (a log difference of 0.17, equivalent to 15.3% gap). Endowments still account for a similar share as in the annual pay analysis, but the coefficient effect increases; in turn offset by a larger interaction effect.

Differences in work characteristics between men and women GPs still explain the majority of the endowment effect (Table 14, column 2). Contractor status is, again, by far the most important, accounting for 66.3% of the endowment effect, followed by the personal characteristic – age – which accounts for around 30% of the endowment effect. If women GPs were contractors in equal proportions and had the same mean age, the gender pay gap would considerably reduce.

[b] See Appendix P Table P1 for full details of results.

Coefficient effects account for a larger relative share than in annual pay (67.6% instead of 52.8%), and in fact the majority of the FTE-corrected gender pay gap. However, most of the coefficient effect is attributable to the constant (that is, unexplained/unmeasured factors). While on the whole women get paid more per FTE for their personal and work characteristics, holding other factors constant, they get paid less per FTE for factors that we do not measure – captured by the constant – and this more than offsets any observable advantages.

As with annual pay, we find a small but significant protective (that is, reduces the gender pay gap) interaction effect.

Table 13. Summary of Oaxaca-Blinder decomposition analysis of gender pay gap among all GPs.

	Annual pay [1]	FTE-corrected [2]
Difference	**0.439*** (0.008)**	**0.170*** (0.008)**
Endowments	**0.283*** (0.007)**	**0.110*** (0.005)**
Personal characteristics	0.030 (0.020)	0.031 (0.067)
Work characteristics	0.194*** (0.034)	0.082*** (0.026)
Workplace characteristics	0.001 (0.003)	-0.001 (0.005)
Coefficients	**0.232*** (0.010)**	**0.115*** (0.009)**
Personal characteristics	1.587 (0.846)	-0.076 (0.640)
Work characteristics	-0.240 (0.217)	-0.045 (0.068)
Workplace characteristics	0.025 (0.066)	0.033 (0.043)
Constant	-1.135 (0.841)	0.203 (0.213)
Interaction	**-0.076*** (0.009)**	**-0.055*** (0.007)**
Personal characteristics	-0.052 (0.033)	-0.025 (0.088)
Work characteristics	-0.028 (0.034)	-0.029 (0.036)
Workplace characteristics	-0.001 (0.002)	-0.001 (0.005)

Notes: Personal characteristics are whether: non-white ethnicity, age, age-squared. Work characteristics are: working hours, working hours-squared, length of service, length of service-squared, whether have a registered interest, and whether a contractor GP. Workplace characteristics are: whether PMS contract, region dummies, and whether a dispensing practice. Standard errors in parentheses. Statistical significance * p<0.05, ** p<0.01, *** p <0.001. Full results in Appendix P Table P1.

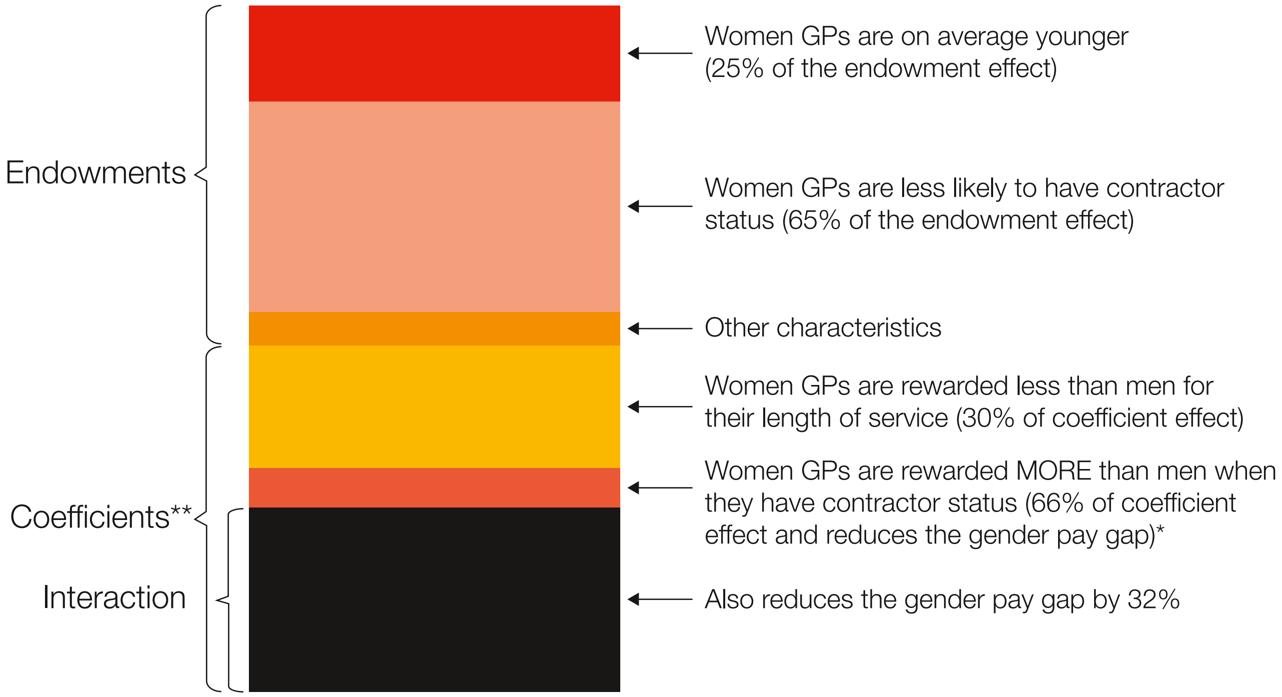
Source: NHS Digital/HMRC (commissioned analysis).

Table 14. Decomposition of the gender pay gap for all GPs (%).

	Annual pay	FTE-corrected annual pay
% of the gap due to differences in:	[1]	[2]
Total endowments	**64.5**	**64.7**
Personal characteristics	4.1	18.2
Work characteristics	60.6	48.2
Workplace characteristics	-0.2	-0.2
Total coefficients	**52.8**	**67.6**
Personal characteristics	50.8	-44.7
Work characteristics	-13.2	-26.5
Workplace characteristics	12.5	19.4
Constant	-2.7	119.4
Total interactions	**-17.3**	**-32.4**
Personal characteristics	-7.1	-14.7
Work characteristics	-10.1	-17.1
Workplace characteristics	-0.0	-0.1

Notes: Personal characteristics are whether: non-white ethnicity, age, age-squared. Work characteristics are: working hours, working hours-squared, length of service, length of service-squared, whether have a registered interest, and whether a contractor GP. Workplace characteristics are: whether PMS contract, region dummies, and whether a dispensing practice.

Figure 3. Decomposition of FTE-corrected gender pay gap for all GPs.



* The section in the diagram is small because it is overlaid by the interaction effect that also reduces the gender pay gap.
** There is also a huge effect on the constant (unexplained) not shown in this figure (see above table).

8.3 Contractor GPs – annual pay

Regarding the features that explain the gender pay gap among contractor GPs (Table 15, column 1 and Table 16, column 1), endowments account for 53.1% of the gender pay gap in annual pay, with most of this component being attributable to gender differences in contracted hours. Coefficient effects account for a considerable 60.1% of the gender pay gap in annual pay. Most of the differences in the like-for-like returns that men and women contractor GPs receive (that we can measure), benefit women. For example, women tend to get paid more for each additional hour of (measured) work (see detailed results in Appendix P Table P1). However, these protective effects are more than offset by a substantial, and larger, coefficient effect for the constant. In other words, female disadvantage through coefficient effects are largely unattributable to any of the factors we are able to measure.

8.4 Contractor GPs – FTE-corrected pay

The gender pay gap among contractor GPs (Table 15, column 2 and Table 16, column 2) reduces considerably when we use a measure of FTE-corrected pay, with a gender pay gap of only 5.7 log points, or 7.7%. However, the percentage of the gender pay gap that is explained by differing distribution of measured characteristics across genders also comparatively reduces. Endowments account for only 35.1% in the FTE-corrected gender pay gap. This is likely because differences in hours has been removed from the equation. Most of the endowment effect in FTE-corrected pay for contractor GPs is attributable to differences in length of service between men and women contractor GPs.

Coefficient effects account for a considerable 89.5% in FTE-corrected gender pay gap for contractor GPs. No specific individual effects are worth noting. As with annual pay, the effect is almost entirely attributable to the constant (that is, unexplained by the factors we observe).

A protective interaction effect is found for the gender pay gaps in both annual pay and FTE-corrected pay.

Table 15. Summary of Oaxaca-Blinder decomposition analysis of gender pay gap among contractor GPs.

	Annual pay [1]	FTE-corrected pay [2]
Difference	**0.256*** (0.009)**	**0.057*** (0.009)**
Endowments	**0.136*** (0.007)**	**0.020*** (0.004)**
Personal characteristics	0.006 (0.051)	0.003 (0.055)
Work characteristics	0.128 (0.058)	0.016 (0.018)
Workplace characteristics	0.000 (0.007)	0.000 (0.006)
Coefficients	**0.156*** (0.011)**	**0.051*** (0.008)**
Personal characteristics	-0.006 (0.796)	-0.088 (0.856)
Work characteristics	-0.048 (0.294)	-0.010 (0.088)
Workplace characteristics	0.020 (0.056)	0.001 (0.043)
Constant	0.186 (0.267)	0.149 (0.272)
Interaction	**-0.036*** (0.009)**	**-0.015** (0.006)**
Personal characteristics	-0.020 (0.063)	-0.010 (0.068)
Work characteristics	-0.017 (0.079)	-0.004 (0.001)
Workplace characteristics	-0.002 (0.003)	-0.001 (0.003)

Notes: Standard errors in parentheses. Statistical significance * p<0.05, ** p<0.01, *** p<0.001.
Full results in table in Appendix P Table P1.

Source: NHS Digital/HMRC (commissioned analysis).

Table 16. Decomposition of the gender pay gap for contractor GPs (%).

	Annual pay	FTE-corrected total pay
% of the gap due to differences in:	[1]	[2]
Total endowments	**53.1**	**35.1**
Personal characteristics	2.3	5.3
Work characteristics	50.0	28.1
Workplace characteristics	-0.8	-3.5
Total coefficients	**60.1**	**89.5**
Personal characteristics	-2.3	-154.4
Work characteristics	-18.8	-17.5
Workplace characteristics	7.8	1.7
Constant	72.7	261.4
Total interactions	**-14.1**	**-26.3**
Personal characteristics	-7.8	-17.5
Work characteristics	-6.6	-7.0
Workplace characteristics	-0.8	-1.8

Notes: Personal characteristics are whether: non-white ethnicity, age, age-squared. Work characteristics are: working hours, working hours-squared, length of service, length of service-squared, whether have a registered interest, and whether a contractor GP. Workplace characteristics are: whether PMS contract, region dummies, and whether a dispensing practice.

8.5 Salaried GPs – annual pay

Salaried GPs have the largest gender pay gaps, being 31.1% annually and 22.3% for FTE-corrected pay. They nonetheless have the lowest proportion accounted for by endowments. For annual pay, the differences in working hours accounts for almost all of the endowment component.

Almost all the gender pay gap in annual pay is attributable to coefficient effects. A substantial disadvantaging coefficient effect is found for pay for a given age (231.9%). However, this is partially offset by another substantial protective coefficient effect (-142.1%) attributable to unobserved factors (the constant).

Once again, a protective interaction is found.

8.6 Salaried GPs – FTE-corrected pay

Correcting for gendered working patterns to create an FTE-corrected comparison, only sharpens the above outcomes. Endowments account for less (24.0% of the gender pay gap) and the coefficient effect accounts for 109.9% of the gender pay gap. Again, as with annual pay, most of the coefficient effect is attributable to substantial differences in pay for a given age which is in turn offset by a substantial protective coefficient effect of unobserved differences captured by the constant.

A protective interaction effect almost equivalent in magnitude to the endowment effect is found for the gender pay gaps in both annual pay and FTE-corrected pay.

Table 17. Summary of Oaxaca-Blinder decomposition analysis of gender pay gap among salaried GPs.

	Annual pay	FTE-corrected pay
Difference	**0.361*** (0.016)**	**0.192*** (0.020)**
Endowments	**0.103*** (0.009)**	**0.046*** (0.009)**
Personal characteristics	0.017 (0.057)	0.034 (0.070)
Work characteristics	0.088 (0.047)	0.014 (0.010)
Workplace characteristics	-0.002 (0.014)	-0.002 (0.018)
Coefficients	**0.352*** (0.020)**	**0.211*** (0.021)**
Personal characteristics	0.837 (0.970)	0.834 (1.141)
Work characteristics	-0.072 (0.306)	0.049 (0.103)
Workplace characteristics	0.095 (0.099)	0.048 (0.086)
Constant	-0.513 (0.368)	-0.721 (0.408)
Interaction	**-0.095*** (0.015)**	**-0.065*** (0.014)**
Personal characteristics	-0.043 (0.096)	-0.048 (0.111)
Work characteristics	-0.045 (0.076)	-0.010 (0.011)
Workplace characteristics	-0.006 (0.023)	-0.008 (0.023)

Notes: Standard errors in parentheses. Statistical significance * p<0.05, ** p<0.01, *** p<0.001.
Full results in table in Appendix P Table P1.

Source: NHS Digital/HMRC (commissioned analysis).

Table 18. Decomposition of the gender pay gap for salaried GPs (%).

	Annual pay	FTE-corrected total pay
% of the gap due to differences in:	[1]	[2]
Total endowments	**28.5%**	**24.0%**
Personal characteristics	4.7	17.7
Work characteristics	24.4	7.3
Workplace characteristics	-0.6	-1.0
Total coefficients	**97.5%**	**109.9%**
Personal characteristics	231.9	434.4
Work characteristics	-19.9	34.4
Workplace characteristics	27.8	16.1
Constant	-142.1	-375.5
Total interactions	**-25.8%**	**-33.9**
Personal characteristics	-11.2	-25.0
Work characteristics	-12.5	-5.2
Workplace characteristics	-1.6	-4.7

Notes: Personal characteristics are whether: non-white ethnicity, age, age-squared. Work characteristics are: working hours, working hours-squared, length of service, length of service-squared, whether have a registered interest, and whether a contractor GP. Workplace characteristics are: whether PMS contract, region dummies, and whether a dispensing practice.

9. Summary

This analysis has shed light on the issue of gender pay gaps in primary care. The gender pay gap in annual pay for GPs is large at 33.5%, however this reduces to 15.3% once we use a standard full-time equivalent measure of pay. The gender pay gap varies across GP types, being smallest among contractor GPs. The gender pay gap among salaried GPs is higher. The main factors identified behind the GP gender pay gap are; firstly, GP type – in particular that fewer women GPs are contractors relative to men GPs, and that they are much more likely to be salaried GPs relative to men. Salaried GPs get paid less and have a bigger gender pay gap. When explaining the annual gender pay gap for GPs as a whole, the decomposition analysis shows differences in hours work being the top factor, along with differences in contractor/salaried status between genders. There is also some evidence of men and women being paid unequally for the same characteristics. For contractor GPs, most of the gender pay gap attributable to men and women being paid differently for given characteristics remains unexplained by the factors we observe. For salaried GPs, however, most of the gender pay gap attributable to men and women being paid differently is due to different rates of pay for a given age.

References

1. NHS Digital. GP Earnings and Expenses Estimates by Gender and Weekly Working Hours England 2016/17: Experimental statistics [Internet]. 2018 [cited 13 March 2019]. Available from: https://files.digital.nhs.uk/11/40E2DC/gp-earn-exp-weekly-working-hours-1617-rep.pdf

Chapter 6. The gender pay gap among clinical academics

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Executive summary

- The gender pay gap in annual salary for clinical academics is 21.4%. It is higher in the non-professorial grades (19.6%) than among professors (6.3%).
- Once the influence of part-time hours is removed (FTE-corrected), the gender pay gaps reduce to 11.5% overall; 9.4% for non-professorial grades and near to zero in the professorial grades.
- Gender pay gaps are largest among ages 36 to 45, both in annual and FTE-corrected pay. They are widest for those that work between 60 and 80% of a full-time contract.
- Decomposition of the FTE-corrected gender pay gap shows that differences in age between men and women clinical academics accounts for most of the gap.

1. Introduction

The gender pay gap in academic medicine was originally highlighted by the British Medical Association (BMA)[1]. The report analysed the Women in Academic Medicine (WAM) cohort of the Athena Survey of Science, Engineering and Technology 2006[2] database and concluded that in academic medicine, there was a gender pay gap of 17%.

This chapter presents an updated gender analysis of clinical academics with a specific focus on the gender pay gap. We take account of working patterns by gender and undertake a multivariable analysis that combines all the factors together accounting for the gender pay gap. Clinical academics, as distinct from HCHS doctors (Chapter 4) and GPs (Chapter 5), are a small but important branch of medicine. Their relationship with the NHS is complicated, as some doctors are on combined contracts, working both for the NHS and academia, and their salary is taken by one organisation and backfilled by the other. Clinical academics are generally employed on NHS terms and conditions. This chapter first gives an overview of the dataset used before reviewing and discussing these specific points of focus.

2. Measurement of key variables

In line with our definitions of gender pay gaps, the study uses two measures of pay.[a] The first measure is gross annual salary; this variable is based on the contracted salary level on 31 July in the reporting period, and it indicates the gross annual salary paid per contract. Clinical academics can have two or more contracts. To identify the total salary received by the individual, annual salaries per contract are added together to form the total salary. For example, if the individual is working 0.5 proportion of full-time and is paid £18,000 in one contract, and 0.5 proportion of full time and is paid £20,000 in another; the total actual salary paid to the individual is £38,000.

Alternatively, we also use a measure of full-time equivalence. If the total hours worked is less than 100% of full-time, the salary is then pro-rated to whole-time working. The study uses the latter calculation of salary to conduct the decomposition analysis.

The pay data in this chapter excludes the value of Clinical Excellence Awards (CEAs). Data on the value of CEAs is recorded locally by each higher education institution (HEI) and not captured by the HESA. Salary data returned to HESA is based on contract only. However, we

[a] Pay is log-transformed.

do have a binary indicator yes/no if the individual receives a Clinical Excellence Award (CEA).[b] In this analysis we use two years of data (2016/17 and 2017/18) to understand gender pay gaps (more information about the full list of variables can be found in Appendix B). The total number of observations across both years of data collection is 9,430.

3. Gross annual salary and gender pay gaps

Table 1 presents the gender annual salary gap of clinical academics in the years ending July 2017, July 2018 and aggregated[1]. Overall, the pay gap is greater than was previously found in 2009 by Connelly and Holdcroft at 21.4%. The larger pay gap is observed among non-professorial academics (19.6%) compared to professorial academics (6.3%). There is not much variation in pay gaps between the two years of measurement.

Table 1. Wage levels and gender pay gap (annual).

	Men (£)	N	Women (£)	N	Gap (£)	Gap (%)
All years						
All academics	71,617	6,014	56,318	3,416	15,299	21.4***
Professor	85,991	2,200	80,533	621	5,458	6.3***
Non-professors	63,325	3,814	50,938	2,795	12,387	19.6***
Year 2017						
All academics	71,666	3,009	56,430	1,710	15,236	21.3***
Professor	86,372	1,101	81,077	314	5,295	6.1***
Non-professors	63,180	1,908	50,886	1,396	12,294	19.5***
Year 2018						
All academics	71,567	3,005	56,206	1,706	15,361	21.5***
Professor	85,609	1,099	79,977	307	5,632	6.6**
Non-professors	63,471	1,906	50,989	1,399	12,482	19.7***

Notes: Source, HESA. There are 6,014 male academics and 3,416 female academics. The mean differences are statistically significant at 99% confidence level. * p<0.05, ** p<0.01, *** p<0.001.

The gender pay gap for clinical academics is reduced by about 50% after controlling for contracted hours. Table 2 presents the gender pay gap in total FTE-corrected salary. The overall gap narrows to 11.5% indicating that more women clinical academics than men work part-time. The standardisation of their hours to an annual equivalent therefore reduces the gap. The gap among non-professorial staff has narrowed to 9.4% but is still statistically significant. After adjusting for hours, the pay gap among professorial staff is statistically insignificant. Creating FTE-corrected salaries reduces all pay gaps, and, in particular, the professorial gender pay gap. The gap is likely to be wider if it included CEAs, as men clinical academics tend to be disproportionally in receipt of these[3].

[b] Clinical academic pay with CEAs included can be found in Chapter 9.

Table 2. Wage levels and gender pay gap (FTE-corrected).

	Men (£)	N	Women (£)	N	Gap (£)	Gap (%)
All Years						
All academics	88,765	6,014	78,546	3,416	10,219	11.5***
Professor	102,018	2,200	101,459	621	559	0.5
Non-professors	81,120	3,814	73,455	2,795	7,665	9.4***
2017						
All Academics	88,942	3,009	77,961	1,710	10,981	12.3***
Professor	103,736	1,101	103,478	314	258	0.2
Non-professors	80,405	1,908	72,222	1,396	8,183	10.2***
2018						
All academics	88,588	3,005	79,131	1,706	9,457	10.7***
Professor	100,298	1,099	99,393	307	905	0.9
Non-professors	81,836	1,906	74,685	1,399	7,151	8.7***

Notes: Source, HESA. There are 6,014 male academics and 3,416 female academics. The mean differences are statistically significant at 99% confidence level. * p<0.05, ** p<0.01, *** p<0.001.

4. Gender pay gaps with reference to working patterns, contract type and age

As we have shown above, one reason that salaries differ across clinical academic men and women is due to differences in contracted hours worked.[c] Table 3 categorises the proportion of full-time working into 0.2 intervals and reports the salary levels and salary gaps. It is evident that there is no significant pay gap among academics who are contracted less than 0.4. The gender pay gap becomes significant among academics working between 0.4 and 1. It becomes insignificant among academics working more than 1 whole-time equivalent of 40 hours, but this may be due to a small sample size. Table 3 shows that salary differences are greatest for those that work around two-thirds of a full-time contract, where pay gaps between men and women in annual wage is almost a fifth of mean wages.

[c] The issue of actual hours worked is taken up in Chapter 9.

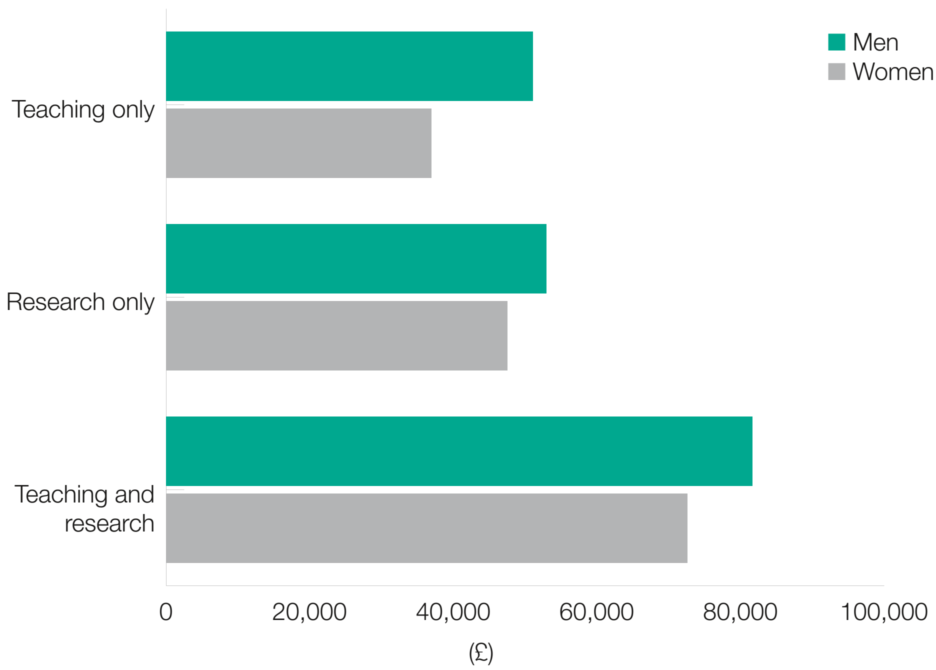
Table 3. Annual pay levels and gender pay gap.

	Men (£)	N	Women (£)	N	Gap (£)	Gap (%)
<0.2	8,255	198	7,624	182	631	7.6
≥0.2, <0.4	20,977	329	20,007	287	971	4.6
≥0.4, <0.6	41,758	374	36,011	333	5,748	13.8***
≥0.6, <0.8	56,915	196	45,028	267	11,888	20.9***
≥0.8, <1	66,178	261	58,350	376	7,829	11.8***
1	81,290	4,613	70,678	1,956	10,613	13.1***
>1	72,758	43	70,244	15	2,514	3.5

Notes: Source, HESA (2017 and 2018 data). * p<0.05, ** p<0.01, *** p<0.001.

Figure 1 presents annual gender gaps by type of academic contract and indicates that gaps are worst in the lowest-paid contractual roles. Contract type is identified by three categories: teaching-only where women hold 64% of positions, research only where they hold 47% of positions, and teaching and research where they hold 27% of positions. The salary differential for the teaching-only contractual role gives rise to the highest gender pay gap (27.7%). This is followed by teaching and research contracts at 11.1% and research-only contracts 10.2%. All gender pay gaps are statistically significant.

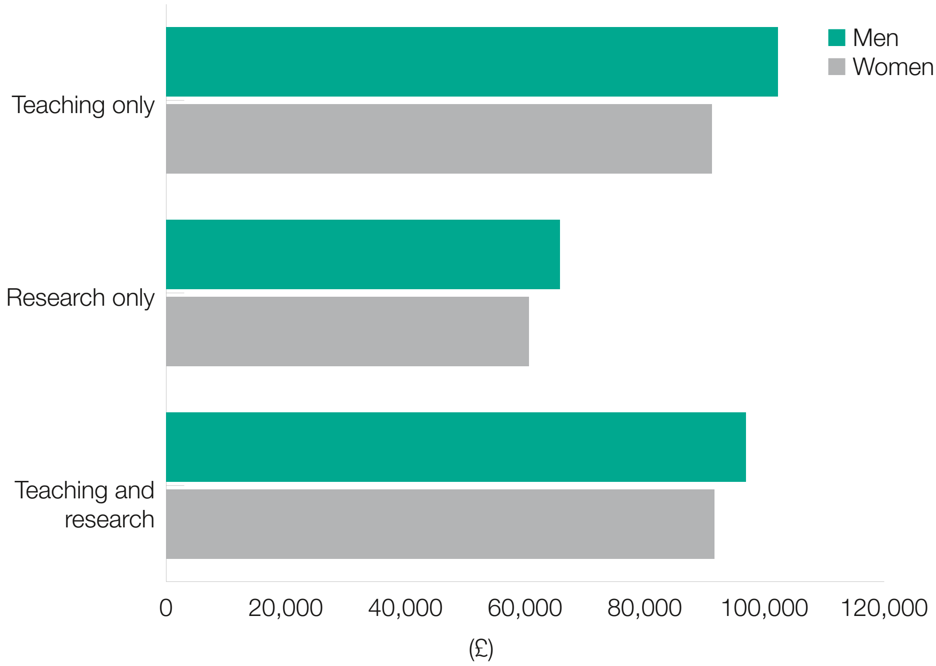
Figure 1. Wage levels and wage gaps by academic contract type (annual).



Notes: Source, HESA (2017 and 2018 data). Individuals with multiple contracts with a different type of academic role are double included in both categories. *** p<0.001.

Figure 2 presents the same data, except on an FTE-corrected basis. Gender pay gaps are narrowed, but the highest gender pay gap is still reported among academics with teaching-only contracts with 10.7%. This is followed by research-only contracts with 8% and teaching and research contracts with 5.4%. Once again, as is the case in Figure 1, all gaps reduce when pro rated to full-time annual equivalent salary. Interestingly, the considerable increase in the teaching-only salary indicates that most teaching-only contracts are fractional posts.

Figure 2. Unadjusted wage levels and wage gaps by academic contract type (FTE-corrected).



Notes: Source, HESA (2017 and 2018 data). Individuals with multiple contracts with a different type of academic role are double included in both categories. *** p<0.001.

Tables 4 and 5 present the gender pay gap by age categories for annual salaries and total FTE-corrected salaries, respectively. Both tables indicate that annual and FTE-corrected salary increases with age, peaking in the category 56 to 65 for both men and women. They both also show that gender pay gaps peak in academics aged 36 to 45 and then reduce.

Table 4. Annual wage levels and gender pay gaps by age.

	Men (£)	N	Women (£)	N	Gap (£)	Gap (%)
≥25, ≤35	44,430	1,070	40,669	1,028	3,761	8.5***
≥36, ≤45	65,444	1,523	52,868	1,130	12,576	19.2***
≥46, ≤55	83,427	1,810	70,509	854	12,918	15.5***
≥56, ≤65	84,899	1,403	78,081	376	6,818	8.0***
≥66	64,626	206	53,756	18	10,870	16.8

Notes: Source, HESA. There are 6,014 male academics and 3,416 female academics. The mean differences are statistically significant at 99% confidence level. * p<0.05, ** p<0.01, *** p<0.001.

Table 5 demonstrates that most of the wage variance within-age is explained by contracted hours. By the time the age band 56 to 65 is reached, there is little difference between men and women. Nevertheless, there remain significant gender pay gaps in early and mid-career.

Table 5. FTE-corrected wage levels and gender pay gaps by age.

	Men (£)	N	Women (£)	N	Gap (£)	Gap (%)
≥25, ≤35	54,181	1,070	53,811	1,028	370	0.7
≥36, ≤45	80,660	1,523	77,418	1,130	3,242	4.0**
≥46, ≤55	101,032	1,810	97,910	854	3,122	3.1**
≥56, ≤65	105,939	1,403	105,172	376	767	0.7
≥66	103,905	206	113,220	18	-9,315	-9.0

Notes: Source, HESA. There are 6,014 male academics and 3,416 female academics. The mean differences are statistically significant at 99% confidence level. * p<0.05, ** p<0.01, *** p<0.001.

5. Gender differences in individual, work and workplace characteristics among clinical academics

We have seen that gender pay gaps persist when measured within age bands, contract type and working patterns on both an annual and FTE-corrected basis. However, we do not know if these may be related to the distribution of other features such as qualification or region of the country.

Descriptive analysis (Table 6) of the data demonstrates other differences between men and women clinical academics that might cause them to earn different levels of pay. Relative to male clinical academics, women are less likely to hold a doctorate, but more likely to hold an academic teaching qualification. Women clinical academics were also found to be less likely to hold a CEA and more likely to be working in London. Female academics are, on average, slightly less likely to identify as having a non-white ethnicity and more likely to be British or of Irish nationality. They are on average, five years younger. They are less likely to have been promoted to professorial level and more likely to be employed in teaching-only and research-only contracts, compared to men. The decomposition technique below will assess the importance of each of these factors in a combined analysis.

Table 6. Gender differences in characteristics (2017/18) (%).

	Men	Women	Difference
Individual characteristics			
Ethnicity			
White	70.4	72.4	-2.0
Non white	19.2	17.4	1.8
Other	10.4	10.2	0.2
Age (mean)	48 years	43 years	5 years
Nationality			
British/Irish	85.2	82.9	2.3
Non British/Irish	13.6	15.8	-2.2
Not known	1.2	1.2	0
Disability			

	Men	Women	Difference
No	98.5	98.2	0.3
Yes	1.5	1.8	-0.3
Highest qualification			
Doctorate	63.1	49.4	13.7
Postgraduate	19.7	28.3	-8.6
Undergraduate	10.5	13.8	-3.3
School level and other	0.9	0.6	0.3
Not known	5.8	8.0	-2.2
Academic teaching qualification			
No	29.0	21.7	7.3
Yes	25.1	29.2	-4.1
Not known	45.9	49.1	-3.2
Work characteristics			
Clinical Excellence Award	28.0	10.3	17.7
Has multiple contracts	6.9	9.0	-2.1
Professorial grade	36.6	18.0	18.6
Has teaching-only contract	10.0	20.2	-10.3
Has research-only contract	25.8	38.9	-13.1
Has teaching and research contract	65.4	42.0	23.4
Workplace characteristics			
HE provider			
North East	3.1	3.1	0.0
North West	8.7	11.1	-2.4
Yorkshire and The Humber	6.5	5.1	1.4
East Midlands	5.6	3.9	1.7
West Midlands	5.8	6.8	-1.0
East of England	7.9	7.3	0.7
London	29.0	30.4	-1.4
South East	13.2	12.3	0.9
South West	3.6	3.9	-0.3
Wales	3.3	2.6	0.6
Scotland	11.7	12.2	-0.5
Northern Ireland	1.6	1.3	0.3

Notes: Summary statistics are for the year 2017/18 only. There are 3,005 men and 1,706 women.

6. Decomposition of the overall gender pay gap among clinical academics

The descriptive data analysis revealed an annual gender pay gap of 21.4% among male and female medical academics, which reduced to 11.5% when FTE-corrected. Table 6 indicated that different individual, work and workplace characteristics between men and women clinical academics differ and may account for part, or even all of the gender pay gap. We need to find out which are the most important. We therefore utilise a decomposition analysis to further explain the gender difference in pay of medical academics[4,5].

To be able to make a comparison with data in Chapters 4 (for HCHS) and 5 (for GP doctors), the observed variables are sorted into three main categories: individual characteristics, work characteristics, and workplace characteristics. Table 7 lists all the variables under each of these three categories and their respective reference groups that are used in the decomposition analysis.

Table 7. List of variables controlled for in the decomposition.

Category	Variable name
Individual characteristics	Age
	Age squared
	Disability (ref: not disabled)
	Ethnicity (ref: white)
	Highest education qualification (ref: PhD)
	Nationality (ref: British)
	Academic teaching qualification (ref: no ATQ)
Work characteristics	Has a teaching-only contract (ref: no teaching-only contract)
	Has research-only contract (ref: no research-only contract)
	Has a teaching and research contract (ref: no teaching and research contract)
	Clinical Excellence Award (ref: no Clinical Excellence Award)
	Multiple contracts (ref: no multiple contracts)
	Number of hours
	Grade (ref: non-professor)
Workplace characteristics	Region (ref: North East)
	University
Time	Year

The outcomes of the decomposition analysis are presented in Table 8. Column 1 gives the aggregate decomposition in FTE-corrected pay for both years (2017 and 2018). This data is interpreted in simpler format as a proportion of the gap in Table 9 and Figure 3 below. Column 2 presents the decomposition results for 2017 and column 3 presents decomposition results for 2018. There is little variation among the years and so the analysis below focuses on the aggregate level (column 1).

Analysis shows that, when decomposed, the total gender pay gap is reduced to 14.3% in favour of men. Of this, 84.2% of the difference[d] is explained by the differences in observed characteristics between the genders (the endowment effect). Of the endowment effect, differences in individual characteristics are a major contributor, contributing a total of 58.7%[e] of the gender pay gap. Differences in work and workplace characteristics contribute 21.1% and 3.8% to the explained wage difference, respectively.[f] The result shows an unexplained – being the total of the coefficient and interaction elements – gap of 17.3%.[g]

Table 8. Oaxaca decomposition of FTE-corrected pay for all medical academics.

	All	2017	2018
Overall	**[1]**	**[2]**	**[3]**
Male	11.332***	11.329***	11.335***
	(0.005)	(0.007)	(0.008)
Female	11.199***	11.199***	11.199***
	(0.008)	(0.010)	(0.011)
Difference	0.133***	0.130***	0.136***
	(0.009)	(0.013)	(0.013)
Endowments	0.112***	0.112***	0.113***
	(0.009)	(0.012)	(0.013)
Individual characteristics	0.078***	0.083***	0.074***
	(0.006)	(0.008)	(0.008)
Work characteristics	0.028***	0.023*	0.033***
	(0.006)	(0.009)	(0.009)
Workplace characteristics	0.005**	0.006	0.006*
	(0.002)	(0.003)	(0.003)
Coefficients	0.035***	0.032***	0.038***
	(0.005)	(0.007)	(0.007)
Individual characteristics	0.338**	0.269	0.380*
	(0.118)	(0.159)	(0.171)
Work characteristics	0.179***	0.201**	0.145*
	(0.046)	(0.063)	(0.069)
Workplace characteristics	0.194	-0.839***	0.227
	(0.026)	(0.189)	(0.210)
Constant	-0.675**	0.400	-0.715*
	(0.242)	(0.257)	(0.280)

d 11.2lpp as a proportion of 13.3lpp.

e 7.8lpp.

f Refer to Appendix Q Table Q1 for detailed decomposition results.

g 2.3lpp.

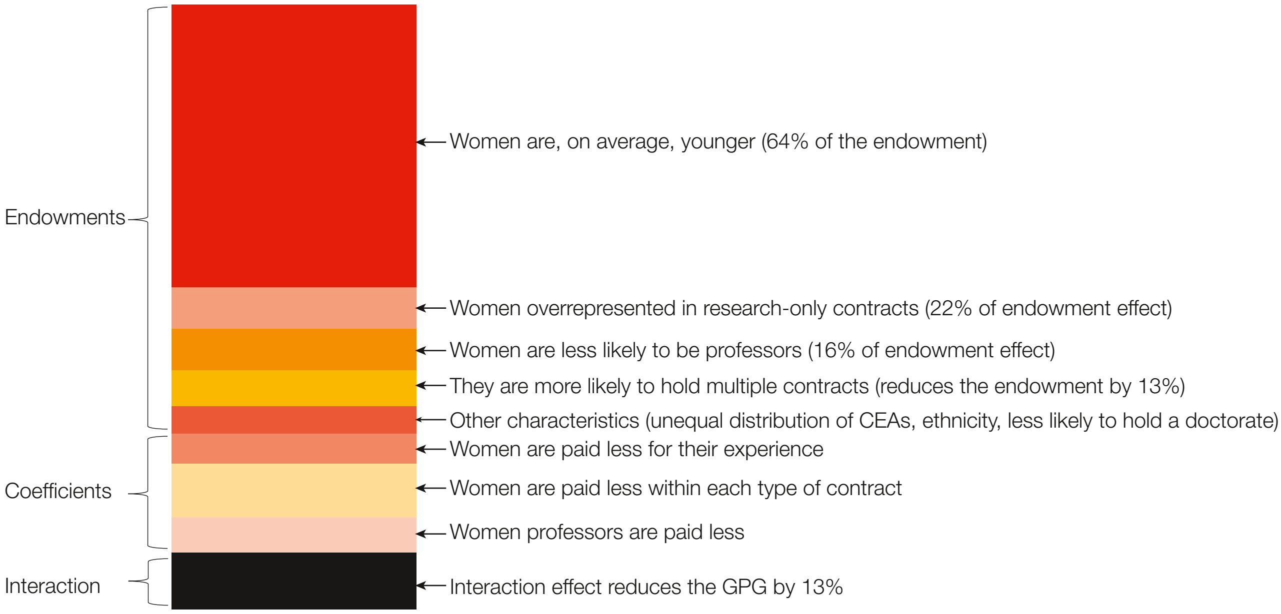
	All	2017	2018
Interaction	-0.013**	-0.013*	-0.014*
	(0.004)	(0.006)	(0.006)
Individual characteristics	0.014***	0.013**	0.015**
	(0.004)	(0.005)	(0.005)
Work characteristics	-0.023***	-0.022***	-0.023***
	(0.004)	(0.006)	(0.006)
Workplace characteristics	-0.005*	-0.005	-0.006*
	(0.002)	(0.003)	(0.003)
Number of observations	8,669	4,399	4,270

Standard errors in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 9. Decomposition of FTE-corrected gender pay gap among all clinical academics (%).

	Annual pay
% of the gap due to differences in:	
Total endowments	**84.2**
Age	54.1
Disability	0
Education qualification	3.8
Ethnicity	1.5
Work characteristics	21.1
Workplace characteristics	3.8
Total coefficients	**26.3**
Age	229.0
Disability	22.6
Education qualification	6.0
Ethnicity	-3
Work characteristics	134.6
Workplace characteristics	145.9
Constant	-507.8
Total interactions	**-9.8**

Figure 3. Decomposition of FTE-corrected gender pay gap among all clinical academics.



What follows is an explanation of what the decomposition tells us.

Endowment effects. In total, 58.7% of the total gender pay gap can be attributed to gender differences in the individual – that is, demographic and human capital – characteristics that are associated with higher salaries. Inspection of the detailed findings (Table 9 and Figure 3) show that these can be reduced almost entirely to the effect of age. Women clinical academics are, on average, younger, and because age has a strong positive association with pay[h] (see Tables 4 and 5), it constitutes the major source of the observed gender pay gap. Women clinical academics are also less likely to hold a doctorate, and this is associated with a small but significant proportion of the gap.

Only about 20% of the gender pay gap is attributed to work characteristics, measuring horizontal and vertical segregation. On the face of it, this is unusually low given that grade segregation is responsible for about 64% of the gender pay gap among HCHS doctors (Chapter 4 Table 16). For example, the fact that women academics are underrepresented in the professorial grade (see Table 6) contributes to the pay gap, but only to explain about 16.7% of the gap. Additionally, the fact that women are, in comparison to other job families, overrepresented in the poorly-paid[i] research-only job family, explains another 22.3% of the gap. However, women are more likely to hold multiple contracts, and this marginally reduces the gap. The fact that vertical segregation between those that are professors and those that are not explains so little of the gender difference in pay, indicates that academic title/grade is not as closely tied to a consistent salary scale as it is for other HEI academics or for HCHS doctors.

Coefficient effects. The above analysis shows that differences in endowments account for a large proportion of the pay gap however, it does not explain it in its entirety. There are also unequal financial returns to these endowments across men and women clinical academics that account for over a quarter of the pay gap.[j] For example, while women academics are younger and less likely to hold senior academic positions; endowments that contributed to

[h] As a proxy for experience.

[i] Usually fixed-term.

[j] Not accounting for interaction effects.

the pay gap (as above), the coefficient component indicates that age/experience benefits men academics more than women. Women are also paid less than men in the teaching and research job family. We also know that relatively few women academics have managed to reach the professorial grade, but the coefficient column shows that women receive a statistically significantly smaller financial return after achieving it. Having said this, the impact of each effect on the total gender pay gap is modest.

Finally, the interaction effect (which accounts for the simultaneous differences in endowments and coefficients between men and women), offsets the disadvantaging endowment and coefficient effects by 9.8%.

7. Decomposition of the gender pay gap by clinical academic grade

This section presents the decomposition analysis by academic grade. Table 10 presents the results; column 1 shows the results for professors and column 2 for non-professors.

As was evidenced in Table 2 and again below, the total difference in the gender pay gap between professorial academics is 1% of pay. This difference is very small in magnitude and is statistically insignificant (see also Appendix Q Table Q2). The total difference in the gender pay gap among non-professorial academics is 10.1%. Differences in endowments explain 6.9% of the differences in wages. Most important here, again, is that women tend to be younger (and age is associated with higher pay); and that women are found in higher density in teaching-only posts (see Appendix Q Table Q2).

The unexplained components (coefficients and interaction effects) amount to 3.7% points of the gender pay gap, but there are few discernible patterns.

Table 10. Oaxaca-Blinder decomposition by clinical academic grade.

	(1) Professors	(2) Non-professors
Overall		
Male	11.506***	11.226***
	(0.005)	(0.007)
Female	11.495***	11.129***
	(0.010)	(0.008)
Difference	0.011	0.096***
	(0.011)	(0.011)
Endowments	0.018	0.060***
	(0.011)	(0.010)
Individual characteristics	0.012***	0.045***
	(0.003)	(0.006)
Work characteristics	-0.004	0.007
	(0.009)	(0.007)
Workplace characteristics	0.011	0.007**
	(0.006)	(0.002)
Coefficients	0.001	0.039***
	(0.005)	(0.006)
Individual characteristics	1.065***	0.370*
	(0.204)	(0.152)
Work characteristics	-0.154**	0.116*
	(0.056)	(0.051)
Workplace characteristics	-0.067	-0.108
	(0.063)	(0.081)
Constant	-0.837***	-0.346*
	(0.217)	(0.146)
Interaction	-0.008	-0.002
	(0.004)	(0.004)
Individual characteristics	0.002	0.008*
	(0.003)	(0.003)
Work characteristics	-0.005	-0.006
	(0.003)	(0.003)
Workplace characteristics	-0.005	-0.004
	(0.004)	(0.002)
Number of observations	2704	5965

Standard errors in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

8. Summary

The gender pay gap for all clinical academics is initially wide (21.4%), however, it reduces to 11.5% once we account for part-time hours. The gender pay gap is largest mid-career (aged 36-45) but reduces to zero once differences in hours are accounted for, for those over 56 years old. The gender pay gap is largely explained by the higher mean age of men in the clinical academic workforce; however, there is also evidence of women's financial disadvantage, given their dominance in the low-paid research job family and underrepresentation in the professorial grades. Given the greater likelihood of men clinical academics holding CEAs; including this financial data is likely to add to gender pay gaps.

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Chapter 7. Individual factors and medical careers

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Executive summary

- Possible negative influences on pay rates that produce and sustain gender pay gaps include pregnancy, maternity and adoption leave, marriage, caring and family responsibilities, and career breaks.
- More women doctors than men doctors base/have to base their selection of specialty on the availability of family-friendly work, social hours, quality of life and avoiding on-call work.
- Women are disproportionately found in work that is plannable, however, the connection to gender pay gaps is inconclusive.
- Women and men doctors are broadly comparable regarding attitudes on the fairness of their pay and the extent to which they seek to maximise earnings.
- Women undertake fewer additional/external income-generating activities and are less well paid when they do.
- Salary corrected for full-time equivalence with basic controls for career stage demonstrate gender/BAME and gender/international medical graduate pay gaps are most prominent at early career stages.

1. Introduction

Chapters 4 to 6 outlined pay gaps within the three major branches of medicine; hospital doctors, general practitioners and clinical academics. However, given the nature of the administrative datasets that we rely on, in-depth understanding on the causes of gaps is limited. Chapters 7 and 8 supplement the quantitative analysis. In these two chapters, we explore interview data and simple descriptive tables to illustrate possible origins of gender pay gaps. Limitations in terms of robustness, objectivity and generalisability are set out in Chapter 3. Themes that emerge within this chapter will be carried forward to inform an integrative model quantitative analysis of the implications for the gender pay gap in Chapter 9.

This chapter is themed by features associated with sociocultural theory that argue that society's traditional division of labour by gender consigns women to caring roles based on their biological capacity for childbearing, and men to greater participation in paid positions of higher power. We consider how conforming with gender roles shapes individual paths and behaviours, creating and reinforcing stereotypes that impact on medical career paths, career success and salary potential. Additionally, we evidence the apparent additional salary disadvantage that occurs when gender intersects with other demographic characteristics such as ethnicity, health and disability. We evidence how understandings of traditional social roles result in a lower quality and quantity of women's experience and how they are connected to fewer women reaching senior levels. This chapter is subdivided into four sections; pregnancy and family/caring responsibilities, drivers of selection of specialty, pay rates linked to individual attitudes and values, and intersecting identity characteristics. In the next chapter, we examine the structural and cultural consequences of enacting gender roles in NHS medicine.

Data analysed in these two chapters is drawn from three sources. Quotes are taken from the 30 in-depth interviews of men and women doctors (see Chapter 3 for methods and details of the sample in Appendix F). This is supplemented by data from the self-report Gender Pay Gaps in Medicine (GPGiM) survey and focus groups at the first stakeholder meeting on the

16 July 2018. Because working hours form an important part of the difference in the ways that careers are experienced, and paths taken, pay in Chapters 7 and 8 is usually reported annually, not as a standardised full-time equivalent measure. Importantly, when interpreting salary information, we must bear in mind that differences in the gender pay gap in these two chapters may also be explained by other factors – the most obvious being hours of work, specialty, seniority and length of service.

2. Pregnancy and family/caring responsibilities

This section examines the impact of individual circumstances regarding: childbearing capacity and pregnancy, maternity and adoption leave, caring responsibilities, career breaks, and domestic roles. We demonstrate how deeply embedded attitudes and norms reduce the quality of women's experience and inhibit career and pay progression.

2.1 Childbearing capacity and pregnancy

Interview participants argued that women's childbearing capacity was strongly connected to career disadvantage, even where they had not yet (or did not intend to) have children:

> *Occasionally feeling the need to point out to people that…. there was no risk of me accidentally getting pregnant anytime soon. Just bizarre things that you felt you needed to drop into conversation…. When I said that I was moving to GP "So, are you already pregnant or are you planning…like are you trying..?" You know, the assumption was that, if I was doing that, it was because I was going to have children, to which the underlying assumption is, so, you didn't think I could have children doing this job [then hospital registrar]… I12, F, 39*

Concern that women would be or could become pregnant, was perceived to be an immediate disadvantage for women in both trust and primary care settings. This quote illustrates the point:

> *If you're sitting there in a GP practice and you've got three women and two guys, and you want to replace one of the guys, it's unlikely the women will get the job because they…they do get pregnant and go off. I13, F, 66*

Participants resented both these attitudes and the impact on their career that was perceived to result. They also noted that there was increased recognition that these attitudes were becoming less and less acceptable to be expressed, but still covertly held:

> *The attitudes around women's life choices are horrific. I think people know that they're not supposed to have the attitudes, so they're doing a slightly better job of…of biting their tongue. But it's still there. Of the women I went to medical school with and that I trained with in my early years, I have seen women fail to get onto surgical training rotations because they had just gotten married and the training programme director said, "You'll be having a baby in the next two years and we haven't got space for that on the programme." I12, F, 39*

Women actually becoming pregnant was equally, if not more, problematic. This was not due solely to discriminatory attitudes, but also to systemic failure:

> *It seems like, every time somebody has a baby in the NHS, everyone's completely surprised, as if it's never happened before. You know, the fact that we're having babies, we've been having babies for millions of years [laughing]! Well over 50% of the medical workforce is female, and yet we still have not made it possible for women to combine motherhood and being doctors and, you know, to really maximise their…their*

> *potential… If the NHS is going to survive, ….we need women to be able to reach the top of their careers... I27, F, 45*

Negative attitudes towards pregnancy were repeatedly cited. Participants gave examples of where they had concealed being pregnant at interview for fear of not getting a job (I16, F, 52, whose colleague had had a job offer withdrawn on announcing her pregnancy). Another started a new job while pregnant but had to take medical appointments in her own time (I30, F, 39). Others were openly assigned worse career opportunities:

> *"Oh well, there's a job in [place] that nobody wants – you can do that three days a week," is what they said. I22, F, 48*

Pregnant women in tough macho cultures were required to "push through" (I7, M, 34) at all stages of pregnancy, even when heavily pregnant and/or ill, in order not to drop behind in their training. Many were advised that they should finish their training before having children such were the inherent difficulties of combining it with pregnancy and childcare.

Both men and women interviewees recognised and denounced this disadvantage, without feeling that they could positively influence it:

> *It's a huge penalty for childbearing, and it's just not fair, and it gets me quite upset because it's just like…it doesn't make sense, as a society. We should be actually doing…supporting and actually making it work. I7, M, 34*

Childbearing capacity and pregnancy created substantial disadvantage, particularly in relation to quality of experience within training to the point of potential sex discrimination. Women were denied career opportunities afforded to men allegedly, purely based on their childbearing potential. The consequences for pay are indicated by the increasing gender pay gap across the period of training and into consultant or non-training grade roles.

While reasons for the pay gap are multi-faceted, its relationship with a woman's childbearing capacity is well established. In medicine, gaps are relatively small in the foundation and early specialty training stages but start to widen by ST3, which coincides with the point at which most women start to have children. In the following sections, we consider how childbearing and childcare are important influences on gender pay gaps.

2.2 Maternity and adoption leave

Pay disadvantage from taking maternity leave[a] is evident across the women doctors using data obtained from the GPGiM survey. For example, mean pay figures for women consultants (only)[b] who have not taken maternity leave are higher than those who have taken maternity leave, and higher again than those that have taken multiple periods of maternity leave (Table 2) and/or a longer total duration of maternity leave (Table 3).

Nevertheless, gaps are not as large as might be expected and not as large as the overall gender pay gap for consultants. Table 1 shows there is a pay gap of 7.2% between women doctors who have taken maternity leave and those who have not. This compares to a gender pay gap of 19.2% between men consultants and women who have not taken any maternity leave and 25.0% between men consultants and women who have (anytime). Particularly disadvantageous, it appears, is maternity leave taken during specialty training, however, sample sizes are small.

Maternity leave and associated less than full-time (LTFT) working explains, according to the GPGiM survey data, only around six percentage points (approximately a quarter) of the overall

[a] Including associated employment alterations such as a switch of specialty or LTFT-working.

[b] A consultant-only sample is used here to provide basic controls for seniority and age effects. Part-time effects are not removed. Maternity leave for this sample is likely to have been taken largely prior to the instruction of MMC.

annual consultant gender pay gap of 23.3%[c]. We need to bear in mind that some of this gap may be explained by current working patterns, specialty effects (women not having access to income-adding activities in some specialties) or age. It may be larger for GPs. These issues will be further explored in Chapter 9.

Table 1. Mean pay for female consultants depending on timing of maternity leave (£).

	Men Consultants	No maternity leave (ML)	ML anytime	ML during Foundation or Core Training	ML during Specialty Training	ML while Consultant
	114,828	92,736	86,099	92,802	84,540	88,795
N	585	147	343	25	194	124

Sample: GPGiM survey: Consultants working in England.

One of the obvious links between maternity leave and earnings is that maternity leave delays completion of training and/or career progression. One participant who had taken two periods of maternity leave, noted that she had fallen behind her male peers during training – who were now consultants, and her current bosses were men who had started training later than she had (I14, F, 39). There was recognition that extended maternity leave could have a negative impact on pay and that effects on career progression and pay could be long-lasting, even where post-maternity caring responsibilities were equally shared (I21, F, 29).

Table 2 shows that the number of periods of maternity leave are not related to pay detriment in linear fashion, although we might be able to suggest a loose trend of decreasing pay with number of leave periods.

Table 2. Mean pay for women consultants depending on periods of maternity leave (£).

	No maternity leave	1 period of ML	2 periods of ML	3 periods of ML	4 or more
	92,736	89,935	88,570	93,349	84,327
N	147	84	209	47	23

Sample: GPGiM survey: Women consultants working in England.

Table 3 provides a more straightforward interpretation, indicating that the more time spent on maternity leave, the greater the pay detriment.

Table 3. Mean pay for women consultants by total length of maternity leave in months (£).

	<12 months	Between 12 and 20 months	Between 20 and 49 months	More than 49 months
	100,861	92,067	83,558	82,962
N	64	121	78	115

Sample: GPGiM survey: Women consultants working in England.

Some interview participants argued that training and career structures could be adapted to minimise delays to career progression; points we return to in Chapter 8. They were frustrated that the loss of career momentum during maternity absence typically went unrecognised (I10, F, 38) and noted the need for support on return:

[c] Extrapolated from Table 1.

> *With my second child in particular, I took something like 18 months off, because the longer I left it, the worse it felt about going back. There was a bit of chitter-chatter amongst the other pre-hospital doctors…"Oh, why aren't you back on the rota, why?" It was really difficult to explain how …I'd lost my nerve, basically, because I'd been out for so long. It felt, the longer I left it, the bigger thing it was to come back in. I14, F, 39*

Maternity pay was raised as an issue for concern, linked to career stage. Trainees who changed contracts at foundation and specialty stage found this could be especially problematic, creating a perceived need to plan pregnancies around eligibility for maternity pay (I29, F, 29). Others on locum consultant contracts recalled how they had not been eligible for maternity pay, as they were not in substantive posts (for example, I27, F, 45). GPs could be especially disadvantaged as the provision of enhanced maternity rights was locally determined:

> *It's entirely within your partnership agreement. So, you have to negotiate it yourselves within your partnership agreement, and there's no…there's no standard about it. I hear of women who are the first female partner of childbearing age to join a partnership who are having to start from scratch because there's no maternity agreement within the partnership agreement at all. I12, F, 39*

A lack of entitlement to enhanced maternity pay is an important direct influence that reduces the average salary for women GPs. However, the effect of maternity leave is generalisable to other doctors. At present, taking maternity leave results in negative impacts on the quality and quantity of experience by delaying completion of training and limiting future career-enhancing experiences. In combination, the issues contribute to long-term gender pay gaps.

2.3 Family commitments

Survey data from HCHS doctors and GPs evidenced that responsibility for childcare falls predominantly to women. This is especially the case for women doctors in primary care. In the GPGiM survey, the following question was posed: "In a typical working week, how is childcare allocated". Of those that required childcare, options were: "self", "partner", "family member", "paid carer", "nursery" and "other". There were evident differences depending on doctor specialty. Women hospital doctors with children undertook 28% of childcare themselves and women GPs with children undertook 39% (Table 4). Men hospital doctors allocated 46.7% of childcare to their partners and undertook very little themselves (12.3%) (Table 5). Men GPs were more involved in childcare (18.7%); less (43.6%) of the childcare duties were undertaken by their partners. Other strategies for the balance of childcare as answered by women doctors included; nursery (23.2%), paid carer (10.1%), and family (7.4%).

Table 4. Childcare allocated to self (%).

Job	Percentage of childcare undertaken by self	
	Gender	
	M	F
HCHS	12.3	28.3
N	381	608
GP	18.7	39.0
N	73	205

Sample: GPGiM survey: Doctors working in England.

Table 5. Childcare allocated to partner (%).

Job	Percentage of childcare undertaken by partner	
	Gender	
	M	F
HCHS	46.6	13.6
N	381	608
GP	43.6	8.3
N	73	205

Sample: GPGiM survey: Doctors working in England.

Opinion about affordable childcare offers potential insight into pay gaps (Table 6). A survey question asked whether respondents felt that affordable childcare created a barrier to career progression.

Findings show that agreement that there is a lack of affordable childcare is associated with women, although agreement was generally high. More women saw a lack of affordable childcare as causing a barrier to career progression; a fair amount/a great deal (35.4% to 29.7%); and fewer women (22.3%) than men doctors (34.2%) felt that lack of affordable childcare was not a barrier to career progression. We need to bear in mind when interpreting these figures that gender differences in opinion on this point are likely to be associated with lower age, lower grade and part-time working, all of which depress pay and all of which are more prevalent among women doctors in the sample.

Table 6. Lack of affordable childcare as a barrier to career progression (%).

Lack of affordable childcare as a barrier to career progression	Men	Women
Not at all	34.2	22.3
Not much	35.1	42.3
A fair amount	21.8	25.3
A great deal	8.9	10.1
Total N	1,389	1,646

Sample: GPGiM survey: Doctors working in England.

Interview data further illustrates these findings. Most participants had, or have had, family or other caring responsibilities and 11 were currently working LTFT to accommodate these. Caring for close and extended family was positioned as predominantly a woman's responsibility. Only one of the LTFT interview participants was a man (I7, M, 34). Traditional gendered social norms were widely reflected:

> *I think medicine expects the man to be the full-time breadwinner and to work… You know, every doctor is expected to work beyond their contracted hours, and the expectation is always that the man remains full-time and remains just as committed to the job as he ever was, and the woman goes part-time. I27, F, 45*

Long working hours were a concern because of the assumption that caring responsibilities would fall to women. This was generally deemed to be incompatible with certain career paths, for example surgery, where working hours were very long:

> *We've got a higher number of core trainees now, that first level, who are women, and there's a huge drop-off rate between that and the people applying to be registrars in Surgery. I speak to them and they just say, "Look, it's just…I want to have a family." And I'm like, "Well, I've got a family!" I22, F, 48*

Perceptions of women as primary domestic and family carers also seemed to limit opportunities for quality training. One woman specialist trainee, working with her male partner, described how she would get the "menial" surgical rotation jobs while her partner would be taught how to do procedures. She ascribed this to her training on a LTFT basis and attitudes such as:

> *My partner had picked the baby up, and the registrar went, "Where's… [your partner] gone?" and I said, "Oh, he's gone to get the baby," and he said, "Well, isn't that your job, shouldn't you be doing that?" I28, F, 32*

Long working hours combined with the need to travel long distances during training, created further difficulty for those with caring responsibilities in gaining quality training experiences:

> *Well, I was keen to not be any less of a surgeon, not miss out on the training, and not somehow be a rubbish registrar just because I had a baby. So, I was doing 90 hours a week… So, it was a huge commitment, and also… a 60-mile drive. I had to buy a car, didn't have a car, because you couldn't get to [location] for 7.30 in the morning from [location]. But I had kids at school by now – can't move them around anymore, so… Yeah, because I wanted macroscopic colorectal training, and it was really hard to get. I22, F, 48*

Women doctors, then, often felt unequally equipped to engage in certain specialties due to caring responsibilities. As we will demonstrate in the next chapter, often these specialties are among the most highly paid.

Interview participants who avoided long hours via LTFT working or training faced career barriers. Full-time childcare was often still required, due to long or unpredictable hours. Last-minute shift changes or additional training sessions led to increased childcare costs and, again, had negative consequences for quality of experience:

> *I had an interest in Oncology, and I spent a couple of years trying to write a paper, trying to get involved with an Oncology Unit, trying to sort of further that part of my career… It wasn't local, there wasn't anything like that locally, so every time I went, it cost me over £100 just for the day, and the consultants I was interacting with were too busy to give the support that might have been necessary. That's not their fault, they work in a busy unit, but I invested a significant amount of time and energy and childcare and money in trying to get this stuff off the ground, and it never ended up doing so …that's difficult. I went from being…someone who qualified from medical school with good prospects and a good grade to a trainee that doesn't have anything extra on my CV…. And that cost in terms of options down the line. Your career options that used to be wide-open, the possibilities that used to be open are closed-down, because you always had to pay for childcare in order to do these things, as a part-time trainee. (I28 F, 32)*

Caring responsibilities were clearly positioned as a woman's responsibility, even though some participants resisted this view, and affordable childcare was a barrier to career progression. Both the quality and quantity of women's experience were reduced through working and/or training LTFT to accommodate these responsibilities and struggling to access development opportunities open to those not dealing with childcare. We further develop these themes in Chapter 8.

2.4 Career breaks

Survey participants were also asked about the perceived impact of career breaks on their progression. Barriers following career breaks can be considerable and one interview participant, for example, drew on her experience within general practice, suggesting that medical structures had made return to practice more difficult:

> *I had one year out after my second child, and that's because we moved, partly. I've always been second career, following my husband's career…. I capitalised on that really to allow myself a year-out, and that was easier to do then, back in 2000/2001. The appraisal process hadn't yet started for General Practice, so you could just take out a year and then go back to work. [Now] you would have to show more engagement…. There are ways you could manage it, but I think it would be more challenging, and, actually …I have known doctors, in the city and elsewhere, who've taken much longer out with children than a single year, and that is now very difficult to get re-established into clinical practice. I20,F, 51*

Others expressed similar concerns with one describing it as being like "a game of snakes & ladders" (I30, F, 39), in which having arrived at a certain level of seniority prior to a career break, they would return after a break, but to a less senior role.

The difference in attitudes between men and women doctors on this point is stark (Table 7), with 86.1% of men responding that career breaks were not at all likely to be a barrier to career progression, compared to 60.8% of women.

Table 7. Career breaks as a barrier to career progression (%).

Career breaks as a barrier to career progression	Men N	Women N
Not at all	86.1	60.8
Not much	10.5	18.0
A fair amount	2.6	14.7
A great deal	0.8	6.3
Total N	1,389	1,646

Sample: GPGiM survey: Doctors working in England.

2.5 Influence of marriage and partner

A further purpose of research was to review the influence on pay gaps of marriage and civil partnerships, and particularly where both partners are NHS doctors. Survey data (Table 8) suggests that having a partner either within marriage or civil partnership is detrimentally linked to pay for many women. The pay gap for unmarried women is low – influenced of course by age, experience and grade. However, by later life stage it is considerable. Married women doctors earned 29.8% less than married men doctors, and this gap increased to 32.3% for women who currently have, or used to have, doctor partners who also worked for the NHS.

Table 8. Mean pay for married doctors.

	Mean pay for unmarried/ no civil partnership			Mean pay for married/civil partnership			Mean pay for women married to/in civil partnership with other NHS doctor	
	Men (£)	Women (£)	GPG £ (%)	Men (£)	Women (£)	GPG £ (%)	Women (£)	GPG £ (%)
	63,197	60,626	2,571 (4.1)	95,372	66,936	28,436*** (29.8)	64,545	30,827*** (32.3)
N	211	466		1,456	1,695		606	

*** p<0.001.

Sample: GPGiM survey: Doctors working in England.

It is perhaps no surprise, then, given the data in the above table, that being in a marriage or civil partnership is seen as detrimental to career progression for women and especially if both are NHS doctors. Table 9 shows that the proportion agreeing that their partner's career poses a barrier to their own career progression, is much higher for women than men (12.9% agreement compared with 4.2% for men).

Table 9. Partner's career as a barrier to career progression (%).

Partner's career as a barrier to career progression	Men N	Women N
Not at all	65.4	50.0
Not much	19.9	20.9
A fair amount	10.5	16.2
A great deal	4.2	12.9
Total N	1,389	1,646

Sample: GPGiM survey: Doctors working in England.

Interview data added useful detail on how being in a committed personal relationship can hinder career prospects for women in medicine, especially with another NHS doctor. Female participants gave many examples; how a geographical relocation with their partners could limit their options; not being able to take up promotion opportunities because of their partner's career; and, as we saw above, having to undertake childcare to support their partner. Caring patterns meant that, where geographical relocation was needed, women typically moved to accommodate their male doctor partner's career, with consequent career fragmentation and pay disadvantage:

> *I actually know two separate couples where the…male has been very determined, knows exactly what career he wants, and it's like a high-profile specialty, and the female has been a bit more flexible, a bit more uncertain. What's ended up happening is that they've moved to the location where the male has got the training post and the female has ended up in a GP programme because that's reliable and easier to get into. I18, F, 28*

The privileging of men's careers in medicine, often on the grounds of caring responsibilities, applied equally to couples where both partners were not medics (for example, I20, F, 51). Some did, however, argue that these patterns were starting to change. I25 (F, 42) noted that in her team (of 30), two men were currently taking extended paternity leave.

In combination, the factors covered in this section have evidenced how personal circumstances relating to pregnancy, maternity, domestic responsibility and marriage, resulting from deep-rooted social norms influencing career and life choices, can reduce the quality and quantity of a woman doctor's experience. The influence of a partner's career was particularly notable in this respect. The lack of more flexible career pathways that can accommodate both partners appeared to contribute to gender pay gaps. How these are further exacerbated by patterns of training and working are developed in the following chapter.

3. Drivers of medical specialty selection

Chapter 4 demonstrated that one of the drivers of medical gender pay gaps could be a doctor's medical specialty. In this section, we discuss the factors that influence the selection of specialty, including characteristics such as hours of work, training paths, and the ability to plan working life in guiding these choices. We evidence how these characteristics contribute to women, in some specialties, accruing both less experience and lower-value experiences. Chapter 9 carries this forward to assess the implications for pay.

3.1 Specialty career paths

Survey participants were asked about the factors that influenced their selection of specialty. They were given free text space to explain these factors. Their answers were subsequently grouped via analysis. Enjoyment or interest in medical work illustrated by a passion for medical practice was the top reason, followed by priorities associated with work-life balance (WLB); for example, family friendly working patterns, sociable hours, quality of life, and avoiding on-call work (Table 10). While men and women were reasonably equally distributed across most factors, nearly three times as many women as men cited the WLB factor as a reason for pursuing their specialty.

Table 10. Factors attracting to current specialty (%).

What factors attracted you towards your current specialty?	Men N	Women N
Enjoyment/interest in medical procedures and passion for the vocation	35.0	29.6
Family friendly work, social hours, quality of life, and avoiding on-call work	13.2	40.3
Seeking autonomy, continuity of care, patient contact and time for patients, holistic approach	14.3	12.9
Variety of tasks and duties, challenging	10.5	9.6
Quality of support, role models and professional development	10.2	11.4
Other	9.0	7.9
Intellectually stimulating, involvement in leading-edge research	7.1	5.3
Materialistic considerations including high pay rates	0.7	0.3
Total N	1,171	1,644

* p<0.05, ** p<0.01, *** p<0.001.

Sample: GPGiM survey: Doctors working in England.

Analysis of the free text comments on the survey leads us to other general findings. For men and women, WLB factor was a significant reason to pursue General Practice as a specialty; however, more women than men mentioned this. Men cited almost all other reasons more frequently than women; for example, an interest in medical procedures often linked to specialties such as surgery. Both genders cited an interest in people-oriented specialties, frequently linked to paediatrics or geriatrics.

Although long working hours and desire for WLB made the GP specialty an attractive option for many, particularly women, some of our interviewees articulated it as a compromised, even forced, choice:

> *I do not regret for a minute having been forced into General Practice by my gender, em, because I have loved General Practice. (I19, F, 67)*

They followed up by saying that they would have made different selections if working hours in other specialties had been more moderate. There was also some indication, particularly among younger doctors, of increasing resistance to a culture of extended working hours that dominated all aspects of life:

> *I think medical training really rewards people who are prepared to use all of their spare time to change things. For surgeons, that means staying late [to catch operations that you haven't seen], it means doing a lot of project work in your spare time, and that's just to get onto the training schemes that you want. For me, I knew… roughly what I needed to do to get the job that I wanted, and I'm not massively prepared to sacrifice…a lot of the other time that I have free to…go after things. I26, F, 34*

The perception that long hours create a barrier to career progression can be analysed along gender lines to demonstrate clear differences (Table 11). A slim majority of men did not agree that long hours were problematic (50.1%). Women were more circumspect and distributed among response categories; the largest proportion answering, "not much" (37.9%).

Table 11. Long hours as a barrier to career progression (%).

Long hours as a barrier to career progression	Men N	Women N
Not at all	50.1	33.3
Not much	29.8	37.9
A fair amount	15.6	23.9
A great deal	4.5	5.8
Total	1,389	1,646

Sample: GPGiM survey: Doctors working in England.

Long working hours and poor WLB were frequently cited as problematic for all, but particularly for women who shouldered the burden of caring. Interview participants with long careers argued that working patterns were improving and that current 45-hour shifts were better than in earlier decades, indeed those who once worked part-time had done similar hours to those now working full-time (I22, F, 48). However, one participant argued that the recent junior doctor contract could lead to more split weekends and other unsocial working patterns (I8, F, 59). Despite reductions in working hours, the length and increased intensity of working hours (due to pressures in the system) was repeatedly raised and influenced career paths, for both men and women. For women particularly, long working hours and a need for WLB made selection of certain specialties and the quality of possible career experience impracticable.

3.2 Ability to plan

Length of working hours was not the only concern; it emerged through the interviews that the ability to plan working hours was also important. Previous research (Petrides and McManus 2004, cited in Royal College of Physicians, 2009) divides specialties between those with a greater capacity for planning time ("plannable") compared to those which are unpredictable.

Chapter 4 showed that gender pay gaps loosely correlate with the proportion of women in the specialty. Correlations linking "plannability" with women-density (with indirect links to gender pay gaps) show similar loose associations. For example, plannable specialties such as pathology, oncology, public health and psychiatry have above-average women-density and below-average gender pay gaps. Plannable occupational medicine has above-mean women representation but an above-average basic pay gap. Non-plannable medicine is close to the mean on both women-density and gender pay gaps: unplannable surgery, imaging and general acute conform to expectations, being low in women-density and high in gender pay gaps.[d] The outlier is obstetrics & gynaecology which is heavily women-dense and has high gender pay gaps. It is likely that subdivision of all specialties would reveal further patterns in this regard.

Our interview data demonstrated that a lack of plannability was problematic for several reasons, but particularly childcare:

> *It's usually women who are less than full-time for childcare reasons… When they have children and they come back to work, they will find the deanery totally inflexible and that they cannot plan their childcare. That they can't plan what they're doing, and that there's all these barriers put up to what hours and days they work, and they end up leaving and taking either non-training jobs or just leaving medicine…. It's very, very common for women with kids because of the days of the week issue. I28, F, 32*

It was also a concern for those who prioritised being able to plan non-working aspects of their lives. Here, one participant describes selecting a specialty that would facilitate at least some social life:

> *So, if your shift was, em, eight till four, you would be out by 4.30. And so, there was a little bit more understanding that you might plan things for your day. So, in the other jobs, if you, you know, if you came on and said, "I really want to get away on time today because I'm…I've got a date," or "I've got, you know, my Mum is coming to town and I want to have dinner with her," you'd be looked at like you'd said something really unusual [laughing]! I12, F, 39*

That women doctors may congregate in plannable specialties is understandable, given the challenges they face in balancing work and other commitments. Given that plannable specialties do not have the lowest mean pay rates, women doctors' equal career progression here will, in the future, reduce the pay gap. It is important that practices to facilitate progression are implemented and rates of progression monitored for gender balance.

This chapter now reviews how gender differences in prioritising earnings and earnings potential might affect the gender pay gap.

d Paediatrics is omitted.

4. Pay and individual attitudes and values

A proportion of the gender pay gap might be attributable to differences between men and women and their attitudes towards maximising their earnings. Here we develop previous material on the extent to which personal attitudes and values about pay might influence our participants to engage in career- and salary-enhancing activities. We then explore levels of satisfaction with pay rates. Finally, we explore awareness of gender pay gaps in medicine from those who appear to be in a disadvantaged pay position.

4.1 Career and pay-enhancing activities

Engaging in opportunities to enhance career progression and/or pay, often out of normal working hours, was, according to our participants and stakeholder group, an important element of the pay gap between men and women. Typically, these were suggested to be more difficult to undertake for women than men.

Interview participants argued that working LTFT and bearing the burden of childcare meant that it was harder for women to engage in these types of additional work. In addition to the pay gaps outlined above, being unable to engage in these activities compounded pay disadvantage, as women consultants found it harder to build the necessary portfolio to apply for a CEA:

> *The sorts of things [for CEAs] that men tend to find more easy to do, like the going here, there and everywhere on committees. For women, it's more difficult because of childcare arrangements. And there's also this well, women tend to more feel, well, "somebody has to stay behind and look after the patients", because, you know, they're more of a concern. Whereas the man is more likely to say, "Well, I must get to the… important meeting." I16, F, 52*

> *And those are all the things you need to bump up your CEA award, of course… You know, you have to be running things, you have to put yourself forward, but if you're running a household with three kids and a job full-time, or what feels like full-time… I worked I was doing [60] hours a week with my full-time job. I now do 40 hours a week in my part-time job… Plus all my extra research and stuff I do at home. Yeah. So, I haven't got time to be also assigned to these committee things. I22, F, 48*

However, the GPGiM survey data demonstrates that this is not always the case, as more women than men doctors declared that they engaged in additional locum work, plus education and "other" types of work. Nevertheless, even where opportunities for additional income were equally pursued, women earned considerably less (Table 12). Similar proportions of men and women, for example, undertook public lecturing/speaking and research activities, but men earned 67.9% and 25.7% more, respectively, for these activities than women.

Table 12. Career and pay-enhancing opportunities.

Reason for additional pay	Mean additional pay (annual)		Gender pay gap £ (%)
	Men (£)	Women (£)	
Public lecturing/ speaking	21,803	6,999	14,804 (67.9)
N (%)	70 (4.8)	63 (4.3)	
Research	18,445	13,704	10,075 (25.7)
N (%)	45 (3.1)	40 (2.7)	
Education	13,784	4,666	9,119 (66.6)
	103 (7.0)	123 (8.4)	
Consultancy	22,950	11,032	11,918 (51.9)
N (%)	94 (6.4)	42 (2.9)	
Private practice	39,888	23,233	16,655 (41.8)
N (%)	245 (16.7)	114 (7.8)	
Locum work	9,685	5,716	3,969 (41.0)
N (%)	218 (14.9)	261 (17.9)	
Other	12,567	5,163	7,402 (58.9)
N (%)	237 (16.2)	330 (22.6)	
Total sample	1,463	2,028	

Sample: GPGiM survey: Doctors working in England.

Gender differences in income are noteworthy across all activities. Especially important here are opportunities to engage in private practice and the gender pay gap from these. It is likely that these pay gaps are related to specialty, grade and age effects. However, it is also likely that women are offered lower rates due to negative perceptions of lower capability and are less likely to successfully negotiate their rate (see also Chapter 8).

4.2 Attitudes to pay: maximising opportunities for additional income

In view of the above findings, survey and interview data explored whether maximising pay is a priority to men and women doctors within their medical practice.

Within the survey, the weight of opinion was on the side of agreeing the importance of maximising earnings. As shown in Table 13, 64% of men and 62% of women strongly/agreed that maximising earnings was important to them. Against expectations, there is little difference in attitudes between men and women doctors, leading us to suggest that attitudes towards maximining pay may be less significant than opportunities to do so.

Table 13. Importance of maximising earnings (%).

Maximising my earnings is important to me	Men	Women
Strongly disagree	1.5	1.2
Disagree	10.6	11.8
Neither agree nor disagree	23.9	25.2
Agree	41.4	44.2
Strongly agree	22.5	17.5
Total N	1,712	2,223

Sample: GPGiM survey: Doctors working in England.

Within interviews, participants were more reticent about their pursuit of maximum earnings opportunities, possibly because of participant self-selection, or the social desirability of not explicitly presenting as motivated by higher pay.

Only five participants suggested that they sought to maximise earnings. One felt that it had been important when a junior doctor given living expenses (I12, F, 39), and others because of their caring responsibilities (I26, F, 34; I5, F, 36) or because they felt discriminated against (I30, F, 39). Some women also expressed vulnerability in their domestic arrangements and the need for a secure income. Only one, however, suggested that she wanted to maximise her standard of living (I19, F, 67). Most of the others, in line with the attitudes expressed in Table 13, believed it was more important to be valued and recognised for what they did, have an interesting job that they enjoyed, help others and have time to do other things. One participant summed it up thus:

> *Even though I'm the main wage-earner, I'm still not particularly money-orientated… I feel like I've got enough to live the life that I want and that's okay, and I don't feel…poor. I don't worry about doing the shopping and… I think my motivation to go after lots of CEA[e] points and get lots of extra money is probably…maybe not as high as it should be. I10, F, 38*

4.3 Attitudes to pay: assessment of "fairness" and gender pay gaps

Given that both men and women survey respondents indicated that pay rates are quite important to them, we were interested to understand whether or not they felt that their rate of pay is "fair". To do this, we used two measures of comparison; firstly an external assessment of comparison with other professionals and secondly, an internal measurement of comparison of self in relation to other medical colleagues.

External comparisons of fairness in pay rates (Table 14) indicated balance between genders, but overall it was more negative than the internal assessment (Table 15). A significant minority of men and women strongly/disagreed or were unsure whether their income was fair. Some, for example, those who worked in London (I 20, I44), compared themselves with partners or friends who worked in financial services. They did not feel a doctors' pay to be commensurate with their peers, particularly given the high level of responsibility and the intensive nature of their work:

[e] Clinical Excellence Award (CEA).

I judge it based on sort of the physical and mental strenuousness of what we do, the number of hours that we do, and the sacrifice sometimes that I could be spending on other things, like maintaining my own health and wellbeing and being with my family. If I factor all of that in, and when I come home after having done like a [68-hour] week, I just think I don't get paid enough really. I26, F, 34

However, this view was not universally shared. Around one third, slightly more men than women, strongly/agreed that their pay was fair compared to other professions. Some referenced their upbringing (discussed further later in the chapter), for example, being brought up in families who had relied on free school meals (I2, I15), or with family members who still did not earn enough to pay tax. They felt in comparison that their pay was very generous.

Table 14. Pay compared to non-medical professionals (%).

Compared with non-medical professionals, I feel my pay is fair	Men	Women
Strongly disagree	14.1	12.4
Disagree	29.3	33.2
Neither agree nor disagree	19.7	20.4
Agree	29.1	28.3
Strongly agree	7.8	5.7
Total N	1,729	2,247

Sample: GPGiM survey: Doctors working in England.

When we asked survey respondents to make an internal comparison of fairness, we can see the gender influence on the distribution of data more clearly. Around 60% of men and just over half of women strongly/agreed that their pay was fair. However, more women than men were unsure, disagreed or strongly disagreed that their pay was fair compared to others in medicine (Table 15).

Table 15. Pay compared to others in medicine (%).

Compared with my medical colleagues, I feel my pay is fair	Men	Women
Strongly disagree	4.2	4.0
Disagree	15.2	19.1
Neither agree nor disagree	20.7	24.6
Agree	45.5	43.5
Strongly agree	4.4	8.8
Total N	1,755	2,306

Sample: GPGiM survey: Doctors working in England.

For many interview participants, it was the perceived gendered career paths and changes to contracts that created perceptions of inequity, for example, men surgeons versus women palliative care consultants and consultants versus Specialty and Associate Specialist (SAS) doctors. Closure of the Associate Specialist grade and the consequential pay limitations for doctors in these grades who sought to move roles, was also raised as unfair. There were numerous references to changes to junior doctor pay scales and their disproportionally negative impact on women's income, leading to junior doctors feeling undervalued.

Some of the consequences for women doctors were more direct. Problems with the pay system exacerbated pay gaps. Women consultants who had extended their training by working LTFT, for example, had not been appointed at an appropriate point on the pay scale upon qualification. More generally, there was a perceived failure of HR departments to accurately calculate the appropriate pay rates of women medics with non-typical career pathways (I10, F, 38).

Perceptions of unfair pay within medicine do not relate solely to gender pay gaps, as around 20% of men feel their pay to be unfair, not because of gendered comparisons, but instead in relation to the overall steady devaluing of wages. However, gender pay gaps were consistently referred to in connection with unfairness by women participants:

> *I have a colleague… we're the same age, and we both left medical school at the same time, and we are the two consultants in our team. He will always be 10 years ahead of me on the pay-scale, even though we do the same job, and I have to accept that …It's somewhat appropriate that he's paid more than me because he hasn't had this crazy career that I've had [working LTFT, qualifying via CESR[f]]. He's been consistently within the team for 10 years, gaining experience, which is…which is all for the good and, you know, he probably should be paid more. Whether he should be paid £10,000 a year more than me, I don't know. I27, F, 45*

While articulating the perceived unfairness and demotivating consequences of the situation, participants were in almost all cases resigned to living with them. However, we also heard cases of poor practice and even pay discrimination that went all the way to challenge at tribunal (I8, F, 59) before, reportedly, losing on a technicality. In all cases, resistance from the organisation was structured and powerful. A woman participant, who combined academic and GP roles, had demonstrated that the pay gap between herself and a male colleague was unfounded. She received very little support in addressing the gap and was forced to accept the disparity, being unwilling to take the actions advised as required to address it:

> *So, I was basically told that I did have a case, and that if I was going to actually challenge it, I would have to threaten to leave… So, I would have to actually genuinely decide to leave. But at the stage of life that I was at, with three children in school, it was never going to happen. And it isn't about the actual pay at the end of the day because I feel that doctors are very well-paid. I absolutely adore my job in terms of the content of it. I love the General Practice thing, and I love the research. You know, I couldn't be happier in what I actually physically do, and… So, it's not actually about pay, it's about the fact it's been…I think it's been horribly unfair. I16, F, 52*

Here, we have discussed attitudes to pay and important personal values. While some survey data indicated similar attitudes from men and women, interview data gave more nuanced insight. Here, there was a tacit acceptance that, for the reasons outlined across this and the next chapter, pay gaps were inevitable.

5. Intersecting identity characteristics

While our primary focus in this review is gender, here we briefly explore the implications of "double disadvantage"; that is, the pay disadvantage of the intersection between gender and other demographic characteristics. To cancel out some of the effects of career stage on pay rates, the analysis in this section is subdivided into three age bands typically associated with

[f] Certificate of Eligibility for Specialist Registration (CESR).

early, mid and late career stages. We also, for this section only, remove the influence of LTFT working by using a measure of pay adjusted for full-time equivalence, that is, annual pay standardised for hours.

Clear patterns emerged. Women with secondary disadvantaging characteristics earned less than their male peers with the same characteristic in all cases and at all career stages, except in the case of poor health (as opposed to disability) where fortunes were reversed (Table 16). Disabled women, for example, earned less than disabled men, and the gap was a considerable 36.8% for those aged 50-plus. This is typical of the broader population; disability being so often age-related, it is to be expected that men are already earning more once they become disabled. Gender/BAME and gender/international medical graduate (IMG) combinations also created pay disadvantage, most prominent at the early career stages with gaps of 27.6% and 36.2% respectively. These were reduced by mid and late-career. Attending a non-selective state secondary school/gender also created pay gaps in early and mid-career, although by late-career, women earned -5.1% more than men in this group.

Table 16. Pay gaps associated with the intersection of gender and other characteristics (FTE-corrected).

	Gender (aged 25-29)			Gender (aged 30-49)			Gender (aged 50-plus)		
	M (£)	F (£)	GPG £ (%)	M (£)	F (£)	GPG £ (%)	M (£)	F (£)	GPG £ (%)
Disabled	N/A[g]	N/A		59,982	55,408	4,574 (7.6)	121,376	76,724	44,653 (36.8)
N				19	37		21	17	
Non-British	43,623	34,288	9,334 (21.4)	66,204	61,328	4,876 (7.3)	98,007	92,832	5,175 (5.3)
N	66	105		328	428		179	103	
BAME	48,081	34,797	13,284 (27.6)	69,600	60,434	9,166 (13.2)	97,669	93,511	4,158 (4.3)
N	55	97		297	328		55	133	
Overseas trained (IMG)	50,000	31,924	18,076 (36.2)	66,544	59,223	7,321 (11.0)	99,484	90,333	9,151 (9.2)
N	37	77		292	355		192	108	
Poor health	32,604	37,102	-4,497 (-13.8)	60,410	61,350	-940 (-1.6)	112,754	122,564	-9,811 (-8.7)
N	14	29		69	163		84	56	
Non-selective secondary education	37,218	34,819	2,399 (6.5)	74,310	67,768	6,541 (8.8)	105,753	111,131	-5,378 (-5.1)
N	67	214		339	498		206	157	

Sample: GPGiM survey: Doctors working in England.

There may be explanations for pay gaps here including that women are more likely to be found in lower-paid specialties or less well-paid roles and grades, or that men are clustered at the top of age bands. There is also the potential that sample sizes are too small to be representative, especially in the disability category. Even accounting for all these dimensions,

[g] Data is not displayed due to small cell sizes.

however, some of the intra-age band and full-time equivalent differences are surprisingly large. That women are consistently on the lower receiving end of pay gaps – especially those in relation to ethnicity and overseas training – could arise from wider discriminatory attitudes embedded in cultural norms that an “ideal” doctor is UK-trained, white and a man; in other words that there is a lack of cultural coherence between “doctor” status and being an intersectional woman.

Stories of hardship related to double-disadvantage emerged from interview transcripts. Gender and race/ethnicity were frequently cited as interacting to negative effect. Two of the three Asian women interview participants told distressing stories of medical school (and beyond) that had negatively affected their career trajectories and created “differential attainment” (I30, F, 29):

> *My Oxbridge rejection was the most painful. One of the first questions that I was asked by two men, sitting in front of a fire – you know, they had waistcoats on and sherry glasses. They asked me, em, what my parents’ migration route to this country had been… I’d never thought about it, never asked them about it. The next question was how did I think I would fit into their WASP community, and I didn’t know what WASP meant, so they explained to me it was white Anglo-Saxon Protestant. So, I said, “Well, why are you needing to ask me that question? What is it about WASPs that would mean that I don’t fit in because I think I fit in everywhere because I belong here?” and the question went unanswered. I30, F, 39*

Finally, education combined with gender to create disadvantage. Nearly a third of our interview participants were either the first generation in their family to attend university and/or from state schools, and found themselves in environments where they struggled to fit in:

> *I remember, on my first day, we were asked, “How many of you have a parent who’s either a doctor or a nurse or, you know, works in hospital?” 85% to 90% of people put their hands up. And then they said, “And how many of you have come from private schools, keep your hands up?” and the rest put their hands up. And I was like, great, so I must be the only person here whose family aren’t medics or don’t have any contacts in the system and who hasn’t been brought up with money, and it really hit me, and that was my first day. I5, F, 36*

One participant who had transitioned from female to male while at medical school claimed not to have experienced discrimination, before going on to note:

> *This was the year before the first act making it illegal to discriminate on the basis of gender [transition] was passed, so the tutor, basically, was quite clear… I could only come back if I could look male. He said, “You can’t come back unless you’re absolutely obviously able to present an acceptable appearance to patients,” which is now a completely illegal thing to do. But, it was legal then [laughing], and when I did, fortunately, because I was 19, I responded well to hormones. I did look very male, very quickly. I2, M, 38*

This participant also noted that he did not feel able to reveal his transgender status as it “would destroy everything I’ve worked for”, suggesting medicine remains a profession intolerant of difference. Another participant told of her experiences of starting at medical school in her late 20s and of her negative treatment for being both too old and being a woman:

> *There was just a very kind of negative feeling towards people my age who did not have children who were doing Medicine late. So, I was told, quite often, that if I had been a little bit older, they would have told me not to bother. If I had gone into training after I was 30, they would have told me not to bother. They knew that I would need a job with*

flexible time [assuming that she would soon have caring responsibilities], so quite a lot of the places that I had rotations in weren't that sort of interested or assumed that I wouldn't have an interest in their specialty. I26 (F, 34)

This participant was shocked that attitudes still existed that deemed a woman to be too unreliable to support in training because of childcare responsibilities. It is important to note that she did not, in fact, have these responsibilities, rather there was an assumption that she would in due course. Stories of these underlying assumptions about women, their likely caring commitments and its impact on their career paths were rife.

Here, we evidence an embedded understanding of medicine as a career for white, middle-class men. Discrimination against those not fitting this model was widespread, with associated career and pay disparities.

6. Conclusions

This chapter has provided suggestions for the origins of gender pay gaps relating to understandings of gendered social roles. We have shown how society's gendered division of labour, based on women's biological capacities, drives stereotypes of "appropriate" roles and behaviours that limit women's career choices and earnings capacity. In the following chapter we show how inflexible employment, training, job structures and negative organisational cultures in NHS medicine build on social expectations to further constrain women's career options.

Chapter 8. Workplace factors and medical careers

Contents

Tables

Executive summary

- Current career options and career structures do not easily accommodate pregnancy, maternity leave and motherhood.
- Caring responsibilities and lack of available childcare create substantial career barriers, mainly for women, particularly where long working hours are required.
- Less than full-time (LTFT) trainees experience cultural resistance in the form of questioning their commitment to their careers.
- Other cultural issues raised include bullying, sexism and stereotyping, especially in male-dominated specialties.
- Modernising Medical Careers (MMC) has created difficulties for trainees, usually more problematic for women with caring responsibilities, because training programmes specify large geographical areas and do not, in the specialist stage at least, support being co-located with a partner.
- For hospital doctors, the absence of clearly defined career directions for those working LTFT created a particular barrier for women. For those in SAS grades, preferred by some women for the stable working patterns and location control, there is no clear career pathway.
- Women undertake fewer additional external income-generating activities, and are less well paid when they do.

1. Introduction

Chapter 7 outlined the influence of gender characteristics including childbearing capacity, maternity, caring responsibilities, individual values and intersecting demographic features, in shaping social roles that are linked to gender pay gaps (GPGs). In this chapter, we explore ways that workplace structural and cultural factors interact with gender role expectations to compound GPGs throughout NHS medical careers. Regarding structural issues, we show how women doctors' workplace earnings potential is constrained by NHS policies and practices in relation to training, LTFT working, promotion and the need to negotiate. Furthermore, we show that sexist workplace cultures, gendered stereotypes and negative perceptions of women doctors create career barriers that do not support women's equal career progression, adding to women's wage disadvantage and increasing gender pay gaps.

As with Chapter 7, data here is taken from 30 in-depth interviews of men and women doctors, the self-report Gender Pay Gap in Medicine (GPGiM) survey and focus groups at the first stakeholder meeting on 16 July 2018. Details of method and sample can be found in Chapter 3 and Appendices F and G. Again, like Chapter 7, because working hours form an important part of the difference in ways that careers are experienced, pay is usually reported as an annual, not standardised full-time equivalent measure. Importantly, when interpreting salary information, we must bear in mind that differences in the gender pay gap in these two chapters may be explained by other factors – the most obvious being hours of work, specialty, seniority and length of service.

Themes established here will be assessed for quantitative bearing on the gender pay gap in the final chapter.

2. Introducing gendered career structures

Structural inequality arises when there is an imbalance in the ways that workplace systems and structures (for example, training, recruitment, scheduling, promotion, pay), affect subgroups, in this case men and women. Several interview participants discussed subtle, often hidden, structural barriers that create an unequal setting that is problematic for women's career progression. One summed it up:

> *It's not direct discrimination against individual women, but it's a system that is just not designed to meet the needs of a female workforce. I27, F, 45*

Evidence of unhelpful structures emerged from the earliest stages of career, alongside attitudes that served to stifle attempts to initiate change:

> *[in medical school]…There was a lot of telling me how things are and how things should be, but not a lot of kind of encouragement for, "Do you know what, if this profession isn't working for you and for hundreds of people like you, why don't you think about other ways of doing things or why don't we push for some change?" It's just like: this is it, this is the way it is, this is the structure, this is what's expected of you, and how dare you sort of change or challenge it? I26, F, 34*

Others noted that "*it's not any individual person that's being nasty to me, but I think the system is very, very difficult*" (I5, F, 36) and a male doctor, who had transitioned from being a woman in medical school ,spoke frequently of recognising how "*male privilege*" assisted in his career progression (I2, M, 38).

Below, we review specific structural factors that were raised in connection with career and salary progression, including working part-time and training less than full-time (LTFT); the implications of changes introduced by Modernising Medical Careers (MMC); the disadvantage of stepping off a training programme; and the frequently unrecognised need to negotiate elements of job role and salary.

2.1 Working part-time/less than full-time

Contracted and actual working hours are an important consideration in gender pay gap analysis. Most pertinent is where employees (typically women), work part-time hours. There may also be an issue in the medical profession of unpaid overtime. We pick that up in the chapter that follows.

There was widespread recognition of the option for LTFT working[1], alongside perceptions that this is better facilitated in some specialties and career paths than others, plus accounts of resistance, diminished opportunities and detriment.

The proportion of HCHS doctors that currently or have historically worked LTFT hours for the NHS varies with grade. Throughout all grades the proportions are high, and the proportion of women is always higher than men (Table 1). The proportions also rise, of course, with those that have more years in work, so the interest lies in the senior grades to see which is seen as most flexible. The highest incidence is in the ranks of salaried and partner GPs and Associate Specialists; however, a significant minority of men and women consultants have also worked, or currently work on an LTFT basis[2]. Proportions are lower for those that are still in training;

[1] Fewer than ten PAs, eight sessions or 40 hours per week depending on branch of medicine.

[2] Data from the survey showed that women consultants had an average of 8.2 years spent working LTFT in their career history, but for men consultants this is only 5.6 years. Women Associate Specialists have taken the most years working reduced hours (being 11.2 years in comparison with men Associate Specialists at 7.3 years).

less than 20% of specialty trainees are or have been engaged on an LTFT basis. Figures are even lower at earlier training stages, for example only 3% at Foundation Year 1 stage.

Interview data indicated that proportions of LTFT doctors within the Associate Specialist grade are boosted by those who cannot access desired levels of flexibility during training, and transfer from a direct career path into a role that offers greater working-time flexibility. We explore this later in this section.

Table 1. Proportions of each grade who work or have worked LTFT.

Grade	LTFT (%)	Men (%)	Women (%)
Consultant	27.9	15.4	41.5
Associate Specialist	37.5	8.3	59.4
Specialty Doctor	30.5	7.3	49.9
Staff Grade	20.8	12.9	26.1
Specialty Registrar/ ST3	19.9	9.1	25.6
Core/Specialty Trainee 1 and 2	11.6	8.4	13.3
Foundation Doctor year 2	4.5	2.4	5.4
Foundation Doctor year 1	3.0	3.0	3.0
Locally employed	8.3	0	15.4
Locum doctor	21.2	18.9	22.9
Other	20.3	15.2	25.0
Salaried GP	57.8	35.5	64.8
Partner GP	52.0	22.1	71.9

Sample: GPGiM survey: all HCHS doctors working in England.

Explanations of why there are higher proportions of consultants and GPs working LTFT was explored within interview data. For consultants, it was said to be easier to access LTFT working in senior grades, where doctors had the negotiating power to craft working patterns that accommodated their needs. This was still, however, reliant on individual agency. For many HCHS doctors, supportive managers and clear mechanisms to access LTFT working were reported to be lacking:

> *I then went through the Trust process to go part-time, which is just sort of filling out forms and applying to the Medical Director. Eventually, my Clinical Director turned round and said, "Well, you know, I don't know how you managed to get part-time [laughing]!" because I'd been asking for a year if I could, but no one had done anything, so I just did it. I22, F, 48*

Locum work was also seen to offer flexibility for both men and women, with around one-fifth of locums that responded to the survey working LTFT at some point in their career. Table 1 shows that LTFT locum work is more gender-balanced than for all other types of doctor, other than salaried GPs. One male interview participant explained how he worked as a locum to secure the flexibility he required for caring responsibilities:

> *I have three children… the eldest of which has got significant additional needs as well, so he's registered disabled. I work on a less than full-time basis and I work purely term-time because of my eldest being disabled. I don't have a permanent clinical contract,*

> *so that I locum purely so that we can do that planning as well, and my wife is on a career break so that she can [provide care]– she's also a doctor. I7, M, 34*

General Practice (GP) was also seen as a flexible option within the profession, with increased proportions of both men and women working LTFT:

> *There's this really weird thing that happens where once you're qualified, [GP role] is so insanely flexible. You can arrange the working pattern you want, and you can make it work for your family, no matter… whatever restrictions you want to put in place, it's possible once you qualify. But that's not in place for trainees. I12, F, 39*

Some participants had selected a GP route for this reason, despite preferring another specialty (for example, I18, F, 28). And differences across other specialties were noted, with women-dominated ones, such as Paediatrics and Occupational Medicine, typically seen by interview participants as more accommodating of LTFT working (I24, F, 40). Survey data supports this. For example, only 10% of surgeons had at any point trained/worked LTFT, against 48% of GPs and 47% of those in Occupational Medicine (Table 2).

Table 2. Proportions of each specialty who work or have worked LTFT.

Specialty	LTFT (%)
Pathology	27.0
Psychiatry	32.9
Public Health	38.6
Radiology	28.5
Surgery	10.0
General Practice	47.7
Medicine	19.9
Emergency Medicine	19.8
Anaesthetics and Intensive Care Medicine	16.3
Obstetrics and Gynaecology	21.2
Occupational Medicine	46.9
Ophthalmology	20.8
Paediatrics	30.3
Other specialty	31.3
No specialty	4.0
Total N	**1,286**

Lack of LTFT working opportunities was perceived to be a barrier to career progression in both interview and survey data.

Table 3 shows that the perception of little/no career disadvantage being experienced due to a lack of LTFT is, unsurprisingly, highest among men. As previously shown, men are unlikely to work less than full-time.

Table 3. Lack of LTFT working as a barrier to career progression.

Lack of LTFT working as a barrier to career progression	Men (%)	Women (%)
1. Not at all	74.8	71.3
2. Not much	4.3	6.4
3. A fair amount	7.7	7.4
4. A great deal	3.2	4.9
Total	**1,389**	**1,646**

Sample: GPGiM survey: all doctors working in England.

Our interview data exposes more about the reasons behind resistance to LTFT working. Many (women) reflected on cultural norms that doctors work hard with long hours and those that work LTFT are lacking commitment:

> *I think it is really an entrenched part of the culture. I think people feel guilty about sort of, you know, being less than a proper doctor, but in reality, people that work less than full-time still work a significant number of hours, often equivalent to what we think of as full-time in the normal world. I26, F, 34*

The point about working hours is an interesting one as, despite formally working LTFT, many still worked shifts of extended hours. For example, interviewee I22 (F, 48) indicated that, while she "only" works three days, these are 14-hour days. Participants suggested that LTFT working should be encouraged and normalised (I28, F, 32), but that this was challenging in an environment where clear career pathways existed only for full-time jobs:

> *And the models of what are out there as options are my sort of big bug-bear, if you like, because when you look in the BMJ and things for appointments, you see 10 PA posts being advertised, and the idea of approaching a newly-qualified trainee who's just got their CCT and saying, "Look, you know, come and work with us and we'll make the pattern of working work for you," em, that…that kind of cultural shift within organisations has not happened at all. I25, F, 42*

Others talked of the different expectations of men and women, and how women are open to exploitation through their need to work LTFT. I27 (F, 45), for example, had struggled with a role that was specified as 3.5 days per week. When she left it, a man was appointed, full-time, to do the same role.

Part of the problem could be that interviewees felt "*lucky*" (I10, F, 38) if they had managed to find a less than full-time role. For example, I22 (F, 48) had trained LTFT but had to take a full-time consultant role for three years before being able to reduce to LTFT. Men equally experienced resistance, with one explaining the difficulties of negotiating reduced hours to "*be a dad*", requesting it until the Medical Director had eventually "*caved in*" (I9, M, 44). One male consultant felt his choice to reduce his hours was questioned because "*that is something their wives should do*" (I21, F, 29).

LTFT working also compounded the pay gap by delayed eligibility for CEAs:

> *I've only just been in the job five years now, so even though I'm 48… I did a six year training programme that took me 12 years, so I'm kind of behind, age-wise, so I didn't think that I could apply for a Clinical Excellence Award for the first two years…. I haven't ever applied for one I22. F, 48*

It should be noted, however, that some women participants who worked on a LTFT basis had nevertheless received these awards:

> *I've got a nice research project up and running with [university] looking at [project]. I don't see that being part-time is a barrier to doing those things. I24, F, 40*

This participant did, nevertheless, strongly object to her CEA, which had been assessed in relation to standards expected of full-time employees, being reduced, pro-rata in value due to her LTFT status.

Job sharing was suggested as a solution to offering LTFT opportunities, but here again, an attitudinal shift was needed:

> *I think one of the key areas is allowing job sharing and getting people who are interviewing to look positively at job sharing for very major posts. I think that's really important because, until we get that, we're not going to get the women climbing the merit award, discretionary points. I13, F, 66*

In summary, LTFT working is connected to the gender pay gap, not only via the obvious pro-rata reduction in pay according to hours of work, but also because career-enhancing experiences take longer to accumulate. There are implications for eligibility; to apply for and the subsequent value of CEA awards, a reduced set of specialty paths and routes to seniority available, plus a culture of negativity in relation to professional commitment. While LTFT working has become more common, it is still part of the reason for higher turnover, especially at consultant level and in general medicine specialties (I12, F, 39):

> *Obviously, [maternity leave], does slow down your career progression, but I think, per se, it's not slowing it down so much that it's having a major impact. It's more about the model of working people [LTFT] might choose to come back to that I think is a bigger problem. I25, F, 42*

These issues are especially relevant for those that have trained less than full-time, as we now go on to demonstrate.

2.2 Training less than full-time

Training time to be a fully-qualified doctor varies according to specialty and point of commencement. According to our survey data, only 57% of women (compared to 84% of men) either completed their training within the expected timeframe or are on track to do so. Most who took longer did so for childbearing or childcare reasons, but a small proportion did so because of examination resits or for other professional/lifestyle choices.

One of the primary reasons for delayed completion is the switch to LTFT training. Initially, the take-up of LTFT training opportunities is low (about 4%) and almost gender-balanced during foundation training. However, it starts to widen, with women in the majority as training stages progress. During core training (Table 5), around 10% did not complete in the expected time, of which half (5%) were women training LTFT. In specialty training, 16% of men (3% training LTFT) and 43% women (24% training LTFT) did not complete specialty training in the expected time (Table 6).

Table 4. Less than full-time training – foundation stage.

Did you complete foundation training in the expected time?	Men (%)	Women (%)
1. Yes	97.1	95.6
2. Yes, but part was LTFT	0.6	2.3
3. No	2.3	2.0
Total N	**1,076**	**1,630**

Sample: GPGiM survey: HCHS and GP doctors that undertake foundation training in England.

Table 5. Less than full-time training – core stage.

Did you complete core training in the expected time?	Men (%)	Women (%)
1. Yes	91.1	84.0
2. Yes, but part was LTFT	0.4	5.6
3. No	8.5	10.3
Total N	**515**	**551**

Sample: GPGiM survey: HCHS doctors that undertake core training in England.

Table 6. Less than full-time training – specialty stage.

Did you complete specialty training in the expected time?	Men (%)	Women (%)
1. Yes	84.0	57.9
2. Yes, but part was LTFT	2.8	23.5
3. No	13.2	19.0
Total N	**1,076**	**1,390**

Sample: GPGiM survey: HCHS doctors that undertake speciality training in England.

Policies offering the right to request flexible training options, including LTFT, were widely noted to be available by interview participants and there was evidence of their uptake. While training LTFT inevitably took longer, many questioned current training programmes and their inherent lack of flexibility (I13, F, 66). The current structure of competency-based programmes was criticised for taking LTFT trainees longer and requiring them to do more than full-time trainees:

> *So, if you were… literally doing it by time-served, I should have an ARCP every 18 months because that's a training year for me. I still have one every calendar year, and in that calendar year, they expect me to have done all the things that everyone else has to do in a training year, so I end up doing 40% more of the stuff that goes into that. I14, F, 39*

Periods of training taken less than full-time, plus breaks, create a substantial pay disadvantage that persists, maybe even for the rest of a doctor's career. For example, figures from the GPGiM survey show that women consultants who took part of their training on an LTFT basis during specialty stage (n=159) now earn £81,528 FTE-corrected, whereas the average male consultants' salary is £114,040 FTE (n=615). While the salary disadvantage for LTFT training during the specialty stage also applies to men (£80,931), there were very few men in this situation.

Some interview participants suggested that LTFT training was becoming more acceptable, although, as above, there is considerable evidence of widespread negativity. One participant suggested that she was made to feel "*guilty and weak" (*I1, F, 54) for wanting to train LTFT. It was not supported by senior colleagues:

> *[Consultant] said she didn't see why trainees thought it was acceptable to only work 24 hours per week, and that that was absolutely unacceptable and, em, incompatible with the career of medicine… that it shows lack of commitment to work part-time… that this shouldn't be happening in medicine. Luckily, people who are so open about their dislike of less than full-time training are few and far between. But if there are people out there who are willing to say it very openly, there are a lot more people who are thinking it. I28, F, 32*

Interviewees expanded on other structural problems that interfered with the full potential of training to be a doctor less than full-time. One was the inflexibility of working patterns because many deaneries allowed only full-time or 0.6 working (I14, F, 39). They also noted the increased costs of training LTFT due to fees for courses and exams, not all of which were proportionally reduced for LTFT trainees. Childcare costs could also be problematic, participants giving frequent examples of rotas changing at short notice leading to increased costs and having to attend mandatory training on days off, again requiring extra childcare.

Lack of deanery support was a recurrent theme for those interview participants who were not/had not pursued standard training routes, particularly in relation to LTFT and Certificate of Eligibility for Specialist Registration (CESR, a qualification route for those who have not obtained a Certificate of Completion of Training, CCT). This created barriers to progression for LTFT trainees:

> *We get no help from the deanery…. and we keep losing trainees in our deanery because of it. People get to a certain stage and just can't do it anymore and leave…. Generally, at sort of early registrar years, they lose a lot of people…. it's usually women who are less than full-time for childcare reasons, when they have children and they come back to work. They will find the deanery totally inflexible and that they cannot plan their childcare… and that there's all these barriers put up to what hours and days they work, and they end up leaving and taking either non-training jobs or just leaving medicine. I28, F, 32*

The lack of support from, or inflexibility of, the deanery for trainees who wanted to deviate in any way from a mainstream training programme emerged at various points during the interviews. As the participant above noted, this is central to either women trainees leaving medicine or to stepping off training programmes and taking lower-paid local or SAS doctor grades.

Having stepped off, there was similarly little support for those who wanted to recommence training. One participant described it as:

> *Hoop-jumping, because, essentially, you have to demonstrate the same portfolio that a trainee would demonstrate, but the trainees are in a slow-stream training programme… there's a whole sort of machine dedicated to getting trainees through their training. There's hundreds of staff. There's support networks. There's training programmes. There's tutors. There's this massive, em, system at play, getting people through their training. But once you step off training, you're on your own, you're completely on your own. The local deaneries are not interested. You know, you do it by yourself. I27, F, 45*

This possibly resulted from cuts to deanery budgets, but created a lack of recognition of the needs of non-typical groups:

> *On the [location] deanery website, you can search for specialty doctors until you're blue in the face, and there is nothing there. There used to be, and in fact,…there was a protected training budget for specialty doctors, and it lost its protected status. So that training budget has been subsumed into other…other things, so there's no longer, ring-fenced funding for specialty doctors to…to try and do things like the CESR. I1, F, 54*

Lack of deanery support for non-mainstream training routes compounded the structural difficulties of those training LTFT, or those who had stepped off and wished to return to training, both groups being predominantly women. These groups experienced delays in making up the time lost.

While LTFT training was, in principle, available, and undertaking of this is widespread, it was also reported to be linked to negative cultural responses that served to create longer-term career and income disadvantage. This kind of detriment was, in the main, reported by women with caring responsibilities, but also applied more widely. One male trainee considered training LTFT to pursue academic work (I17, M, 27) but decided against it because of negative attitudes. Another male participant with caring responsibilities noted:

> *You chatted to people and they were like, "Well, you might be able to do it but it's frowned upon and not really…and they expect you just to man-up and get on with it and get through to the end of it." I7, M, 34*

Those who trained LTFT were seen as an "*inconvenience*" (I23, M, 54) and examples of the struggles to access LTFT training abounded:

> *Eventually, I…became a Registrar. I fought to get a place for less than full-time training. I was told that I'd either have to come back full-time… or not come back at all. So I went to [location of trust] to argue my case, got part-time training, and during that time, I got [various qualifications]. You know, I was so over-qualified, and I passed… everything with flying colours, whilst looking after my young baby. I30, F, 39*

It is unsurprising, given the above reported complexities, that most agreed that it is better to just "*get it [training] done*" (I15, M, 32) because of the delays to qualifying "*which could be up to 10 years*" (I4, M, 46).

2.3 Less than full-time working and intention to leave

We have shown that LTFT career paths are seen to be challenging for several reasons; however, the effective implementation of LTFT working is important to the retention and career success of all, particularly women. It is also likely to become increasingly important in retaining doctors approaching retirement (I8, F, 59). Given the number of concerns raised within the interview data that seemed to cause career dissatisfaction, we asked a survey question on each respondent's intention to leave medicine. In order to give a representative portrayal of the opinions of trainees and junior doctors, we have excluded the highest quartile of earners from our analysis. LTFT workers are subdivided into those with a total duration of LTFT working during career a) lower than the median and b) higher than the median.

This intention to leave is, of course, related to many issues other than LTFT working; however, survey responses revealed it to be a matter that requires urgent attention (Table 7). Twenty-seven percent of men and women doctors who have always worked full-time strongly/agreed that they intend to leave medicine "early" (before typical retirement age), with another 27 percent neutral on the issue. This leaves only 45% of respondents who are confident that they will stay in medicine. While these figures are concerning, the proportions of negative respondents are even higher for those who work or who have worked LTFT and rise with the total length of LTFT service. Thirty-three percent of those who have a lower-than median total duration of LTFT strongly/agreed that they intended to quit, rising to 35% for those with higher-than median duration of LTFT working.

It seems that for both men and women, LTFT working exacerbates frustrations with the structural and cultural barriers of practising medicine, inadequately relieving the pressures of combining work and other responsibilities.

Table 7. Intention to quit medicine.

I intend to quit medicine early	FT – never worked LTFT			Lower than average years spent LTFT (%)			Higher than average years spent LTFT (%)		
	All (%)	Men (%)	Women (%)	All (%)	Men (%)	Women (%)	All (%)	Men (%)	Women (%)
Strongly disagree	17.6	19.7	15.2	14.1	17.3	12.9	10.7	19.9	8.9
Disagree	27.9	26.3	29.6	25.9	25.2	26.1	26.5	25.6	26.7
Neither agree/ disagree	27.3	23.6	31.3	26.9	22.8	28.5	27.4	19.4	29.0
Agree	18.1	19.4	16.7	22.7	22.8	22.6	20.6	17.1	21.4
Strongly agree	9.2	11.0	7.2	10.5	11.8	10.0	14.8	18.6	13.9
Total N	**2197**	**1152**	**1045**	**468**	**127**	**341**	**746**	**129**	**617**

Sample: GPGiM survey: doctors working in England. Excludes those with pay above the 75th percentile.

LTFT working has potential to create more flexible career paths in medicine, but both men and women experience career and pay disadvantage for taking up the opportunity to work flexibly. Given the high rates of those intending to quit medicine, even when working LTFT, and the implication that LTFT working can disproportionately extend training and reduce the value of work-place experience, we suggest that this is an issue that requires urgent re-consideration.

2.4 Modernising Medical Careers

Survey and interview data explored perceptions of Modernising Medical Careers (MMC), the postgraduate training system introduced in 2005. Interview participants frequently referred to MMC when reflecting on their training experiences. While many interview participants acknowledged that it had improved some aspects of training (nine), most argued that many of its changes were problematic (19) and created structural hurdles that disproportionately impact women doctors (seven). The major discussion points were the systems of appointments and promotion, the inflexible structures and the practical problems associated with the allocation of training places.

A major benefit to MMC was the introduction of transparent appointment processes that reduced the patronage and "*nepotism*" (I2, M, 38) that had previously prevailed:

> *A lot of it has now been eased with the new appointments process, but the route I went from Cardiology to Geriatrics was, I knew the guy, I could go and knock on his door and I said, "Can I have a job please?" And that's the same way that I got my*

> *Cardiology job…. It was very much sealed over a drink and a round of golf. I hate golf, but it's one of the things that you had to learn how to do! Played golf, bought a drink, and then got a job… I4, M, 46*

The assignment of trainees, rather than them being picked by consultants, was also welcomed, even if some concerns about their "*pseudo-anonymisation*" (I5, F, 36) in the process were noted.

However, it was reported during interviews that inflexibility in the type of appointments that are available under MMC created a greater propensity to "step off". This is particularly problematic for women, their career progression and their career earnings. But this perception did not gain a great deal of support in the survey. Experiences leading to opinions about the flexibility of the applications process were evenly spread between those that are positive and those that are not (Table 8).

Table 8. Flexibility of MMC applications process.

The inflexibility of the applications process made it difficult for me to get my preferred role	Men N (%)	Women N (%)
1. Strongly agree	13.0	12.0
2. Agree	24.7	23.0
3. Neither agree nor disagree	20.1	23.0
4. Disagree	32.2	35.0
5. Strongly disagree	10.0	6.6
Total N	**239**	**457**

Sample: GPGiM survey: doctors working in England. Specialty Registrar/ST3, Core/Specialty Trainee 1 and 2, Foundation Doctor year 2, Foundation Doctor year 1 who graduated after 2005.

Problems associated with the geographical spread of training opportunities introduced by MMC were noted by interview participants to be especially problematic, particularly so for women doctors with caring responsibilities. Participants expressed repeated concern that MMC had made it more difficult to organise geographical moves with partners, especially during specialty training (I21, F, 29) and also introduced large geographical regions:

> *[Previously], the entire training scheme was contained within [city], apart from two posts, so you could… live in [city] or just outside [city], or even half an hour away from [city], and you could still complete your entire training career within that geographic location. That same training scheme now covers [three counties]… I think it's got something in the region of 56 different posts, which, geographically, the farthest apart are over 100 miles apart from each other. So, you go into that training scheme and the Training Director appoints you to posts, and you've got…not very much influence over where you get posted… How do you choose a place to live, how do you choose a school for your children when you're talking about those sorts of distances? I27, F, 45*

Within the survey data, these concerns gave rise to the same patterns as above (Table 9). Opinion is skewed to the negative, but not markedly so. There is very little difference in the perception of women and men doctors over their frustration with the need to move.

Table 9. Impact on career of having to move.

The need to move for medical posts negatively impacted my career	Men N (%)	Women N (%)
1. Strongly agree	14.4	17.4
2. Agree	29.1	24.8
3. Neither agree nor disagree	25.1	25.0
4. Disagree	23.1	27.8
5. Strongly disagree	7.2	5.1
Total N	**251**	**472**

GPGiM survey: doctors working in England. Specialty Registrar/ST3, Core/Specialty Trainee 1 and 2, Foundation Doctor year 2, Foundation Doctor year 1 who graduated after 2005.

The impact of geographic remoteness on training experiences (Table 10) also generated indistinct patterns. Opinions are evenly distributed between men and women.

Table 10. Impact of geographical remoteness.

The geographic remoteness of some jobs in my rotation negatively impacted my career path	Men N (%)	Women N (%)
1. Strongly agree	17.4	16.3
2. Agree	29.4	30.6
3. Neither agree nor disagree	22.6	23.2
4. Disagree	23.0	25.7
5. Strongly disagree	7.7	4.7
Total N	**235**	**448**

GPGiM survey: doctors working in England. Specialty Registrar/ST3, Core/Specialty Trainee 1 and 2, Foundation Doctor year 2, Foundation Doctor year 1 who graduated after 2005.

On the inflexibility within the MMC process of allocation of training places, it is clear that men and women equally dislike the lack of flexibility. However, what is not yet known and will be investigated as part of the conclusions, is whether or not women suffer greater financial disadvantage.

While MMC introduced standardised appointment processes into training grades, these do not apply to the allocation of consultant roles, potentially affording substantial opportunity for gender disadvantage. By this stage, it is assumed that an applicant has the required technical skills, experience and disposition, so networks and interview skills become more important. One described getting a consultant job as "*pretty nepotistic*" (I22, F, 48) and another also suggested:

> *I think that is possibly the last hurdle, if you like, where there's a gender imbalance, because I do think that style of adversarial interviewing suits chaps better. They're more likely to view it as a challenge than a threat. Whereas "What's your greatest achievement?", I don't think we're [women] as good at saying, "Ah well, there's the time I single-handedly fought off 12 polar-bears…" … Yeah, I think women are more likely to denigrate themselves. I14, F, 39*

2.5 Stepping off training programmes

Seven interview participants had not, initially at least, completed their specialist training nor gained the CCT that makes a trainee eligible for a consultant role. Of these, four were currently in Specialty and Associate Specialist (SAS) roles, three permanently (I1, I8, I11) and one had recently completed via CESR (I27, F, 45). All four are women. This group experienced challenges that are worth exploring in some depth due to the limitations on earnings as a consequence of stepping off.

All had worked LTFT due to caring responsibilities (I1, I8, I27) and felt the impact on their route through training. One had attempted to return to training via the Married Doctors Retainer Scheme[3] but felt "*pushed out*" of this due to the need to sit exams in a particular timeframe. This was a common theme for non-completion of training where participants worked LTFT:

> *So, I got my Part 1 membership, and I was on a part-time training scheme, and I had to go in and meet the tutor, and he said, "When are you going to sit your Part 2 exams?" And I said, "Look, I don't feel ready," and effectively I was given an ultimatum: it was like, "Well, you sit your membership exams or I can't recommend that you continue on the part-time training scheme. It's a condition of being in part-time training that you will sit your membership exams in a time period that they deemed to be acceptable"…. But, effectively, I felt then I was pushed out of my training place, because I was told go and get a staff grade job for a time, and that's what I did. I1, F, 54*

For some, LTFT training was not available and combining long working hours, training and caring responsibilities proved too difficult. They left training, never to return (I11, F, 59):

> *I asked about it [stepping back into training] when the girls were a bit older, and was told, although I had two parts of the three parts of the exam, because they had changed the format of the exam to now a new two-part one, they weren't going to count what I'd already done. I would have to start from scratch and do basically all the exam again and would, in effect, have to start again as an SHO, and I just thought, no, I'm not prepared to do that. I'm good at what I do, I'm appreciated where I am… Yes, I'm not getting paid as much as colleagues, but I am respected and it allows me to have the family life that I want, so I chose not to re-enter training. I8, F, 59*

Another three participants, all men (I2, I6, I9), had stepped off their training programmes for reasons including completing a PhD, failing examinations and taking time to decide what specialty to pursue. At the time of interview, all were smoothly integrated back on training programmes with one having completed and the other two well on their way. Although changes in training in the interim meant that sections of their training were no longer eligible (I6, M, 39), we conclude, on the basis of a very small sample, there are stark differences between the re-entry experiences of men and women who step off training programmes.

Having stepped off, participants suggested that the alternative CESR route to qualification was onerous and those with standard training experiences were given preference in appointments:

> *The experiences [of colleagues doing CESR] were really…mixed and not very encouraging. It's a very laborious process. It feels like the amount of evidence you have to acquire is way and above what anyone in the standard training route would have to collect. It's phenomenally expensive and time-consuming, and then, even once it's achieved, you're still viewed as less…your worth still seems to be less than someone who's gone through the standard route. I1, F, 54*

3 A historic scheme to attract doctors who had stepped off their training programmes back into training.

This participant had completed the CESR on non-working days when her children were older. Despite this, she was still required to apply for the consultant role that she had been covering as a locum for several years.

Some also suggested that once they had stepped off for family reasons, they were discouraged from returning to training due to negative perceptions drawing on stereotypes about ambition:

> *I did broach the subject [of restarting training] in an appraisal with my Head of Department… I just remember him saying, "Oh, you wouldn't want that, would you, you wouldn't want to be a consultant, would you?" I think he must have…seen me as, sort of…cuddly, mumsy type of person that wouldn't want the cut and thrust of…of being a consultant… I didn't have the guts to ask him why, and I certainly didn't have the guts to raise it again. It utterly squashed me because, at the time, I didn't know whether what I was hearing was, "Oh, you're not good enough for that". I11, F, 59*

For those who had moved into SAS roles, predominantly women and those who have qualified outside the UK, there was strong agreement that career and pay disadvantage resulted. Most obvious was the impact of the reduced prospect of reaching consultant grade. Additionally, previous Staff Grades and Associate Specialist grades were closed to new entrants, with only the Specialist grade remaining. Pay scales for this are much lower than previous non-consultant grades, further creating further pay disadvantage for women on this route. One participant described SAS doctors as "*a bit of a lost tribe*" (I11, F, 59). Others suggested that they were "*under-appreciated, belittled, demeaned and not listened to*" (I27, F, 45), often because of an assumption that they could not pass exams. In fact, as we demonstrate above, many take these roles due to the difficulties of combining inflexible training programmes with caring responsibilities.

Several noted that there was no clear career pathway for the SAS grade. Others bemoaned the lack of clear pay progression, signalling a lack of recognition for accumulated skills and experience (I8, F, 59). The resulting pay disadvantage (I14, F, 39) was apparent in the experience of one SAS participant:

> *If I'd had a consultant certificate [CCT], it would have been a lot easier to… just to apply for a job and carry over my experience and, in terms of pay, my previous pay-grade. Whereas, each time I moved…. I had to start from scratch really, both in terms of establishing myself as a valued member of a team, but also in terms of pay. I11, F, 59*

I1 (F, 54) also gave the experience of an SAS colleague who moved jobs and had to take a pay cut in transferring to a Specialty Doctor role due to the closure of the Associate Specialist grade. Other frustrations included lack of administrative support, desk space and being ineligible for Clinical Excellence Awards. Participants recognised, however, that despite lower pay, SAS roles often offered more stable working patterns and better control over location, which suited some doctors, predominantly women with young children. The fact that it is only the lower-paid roles that afford these features widens gender pay gaps.

Inflexible training structures and lack of support for those who deviated from mainstream programmes, most often women, created career disadvantage implicated in gender pay gaps.

2.6 The opportunity and preparedness to negotiate reward

It emerged during our first few interviews that the opportunity to take advantage of flexibility in pay rates and bonuses was more widespread than we initially realised. We asked if respondents had had opportunities to negotiate their pay rates in the survey and responses indicated clear gender differences. Less than a fifth of women respondents, compared to over a quarter of men, felt that they had had the opportunity to negotiate pay rates. The experiences of interview participants supported this. One female hospital consultant suggested:

> *I have never negotiated a salary, never. As far as I've been aware, it hasn't been possible within medicine to negotiate your salary, so I've never done that. I10, F, 38*

Most adopted, without question, an accumulated "time served" understanding to moving up the consultant scale; failing even to require their employers to recognise their experience and appoint to an appropriate pay point, because some of their training was LFTF:

> *My training took longer and then I didn't think to negotiate to be on a higher pay threshold when I started. I25, F, 42*

Others, however, suggested that negotiation was possible, citing "*bidding wars*" that occurred during periods of acute labour shortages, resulting in consultants being appointed to the top of the pay scale (I9, M,44). Many interviewees, but especially male interviewees, regarded locum rates as extremely flexible.

Even when the opportunity to negotiate was recognised, there were gender differences in whether men and women doctors felt comfortable in a negotiation situation. These were apparent in survey data (Table 11). A total of only 9.87% of women participants felt comfortable in their ability to negotiate their own pay, while 72.89% did not. This compares to 19.92% of men who felt comfortable and 54.46% who did not. Men doctors not only recognised an opportunity, they also felt better equipped to deal with it.

Table 11. Negotiating pay rates.

I am comfortable in my ability to negotiate my own pay rate	Men (%)	Women (%)
1. Strongly agree	22.3	28.8
2. Agree	32.2	44.1
3. Neither agree nor disagree	25.6	17.2
4. Disagree	16.37	9.5
5. Strongly disagree	3.6	0.4
Total N	**1,717**	**2,230**

Sample: GPGiM survey: doctors working in England. Excludes 'does not apply to me' responses.

Gender differences in service values and attitudes to pay rates for locum work were apparent even at the trainee stage:

> *It's difficult to generalise, but [men] will just [set] a hard line and end the conversation there. And [my male partner] is very good at saying, "That's fine. You know what rate I'll work for. Enjoy not having that shift filled." Whereas, I feel bad for the person that I know is being left in the lurch if that shift is unfilled. I21, F, 29*

And later in career:

> *I should be brave enough to suggest an uplift, but, our Medical Director at the moment I don't think would be very receptive to that. I think their view would be that they've supported me to do the CESR and that's enough, thank you very much. I27, F, 45*

The last-minute nature of many opportunities restricted access for those who had caring responsibilities (I26, F, 34) and specialty influenced likelihood of negotiation. Surgeons and cardiologists, typically men-dominated specialties, were perceived to be likely to negotiate hard (I4, M, 46). In contrast, women-dominated SAS roles were seen to have limited negotiating power:

> *I was probably a bit nervous that if I...if I overstepped the mark, they might say, "Well, actually, we could have a proper consultant for that sort of money." I11, F, 59*

The role of negotiation was more readily understood for GPs where, in the absence of specified pay scales, there only NHS guidance to set pay within upper and lower limits:

> *So as a qualified GP, lots, lots of opportunity to negotiate my own rate for that…. I was rubbish at it the first time, absolutely rubbish! No training in it, didn't have a clue what I was doing, was going, "Would it be okay if I asked you for some money for my job please?"… but you get better at it and you go and ask people how to do it. I12, F, 39*

Even here, however, gender differences in relation to negotiating were apparent. One male GP locum (I7, M, 34) reflected on differences between his negotiating approach and that of other women GP locums he knew, encouraging them to negotiate higher rates:

> *I was like, "Why are you charging less?" and I had a long conversation with one of them... "It doesn't make sense, you know, you've been a GP for four years longer than me, you've got a lot more experience, I would expect you to be a lot more expensive if I was employing you, as a partner doing that." I7, M, 34*

Both equality of perceived opportunity to negotiate pay and developing the skills to do so are important factors in GPGs. More transparent systems for establishing pay, including whether it is appropriate and how to negotiate pay, are important in eliminating these gaps.

3. Cultural dimensions

Here we discuss in detail three specific issues that contribute to an unsupportive, sometimes discriminatory, organisation culture for women; blatant sexism, bullying and harassment, and a lack of role models and mentoring.

3.1 Sexism in the medical profession

The dominant concern raised within our interviews when we discussed organisation culture was sexism and sexist behaviour. Many of our interviewees could produce examples. Today's senior women evidenced the extent to which they had become hardened to sexism in their earlier career stages:

> *There were some consultants who would make sexist remarks… There was one paediatrician I remember overhearing talking about who he wanted as houseman – you know, "It's got to be a female with good legs" and things like that. But you got… used to that sort of thing… You know, it irritated me, but didn't anger me. I19, F, 67*

This acceptance of deeply entrenched attitudes continues to be reflected in many younger women who denied having experienced sex discrimination, while actually describing it:

> *Not in the firm that I worked [no discrimination] – they were a really enlightened bunch. What I did see was… my registrar then was a woman, and I saw how she had to be twice as good as the blokes… So, you'd see, you know, [female consultant] frantically running around trying to get everything done, being an amazing clinician, and yet [male consultant] just seemed to make the same progress, whilst doing half as much work… I14, F, 39*

Nevertheless, the disadvantage from direct or indirectly sexist attitudes was frequently expressed, especially during training, and linked to surgical specialties. In foundation training, for example, there was "*less pushing of girls*" (I10, F, 38) and "*pretty clear lines being drawn about which jobs were appropriate for women and which weren't*" (I12, F, 39). Another participant indicated that, as house officers, she and another woman trainee had been given worse grades than two men trainees because of the consultant's presumption that "*girls will not be surgeons*" (I22, F, 48). She went on to note a reluctance to have women trainees because "*girls are so much trouble… it was clearly noted that you were a woman at this stage*". Another suggested that, while a surgical career was now open to both men and women, male trainees were likely to experience preferential treatment:

> *[A colleague] has done a review of ARCP information, looking at what operations have been offered to which people on the list. It suggested that men are far more likely to get the big joint operations, so men are far more likely to get or will get more hips and knees, but when it comes to the finer surgery, the actual numbers are the same. I4, M, 46*

Double standards, when interpreting behaviour, were also applied to men and women. One participant described a colleague who "*could be hot-headed, and rude sometimes, but so could a lot of men, but it's forgiven in a man and it is not forgiven in a woman*" (I22, F, 48). This participant further suggested there were disadvantages, even once appointed to a consultant post, as later career opportunities were not made known to women and "*pretty much talked about in male [locations]*".

A clear picture emerged of a culture that disadvantaged women, and only allowed them only partial success even if they excelled in their work, conforming to a masculine career model.

3.2 Bullying and harassment

Likewise, accounts of bullying and harassment were frequent. Many interview participants gave examples, indicating that it was both routine and tolerated. These ranged from examples of personal dislike (I14, F, 39), to being made to feel "*a wimp*" for not working long hours (I1, F, 54). There was also a view that there were few consequences for those who bullied:

> *The people who bullied me have since been promoted and promoted and promoted. They are untouchable, you know. They are the heads of [X]… It was just everyday bigotry. I30, F, 39*

Others suggested they had been bullied for whistle-blowing and had been slandered in the medical community. Women black and minority ethnic doctors appeared to experience bullying more frequently than white, male doctors:

> *I remember being told, as the female reg, that I needed to just sort out a house officer who the boys had all decided was dressed inappropriately… And …that wasn't the end of a conversation, it wasn't, "[name], she's not dressed appropriately for the wards – can you have a word with her about it?" It was, "She's not dressed appropriately for the wards and [inappropriate detail]". It was really unpleasant behaviour…. I'm being asked to go and sort this out… I'm then aware that they are looking at female trainees in that way, and I'm a female trainee.. It's the slightly hostile environment. I12, F, 39*

Survey data (Table 12) supported this, and further evidenced how perceptions of bullying were marginally more problematic for women doctors.

Table 12. Bullying as a barrier to career progression.

Being bullied as a barrier to career progression	Men (%)	Women (%)
1. Not at all	60.7	59.0
2. Not much	25.7	41.3
3. A fair amount	9.8	14.1
4. A great deal	7.3	5.3
Total N	**1,418**	**1,698**

Sample: GPGiM survey: doctors working in England.

Interview data suggested that bullying and harassment resulted in long-term career consequences. One participant, for example, argued that she had not been able to gain a role due to bullying, resulting in a lower quality of career experience:

> *And so, he took me aside [after an interview]… and said, "You know, this is not your playground," you know, or some other really like bullying tactics. [It] impacted on my career… I wanted to be involved in trauma in my consultant job, but I don't have that training now. That's…that's a gap in my CV that would have looked really good. I14, F, 39*

In combination, survey and interview data paint a powerful picture of the career disadvantage associated with the bullying and harassment of women. The integrative model will assess the consequences for pay and the gender pay gap.

3.3 Role models and mentorship

Data was collected on roles models and mentorship, as evidence suggests[1] that these can positively influence medical careers and pay progression. Survey data suggested that such mentors, peer networks, and support from senior colleagues and organisation leadership had largely positive perceived effects on careers. Around half of the survey respondents (with similar proportions of men and women) felt that mentoring had helped them to progress (Table 13). Peer networks were also perceived to have benefited (this time with women a little more positive than men, Table 14). Support from senior colleagues was perceived to have assisted the development of around three quarters of survey respondents (again, with similar proportions returned from men and women, Table 15). Only a quarter felt that organisation leadership had helped their progression (with men a little more positive than women, Table 16).

Table 13. The influence of mentoring on career progression.

Mentoring has helped me to progress	Men (%)	Women (%)
1. Strongly agree	11.8	10.7
2. Agree	36.3	38.7
3. Neither agree nor disagree	24.7	25.3
4. Disagree	16.4	17.9
5. Strongly disagree	10.8	7.4
Total N	**1,514**	**1,868**

Sample: GPGiM survey: doctors working in England.

Table 14. The influence of peer networks on career development.

Peer networks have helped me to progress	Men (%)	Women (%)
1. Strongly agree	8.82	10.1
2. Agree	44.4	46.8
3. Neither agree nor disagree	24.6	24.2
4. Disagree	14.2	14.7
5. Strongly disagree	8.0	4.2
Total N	**1,632**	**2,062**

Sample: GPGiM survey: doctors working in England.

Table 15. The influence of senior colleague support on career development.

Support or encouragement from a senior colleague has helped me to progress	Men (%)	Women (%)
1. Strongly agree	20.9	20.8
2. Agree	53.9	55.6
3. Neither agree nor disagree	14.3	13.5
4. Disagree	6.5	6.9
5. Strongly disagree	4.4	3.3
Total N	**1,691**	**2,210**

Sample: GPGiM survey: doctors working in England.

Table 16. The influence of organisation leadership support on career development.

Support or encouragement from organisation leadership has helped me to progress	Men (%)	Women (%)
1. Strongly agree	4.6	4.3
2. Agree	21.6	18.6
3. Neither agree nor disagree	27.2	30.3
4. Disagree	25.8	31.4
5. Strongly disagree	20.5	15.3
Total N	**1,636**	**2,118**

Sample: GPGiM survey: doctors working in England.

An absence of role models was also frequently noted during the interviews. Participants depicted the medical world as male-dominated, though slowly changing from a previous era where "*a lot of the decisions were made in the gents' toilet*" (I13, F, 66). Prominence of traditional role models shed light on current gendered career patterns:

> *Most of the surgeons were male, and there was certainly a theme evident to me, as a young woman, that any females who had made it as a surgeon at the time had had to work incredibly hard to, you know, probably trebly hard to…. step into a male role and a male world to achieve that…. There was lots of stuff about, you know, women having babies. It just was very macho and… I thought you would have to be pretty determined*

> *to want to do that, to go through… I was full of admiration for the women who had achieved it, but there weren't many of them around, and they were all considered to be not very female, if you know what I mean. I1, F, 54*

There were numerous other examples of negative role modelling which perpetuated a traditional, macho-mode of undertaking a medical career. These acted as deterrents to entry to specialties, surgery in particular:

> *I'm speaking to some of the medical students coming through, and I'm like, "Are you interested in Surgery?" A lot of them are being put off by the fact there are still those old dinosaurs in the teaching hospitals. In a group of about eight, addressing only the men, which is what happened to us, and surrounded by men. Say, a fairly quiet Asian woman, they are looking at that and thinking, "Oh, it's not for me." I22, F, 48*

Some women doctors were also seen as negative role models, being perceived to be "*hard-nosed or alpha-women*" (I12, F, 39)*.* Participants were also deterred from career options by those who appeared not to have a life outside of medicine that allowed them to see their family.

There were, however, plenty of examples of positive role models, and our data demonstrated how powerful these could be:

> *It's the first place that I've worked where we've had quite a lot of exposure to senior female consultants. I think some of them are particularly impressive in terms of what they've achieved and what they're trying to do. It's been nice to have some actual kind of role models and support and kind of…people that you can see have achieved the kind of things that you might want to. I26, F, 34*

Male consultants could also provide good role models (I21, F, 29) and send important messages about the working environment:

> *It's not just about men and women. It's about the type of men and type of women, as much as anything, and the, em, the whole culture of the specialty, which might be to do with the perception of the specialty as masculine or feminine as…as…or where it is on that kind of continuum, as much as the number of women in it. So, you see women in Surgery take on a more masculine definition of themselves in terms of the way they dress, the way they interact with other people, em, and, in Paediatrics, people may dress more informally, em, or speak more softly to each other, use more first names, those sort of things, which may be defined as feminine characteristics, even if it's a man that's in that role. I24, F, 40*

Mentoring and role models were clearly important in career and pay progression. They can have both positive and negative effects, but if done well they can work to build a culture that is supportive of women's career progression.

4. Conclusions

In Chapters 7 and 8, we have explored the career histories of 30 men and women doctors, analysing their circumstances, experiences and paths to draw out factors that have influenced their salary. In addition to overt discrimination, we have identified various cultural and structural factors that have created career disadvantage, predominantly for women. We draw these together here, surfacing their implications for the gender pay gap in medicine. We looked for generalisability in these findings using the GPGiM survey.

Our findings in Chapters 7 and 8 have generated powerful insight into how gender pay gaps in medicine develop and are sustained. Women carry children, take maternity leave and often choose to train and work LTFT. Biological factors are important; however, many of the challenges that women doctors face are based on assumptions of “acceptable” female behaviours and “typical choices” that might be made based on their social roles. There are challenges imposed by structures that support training and career progression based on a masculine mode of managing work and career. Pockets of cultural resistance to women as doctors are still evident. It is disappointing that the same factors outlined here have been recognised in previous reviews of the medical profession, despite a raft of policies and procedures introduced to address them.

The findings in these two chapters are compelling in understanding how gender pay gaps emerge, however, they have some limitations. As has been made clear at several points, reported salaries in Chapters 7 and 8 are (in the majority) not adjusted for working hours, age or grade. It is highly likely that the gender pay gaps we discuss here are at least partially, if not completely, explained once the influence of these factors is removed. For now, then, the impact of factors explored in Chapters 7 and 8 on the gender pay gap, is unclear. This is not to dismiss the importance of the factors, for they are key to good and lawful workforce management, especially in a context of the feminisation of the profession. However, to properly disaggregate and quantify the influence of each of these factors in contributing to the gender pay gap in medicine, we need to consider their influence within a quantitative model. Chapter 9 takes this project on.

References

1. Levinson W, Kaufman K, Clark B, Tolle SW. Mentors and role models for women in academic medicine. Western Journal of Medicine 1991. 154(4), 423.

Chapter 9. Integration of findings: the gender pay gap in medicine

Contents

Tables

1. Introduction

Gender pay gaps that benefit male doctors exist throughout the medical profession. It is important to understand the causes. They could arise because of pay discrimination, but can also be due to different working patterns, different job activities and because men and women are found in different specialties, grades and roles. Our review shows that differences of this type are able to explain gender pay gaps in basic pay for Hospital and Community Health Services (HCHS) doctors (Chapter 4). The picture is less clear for GPs and clinical academics (Chapters 5 and 6) and also for HCHS doctors when additional paid activities are included. We summarise and conclude below.

Pay gaps are the outcome measure of gender inequality. Tackling the root causes of gender pay gaps requires an examination of why men and women end up in different grades or at different pay points within the same pay grade, such as gender imbalance in hours of work, career histories and specialties. Chapters 7 and 8 illustrated how workplace pay gaps arise. In this chapter we conclude that they result from structural factors that create hurdles and barriers to women's career progression with consequent pay detriment. Remedies to reduce inequality must address these structural factors because initiatives that operate within existing structures do not result in wide ranging changes to the gender pay gap.

This chapter will summarise all five data sources that we have used in this review, being three administrative datasets (ESR, HMRC with wMDS, HESA), a self-report internet survey (GPGiM) and an interview schedule.[a] Data sources are noted under each table. We draw out common stories and areas of divergence. We deal with major and minor influences on gender pay gaps. We review the influence of hours of work, grade, branch of medicine and specialty, age, the career life-course including less than full-time (LTFT) working, intersecting characteristics, geographic location and features of the pay system including the potential for pay discrimination. We evaluate the influence of each, plus cultural and structural factors in a final integrative model.

2. Overall pay gaps and the influence of contracted/working hours

The first issue to consider in a gender pay gap analysis is working hours, which are higher among men. We consider this in two stages; differences in contracted hours and then actual working hours. We find that men are more likely than women to work unpaid hours, indicating that the gender pay gap might not be as inequitable as it first appears.

2.1 Gender pay gaps and contracted working hours

Using the most recent data available[b] from our three administrative datasets, we compare pay rates[c] and gender pay gaps across the medical profession (Table 1). We use data drawn from Chapters 4, 5 and 6 to provide both raw annual salary data and pay measures that provide a standardised comparison of pay x contracted hours. Gender pay gaps are calculated for each.[d]

[a] See Chapter 3 for details of methods, populations and achieved sample characteristics.

[b] Clinical academics = Mean of July 2017 - 2018, General Practitioners = tax year 2016 to 2017, HCHS doctors = September 2018.

[c] Using comparable non-logarithmic, non-trimmed pay measures.

[d] Due to inconsistent internal measures of pay and hours the three administrative datasets cannot be merged.

Table 1. Mean annual pay by gender among different types of doctor: contracted hours measure.

	Annual pay – men (£)	Annual pay – women (£)	GPG in annual pay (%)	Men FTE-corrected (£)	Women FTE-corrected (£)	FTE-corrected GPG (%)	Proportion of GPG explained by gender differences in contracted hours (%)
All HCHS doctors[e]	90,184	68,200	24.4	93,379	75,759	18.9	22.5
Subgroup: HCHS consultants[f]	119,564	99,379	16.9	123,945	107,808	13.0	22.9
GP doctors[g]	113,747	75,671	33.5	134,578	113,939	15.3	54.3
Clinical academics[h]	71,617	56,318	21.4	88,765	78,546	11.5	46.3

Sources: ESR data, HMRC wMDS linked data, plus HESA data.

Table 1 shows that the highest pay gap using a gross annual salary measure is in the primary care sector (33.5%), especially, according to Chapter 7, for salaried GPs. However, once we have corrected salary for full-time equivalence (FTE), gender pay gaps converge. The highest overall pay gap is found among all HCHS doctors (18.9%). This is unsurprising since women are overrepresented among lower-paid trainee grades in hospitals. The lowest is among clinical academics at 11.5%.

As predicted, creating FTE-corrected pay comparisons reduces pay gaps for all, especially in primary care. A report published in 2019 by the Institute for Fiscal Studies (IFS) estimated that if female employees were proportionally represented in full-time roles equivalent to men, the gender pay gap would reduce by a third. We find that if this was the case in the medical profession, the mean gender pay gap would be reduced by 22.5% for all hospital doctors, similar for hospital consultants, 46.3% for clinical academics and by a considerable 54.3% in the primary care sector.

One of the limitations of drawing conclusions from the administrative data sources is that there are differences in the way that "pay" and "hours" are measured in each data set.[i] Data analysis in Chapters 4, 5 and 6 use "contracted" hours measures, however additional unpaid working hours may be high, and this may influence the gender pay gap. The solution here is to use self-reported measures of pay[j] and hours[k] from the Gender Pay Gap in Medicine (GPGiM) survey. Using these measures, we can a) examine the influence of actual as opposed

[e] Total pay measure. Data extrapolated from Chapter 4, Table 1.

[f] Consultants analysed separately to enable comparison with GPs. Total pay measure. Data extrapolated from Chapter 4, Table 5.

[g] Chapter 5, Table 1 and Table 2.

[h] Chapter 6, Table 1. Excludes "total pay" elements. These do not apply to clinical academics.

[i] See Chapter 3 and data Chapters 4, 5 and 6.

[j] The survey question was "how much do you earn from your main (plus second) job each year including bonuses and overtime and before deductions for tax, pension etc. This excludes private practice, speaker fees, locum work plus additional jobs or work".

[k] The survey question was "How many total hours do you usually work per week across all roles, including any paid or unpaid overtime?"

to contracted working hours and b) calculate an approximate overall gender pay gap in medicine.

2.2 Rates of pay (self-reported) and gender pay gaps

Below (Table 2) we undertake the same calculations as Table 1, using survey data. Notwithstanding differences in the sample bases between administrative and survey sources that limit direct comparisons (sampling error – see Chapter 3 Appendix L), we can conclude that using self-reported working hours firstly does not increase the gender pay gap, (except for GPs) and secondly explains more of it.

Table 2. Mean pay by gender among different types of doctor: self-reported pay and hours.

	Men (actual) (£)	Women (actual) (£)	GPG (%)	Men FTE-corrected for self-reported hours (£)	Women FTE-corrected for self-reported hours (£)	Hours-corrected GPG (%)	Proportion of GPG explained by gender differences in self-reported hours (%)
All HCHS doctors	87,635	64,125	26.8	78,818	63,350	18.6	30.1
Subgroup: HCHS consultant	114,040	90,225	20.8	100,605	93,927	6.6	68.3
GP doctors	95,947	64,726	32.5	89,243	72,788	18.4	43.4
Clinical academics	93,445	78,451	16.0	67,028	63,889	4.7	70.1
Total mean	89,386	64,860	27.4	79,103	65,826	16.8	38.7
N	1,452	1,997		1,429	1,965		

Source: GPGiM survey, all doctors working in England.

Pay rates for GPs and HCHS doctors reported in Table 2 are lower than reported in Table 1. This partly reflects the overrepresentation of lower-paid doctors, for example junior doctors and salaried GPs in the survey. It is also likely to reflect that additional earnings, such as locum work and private practice for GPs, are noted on a self-assessment tax return and were not part of our survey measure of pay. Despite the alternative measures and the sampling error, gender pay gaps are comparable for HCHS doctors (24.4% compared with 26.8%) and GPs (33.5% compared with 32.5%).

The reverse is true for clinical academics; pay for both men and women is higher using the GPGiM internet survey measure than is evident in the analysis of the HESA data. The most likely reason is that the measure of pay within the survey includes CEAs and these are not reported in the HESA academic data that is used in Table 1. The gender pay gap for clinical academic salary is lower at 16.1%. The sample of clinical academics within the GPGiM survey is comparatively small (n=168) and therefore small variations in the sample base will have a larger effect on calculations.

The overall FTE-corrected gender pay gap in medicine according to the GPGiM survey is 16.8%.

2.3 Rates of pay (FTE-corrected) and gender pay gaps

Table 2 shows that adjusting for self-reported working hours using the GPGiM survey data, pro rata's the value of annual pay downwards, rather than upwards as occurred in Table 1. This indicates that the influence of additional unpaid hours is greater than the influence of LTFT hours. All doctors (other than female GPs) get "less" annual pay after accounting for their reported hours worked.[l]

HCHS doctors report exceeding their contracted hours (on an unpaid basis) and this, in effect, "reduces" their salary by an average £8,817 for men and £775 for women. There are only marginal changes to the gender pay gap. The proportion of the gender pay gap that is explained by hours worked increases (from 22.1% to 30.1%). In explanation, it is likely that the consultant grade survey participants, who are statistically more likely to be men, work many unpaid hours, "reducing" their salary. This is balanced by LTFT doctors and junior doctors – who are more likely to be women – who also work over their contracted hours but are more likely to be paid for them.

Both men and women clinical academics report working longer than contracted hours and do not receive additional payment for this. Male clinical academics, in particular, do much more of this.[m] As a consequence the gender pay gap is low at under 5% (4.7%) and the proportion of the gender pay gaps that is explained by differences in hours increases to over 70%.

Only women GPs appear to deliver close to their contracted hours and, because a large proportion work part-time, their full-time equivalent pay still "increases" when pro rated to full-time hours. The gender pay gap on an FTE-corrected basis is 18.4%. In recognition of the gender disparity in actual working hours, the proportion of pay accounted for by working hours reduces to 43.4%.

2.4 Median gender pay gaps

Calculations at the median help us to see patterns of workforce gender segregation. Largely we use calculations at the mean for this review (see Chapter 3), but mean calculations do not indicate the spread of our salary data. For this reason, data at the median might also be informative. Table 3 shows that the mean is typically higher than the median except for clinical academics. This means, except for clinical academics, there is a right-hand skew to the data for both men and women, that is, the distribution is bunched to the left with a long tail stretching toward the right driven by a few very highly-paid doctors. The distribution is not so stretched in academic medicine. Gender pay gaps at the median are also larger, indicating that more men have pay values at the high end of the distribution.

l This calculation is undertaken by working out an hourly rate (given declared pay and hours of work) and multiplying it to create annual equivalence.

m Their pay "reduces" by 28.3%.

Table 3. Median annual pay by gender among different types of doctor.

	Men (actual) (£)	Women (actual) (£)	GPG (%)	Men FTE-adjusted (£)	Women FTE-adjusted (£)	GPG (%)
HCHS doctors	84,105	59,874	28.7	89,495	65,896	26.3
GP doctors	109,808	68,955	37.2	118,969	100,650	15.4
Clinical academics	83,972	47,765	43.1	92,078	82,616	10.3

Sources: ESR data, HMRC wMDS linked data, plus HESA.

The following sections discuss segregation of the workforce showing how women typically occupy a) lower paid roles according to grade/seniority and b) specialties with lower mean pay.

2.5 Conclusion to overall pay gaps and the influence of working hours

The overall mean annual gross pay gap for the medical profession[n] according to the GPGiM internet survey is 27.4%. Differences in working hours; that women work reduced hours and men typically work (unpaid) over-contract hours, explains some of it, especially for GPs and clinical academics. However, even after adjustment for hours, the gender pay gap for the medical profession as a whole is about 16.8%. This does not compare well with other within-occupation hours-adjusted median gender pay gaps which is 11.7% for professional occupations[1] and indicates the deeply segregated nature of the medical workforce. However, more exploration is needed on the many reasons for this.

Chapters 7 and 8 showed that the issue of gender pay gaps relative to working hours is more complex and contested than the above summary reveals. For many men and women doctors, part-time work is a positive choice and offers a balance between working and other interests and responsibilities. However, for many it is driven by circumstances. The responsibility for caring for children and elders continues to be disproportionately taken on by women and they are more likely to work fewer hours, including in the medical profession. The risk is that because of negative stereotypes and structural barriers, working LTFT results not only in a direct pro rated pay reduction, but also reduces opportunities to engage in career-enhancing work whilst part-time and even after a return to full-time hours. This will detrimentally affect stocks of experience that has the potential to exponentially disadvantage part-time workers. The simple calculations so far undertaken in this chapter overlook the influence of these factors on pay, so we pick it up as a consideration below and within our final integrative model.

It should be noted that the remainder of this chapter refers only to FTE-corrected pay using administrative datasets, unless noted.

[n] Excluding public health doctors with local authority employers.

3. Grade/seniority segregation

Chapter 2 stated the likelihood that women doctors, in common with most other industries and professions, experience grade and seniority segregation – a "glass ceiling" effect. Men and women are unequally represented within organisation hierarchies, with men typically found in senior higher-paid medical grades. For example, in September 2018, in the two highest-rewarded HCHS grades, men occupied 63.6% of the Consultant and 62% of the Associate Specialist grade. Men are less well represented in the lowest grades, being 45.6% and 44.4% of FY1 and FY2 grades. Locally employed doctors are coded in trainee grades and this confuses the analysis, but are likely to be female-dominated. Women are well-represented in Specialty Registrar, Specialty Doctor and Core Training grades. This pattern of segregation operates to the financial detriment of women in medicine. By using the decomposition techniques in Chapter 4, we saw that for HCHS doctors, the different distribution of men and women across grades explains a considerable 64.2% of the gender pay gap in basic pay and 37.2% of the gender pay gap in total pay.[o] In the absence of a transparent justification of ways that grades are differentiated in the mix of knowledge, and the skills and experience that are required to undertake them, it is unlikely that the effects of occupational segregation on the gender pay gap will be reduced.

"Grade/seniority" in primary care is defined with reference to being a contractor/partner GP or not. According to HMRC-linked wMDS data, men are overrepresented in this grade comprising 57.1% of contractor/partner GPs, while being underrepresented as GPs generally and as salaried GPs. Only 26.7% of salaried GPs are men. The decomposition analysis revealed that the underrepresentation of women in the better-paid contractor GP roles explains 66.3% of the gender pay gap in primary care.

Within clinical academia, "grade" refers to whether an employee has a professorial title or not. In 2018, 78% of the Professorial grade was occupied by men. Chapter 6 indicates that women are promoted into this grade in fewer proportions than men. However, only 16% of the gender pay gap is explained by grade. The explanation for this lies in the way salaries are determined. An NHS consultant will have their salary recognised by an HEI at a point within the professional grade band, even if not officially titled "Professor". There is a lack of correlation between salary point and HEI title/grade, undermining the explanatory potential of the "grade" measure. It is likely there is more variation within the two broad "grades", meaning less pay variance is captured by analysing differences between them. The pay gap in seniority in clinical academia is indicative of women's underrepresentation as consultants as well as their underrepresentation as professors.

This is not the end of the story, however, because gender pay gaps can also occur *within* pay grades that also contribute to the overall gap. The largest within-grade FTE-corrected gender pay gaps in total pay are: 22.3% for salaried GPs, 17.6% for Specialty Doctors, 14.5% for Associate Specialist doctors, 13% for Consultants and 9.4% for non-professorial clinical academic grades. Part of each pay gap will be explained by men's greater age within each of the grades. Part of it is explained because of the large salary range within each grade for HCHS doctors. Some of it might be explained by specialty. Application of OLS regressions (Chapter 4, Table 11) demonstrated that, after removing the influence of age, specialty and other factors, pay gaps are reduced; being about 10% for Specialty Doctors, 10% for Staff Grade doctors, 8% for Consultants and 7% for Associate Specialists.[p] In other words, even after hours, specialty and age are held constant, gender pay gaps remain. We return to this issue later.

[o] Chapter 4, Table 16.

[p] Regression analysis was only shown for HCHS doctors.

3.1 Conclusion to factors of grade and seniority segregation in gender pay gaps

Grade/seniority segregation is a significant cause of the gender pay gap in medicine. We have shown here that not only are men more likely to be represented in the Consultant, Professor and GP partner grade, they are also more likely to be on higher pay points within those grades, and (for HCHS doctors) even after controls for other factors are inserted. The gender mix in Consultant grades has improved, however, there has been very little change to it over the past five years.[2] Women are also likely to be overrepresented in locally employed grades. Equalising proportions of men and women across grades would reduce the FTE-corrected pay gap by two thirds amongst HCHS doctors. Assessing and rating the “value” of each grade would ensure that grade segregation was not adding to the gender pay gap. An assessment of the objective worth of the jobs in “female” grades relative to “male” grades will show if any misgrading is intensifying the gender pay gap.[q] Increasing the proportion of women into senior “grades” would reduce the gender pay gap for GPs but will have less affect for clinical academics, not because they have lower gender pay gaps per se, but because grade is not the explanatory primary factor.

Below we discuss other causes of these gaps.

4. Horizontal segregation by branch of medicine/specialty

The impact of occupational divisions within the profession is another element that holds implications for gender pay gaps. Occupational segregation is most often discussed in relation to gender pay gaps where women and men are clustered into specific occupation groups; men into higher-paying and women into lower-paying groups.

4.1 Branch of medicine

It is unlikely that the “clustering” of men and women into the different branches of medicine is a leading cause of the overall FTE-corrected pay gap in medicine. In women-dominated general practice, pay rates are higher than hospital consultants (Table 1) and FTE-corrected pay gaps lower, so the overall effect of women clustered here will be to reduce the gender pay gap. Mean pay rates in clinical academia (including CEAs) are marginally lower than other branches of medicine and as this is a male-dominated branch of medicine the aggregate effect, again, will be to close the gap. Overall, occupational segregation between branches of medicine does not explain the FTE-corrected gender pay gap for the profession.

4.2 By HCHS medical specialty

Of more interest, then, is the way that differences within HCHS medical specialties[r] might add to the overall gap. The perception that some specialties are “more highly rewarded” than others is widespread in medicine and is reported in Chapters 7 and 8. Our analysis of specialty in Chapter 4, Table 6 was instructive; it concluded that there is a tentative negative correlation between women’s representation in a specialty and mean basic pay rates, that is, the higher the average pay, the lower the representation and vice versa. There is a wide disparity in mean FTE-corrected monthly basic pay rates from £3,483 in female-dominated public health medicine, to £6,851 in gender-balanced occupational health and £6,298 in gender-balanced pathology. However, Chapter 4, Figure 8 shows that gender differences in basic pay reduce to a mean of practically zero after adjustment, showing that these differences are the product of gender differences in workforce composition.

q IMG doctors might also benefit.

r The medical specialty schema used is according to NHS Digital in the ESR.

However, we also know that most of the perception of unequally-rewarded specialties arises with reference to total pay rates. Total pay enhancements appear to be unequally distributed across specialties to the disadvantage of women. Chapter 4, Table 6 shows that once CEAs and other enhancements are added to pay, the group with the highest salary are male-dominated imaging[s] (£8,536). Furthermore, the largest increase between basic and total pay within a large specialty group is found in surgery, where the proportion of women is lowest (Table 4). Additionally, women in surgery are disproportionately underrepresented among those that receive CEAs (Chapter 6, Table 24), though their awards are of comparable value when they receive them. Adjustment, this time, leaves a pay gap by gender that is not explained, so we will further explore.

Table 4. Difference between basic and total pay x primary area of work, September 2018 (%).

Primary area of work	Share of workforce	Women in specialty	Difference between basic and total pay
Surgery	32.5	31.3	36.2
Imaging	4.1	38.1	33.1
General Acute	7.1	42.0	39.2
Clinical Support	0.9	46.5	27.7
Medicine	36.3	50.3	33.5
Occupational Health	0.1	52.1	8.5
Psychiatry	7.5	52.3	21.0
Clinical Oncology	1.1	53.8	24.2
Pathology	3.7	54.9	27.3
No area of work specified	0.4	56.9	20.1
Obstetrics & Gynaecology	6.1	66.4	34.5
Public Health Medicine	0.1	72.6	12.3
Total/mean	100	44.4	33.2

Source: Electronic Staff Records (ESR), NHS Digital. Author's calculations.

A within-specialty pay gap analysis adds to our understanding of specialty differences in pay. As is the case with grades, gender pay gaps are found not only between, but also within specialties. Again, to remove the influence of all variables, including age and grade from the within-specialty pay gaps for HCHS doctors, we conducted OLS regression analysis.

Chapter 4, Table 12 demonstrates that the largest raw/unadjusted pay gaps (both basic and total pay) are in surgery. The gap in basic pay for surgery (24.4%) is almost entirely explained by the differences between men and women by age, experience and grade (Chapter 4, Table 12, column 3)[t]; reducing the gap to only 1.1 percentage points once these factors are removed from the equation. This gives an indication of the deeply segregated nature of surgery as a specialty; that is, women practising surgery are found in low proportions and are, on average, younger and more junior.

[s] Includes screening, imaging, clinical radiology and nuclear medicine.

[t] And all other personal, job and employment-related characteristics.

The pay gap in total pay in surgery is larger (26.2%) and less of it is captured by differences in age, experience and specialty between men and women (5.5% of the gender pay gap in surgery is attached to gender only). Pay gaps unexplained by variables other than gender remain in other specialties, particularly imaging and psychiatry.

Within-specialty differences, with links to gender composition effects, are sharpened at subspecialty level. Chapter 6, Table 14 shows that raw basic FTE-corrected pay gaps of over 40% are found in male-dominated urology, trauma and orthopaedic, surgery and general surgery. These subspecialties also have below-average proportions of women doctors. Gender pay gaps close to zero are found in female-dominated palliative medicine and public health medicine. Once we controlled for explanatory factors, that is, that men might be in higher grades and of a more advanced age, pay gaps in basic pay reduce to close to zero; though still nearly 2.5%[u] in male-dominated sport and exercise medicine, trauma and orthopaedic surgery, and cardiothoracic surgery.

The same subspecialties top the league of total pay gaps. However, this time, when we remove the influence of all variables including age and grade, considerable pay gaps (over 8%) remain in clinical radiology, medical physics, paediatric cardiology, operating department, clinical pharmacology and therapeutics, audiological medicine, immunology and general pathology. What this tells us is that some subspecialties receive a much higher proportion of total pay elements, and these are differentially earned/received by men and women – despite them being equal in age and grade.

Decomposition analysis for total pay demonstrates that specialty effects account for 3.4% of the gender pay gap in total pay for the whole workforce. This is small, but worth exploring further. It shows that additional enhancements are unevenly allocated to male-dominated specialties. Some of this is because of the unequal gender distribution in receiving (and maybe applying for[v,3]) CEAs. It is also the case that women are underrepresented in the Consultant grade, and especially in CEA-attracting specialties. But other elements of the total pay package are also important. In 2018, CEAs only accounted for 22% of the additional pay consultants receive on top of basic pay.

4.3 Conclusions on the influence of horizontal segregation on gender pay gaps

If men and women doctors are differently distributed across specialties, and specialties attract different levels of basic pay, a specialty effect would have been revealed within the decomposition analysis of the gender pay gap. This did not occur. The former is true, but the latter is not. Because the additions that make up total pay are differently distributed across specialties, specialty did account for a small element of the total pay gender pay gap, but still much less than working hours, grade and employee experience/age (see below). That is not to say that it should be dismissed. Analysis has shown that specialties are highly gender-segregated, with large gender pay gaps in the specialties with the highest mean total pay.

Our analysis has highlighted gender inequalities across and within specialties. Within the interviews we heard that entry barriers, challenging working practices and a macho culture, especially within surgical specialties, discourage women. We have also shown that enhancements and CEAs are disproportionately available within these specialties.

u With statistically significant differences.

v We had no access to this evidence within the review but ACCEA data indicates this is the case.[3]

5. The gender pay gap and doctor age/experience

Age is an important determinant of pay, particularly in the NHS where, in some areas, salary scales have many points and individuals receive annual increments. Progress in attracting women into the profession, and into high-paying grades will have a gradual impact on pay if the profile of women doctors is currently younger than for men.

Appleby and Schlepper[4] examined whether one explanation for the overall pay gap across the NHS[w] might be that there is a higher proportion of men in older age groups, and that men's higher earnings reflect this difference. They concluded that the distribution of men and women in each age group is very similar in Agenda for Change (AfC) grades within the NHS, however, this is not true for all staff groups. For example, for non-AfC staff where there is the largest gender pay gap, there is a noticeable difference in age profiles with higher proportions of men in older age groups. This includes doctors.

This section examines our findings and implications of different gender-age profiles for the overall gender pay gap in medicine.

5.1 HCHS doctors

Decomposition analysis demonstrated that approximately 25% of the gender pay gap in both total and basic pay is attributed to male HCHS doctors being of an older mean age than women doctors.

Chapter 4, Figure 11 shows at younger ages (25 to 30) there is a gap in basic pay that favours women, but this reverses after the age of 30 and continues to grow across older age groups. At its highest, at about age 60, the gender pay gap is around 6%, between men and women of the same age, in favour of men. The gender pay gap in basic pay does not start to drop until after age 65.[x] However, after performing OLS regression equations to control for the influence of grade and other factors, most of this gap (other than around 1 to 2 percentage points) disappears, meaning that factors such as seniority/grade and specialty explain it. The pattern concerning gender pay gaps in total pay is similar but magnified. Here the gender pay gap peaks at around 14% between ages 50 and 60 and much less of it is removed following controls. Up to 10% of the gender pay gap at age 50 remains after controlling for grade and other variables. This is evidence of considerable disadvantage for age and the enduring detrimental effect of career breaks or LTFT working on progression through a long incremental pay scale. Catching up with those that have progressed at a younger age is a distant, decades-long prospect.

5.2 GP doctors

Chapter 5, Table 12 shows that women GPs are approximately four years younger than men GPs, with age differences between men and women within both salaried and contract GPs. Decomposition of the gender pay gap for GP doctors reveals that the difference in age between male and female GPs is part of the FTE-corrected gender pay gap. The gender pay gap for GPs would narrow if women were the same mean age as men.

[w] Specifically, the HCHS sector.

[x] The room for error in this calculation is high, meaning the findings need to be treated with caution.

5.3 Clinical academics

That women in academic medicine are, on average, younger than men explains the majority of the gap in this field of practice. However, as is pointed out above, there is a disconnect between salary and HEI grade/job title for clinical academics. Age, equating to experience, carries most weight within the gender pay gap for clinical academics, explaining 64% of the gap.

The gender pay gap for clinical academics in the same age band is around 4%, between 36 and 45, and decreases thereafter. It is not accounted for by current working hours, as it is an FTE measure. It is likely, therefore, to be a consequence of the delay to career progression, following the age when time out of work is most likely for women. This is further explored below. We must be wary of conflating age and cohort effects; however, the gender pay gap in academia appears to close noticeably sooner than within HCHS medicine. As pay progression is broadly matched between the two fields, this could be indicative that working arrangements within academic medicine are more flexible than HCHS medicine and the impact on career is not as severe. It could also be indicative that the pay range is not as large[y], assisting women academics to close the gap more rapidly.

5.4 Conclusion on gender pay gaps and doctor age/experience

Decomposition analysis demonstrates that in all branches of medicine, age has a strong connection with the gender pay gap and, with grade, explains most of it. In theory, if the population of women doctors were of the same mean age as men doctors, the gender pay gap would considerably reduce. If they were also being promoted to the same grade and scale pay point in representative proportions over the same time frame, the gap would close again. This gives rise to the “time lag” thesis[5] in work on the feminisation of professions which claims that inequalities will resolve over time. Although there is some evidence that gradual feminisation of the mature and senior medical workforce may be reducing the pay gap in medicine among HCHS doctors (see Chapter 4, Figure 7), women have out-numbered men as medical graduates for 25 years.[6] The gender pay gap in medicine is slow to respond to patterns of historic inequality.

We now focus on this issue of pay linked to career progression and highlight the role that female doctors’ choices and differential opportunities for progression might have on the gender pay gap.

6. Gender pay gaps and the career life-course including maternity and LTFT working

Social role and human capital explanations of labour market disadvantage (Chapter 2) focus on the issue of pay linked to career progression and highlight the role that female doctors’ choices and differential opportunities for progression might have on the gender pay gap. Important here is the issue of maternity and LTFT working. Given that the HESA and HMRC data is cross-sectional and details of periods of maternity leave and historical detail about periods of part-time working are not recorded in the ESR, conclusions here must be informed by GPGiM survey evidence.

[y] Enhancements, other than CEAs, are not a ready part of a clinical academic pay package.

Maternity leave requires time away from workplace and impacts on pay are both direct and indirect. Directly, female doctors on statutory maternity terms will have their salary severely reduced after six weeks of leave.[z] A period of maternity leave is unlikely to have much direct impact on HCHS or academic doctors' salaries due to policies of enhanced maternity pay in those employment settings, and therefore will not make a significant *direct* contribution to the gender pay gap. Maternity leave may be a minor contributory factor within the overall GP gender pay gap where coordinated maternity pay policies are not consistently available.[aa]

More pertinent are indirect effects. Women taking maternity leave will miss out on the accumulation of experience necessary for career and salary enhancement. In line with Brynin,[7] our survey data indicates that the number of maternity leave periods does not correlate with reductions in women's pay, but total duration of leave does (Chapter 7, Table 3). A short period of maternity leave is unlikely to be the cause of significant detriment but periods of maternity leave that total 12 months or more may have significant and long-term consequences.[ab,8] Evidence from other sectors suggests that encouraging fathers to take leave and share early childcare duties may lead to lasting changes in the sharing of caring responsibilities, and this may positively impact women's progression and pay in the long term. Enhanced shared parental leave may help achieve this. However, it is difficult to discern any direct impact on the gender pay gap in the short term

Of greater importance to pay differentials is that on-going caring duties are disproportionately undertaken by women doctors (Chapter 7, Tables 4 and 5) and that women make different choices regarding specialties, prioritising work-life balance and flexibility (Chapter 7, Table 8). The impact on pay amounts to a "motherhood gap";[9] a complex and interactive phenomenon that, with respect to doctors, links age, gender, specialty, working time, career route and other personal characteristics with pay. There is evidence, within medicine that each factor adds to the gap but does not account for the whole of it. To draw conclusions, we will dig further into findings reported above on age, specialty choices and gender pay gaps to show that motherhood and a medical career are difficult to combine.

Our self-report survey noted that the average age for first-time medical mothers was 31.5. The ESR data in Chapter 4 shows that 20 to 25 years after this age the gender pay gap for all women is still around 14%. And it is another ten years on top of this until they start to catch up. It is important to note that this compares unfavourably with an analysis of British Household Panel data[10] showing that female graduates increase their wages comparative to male graduates, to reduce the gap to zero about 15 years after the birth of the first child.

If we use the survey data to focus only on women with children, the gender disadvantage is magnified. Women aged between 30 and 35 years with two children earn (FTE-corrected) 19% less than men of the same broad age and career stage, and 5% less than women without children of the same age. By the time their child is around 16 years old and the typical woman is between 46 and 50 years old, the pay gap is still 25% and 16.1% less on an FTE-corrected basis (see also Chapter 7, Tables 1, 2 and 3). By the time a woman doctor's first child is 16 years old, the average woman doctor has had breaks and periods of part-time working that equate to four years less time at work than the average male doctor at the same stage, however, it seems that the pay penalty is far greater.

z For those with at least 12 months of continuous service at the beginning of the 11th week before expected childbirth.

aa It might have more of an impact in the future due to a recent policy change to the design of pay structures that prevents junior doctors being awarded a pay increment while on maternity leave.

ab Aisenbrey, Evertsson and Grunow provide an interesting comparison of labour markets in Germany, Sweden and the United States, regarding the effects of mothers' time out of their careers.[8] Even though the three countries present distinct policies and cultures, long periods away from work on maternity leave negatively affect women in all three countries, reducing the possibilities of upward advancement in the organisation. The authors conclude "even in 'woman-friendly' Sweden, women's career prospects are better if they return to paid work sooner rather than later" (p. 573).

Part of this penalty may be explained by the fact that women may accept lower wages in exchange for working in family-friendly specialties, for example choosing primary care or public health (Chapter 7, Table 8). However, the occupational segregation effect on the gender pay gap in medicine is, of itself, marginal. More telling is the coefficient effect for age in the decomposition analyses, for all, but particularly for GPs and clinical academics. These show that, other features being equal, men are paid more for any given age than women. Women in medicine are more likely to have interrupted careers and therefore benefit less than men from amassed experience for a given age.[7] Given the long career ladder that many step off, this detriment is extended and cumulative, resulting in marked career-earnings, and pensions, gaps.

6.1 Conclusion to gender pay gaps and the career life-course

Evidence from this review suggests that medicine is challenging for women that combine medical careers with LTFT working. The evidence is that LTFT working creates an extended reduction in pay that may be greater than pro-rated reductions of years away from full-time working. Chapters 7 and 8 detailed structural hurdles around training and working hours which are challenging to combine with pregnancy, maternity leave, motherhood and caring responsibilities. Parents, in this case mothers, may opt for or be forced into less lucrative career paths and grades. Cultural factors may exacerbate the disadvantage. Women face a culture of negativity in relation to professional commitment. Perceptions regarding future inability to balance work and family creates a weak career position for women doctors. Even childbearing capacity was considered a threat, with assumptions made about women's career options. We therefore include these factors in our integrative model.

7. Other intersecting identity characteristics

One of the aspects we were most interested in understanding, in relation to the gender pay gap, was the interaction of gender with other personal characteristics such as race/ethnicity, nationality, disability, poor health and international medical graduate status. The purpose here was not to examine whether those identity features of themselves attract pay detriment, but whether or not women suffer a combined/double disadvantage.

There is evidence of unequal representation of gender, plus other identity characteristics across branches of medicine, but this is not marked. Chapter 6, Table 12 showed that women GPs are more likely to be white than men GPs. The same is the case for HCHS doctors (Chapter 5, Table 8); men are considerably more likely to be black, asian and minority ethnic (BAME) than women doctors. Within clinical academic doctors, proportions of BAME groups were almost equal among men and women (Chapter 6, Table 8).

Regarding nationality, in the HCHS sector, women doctors are marginally more likely than men to be British/Irish than other nationalities. For clinical academics this is reversed. This data was not available for GPs. Proportions of doctors that have declared themselves to be disabled are too small to be meaningfully compared – being about 1%, or less, in all datasets. The HCHS data source is the only one containing information on religion/belief and sexuality and both fields contain too much missing data to provide any meaningful interpretation.

Decomposition analysis on all datasets examined the influence of ethnicity with gender, (see Appendices to each chapter) and did not find a significant connection to the gender pay gap. In other words, using the measures we deploy here, patterns of pay relating to identity characteristics may be disadvantaging in themselves, but they are not linked to gender.

Other intersections of health and IMG status were explored in the GPGiM survey and more meaningful findings emerged. With broad controls inserted for age and working hours, Chapter 7, Table 14 reveals differences between men and women regarding these characteristics. However, we need to point out that for those groups the survey sample sizes are small, and findings may not be representative. In addition, length of service, grade and specialty may explain the double-disadvantages as these are not controlled in the table. However, even if pay gaps can be explained by patterns of segregation, this is no justification for double-disadvantage inequality.

8. Geographic region

Geographic region emerged as having little meaningful connection with the gender pay gap. The analysis in Chapter 4, Table 14 demonstrated that the lowest gender pay gaps in the UK are in the London region, though this did not constitute a statistically significant difference. London has the highest proportion of women doctors in England. Region did not emerge as important within the decomposition analysis. London also has the highest proportion of women holding a CEA (Chapter 4, Table 19).

9. Pay systems, pay determination and pay discrimination

Generally speaking, allocation of salary is determined by a complex structure that is unique to each organisation.[11] In medicine, complexity is driven by the need for reward systems and pay determination to be responsive to service priorities, labour market conditions, plus economic and political circumstances, only one of which is the motivation to reduce the gender pay gap.

Unequal pay for equal work, on the other hand, is unlawful and important. The landmark NHS equal pay case *Enderby vs Frenchay Health Authority* set the context for the introduction of Agenda for Change, which was underpinned by job evaluation and designed to deliver equal pay for work of equal value across different occupational groups. Doctors' pay is not part of AfC nor subject to job evaluation. This is not to say that pay systems in medicine will then discriminate on the grounds of gender, however, this is something we need to consider.

In a wage context, pay discrimination applies when unequal rewards between men and women are earned for the same job, a job that is different but rated equally by a valid job evaluation scheme, or a job that is different but of equal value in terms of things like skill, responsibility and effort required. It is not possible to investigate pay discrimination using only econometric techniques, however, as part of our discussion of our findings we highlight patterns that suggest anomalies of the kind that could form the basis of a legal challenge. We have found that there are dimensions to the design of payment systems and pay determination within each branch of medicine that are both helpful and unhelpful to gender pay gaps and gender pay discrimination. We look at each pay system in turn.

9.1 NHS HCHS doctors' pay system

The majority of doctors in England work in hospitals under NHS HCHS terms and conditions. We will discuss implications of structures of basic pay, the long career structure and non-basic pay including CEAs.

9.2 Basic pay

A formalised standardised payment system with increments based on service/experience, typical of UK public sector schemes[12,13] has been adopted by the NHS to determine doctors' basic pay rate – except for firstly; doctors in training, who no longer have increments based on service/experience but nodal points based on stage of training and secondly; salaried GPs who do not have a scale, instead being awarded an annual uplift following the government's adoption of recommendations from the DDRB. The system relies on a fixed-rate basic not directly linked to performance or competence.[ac] Written rules and standard procedures have, in theory, removed managerial discretion and provided a framework for stable and predictable salary decisions.

In practice, this system stands up well to pay equality scrutiny. In Chapter 4 we refined pay gaps to distinguish between raw pay and "adjusted" pay to disaggregate the effects of other variables on pay rates from gender effects. Following adjustment, the portion attributed to gender only (if statistically significant) can be equated with pay discrimination.[14,15,16] Adjustments, plus decomposition techniques showed that gender differences in basic pay rates were almost entirely explained by contracted hours of work, age/experience and grade. In that sense, as long as grade and experience can be justified as the basis for pay progression, the NHS structure of basic pay can largely be held to not directly discriminate on the grounds of gender.

There are, however, pockets of concern. We need to draw attention to the adjustment of basic pay within the Specialty Doctor and "local" grades, where around 3% of pay is predicted by gender only. This may be a consequence in the latter of potentially non-standard decision-making around pay determination at appointment/progression in these grades, driven by external workforce pressures and rota gaps. This does not equate to proof of pay discrimination, however, it is reason to further consider how pay decisions are made for this limited section of the medical workforce and why women earn less on a seeming like-for-like basis.

The picture regarding indirect pay discrimination is more nuanced. There are two dimensions we discuss: the impact of the long career ladder and the allocation of non-basic pay.

9.3 Long career ladder

Medical scales reward a long and stable career with no breaks or changes in direction. The NHS HCHS doctors, pay system is structured into a series of grades with a pay range divided into scale points within each grade,[ad] with the exception of doctors in training. The scale recognises four to eight years of training, plus 17 and 19 years of service on a single spine for Specialty Doctor, Associate Specialist and Consultant grades. The consequence of a long-stepped spine is that a step off the career ladder, especially at the start of career, will cause detriment that will take decades to overcome. The longer the pay scale, the more likely it is that indirect discriminatory factors come into play.[ae]

Long career scales also mean that current levels of pay are a reflection of past patterns of recruitment. Because historically, progression to senior grades has favoured male doctors, current rates of pay will continue to benefit them. In general, incremental pay scales favour women's pay and gender pay gaps because they are objectively determined. Reducing the number of scale points would compress the population in each grade making it easier for women to "catch up" and narrow the gender pay gap. The Equality Human Rights Commission does not recommend a specific number of scale points within a grade because

[ac] With the exception of a recent change to junior doctors' contracts. They have to pass Annual Reviews of Competency in order to progress to the next training grade, and thereby be paid more.

[ad] With the exception of doctors in training.

[ae] www.equalityhumanrights.com/en/advice-and-guidance/risky-practices See also Equality Act 2010, S.69 and *Cadman vs Health and Safety Executive* (2006) IRLR 969, European Court of Justice.

each industry has its own requirements, however, about six is generally accepted to represent good equality practice.[af]

Currently doctors who have trained LTFT have the benefit of additional increments added to their salary on appointment to Consultant, which is helpful in accelerating progression through scale points. However, this does not include absence of maternity leave, which would also capture doctors who have taken maternity leave but not trained LTFT. It only applies on entry to the Consultant contract, not to any other contracts.

9.4 Total pay: enhancements and CEAs

The allocation of enhancements including CEAs adds considerably to a doctor's wages. In March 2019, NHS Digital data showed additional elements of non-basic pay[ag] are worth a mean of 33% on top of basic per month.

CEAs attract the most critique, however, of all the additional enhancements available to consultants, only 22% represents local and national CEA payments. CEAs add a mean £13,750 for those that receive them (43% of Consultants). On the other hand, payments for "additional activity" are worth £21,913 for those that receive them (61% of Consultants). Other enhancements, for example "local payments" are worth an average £21,221 to the 19.2% of Consultants that get these. Other grades of doctor also increase their basic salary by significant proportions. Elements of non-basic pay add to basic pay of Associate Specialists by a total of 22%, Specialty Doctors by 25%, Staff Grade doctors by 31%, Specialty Registrars by 42%, Core Trainees by 37% and Foundation Years doctors' Y1 and Y2 by 29% and 34% respectively.

Analysis in Chapter 4 demonstrates that, on many occasions, non-basic, additional, payments are seen to vary with gender after adjustments are made. Up to 10% of the total pay of Specialty Doctor, Staff and Local grades were not explained by specialty, age/experience or another factor; but only by fact of being a male doctor. Similarly, up to 8% of the total salaries for those in clinical radiology, medical physics, paediatric cardiology, operating department, clinical pharmacology and therapeutics, audiological medicine, immunology and general pathology were explained by gender only. There is no gender pay gap in the value of CEAs, so this is not a considerable part of the explanation of the total pay gap following adjustment.[ah]

The non-basic allocation of pay, then, adds a meaningful boost to basic salary but runs the risk of indirect pay discrimination if women face particular disadvantage in accessing additional payments, and their use cannot be objectively justified by other aims. Findings in the review demonstrate that there is a significantly uneven gender distribution of elements that make up the total pay package. Specialties with the highest non-basic payments (imagining/radiology, general surgery for example) are male-dominated and the consultant grade even more so. Gender-uneven financial returns to age, within the coefficient element of the total

af Currently, maximum incremental points in other public service occupation grades are as follows: the army – ten points (staff sergeant), the police – seven (constable). Local government operates under locally designed pay sytems, however, UNISON, UNITE and the GMB advise "An incremental scale with up to four or five points would probably be justifiable where it could be shown that up to four or five years' service equated with the time it takes to achieve full proficiency or competence in the job".[17] Pay arrangements within higher education are similarly devolved; the average pay grade is a maximum of six or seven scale points. Civil service pay has been restructured to reduce scale points over the past decade.

ag Additional programmed activities, payments, additional standard time payments, band supplements, bonus or performance-related payments, CEAs, directors of public health supplements, discretionary points, distinction award payments, geographic allowances, occupational absence payments, on-call or standby allowances, overtime or additional working hours, protected pay payments, shift or flexible working payments and recruitment and retention premia.

ah Differential allocation of CEAs explain 20% of the 13% raw FTE-corrected gender pay gap in total pay for consultants (Chapter 4, Section 7.5).

pay decompositions in Chapter 4, indicate that these elements are, all else being equal,[ai] disproportionately received by male doctors of equivalent age to women. Women are either not taking advantage of opportunities for enhanced total pay or are ineligible to do so. If additional payments are based on business need (for example, the need to reduce waiting lists or provide cover for unsocial hours work) and are proportionate, these can be justified. If not, they may amount to indirect pay discrimination.

The final point to note is that if the value of non-basic pay elements were scaled back in favour of basic pay rises, the gender pay gap in medicine would reduce. If there were an adequate number of doctors who were willing and able to work unsocial hours or take on additional responsibilities without the need for further financial incentives, then the need for additional allowances would reduce, having the same effect.

9.5 Clinical academics: university pay systems

As summarised above, clinical academics are divided into two populations regarding the way their pay is determined. As data on type of pay scheme was not within the HESA dataset available to us, this creates a non-observed variable. The “unknown” proportion in the decomposition for clinical academics is likely to reflect this. It is important, in the absence of job evaluation-based comparisons, that the pay schemes equally reward “like work”.

Those on the NHS clinicians scale will experience the same consequences of career delay that are created by the NHS HCHS career structure linked to pay scale. The unequal returns to age and Professorial grade for men and women clinical academics indicate the effect of cumulative disadvantage: that women reach an equal point or stage at an older age than men and have only a distant prospect of catching up.

CEA data would add to our understanding of pay gaps in clinical academia. On the basis of a binary yes/no measurement of receiving one, our data states that it is likely that CEAs add to the gender pay gap.

9.6 Primary care pay systems

Some salary schemes are more open to concerns over internal equity than others because they make greater allowance for the role of managerial discretion over payment rates, by design. The argument made by pay gap researchers that organisational decision-makers sustain inequality by allocating some employees a larger share of resources through conscious or unconscious bias. Given the overrepresentation of men in partner/contractor roles within the GP profession, this could support the idea that pay systems where discretionary decisions about allocation are a feature, pay gaps are inevitable.[18]

This may not even be a matter of personal bias, but a response to service demands. In a context of workforce shortages GP practices may be willing to use higher pay to overcome labour market pressures, and these are likely to be allocated to those with greater job mobility. Employers may also be susceptible to negotiation strategies from possible recruits, again inflating wage rates. Men’s capacity and propensity to bargain in a new employment scenario in a tight labour market is a well-evidenced phenomenon.[19]

Market-driven pay sets up potential internal gender inequities that the Equality and Human Rights Commission considers to be “high risk”. More structure and greater transparency should add to wage predictability and greatly reduce the large coefficient, interaction and “unexplained” elements we found in Chapter 5 when decomposing the gender pay gap for GPs. Some economic and social scientists equate an “unexplained” portion of a pay gap as a proxy for discrimination.[20,21]

[ai] Grade, specialty, region, other personal characteristics.

10. Job evaluation

This review has helped to shed light on the significant gender differences in pay within the NHS medical workforce in England. Many of the differentials can be explained in like-for-like comparisons between men and women, however, it is important they are also objectively justified. The bulk of the gender pay gap is attributed to differences between men and women in grade and age.

Although traditionally associated with equal pay, job evaluation is a useful tool in creating greater transparency in and understanding of, doctors' pay arrangements. A job evaluation exercise would establish a consistent and systematic relationship among base compensation rates for jobs and grades within NHS medicine. It would provide a system of justification for the internal relative worth between, for example, a Specialty Doctor and salaried GP (female-dominated) and a mid-grade Consultant (male-dominated), in relation to inherent skills, knowledge, responsibility, physical and emotional demands and so on. This exercise would also justify the availability of some additional payments available to some groups of doctors, and not others.

Job evaluation could assist in determining the years of service it takes to achieve full proficiency in each medical grade and, by extension, how many scale points are appropriate. Job evaluation has the potential to interrogate structural pay arrangements that underpin the gender pay gap in medicine.

10.1 Conclusion to pay systems, pay determination and pay discrimination

Organisations create pay and employment structures that support the delivery of their service priorities. In this case; workforce pressures, pay structure design, and ways of determining pay interact with gender to create:

- the potential for gender bias in GP-pay decision-making
- a career and pay structure for HCHS and academic medics that disproportionately disadvantages LTFT trainees and employees
- large additional payments for HCHS doctors that are unequally allocated between genders

11. Integrative models

11.1 Introduction

Direct causes of gender pay gaps in medicine can, for the majority of doctors, be explained. Age, experience, and seniority/grade explain the differences in basic pay between men and women doctors. That is not to say, though, that they can be justified. Segregation, plus potential cultural and structural barriers interact with features of doctors, pay structures and systems in ways which could be considered unhelpful to the reduction of gender pay gaps. Our final section presents a series of models that integrate these influences within explanations of gender pay gaps for GP and HCHS career paths.[aj]

[aj] We do not include clinical academics as we did not have sufficient sample numbers.

11.2 Methodology

We devised our integrative models in three methodological steps:

1. We undertook Oaxaca-Blinder decompositions (OBDs) on the FTE-corrected gender pay gap between men and women for a) HCHS doctors (Appendix R) and b) GPs (Appendix S) using GPGiM self-report survey data. Very closely mirroring OBD outcomes in Chapter 4, Table 16 from ESR data; total endowment effects predict 79% of the gender pay gap for HCHS doctors, in total pay. The gender pay gap is explained primarily by differences between men and women in their age/experience, plus grade/seniority and secondarily by specialty and having multiple employment contracts. The first two, being the major influences, will be the subjects of the first two integrative models.

   Using survey data, again, the decomposition of the gender pay gap for GPs shows total endowment effects account for a total of 35.3% of the difference between men and women GPs' pay. The coefficient effect is large and statistically significant and offset by the interaction effect, which matches the pattern reported in Chapter 5, Table 14 using HMRC and wMDS linked data. The endowment effects were also the same. Differences between men and women GPs in age/experience (NHStenure) and contractor/partner (Partner) status[ak] explain the GP gender pay gap.

   To summarise, on the basis of our OBDs, we will compose models that explore the principal differences between male and female doctors on four dimensions:

   - male and female HCHS doctors in the likelihood of being senior in a "career" grade – being Consultant and the SAS grades (Model 1)
   - male and female HCHS doctors in experience, accounting for quality and quantity of time in the NHS (Model 2)
   - male and female GPs in the likelihood of becoming a partner (Model 3)
   - male and female GP doctors in experience, accounting for quality and quantity of time in the NHS (Model 4)

2. To broaden our understanding beyond principal direct causes of the gender pay gap, we now make use of a wider range of potentially relevant organisation, institutional and personal factors offered by our interview participants in Chapters 7 and 8 and quantified by the survey. We constructed composite factors to represent these variables using multiple survey items. For example, the "workplace culture" factor is constructed using measures of a) the perception of workplace bullying; b) workplace harassment; c) a lack of mentorship and d) a lack of professional opportunities. Other composite factors are:

   - additional intersecting identities
   - career values and priorities
   - structural factors
   - family and domestic commitments
   - quality of career-enhancing experiences
   - intention to leave medicine

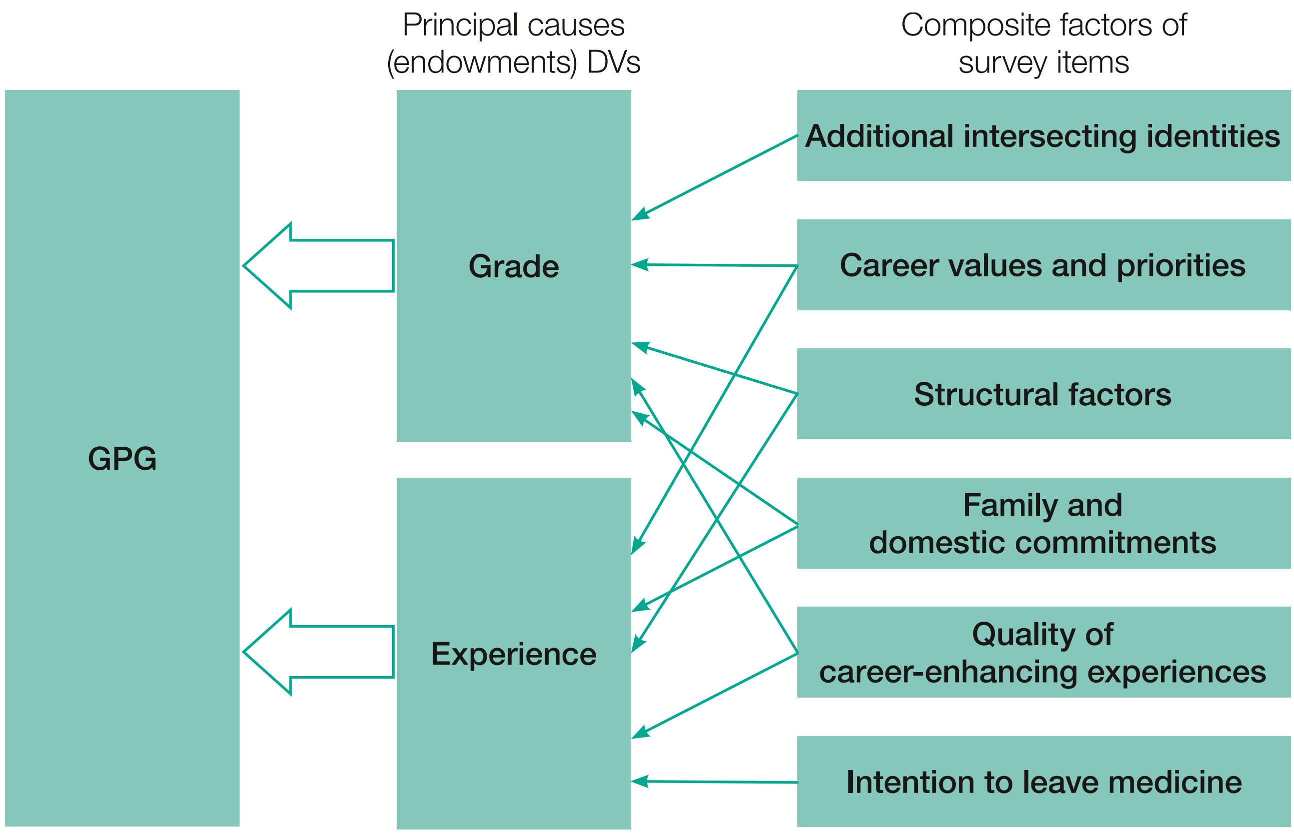
[ak] We were not fortunate enough to have length of service as a measure of experience in the original analysis; it was absorbed into age effects.

Details of survey items that are been used to construct each factor are given in Appendix T. Items and factors are chosen for their relevance to each endowment effect. Not all factors are used in each model.

3. Using composite factors, we examined differences between male and female doctors that account for the principal endowment effects. Each endowment effect is treated as a dependent variable (DV). Using OLS forced-entry regression analysis, we add the factors from step two in sequence into each equation. We regress the dependent variable on a dummy for the gender of the respondent (which tells us the unconditional mean difference between men and women) and check how much that changes once we add each factor in turn. By doing this we can see how much of the difference between men and women on each dependent variable is explained by adding factors. In other words, which factors and in what measure might explain why women are less likely to have senior positions and be in preferential career grades, and less likely to gain equal experience.

The methodology is set out diagrammatically in Figure 1.

Figure 1. Integrative model methodology.



11.3 Limitations

In explaining connections between factors and endowments we need to be sensitive to the assumptions we are making about causality. We also need to be aware of the effects of multicollinearity between our factors. The order in which we enter the factors changes the explanatory power of those that follow. Loadings are likely to be highest for factors that are entered earlier in the model. We have therefore chosen to follow a factor sequence that corresponds to typical life/career course. Where the DV is missing, the case is excluded from the analysis. Missing responses are otherwise rare, but where they are, the value is imputed. The model only applies to any single individual to whom all factors apply.

11.4 Sample

Details of the achieved sample within the GPGiM survey that forms a basis for these models is given in Chapter 3, Appendix L.

11.5 Findings

Bearing in mind limitations in robustness and generalisability, our goal here is to see if any groups of composite factors account for the differences between male and female doctors in endowment factors explaining the gender pay gap.

Model 1: Differences between men and women HCHS doctors in the likelihood they are in well-paid grades

The first model seeks to understand via the composite factors, why and how men and women differ in their likelihood of appearing in a well-paid grade in hospital medicine. There is a 14.7% differential to account for. Figure 2 shows that structural and family commitment factors to explain this in more detail, are primarily linked to women's underrepresentation.

The first composite factor we consider in explaining the difference between men and women in their likelihood of progress into a well-paid grade is whether or not there are additional features of identity that create greater disadvantage for women than men. Potential items that were tested were having BAME identity, having a disability or poor health, being medically trained outside of the UK and attending a non-selective secondary state school. In this case only the final two items had a connection with differences between men and women and were associated with only very minor detriment for women.

Next, we add items representing personal values that may negatively influence a career path to senior levels, explaining the difference between men and women. We chose the following items from the survey: prioritising work-life balance, dealing with patients rather than procedures, not being driven to maximise earnings, avoiding long hours, having an "agreeable" personality, and choosing specialties that incorporate shift and on-call work. This factor accounts for only 7.9% of the difference men and women due to the fact that women are more negatively affected by these items. For example, of those who prefer to avoid long hours, 39.5% of men end up being in a senior position, while only 32.2% of women do. Of those who state they do not work to maximise their earnings, 62.5% of men end up being in a senior position, while only 44.3% of women do.

A third factor we assess is the extent to which cultural experiences differ between men and women linked to the likelihood of working in a well-paid grade; for example if our respondents felt that they had been subjected to harassment and/or bullying, felt they had been penalised for working LTFT or flexibly, and whether they felt that they had sufficient mentorship and role models. This factor adds only 7.3% to the explanation of differences between men and women. However, women are more disadvantaged by bulling (for example, of the people that suffered from bullying, 53% of the men in the sample were in a well-paid grade, but only 42.5% of the women), however, the difference is not considerable in its overall impact.

The fourth set of items evaluate the implications of experiencing structures that might reduce a doctor's opportunities to reach a well-paid grade by, for example: being negatively affected by the inflexibility, displacement potential and geographical inconvenience of training structures and working in a rural location, experiencing an unsupportive Deanery, feeling a lack of control over one's own job design, negatively experiencing the volume of tasks and notice given for task completion, being in a specialty with a long training career path and not having opportunities for professional development. The final element in this bundle of factors is whether respondents agreed that they had been in a situation (for example, when undertaking locum duties) to negotiate salary but felt ill equipped to do so. This is a meaningful composite factor that women experienced much more negatively and accounted for a total of 41.6% of the difference in probability of being in a well-paid grade.

The final composite factor comprises a bundle of family-related items such as having a career of secondary importance with respect to that of a partner, being in a long-term personal relationship (current or historic) with another doctor, having one or more children, having interrupted training because of family reasons or having taken maternity/paternity leave. This is the second most influential factor, accounting for 22.4% of the difference between men and women and their likelihood of being in a well-paid grade.[al]

Figure 2. Factors explaining differences between men and women HCHS doctors in grade.

Difference between men and women HCHS doctors and likelihood of being a senior SAS or consultant doctor (%)	14.7	14.6	13.4	12.4	6.2	2.9
% of this difference explained by each additional factor		1.1	7.9	7.3	41.6	22.4
Composite factors	Identity	✓	✓	✓	✓	✓
	Career values		✓	✓	✓	✓
	Organisation culture			✓	✓	✓
	Structural factors				✓	✓
	Family commitments					✓

Model 2: Differences in years of experience between men and women HCHS doctors

The second model explores factors that sit behind why years of experience is a big part of the gender pay gap. It is clear from Chapters 7 and 8, plus the analysis above, that the issue is more complex than considering experience as synonymous with length of service, and that women are less likely to gain meaningful salary-enhancing experience for years of service worked in comparison to men. The model below (Figure 3) follows the same pattern and uses the same composite factors, with the addition of the likelihood of leaving, as the model above.

Again, structural factors and family commitments are the majority components that are linked to the 4.4-year mean difference between men and women in experience.

The first factor we look at is personal values in relation to career. This is quite an important factor to women, and they attract a penalty from having diverging (from male) personal values. To take a single item illustration, women who do not seek to maximise their earnings have on average seven less years of meaningful NHS experience.

[al] As noted above in the limitations section, inverting the order of entry of the last two factors changes their effect. Controlling for family responsibilities before structural factors increases the implied percentage of explanation for family responsibilities. The structural factor then accounts for less. We have calculated that around 15% of the explanatory power of the factors is shared. The two factors interact.

Next, we checked our composite organisation culture factor for its impact. The cultural factor reduces years of meaningful experience by a modest 7.1% from the previous value. For example, bullied women have around 1.5 fewer years of tenure.

Structural factors have a considerable impact and again are the most important, correlated with a 38.6% portion of the 4.4 years of reduced experience. With respect to one single item, women that were assigned to rural work locations have missed out on an average of three fewer years of career-enhancing experience. Again, there is a strong correlation with the fourth factor (family commitments).

The family commitment factor is, again, important, accounting for 25.9% of the difference between men and women.[am]

A fifth factor we check for is the quality of working experience, for example, not having research in career history and being in a specialty with a low percentage of women. There is only a 1.1% mean difference. Quality of experiences may be important to career, however, differences in this do not explain the difference in the quantity of meaningful experience between men and women.

One last factor we control for, is how likely the respondent is to leave employment, (only for those below the 75th percentile of earnings due to the tax issue for the highest earners current at the time of writing). Only 1.0% of the difference is explained. The penalties for men and women are basically identical here and there is no connection to the gender pay gap.

Figure 3. Factors explaining differences between HCHS male and female doctors in years of experience.

Difference between men and women HCHS doctors in experience (years)	4.4	4.2	3.9	2.2	1.1	1.1	1.0
% of this difference explained by factors		3.7	7.1	38.6	25.9	<1	<1
Composite factors	Career values	✓	✓	✓	✓	✓	✓
	Organisation culture		✓	✓	✓	✓	✓
	Structural items			✓	✓	✓	✓
	Family commitments				✓	✓	✓
	Quality of learning opportunities					✓	✓
	Likelihood of leaving						✓

Model 3: Likelihood of being a partner GP

We now look at differences for GPs and the 15.9% differential in their likelihood of making partner as a GP. Reinforcing discussions so far in this chapter, Figure 4 shows that structural factors play the most significant role, followed, again, by family commitments. On this occasion structural factors do not interact with family commitments, implying that the likelihood of being appointed to a partner position while managing family commitments is not

[am] Inverting the order of the two most important factors has an effect. Controlling for family responsibilities first increases the implied percentage of explanation of this factor. Controlling for structural factors after it halves its explanatory power. It means, again, that around 15-20% of the explanatory power is shared between the two factors.

exacerbated by the structural elements we evaluated. We need to bear in mind, however, that the role "partnership" plays in explaining the gender pay gap for GPs is quite small (Appendix S) and the direct effect of these factors on the wage gap will be even smaller.

The first composite factor we enter into the set of explanations is whether or not there are additional features of identity that create greater disadvantage for women than men in achieving the status of partner GP. Features are: having BAME identity, being medically trained outside of the UK, attending a non-selective secondary state school and having a disability or poor health. It is only the final two that are part of the difference between men and women and only to explain 2.1%. For example, regarding women with poor health, only 16% were in a senior position, compared with 47% of men.

Next, we add controls for career values that we believe may influence the likelihood of taking up a practice partnership, but there is only marginal connection between these factors and differences between men and women in being a practice partner.

We then assess the extent to which cultural experiences are supportive of women becoming a practice partner, for example, if our respondents felt that they had been subjected to harassment, bullying, had been penalised for working LTFT or flexibly, and if they felt that they had sufficient mentorship and role models. This factor is more meaningful than in other contexts, explaining 16% of the difference between men and women. Across all the factors in this group, women who responded that they had been affected by these factors were consistently less likely than men to be a practice partner.

The fourth composite factor is comprised of structural items that might reduce women's opportunities of being made a GP partner: by being held back by the inflexibility, displacement potential and geographical inconvenience of training structures, experiencing an unsupportive Deanery, feeling a lack of control over one's own job design, the volume and notice given for task completion, being in a specialty with a long training career path, not having opportunities for professional development and feeling penalised for flexible or LTFT working. As is typical, this factor accounted for the majority of the differences between men and women GPs. The final item in this bundle of factors is whether respondents agreed that they had been in a situation to negotiate salary but felt ill equipped to do so. This item is of considerable significance. Notable is that, of those that strongly disagree that they feel comfortable in negotiating pay, 62% of men became a partner, vs only 31.6% of women.

Finally, we add a factor for the penalty associated with family responsibilities. When we apply this composite factor, the percentage reduction we see is a closing of the gap between men and women and their chances of becoming a partner GP of 27.4%.[an]

[an] Switching the order of the structural and family factor and control second for structure, shows us that structural and family explanations are, this time, quite independent and order effects matter very little. The difference in explanatory powers of the factors, given their magnitude, is negligible.

Figure 4. Model 3 factors explaining differences between men and women GP doctors in being appointed a contractor/partner.

Difference between men and women and likelihood of being a partner GP (%)	15.9	15.6	15.3	12.7	7.8	3.4
% of this difference explained by factors		2.1	1.9	16.0	31.2	27.4
Composite factors	Intersecting identities	✓	✓	✓	✓	✓
	Career values		✓	✓	✓	✓
	Organisation culture			✓	✓	✓
	Structural items				✓	✓
	Family commitments					✓

Model 4: Differences between GP male and female doctors in years of experience

Our final model examines the years of difference in experience between male and female GPs. Men and women are closer in their years of experience than in HCHS employment (3.85 compared to 4.4). Here again the structural factor has the most explanatory potential in explaining why women do not have as many years of experience.[ao] On this occasion culture is also high on the list of factors, underlining the importance of getting workforce climate correct in a GP practice in managing female GP productivity and closing the gender pay gap.

Figure 5. Factors explaining differences between HCHS male and female doctors in years of experience.

Difference between men and women GP doctors in their experience (years)	3.9	3.5	2.9	0.7	0.7	0.6
% of this difference explained by factors		8.9	14.7	35.7	11.9	<0.1
Composite factors	Career values	✓	✓	✓	✓	✓
	Organisation culture		✓	✓	✓	✓
	Structural items			✓	✓	✓
	Family commitments				✓	✓
	Intention to leave					✓

11.6 Conclusion to integrative models

The above models have demonstrated that structural aspects of medical careers and family commitments, plus the interplay between these two are helpful in explaining why women do not have the same quantity of meaningful experience and do not appear in well-paid grades

ao If we switch the order of the structural and family factor, and control second for structure, family explains an increased proportion of the remaining difference while the structural factor explains less. About 10% of the explanatory power is shared between the two factors.

in the same proportions as male doctors. Differences in men's and women's career values are less significant. The role of organisational culture in explaining these differences is low, and possibly underestimated due to the survey not reaching those that have left medical careers.

12. Conclusion

This chapter has given a well-rounded understanding of gender pay gaps in medicine. Analysis of the administrative datasets revealed broadly similar explanations for gender pay gaps within the three branches of medicine: being trust doctors, GP doctors and clinical academics. Reduced hours working explains a proportion of the gender pay gap in all settings, especially primary care, however, throughout most of the analysis we put this aside to calculate gender pay gaps as a whole-time equivalent measure. All settings are affected by vertical segregation; that women are less likely to be found in the high-paying medical grades, that is, Consultant, senior SAS doctor, partner GP and Professor. They are more likely to be found in less well-paid career paths. Gender pay gaps are also caused by age; that women are younger and have less experience than men.

There were also differences between the three groups. Analysis of the GP data revealed a great deal of unpredictability in wages that could amount to pay differences between men and women with the same experience in practically identical jobs. Similarly, for clinical academics, an unexplained proportion of the gender pay gap could be the result of different contractual terms and conditions varying with gender, with women being on higher education (HEI) scales and men on preferential NHS scales. Analysis of Electronic Staff Record data for trust doctors revealed significant gender pay differences in non-basic pay that could not be explained by specialty, experience or grade. Differences in the allocation of CEAs played only a minor role in explaining a large total pay gender pay gap. The difference between male and female doctors on other elements of total pay is much greater.

Survey and interview data illustrated how medical career and pay structures, and the current context of workforce shortages, are unhelpful to the reduction of gender pay gaps. The structure of medical careers in hospital medicine is in line with an expectation of a long career working full-time and is not accommodating of career flexibility. The average female doctor with children spends four years away from her medical career, but the pay penalty is greater than the time spent away. Once a female doctor has taken time away, the length of the pay scale means that catching up with male peers is a distant prospect. There is some evidence that men and women make different choices in relation to specialty, however, this may be in response to perceived practical and cultural barriers. There is evidence of bullying and poor behaviour.

The chapter that follows draws out conclusions and recommendations.

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Chapter 10. Conclusions and recommendations

Contents

1. Introduction

This chapter provides a summary of findings and a list of recommendations listed under seven calls to action. To reiterate, the definition of a gender pay gap is the difference in the average pay per hour between men and women, expressed as a percentage of men's pay. This is often confused with the concept of equal pay, which is equal pay for work of equal value, and is a legal requirement of employers. Our aim now is to encourage a root and branch review of the causes of the gender pay gap that have been identified by the research, and to highlight areas for change to reduce the gap. The integration of the findings from the research have been articulated in Chapter 9. Here, we provide a summary of the headline factors which are causing the gender pay gap in medicine and build on these factors to develop our themed recommendations.

In July 2019 we held an engagement event with stakeholders to discuss the interim findings of the review and possible ideas for recommendations. In October 2019, the steering group discussed the themes for recommendations and the notes from the stakeholder event. The specific recommendations were not formally agreed by the steering group and may not represent the views of some stakeholder organisations, as this is an independent review. As far as possible, we have based the recommendations on the evidence from the review findings, and ensured they are pragmatic and implementable.

This review has demonstrated that there are gender pay gaps across the medical profession, which, if not addressed, will damage the medical workforce through the attrition of women. A better balance of men and women in medical leadership would not only strengthen the profession, but would also reduce the overall pay gap.

In spite of decades of advancement of women's place in society they continue to bear the primary responsibility for caring for children and other dependents, resulting in women being much more likely to work less than full-time (LTFT). Assumptions that this is the case exacerbates the problem in the medical workforce. Unless the structure of medical training and service delivery alters, it will be difficult, if not impossible, to eliminate the gender pay gap. The number of women in the medical workforce is likely to balance the number of men in full-time equivalent (FTE) terms in the near future, as the ratio of women to men in our medical schools is approximately 60 to 40. Support for working more flexibly and having greater choice in work patterns over a long career, without pay gaps as a consequence, will improve work/life balance and retain the whole workforce for longer.

Many of the issues that impact on the gender pay gap in medicine are exacerbated by the current medical workforce shortages, serving to increase the weight of the moral and economic arguments for closing it. Addressing NHS workforce shortages will help to reduce the pay gap, but the main underlying causes lie in the structure of the medical workforce, and the unforeseen consequences of several years of policy development, where the impact on the pay gap was not considered.

This report is timely, as these recommendations can contribute to the wider workforce, diversity policies and initiatives contained in the NHS People Plan. We recognise that some recommendations require contractual change to be implemented and they would have to be taken forward through negotiation between NHS Employers and the Medical Trade Unions (Medical TUs).

It is estimated that reducing gender pay gaps in labour market participation, STEM qualifications and wages, could increase the size of the UK economy by around 2%, or £55 billion by 2030.[a] Flexible working, without a long-term pay penalty, and the embedding of more creative career pathways to retain women doctors will encourage the NHS to embrace new ways of delivering the services which will benefit patients and staff.

2. Summary findings from the review

- The gender pay gap in medicine is large for a single professional group. The causes are multiple and complex, so will be challenging to resolve. It will require a root and branch review of career and pay structures and a sustained commitment to wide-ranging measures
- The mean whole-time equivalent pay gap is 18.9% for hospital doctors, 15.3% for GPs and 11.5% for clinical academics
- The structure of a medical career designed originally for a predominantly male workforce, with the expectation of working full-time over a long career, and taking on extra commitments, has not evolved with the changes in the demographic and in working patterns, resulting in a lower average salary per hour for the female workforce
- A more balanced and flexible set of career paths will benefit the workforce overall and improve the productivity and quality of care delivered by both men and women by enabling them to manage their hours more effectively and equally. However, despite women benefiting from less than full-time (LTFT) working to have time to care for others, it has a disproportionate effect on their pay, even after accounting for hours worked and periods of leave
- Women are segregated into different, often secondary career paths, because of the structure of careers in some specialties, and the difficulties with LTFT which result in pay penalties, especially in relation to Clinical Excellence Awards (CEAs) and additional non-basic pay components
- Men are older, on average, and are employed in more senior positions which explains a significant component of the pay gap. Retaining women and enabling them to progress to senior levels will reduce the gap

3. Summary of interventions to reduce the gender pay gap

- The structural barriers to the progression of women in the medical workforce need to be addressed
- The retention and promotion of more women to more senior levels in the workforce needs to be prioritised
- The pay and career penalty for those doctors working LTFT needs to be eliminated

[a] Source is Government Equalities Office internal analysis of EIGE (2017), Economic case for gender equality in the EU and; OBR, (2019), Economic and fiscal outlook – March 2019.

4. Recommendations to reduce the gender pay gap

4.1 Address structural barriers to the career and pay progression of women

Evidence shows that there are disproportionate structural penalties and barriers for women's careers, especially those working LTFT. These penalties and barriers exist in training programmes, in many specialties, in career pathways and in career progression. The continued development of flexible training and working environments, to minimise the accrual of pay detriment, is crucial to addressing this. Closing the gender pay gap that results for LTFT women requires a range of solutions focusing on rebalancing career pathways for men and women. These include: opening up flexible work opportunities for everyone and encouraging men as well as women to use them; improving access to childcare facilities and reducing the responsibilities for caring for others. It also means reducing the current emphasis on years of full-time service as a driver of medical pay, with very long pay scales in some grades that could be assessed to be discriminatory in any other sector.

Theme	Actions	Responsible organisations
1. Address structural and institutional penalties and barriers within women's medical careers	1.1 Explicitly aim to address gender pay gaps in future contract negotiations by recognising that reducing the number of spine points and range of medical pay scales would address this issue	NHS Employers, Medical TUs, DHSC, medical schools, Doctors' and Dentists' Remuneration (DDRB)
	1.2 Amend the DDRB's terms of reference to explicitly consider pay gap issues in making the annual pay recommendations	DHSC, HMT, DDRB
	1.3 Explore the potential to apply job evaluation to Hospital and Community Health Service (HCHS) doctors	DHSC, NHS Employers, Medical TUs, NHSE&I
	1.4 Ask the DDRB as part of their remit to make recommendations on the pay of salaried GPs to consider the level of their pay in relation to the pay of GP partners	DHSC, NHS Employers, NHSE&I, BMA
	1.5 Agree measures to address the factors that are deterring women from becoming GP partners	BMA, DHSC, NHSE&I, Royal College of GPs
	1.6 Introduce a national weighted evaluation scheme to ensure standardisation of additional pay and contracts for doctors taking on senior roles, (for example, Clinical or Medical Director)	Medical schools, Medical Royal Colleges, HEE, non-gender balanced specialties, Medical TUs, NHS Employers

Theme	Actions	Responsible organisations
	1.7 Ensure that the influence of specialty on the gender pay gap in total pay reduces by introducing policies to reduce gender segregation, and supporting men and women to work more equally across all specialties	GMC, HEE, Postgraduate Deaneries, Medical Royal Colleges, AoMRC, specialty societies
	1.8 Ensure consistency of ARCP training outcomes across the country; and minimise increases in overall length of LTFT training by focusing on the acquisition of competence rather than time served	Medical Royal Colleges, HEE, AoMRC, BMA
	1.9 Redesign training systems in medicine to reduce the burden of assessment which discourages the career progress of women. The first step is to rationalise the assessments in different specialties as part of the new curricula, modelling the effect on pay gaps	HEE, Postgraduate Deaneries, BMA, Medical Royal Colleges, AoMRC
	1.10 Increase equitable opportunities for trainees and their partners to move between NHS geographical regions to reduce attrition and introduce better relocation policies and funding	BMA, HEE, Postgraduate Deaneries, DHSC, NHS Employers
	1.11 Deregulate alternative pathways to CCT to remove career and pay disadvantages for those following alternative routes (CESR). Legislate for greater flexibility to allow applicants to satisfy the GMC that they have the knowledge, skills and experience necessary for entry to the Specialist/GP register	GMC, Medical Royal Colleges, AoMRC, BMA
	1.12 Standardise maternity pay policies in General Practice to match HCHS	DHSC, Medical TUs, GP practices, NHSE&I, BMA

4.2 Make senior jobs more accessible to women

The review has shown that a significant impact on the gender pay gap in medicine is the lower numbers of women in senior, high paying jobs. More effort should be made to retain and encourage the female workforce by increasing flexibility. This would increase the number of women in higher paying roles and roles in which they are underrepresented (such as hospital Consultant and GP partnership roles), and rebalance the number of men and women across grades.

Theme	Actions	Responsible organisations
2. Make senior jobs more accessible to women	2.1 Employers should promote a flexible working culture when advertising jobs. They should make clear that reduced hours, flexible working and job-share opportunities are available (unless strong, justifiable reasons exist and are documented for not offering them). They should publish details of their flexible working and job-share policies on their website for all potential employees to access	NHS trusts, GP practices, medical schools, HR departments Medical TUs
	2.2 Talent management and training programmes should be used to develop staff and increase appointment of a more balanced senior workforce, such as Associate Specialist, GP Partners, Professors and Consultants	NHS trusts, GP practices, NHSE&I, Medical TUs
	2.3 Increase provision of NHS nurseries and other support for childcare, including access for doctors working in primary care, to accommodate out-of-hours and shift working	NHS trusts, GP practices, NHSE&I, Medical TUs
	2.4 Facilitate new care models, as suggested in the NHS Long Term Plan, including the use of AI and technology to encourage remote working	NHSE&I, employing organisations engaging with Medical TUs
	2.5 Promote flexible working to appeal more to men to increase the percentage of men that work LTFT, encouraging more equal sharing of caring responsibilities, reducing the stigma for men and, reducing the number of women obliged to choose LTFT working to accommodate caring responsibilities, particularly in primary care	All employing organisations, medical schools, Medical Royal Colleges, AoMRC, HEE, GP practices, Medical TUs, NHSE&I, GMC
	2.6 Implement better retention, re-entering and retraining policies to retain women. Begin with a review of the hurdles that exist and then work to eliminate them	All employing organisations, HEE, GMC, BMA, NHSE&I, HEE, NHS Employers

4.3 Introduce increased transparency on gender pay gaps

Although the NHS has a published basic salary scale for medicine, workforce shortages and local arrangements have resulted in discrepancies in pay for additional activities, or pay increases used as inducements in areas where it is difficult to recruit, and market forces apply. This has a contribution to the gender pay gap in total pay. National standardisation of pay for additional work would reduce the impact of market forces.

Theme	Actions	Responsible organisations
3. Introduce increased transparency on gender pay gaps	3.1 Improve methods of national data collection and recording for GP pay including reporting of gender pay gaps in primary care	NHS Digital, NHSE&I, DHSC, BMA
	3.2 Increase the use of national pay contracts in place of local pay arrangements for hospital doctors	NHS trusts, BMA
	3.3 As far as possible to use standard rates for additional paid activity that are consistent and transparent (for example, waiting list initiatives, locum work)	NHS trusts, CCGs, GP practices and Medical TUs
	3.4 Publish medical gender pay gap and action plans, agreed following staff consultation, in trust and CCG annual reports. Provide a national tool kit for standardised pay gap measurement and reporting	NHS Employers, NHS trusts, CCGs, NHSE&I, Medical TUs
	3.5 Disaggregate the medical gender pay gap from other professional groups in trust gender pay gap reports	NHSE&I, NHS trusts, CCGs
	3.6 Publish, monitor and report the gender balance of those applying for medical posts, the numbers shortlisted and appointed	DHSC, NHSE&I, CCGs, NHS trusts, GP practices, Medical TUs
	3.7 Develop and publish policies and guidance to ensure more gender balance on shortlists	DHSC, NHSE&I, NHS Employers
	3.8 Model and publish the predicted impact on pay, from structural changes agreed in contract negotiations by documentation, and narrative on pay gaps as part of existing public sector equality duty obligations in equality impact assessments	DHSC, Medical TUs

4.4 Mandate changes to policy on gender pay gaps

Although there is encouragement in the NHS to use good practice in appointing medical staff, there is too little adherence to this as it is often seen as advisory, but not mandatory. The mandating of HR good practice would help organisations to address their pay gaps.

Theme	Actions	Responsible organisations
4. Mandate change to policy on gender pay gaps	4.1 A modest oversupply of doctors would reduce the impact of market forces on medical pay which has a negative impact on the gender pay gap. Relevant organisations to be mindful of this in planning any future increases in medical school places and ethical overseas recruitment	DHSC, DfE, HEE, NHSE&I, Medical Royal Colleges, medical schools, Home Office, BMA
	4.2 Set targets to address the balance of the numbers of men and women across the specialties and at more senior levels in each specialty; and monitor results and progress	HEE, DHSC, NHSE&I, AoMRC, Medical Royal Colleges and specialty societies
	4.3 Implement a national equality scheme based on the Athena Swan programme in HEIs	DHSC, NHSE&I, NHS trusts, CCGs, GP practices, Medical TUs
	4.4 Mandate improved, careers' guidance in medical schools and early careers that is equality-proofed and does not perpetuate stereotypes. Include information on the causes of gender pay gaps, and the pay distribution across branches of medicine and medical specialties. Consider what further early-stage guidance or support is needed to address the causes of the gender pay gap	GMC, medical schools, Medical Royal Colleges, BMA
	4.5 All candidates who meet the job description requirements will, wherever practicable, be shortlisted for senior medical jobs, clinical academic jobs and GP partnerships	NHS trusts, medical schools, GP practices, Medical TUs
	4.6 Trusts and CCGs to be assessed on gender pay gaps and their response, as part of the CQC well-led domain	CQC, DHSC
	4.7 Develop and publish targets for the reduction of the gender pay gap in medicine, to be reported at board level with a mandatory reflective narrative to justify short-term changes; and report on action planning	NHS trusts, CCGs, NHSE&I

4.5 Promote behaviour and cultural change

Culture came out as a strong theme in the qualitative evidence and may be an underlying cause of the gender pay gap. The qualitative research in the review revealed a worrying level of bullying, harassment and micro-aggressions in the medical profession. This is not acceptable behaviour and should not be tolerated. A direct effect on the gender pay gap is difficult to be certain of, nonetheless, an inhospitable workplace for women is likely to increase attrition and reduce the number of women in senior positions, which increases the pay gap.

Specific ways to address this include:

Theme	Actions	Responsible organisations
5. Promote behaviour and cultural change	5.1 Use current evidence on wellbeing to create an atmosphere where all doctors feel valued and welcome, especially in relation to caring responsibilities	All organisations involved in the profession, including: medical schools, Medical TUs, professional associations, Medical Royal Colleges, AoMRC
	5.2 Enhance and enforce bullying, harassment and whistle-blowing policies in all NHS organisations. Particular attention should be paid to the bullying and undermining of those with caring responsibilities and those who work part-time	All organisations involved in the profession, including: medical schools, Medical TUs, professional associations, Medical Royal Colleges, AoMRC
	5.3 A zero-tolerance approach to poor behaviour and multiple channels for reporting incidents, including the ability to do so anonymously. Ensure appropriate organisational action is taken in response	All organisations involved in the profession, including: medical schools, Medical TUs, professional associations, Medical Royal Colleges, AoMRC
	5.4 Extend enhanced pay for shared parental leave to all doctors to overcome a cultural barrier to men playing more of a role in caring and to challenge stereotypical assumptions about gender roles	All organisations involved in the profession, including: medical schools, Medical TUs, professional associations, Medical Royal Colleges, AoMRC

4.6 Review clinical excellence and performance payments and change accordingly

Local Clinical Excellence Awards (CEAs) have been reviewed, so these recommendations have taken into account the likely impact of the changes already in train. Our analysis shows that CEAs play an important role in creating the overall gender pay gap, but it may be lower than generally perceived. There is a small, but significant impact from the pay difference caused by the receipt of these bonuses by men more often than women, and in those specialties with more men than women. CEAs also play an important signalling function as to who and what is important to "get on" and be successful in medicine, which needs to be addressed. There is, however, a larger impact on the gender pay gap from other additional paid work which is largely taken on by men.

Specific recommendations to consider include:

Theme	Actions	Responsible organisations
6. Review clinical excellence and performance payments	6.1 Monitor applications and encourage equal numbers of eligible men and women to apply for local and national awards, and to facilitate applications from specialties in receipt of fewer awards	Medical schools, NHS trusts, Medical Royal Colleges, AoMRC, ACCEA, Medical TUs
	6.2 Numbers of men and women eligible for awards, as defined by the Advisory Committee on Clinical Excellence Awards (ACCEA), and in receipt of awards should be reported at medical school, trust board and national level	NHS trusts, medical schools, Medical Royal Colleges, AoMRC, ACCEA
	6.3 Both nationally and locally, reward excellence in a gender-neutral way, including the need for LTFT doctors' contribution to be assessed against the proportionate hours they work; and by reviewing domain/criteria, so additional activity undertaken more frequently by women, such as mentoring, is rewarded equally to that undertaken more frequently by men, such as additional clinical, managerial or research activity	NHS trusts, medical schools, Medical Royal Colleges
	6.4 Use local performance assessment, objective setting, job planning and performance reward to encourage excellence capable of being rewarded locally and nationally	DHSC, Medical Royal Colleges, AoMRC, Medical TUs
	6.5 Support national applications from the Consultant workforce, using talent management and proactive encouragement of those less likely to apply, with EDI targets	Medical Royal Colleges, AoMRC, Medical TUs

4.7 Implement a programme of continuing and robust analysis of gender pay gaps

This report focuses on the gender pay gap but evidence of likely pay gaps in other areas, such as ethnicity and disability, has become apparent during the course of the review. The work has been limited by time and resources, but it is clear that the results offer a significant evidence base from which we have a surrogate measure of equality. This evidence could be enhanced and embedded into NHS and DHSC practice. Narrowing the gap will be difficult, but should be formed on evidence-based approaches.

This would be achieved by:

Theme	Actions	Responsible organisations
7. Implement continuing and robust analysis of gender pay gaps	7.1 Create a national centre for NHS pay gap monitoring, with a research strategy based on the learning from this report. This could be part of a national NHS EDI research observatory, looking at and publishing annual data via a dashboard, which feeds into local policy and process	DHSC, NHSE&I, NIHR
	7.2 Broaden the pay gap research to provide an equivalent evidence base for other protected characteristics which includes a more in-depth evaluation of intersectionality, where protected characteristics are overlapping	DHSC, NHSE&I, NIHR
	7.3 Evaluate the impact of the implementation of shared parental leave on the gender pay gap and make recommendations based on the results	DHSC, Medical TUs
	7.4 Analyse the like-for-like gaps in total pay allocation within large specialties. Explore the bigger pay gaps and their causes in more detail	DHSC, Medical TUs
	7.5 Review pay gaps in medical schools, addressing the difficulties in accurate measurement caused by clinical academic contracts	Medical schools

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Appendix A: Electronic Staff Record data cleaning process

Original sample

– 18,044,471 observations

– 259,372 unique NHS identifiers

– September 2009 to September 2018

– 573 organisation codes

1. Keep only medical and dental staff (403,946 deleted observations)

Staff group	Frequency	%
Add Prof Scientific & Technical Staff	22,063	0.1
Additional Clinical Services	79,750	0.4
Administrative & Clerical	210,489	1.2
Allied Health Professionals	11,646	0.1
Estates and Ancillary	10,663	0.1
Healthcare Scientists	1,256	0.0
Medical & Dental	17,640,525	97.8
No staff group specified	3,026	0.0
Nursing & Midwifery	63,930	0.4
Students	1,123	0.0
Total	**18,044,471**	**100.0**

2. Exclude those with not relevant primary area of work (1,966,186 deleted observations)

Primary area of work	Frequency	%
Clinical Oncology	134,599	0.8
Clinical Support	194,725	1.1
Corporate	497,660	2.8
Dental/Oral	593,236	3.4
Estates	83	0.0
Facilities	3,894	0.0
General Acute	2,248,171	12.7
Imaging	482,187	2.7
Medicine	5,408,946	30.7
No area of work specified	287,486	1.6
Obstetrics & Gynaecology	853,070	4.8
Occupational Health	20,729	0.1
Pathology	501,338	2.8

Primary area of work	Frequency	%
Primary Care	871,184	4.9
Psychiatry	1,120,943	6.4
Public Health	129	0.0
Public Health Medicine	65,054	0.37
Surgery	4,357,091	24.7
Total	**17,640,525**	**100.0**

3. Keep only substantive employees based on type of contract (3,535,544 deleted observations)

Type of contract	Frequency	%
Bank	2,312,121	14.8
Fixed term temp	6,159,204	39.3
Honorary	339,024	2.2
Locum	748,161	4.8
NULL	121,064	0.8
Non-exec Director/Chair	2,321	0.0
Permanent	5,979,591	38.2
Prof Exec Committee	1,769	0.0
Retainer scheme	10,970	0.1
Widow/Widower	114	0.0
Total	**15,674,339**	**100.0**

4. Keep only those with an active assignment (1,230,393 deleted observations)

Status	Frequency	%
Acting up	12,089	0.1
Active assignment	10,908,402	89.9
Assignment costing deletion	169	0.0
Career break	33,139	0.3
Inactive not worked	253	0.0
Internal secondment	4,568	0.0
Maternity	237,575	2.0
Out on external secondment – paid	10,707	0.1
Out on external secondment – unpaid	38,971	0.3
Suspend assignment	71	0.0
Suspend no pay	20,928	0.2
Suspend with pay	2,066	0.0

Status	Frequency	%
Terminate assignment	588	0.0
Terminate process assignment	869,269	7.2
Total	**12,138,795**	**100.0**

5. Keep only those working in secondary care providers (368,767 deleted observations)

Cleaned sample

– 10,539,635 observations

– 197,216 unique NHS identifiers

– September 2009 to September 2018

– 204 organisation codes

Collapse into an individual-based data (that is keeping only one unique nhs identifier per month)

– 10,300,082 observations

– 197,216 unique NHS identifiers

– September 2009 to September 2018

– 204 organisation codes

Recoding and grouping of ESR data fields

1. Grade Codes: 534 codes grouped as Consultant; Associate Specialist; Specialist Doctor; Staff Grade; Specialty Registar; Core Training; Foundation Year 1; Foundation Year 2; HP/CA; Other & local grades.

2. Ethnic Origin: 75 different levels regrouped into White ethnic origin; Other ethnic origin; Unknown/Not stated ethnic origin.

3. Nationality: 180 different levels regrouped into British/Irish; Other; Unknown/Not stated.

4. Religious Belief: ten different levels regrouped into Christian; Other; Unknown/Not stated.

5. Sexual Orientation: six different levels regrouped into Heterosexual; Other; Unknown/Not stated.

6. Disability Status: three different levels grouped as Yes; No; Unknown/Not stated.

7. Strategic Health Authorities: 13 different levels regrouped into ten (London SHAs grouped into a Greater London SHA).

8. Secondary and tertiary areas of work: minor regroupings in order to fix typos within variable levels, for example “Genito Urinary Medicine” and “Genito-Urinary Medicine”; “Obstetrics & Gynaecology”, “Obstetrics” and “Gynaecology”; “Medical Microbiology and Virology”, “Medical Microbiology” and “Medical Virology”.

Further preparation:

– Keep only those within expected age range (21-80 years old), following consultation with ESR

– Keep only those reporting non-negative values in various pay elements

– Calculate FTE pay using monthly pay and hours worked

Final sample:

10,124,462 observations

Alternative sample sizes depending on the (logged) outcome after excluding upper and lower 1% of the respective pay distribution, that is, 9,949,462 for basic pay and 9,922,181 for total earnings.

Appendix B: Summary of data fields/variables in all quantitative datasets

		Data source			
	Field	ESR	HMRC/ wMDS	HESA	GPGiM survey
Personal characteristics	Gender	X	X	X	X
	Nationality	X		X	
	Ethnicity	X	X	X	X
	Age	X	X	X	X
	Disability	X		X	X
	Sexuality	X			
	Religion	X			
	Highest qualification			X	
	Academic teaching qualification			X	
	Length of service		X		
Work characteristics	Job grade/Title	X	X	X	X
	Contracted working hours	X	X	X	X
	Actual working hours				X
	Specialty	X			
	Type of contract (Fixed term/Permanent)	X			
	Multiple contracts			X	
	Multiple assignments	X			
	Clinical Excellence Award	X (used in supplementary OBD)		X	
	Research/Teaching contract			X	
	Registered interest		X		
	Dispensing practice		X		
	Pms contract		X		
Workplace characteristics	Region of England	X	X	X	X
	Year	X		X	
	University			X	

Appendix C: Summary table sample characteristics Electronic Staff Record September 2018

Variable	Levels	N=105,438		
		All	M	F
Total sample		-	55.69	44.31
Ethnicity	White ethnic origin	52.81	51.87	48.13
	Other/Unknown ethnic origin	46.52	60.15	39.85
	Missing information	0.67	47.24	52.76
Nationality	British/Irish	69.42	54.30	45.70
	Other	27.42	58.20	41.80
	Missing information	3.17	64.45	35.55
Disability	Yes	1.19	48.41	51.59
	No	72.41	53.63	46.37
	Not disclosed	16.83	60.42	39.58
	Missing information	9.56	63.87	36.13
Age		40.34	42.16	38.06
Region	Northern Ireland	-	-	-
	Scotland	-	-	-
	Wales	-	-	-
	England			
	North East	4.17	60.44	39.56
	North West	14.84	57.73	42.27
	Yorkshire and The Humber	9.70	57.54	42.46
	East Midlands	6.76	58.22	41.78
	West Midlands	9.20	60.96	39.04
	East of England	9.20	58.85	41.15
	Greater London	22.05	49.68	50.32
	South East Coast	7.71	55.00	45.00
	South East	8.29	54.06	45.94
	South West	8.08	54.30	45.70
Length of service	In NHS	9.54	10.43	8.46
	In current organisation	-	-	-
Specialty				
Primary area of work	Clinical Oncology	1.12	46.21	53.79

Variable	Levels	N=105,438		
		All	M	F
	Clinical Support	0.88	53.61	46.39
	General Acute	7.12	57.98	42.02
	Imaging	4.11	61.88	38.12
	Medicine	36.13	49.90	50.10
	Obstetrics & Gynaecology	6.06	33.68	66.32
	Occupational Health	0.11	47.46	52.54
	Pathology	3.73	44.96	55.04
	Psychiatry	7.45	47.42	52.28
	Public Health Medicine	0.26	27.34	72.66
	Surgery	32.67	68.71	31.29
	No area of work specified	0.35	43.67	56.33
Job title (primary)	Consultant	44.12	63.96	36.04
	Associate Specialist	1.78	62.70	37.30
	Specialty Doctor	6.29	54.93	45.07
	Staff Grade	0.12	67.74	32.26
	Specialty Registrar/ST3+	26.08	47.74	52.26
	Core/Specialty Trainee 1 and 2	9.34	50.56	49.44
	Foundation Doctor Year 2	5.11	44.43	55.57
	Foundation Doctor Year 1	5.83	45.43	54.57
	Hospital Practitioner/Clinical Assistant	0.21	55.05	44.95
	Other & local grades	1.12	54.54	45.46
Hours of work	Monthly hours (ESR); Total usually weekly hours x 4.3 GPGiM survey	154.23	156.29	151.63
FTE		0.949	0.970	0.924
Base pay	Monthly pay	5023.76	5470.55	4462.20
Total NHS pay	Monthly pay (ESR); Total annual earnings in NHS jobs/ 12 GPGiM survey	6700.69	7511.54	5681.58
FTE-adjusted base pay	Monthly pay	5338.21	5691.74	4893.65
FTE-adjusted total NHS pay	Monthly pay (ESR); Total annual earnings in NHS jobs weighted by FTE/12 GPGiM survey	7124.18	7776.01	4893.52

Appendix D: Summary table sample characteristics HMRC linked to wMDS data GPs 2016/17

Variable	Levels	Contractor GP (N=11,196)			Salaried GPs (N=4,803)			Total (N=15,999)		
		All	M	F	All	M	F	All	M	F
Total sample			57	43		27	73		47	53
Ethnicity										
	White ethnic origin	61.1	56.8	66.7	58.7	50.3	61.8	60.5	55.8	64.6
	Non-white	27.1	31.5	21.3	27.2	35.5	24.1	27.1	32.2	22.5
	Missing information/ Prefer not to say	11.8	11.7	12.0	14.1	14.2	14.1	12.5	12.0	12.9
Age (mean)		48.4	49.5	46.9	40.8	42.6	40.1	46.0	48.3	44.0
Work characteristics	Length of service (mean)	13.3	14.5	11.6	4.0	3.7	4.1	10.4	12.7	8.4
	Registered interest	9.4	9.8	8.9	8.7	11.8	7.6	9.2	10.1	8.4
	Missing registered interest	31.0	31.5	30.5	27.8	27.5	28.0	30.1	30.9	29.4
Workplace characteristics	PMS contract (vs. GMS)	27.3	27.3	27.2	38.1	39.3	37.7	30.6	29.3	31.6
	Dispensing practice	17.2	17.8	16.4	15.2	12.9	16.1	16.6	17.0	16.3
Region	London	12.7	11.7	14.0	20.4	19.9	20.6	15.1	13.1	16.9
	Yorkshire and Humber	11.0	11.1	10.9	9.0	10.4	8.5	10.4	11.0	9.9
	Lancashire and South Cumbria	3.2	3.5	2.8	2.0	3.0	1.6	2.8	3.4	2.3
	Greater Manchester	4.9	4.9	5.0	5.0	6.5	4.4	4.9	5.2	4.7

Variable	Levels	Contractor GP (N=11,196)			Salaried GPs (N=4,803)			Total (N=15,999)		
		All	M	F	All	M	F	All	M	F
	Cumbria and North East	5.4	5.2	5.6	6.4	6.3	6.4	5.7	5.4	6.0
	Cheshire and Merseyside	5.3	5.0	5.8	5.0	5.6	4.8	5.3	5.1	5.4
	North Midlands	8.3	8.6	7.8	5.6	5.8	5.5	7.5	8.2	6.8
	West Midlands	6.8	7.3	6.2	8.0	8.9	7.7	7.1	7.5	6.8
	Central Midlands	8.5	9.1	7.8	5.8	5.8	5.8	7.8	8.6	7.0
	East England	7.4	7.6	7.1	6.0	6.2	5.9	6.9	7.4	6.6
	South West South	5.4	5.8	4.8	4.7	4.1	4.9	5.1	5.5	4.8
	South West North	4.4	4.0	5.0	5.7	4.4	6.2	4.8	4.1	5.5
	Hampshire, Isle of Wight and Thames Valley	7.1	6.3	8.2	7.7	5.7	8.4	7.3	6.2	8.3
	Kent, Surrey, Sussex	9.5	9.9	9.0	8.8	7.4	9.3	9.3	9.5	9.1

Appendix E: HESA clinical academics, data cleaning process and final sample

Observation restricted by:

1) GMC registration
2) Healthcare professional specialty not “Dentistry” or “Others in medicine and dentistry”
3) In academic year 2016/17 did not leave between August 2016 to 2017
4) In academic year 2017/18 did not leave between August 2017 to 2018
5) In academic year 2016/17 did not join between August 2016 to 2017
6) In academic year 2017/18 did not join between August 2017 to 2018

Data reshaped to create one individual with single or multiple contracts.

Total study population of interest: 9,430 individuals

1. Gender

Gender	Frequency	%
Male	6,014	63.8
Female	3,416	36.2

2. Academic year

Academic year	Frequency	%
2016/17	4,719	50.0
2017/18	4,711	50.0

3. Single or multiple contract

Contract	Frequency	%
Single	8,705	92.3
Multiple	725	7.7

4. Region of HE provider

Region of HE provider	Frequency	%
North East	296	3.1
North West	848	9.0
Yorkshire and The Humber	546	5.8
East Midlands	472	5.0
West Midlands	584	6.2
East of England	713	7.6
London	2,870	30.4
South East	1,198	12.7
South West	334	3.5
Wales	296	3.1

Region of HE provider	Frequency	%
Scotland	1,131	12.0
Northern Ireland	142	1.5

5. HE provider

HE provider	Frequency	%
The Open University	3	0.0
University of Chester	3	0.0
Canterbury Christ Church University	1	0.0
Bournemouth University	12	0.1
The University of Brighton	82	0.9
The University of Lincoln	2	0.0
University of Plymouth	31	0.3
The University of Sunderland	1	0.0
University of the West of England, Bristol	2	0.0
The University of Birmingham	349	3.7
The University of Bristol	229	2.4
The University of Cambridge	640	6.8
City, University of London	2	0.0
University of Durham	1	0.0
The University of East Anglia	73	0.8
The University of Exeter	60	0.6
The University of Hull	87	0.9
Keele University	111	1.2
The University of Lancaster	22	0.2
The University of Leeds	229	2.4
The University of Leicester	147	1.6
The University of Liverpool	305	3.2
Imperial College	786	8.3
King's College London	573	6.1
LSHTM	94	1.0
QMUL	615	6.5
St George's UoL	119	1.3
UCL	545	5.8
Newcastle University	294	3.1
University of Nottingham	323	3.4

HE provider	Frequency	%
The University of Oxford	797	8.5
The University of Sheffield	206	2.2
The University of Southampton	219	2.3
The University of Surrey	14	0.2
The University of Sussex	82	0.9
The University of Warwick	124	1.3
The University of York	24	0.3
The University of Edinburgh	483	5.1
The University of Glasgow	294	3.1
The University of Aberdeen	196	2.1
The University of Dundee	144	1.5
The University of St Andrews	14	0.2
Bangor University	18	0.2
Cardiff University	205	2.2
Swansea University	73	0.8
Queen's University Belfast	142	1.5
The Institute of Cancer Research	136	1.4
The University of Manchester	496	5.3
Liverpool School of Tropical Medicine	22	0.2

6. Clinical Excellence Award

Clinical Excellence Award (CEA)	Frequency	%
No national level award	7,365	78.1
CEA local level 9 (E&W)	207	2.2
CEA national level 9 – bronze (E&W)	709	7.5
CEA national level 10 – silver (E&W)	497	5.3
CEA national level 11 – gold (E&W)	248	2.6
CEA national level 12 – platinum (E&W)	162	1.7
Merit award (B) (E&W)	28	0.3
Merit award (A) (E&W)	13	0.1
Merit award (A+) (E&W)	26	0.3
Distinction award (B) (Scot)	89	0.9
Distinction award (A) (Scot)	53	0.6
Distinction award (A+) (Scot)	27	0.3
CEA (B) (NI)	6	0.1

CEA variable (binary variable)

Received CEA	Frequency	%
No	7,365	78.1
Yes	2,065	21.9

7. Age variable

The age variable represents the individual's age on 31 August of the reporting year (2016/17 or 2017/18).

Age category at 31 August in reporting year	Frequency	%
22-29 years old	180	1.9
30-39 years old	3,106	32.9
40-49 years old	2,537	26.9
50-59 years old	2,592	27.5
60-69 years old	959	10.2
70 years old and over	56	0.6

8. Disability marker

Disability marker	Frequency	%
No known disability	8,935	94.8
Known disability	147	1.6
Unknown	348	3.7

9. Ethnic origin variable labelled

Ethnic origin	Frequency	%
White	6,738	71.5
Other	1,762	18.7
Unknown	930	9.9

10. Highest qualification held

Highest qualification held	Frequency	%
Doctorate	5,384	57.1
Other higher degree	1,167	12.4
PGCE	25	0.3
Other PG qualification	878	9.3
First degree	1,077	11.4
First degree with QTS	6	0.1
Other qualifications at first degree level	30	0.3
Diploma of HE	10	0.1
HND/HNC	1	0.0

Highest qualification held	Frequency	%
Other undergraduate qualification	27	0.3
A level, Scottish Higher or equivalent	3	0.0
O level/GCSE or equivalent	2	0.0
Other qualification	67	0.7
Not known	753	8.0

Highest qualification (categories)

Highest qualification held category	Frequency	%
Doctorate	5,384	57.1
Postgraduate qualification	2,070	22.0
Undergraduate qualification	1,151	12.2
School level & other qualification	72	0.8
Not known	753	8.90

11. Nationality

Nationality category	Frequency	%
British/Irish	7,908	83.9
Other	1,379	14.6
Unknown	143	1.5

12. Academic teaching qualification

ATQ	Frequency	%
No ATQ	2,395	25.4
Yes ATQ	2,424	23.7
Unknown or N/A	4,611	48.9

Appendix F: Demographic characteristics of participants

Interview number	Gender	Age	Ethnicity	Role	FT/LTFT (reasons for LTFT)	Length of service – current role	Status	Organisation
1	Female	54	White British	Associate Specialist Psychiatry	LTFT; 8 PAs (childcare)	11	Permanent	Mental health trust
2	Male	38	White British	Registrar/Academic Geriatrics	80% clinical/ 20% academic	Training over extended period	Training contract	Acute hospital/ university
3	Female	Late 50s	White British	Consultant General Medicine	FT; 12 PAs	18	Permanent	District General Hospital
4	Male	46	White British	Clinical SL/ Consultant Geriatrics	FT; 12 PAs	Not stated	Permanent	University (honorary in the NHS)
5	Female	36	British Indian	Consultant Psychiatry	LTFT; 8 PAs (childcare)	2 years	Permanent	Hospital
6	Male	39	British Chinese	Registrar Stroke	FT	Training over extended period	Training contract	Hospital
7	Male	34	White British	GP	Locum; average 6 sessions (childcare)	5 years	Locum	GP practices
8	Female	59	White British	Associate Specialist Anaesthetics	FT; 6 PAs, plus BMA work	20 years	Permanent	Hospital trust
9	Male	44	White British	Consultant Psychiatrist	FT; 12 PAs	8 years	Permanent	Community crisis team

Interview number	Gender	Age	Ethnicity	Role	FT/LTFT (reasons for LTFT)	Length of service – current role	Status	Organisation
10	Female	38	White British	Clinical Senior Lecturer/Consultant	LTFT; 8 PAs (childcare)	Not stated	3 year FT (uni)	University
11	Female	59	White British	Specialty Doctor	LTFT; 5.25 PAs (childcare)	6 years	Permanent	Hospital
12	Female	39	Mixed White/West Indian	GP	FT; 10 PAs	3 years	Permanent	GP practice
13	Female	66	White British	Consultant Physician University academic	FT	20+ years	Permanent	University
14	Female	39	White British	ST7 Registrar Anaesthesia	LTFT; 60% (childcare)	4 years	Training contract	Hospital
15	Male	32	White British	ST3 O&G	FT	Not stated	Training contract	Hospital
16	Female	52	N/K	Professor; GP	FT; 2 GP sessions	15 years	Permanent	University/GP practice
17	Male	27	White British	F2	FT	1 year	Training contract	Hospital
18	Female	28	White British	GP Trainee	FT	New starter	Training contract	Hospital A&E
19	Female	67	White British	GP	Retired 2 years ago	40 years	Was permanent	GP practice
20	Female	51	N/K	GP Partner	FT	16 years	Permanent	GP practice

Interview number	Gender	Age	Ethnicity	Role	FT/LTFT (reasons for LTFT)	Length of service – current role	Status	Organisation
21	Female	29	White British	GP Trainee ST1	FT 48 hours	1 year	Training contract	Hospital
22	Female	48	White British	Consultant Colorectal	LTFT; 8 PAs (childcare)	5 years	Permanent	Hospital
23	Male	54	White British	GP Partner	FT	23 years	Permanent	GP
24	Female	40	White British	Consultant Paediatrics	FT (following 10 years LTFT) (childcare)	11 years	Permanent	Hospital
25	Female	42	White British	Consultant Infectious diseases	LTFT; 7 PAs (childcare)	10 years	Permanent	Hospital
26	Female	34	White British	F2	FT	On rotation	Training contract	Hospital
27	Female	45	White British	Consultant Locum Just completed CESR	LTFT; 8 PAs (childcare)	5 years	Locum (rolling)	Hospital
28	Female	32	White British	ST3	LTFT 0.6 (childcare)	On rotation	Training contract	Hospital
29	Male	32	White British	ST2 GP	FT	On rotation	Training contract	Hospital
30	Female	39	British Indian	GP (returner)	Offered job	Return to practice scheme	Permanent	GP

Appendix G: Interview questions

GENDER PAY GAP IN MEDICS

INTERVIEW QUESTIONS: EDUCATION AND CAREER CHOICES

We are interested in talking to you about your working life and your career to date, exploring key events along the way and the factors that have influenced choices. Note we are mostly interested in your experience and career history and very few questions are abstract or generalised to other people. Also note that some of the questions may feel quite personal, so you can choose not to answer at any point.

Ethics consent. Assurance of confidentiality and anonymity. Any questions about these two aspects? Note that we are recording as soon as we are ready to start. Should take about 45 mins.

Demographics: gender, age, current job role and activities, caring responsibilities, ethnicity, number of PAs or sessions being FT or LTFT, permanent/fixed term

1. Tell me about how you decided on medicine as a career?
2. Outline (briefly at this point) the key stages in your career. Probe (not all will be appropriate depending on current career stage):
   i. Medical school: choice, experiences
   ii. Foundation training: experiences
   iii. Specialist training: hospital or GP
   iv. Post training: and whether they qualified or "stepped off" into a staff role
3. Tell me about your current role including additional work (research or private practice) plus type of sessions or PAs including SPAs and APAs
4. And how do you feel about your current working conditions? General and then probe: training? Job security? Career opportunities? Working hours? Pay? Parental leave? Flexible working?
5. Have you so far followed your chosen career path? What career and training structures enabled/prevented this? What are the implications on your career earnings? Has anything changed since your early days in the profession that will benefit or restrict others? Do you think there may be gendered implications? (For example, same for men and women?)
6. How important to you is maximising your earnings in your career? Are other dimensions more important?
7. Who are the people who have most influenced these work values – what role models do you have or have you had in this respect?
8. Have you encountered people that have created barriers that blocked your earning potential? What changes would you recommend to overcome this?
9. What structural barriers have you encountered that may have made salary progression difficult for you, including CEAs and overtime? How about maternity pay and increments, less than FT working, the need for negotiation of starting or promotion packages, other HR policies?
10. Do you feel that you earn what you deserve to earn and how do you make this assessment? (If late-career enough.) What has been the single most useful development in maximising your earnings; and the single biggest inhibitor?

11. (If this hasn't already been covered and only if time.) Tell me about how you manage your work within the context of the rest of your life (thinking about caring responsibilities especially here, but there may be other things such as health).
12. What about the future? What might be your next career move be?

Appendix H: Participant information sheet

Survey information sheet for questionnaire respondents

Title of study: The Gender Pay Gap in Medicine Review

Invitation paragraph

Thank you for reading this information sheet and for considering taking part in this research.

Academics at the University of Surrey and partner institutions have been commissioned by the Department of Health and Social Care to undertake an analysis of ways medical careers might result in different pay outcomes for men and women. I would like to invite you to undertake a questionnaire about this topic. You should only participate if you want to. Choosing not to take part will, of course, not disadvantage you in any way. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully. Please get back to me if there is anything that is not clear or if you would like more information.

What is the purpose of the study?

The Gender Pay Gap in Medicine Review has been commissioned by the Department of Health and Social Care and chaired by Professor Dame Jane Dacre. Our understanding of why women are being paid less than men in medicine is still incomplete. This is an important study that will identify causes of the gender pay gap in the sector and make recommendations that will serve as a basis for making effective policy decisions.

Evidence suggests that family circumstances, age, ethnicity, specialism plus career opportunities and choices have a substantial role to play in the gender pay gap. This is the focus of this part of the study. Opportunities and choices can be influenced by many factors, including working patterns, training pathways, caring responsibilities, access to flexible working and the wider cultural experience of working in a particular context. These topics are the focus of this questionnaire.

Why have I been invited to take part?

You have been invited to take part because you are part of a random sample of doctors selected from the GMC's medical register. The sample comprises 40,000 medics; a mix of men and women at all stages of their career.

Do I have to take part?

Participation is voluntary. You do not have to take part and all responses are anonymous.

What will happen to me if I take part?

Your responses will be collected and form part of the analysis.

What are the possible benefits and risks of taking part?

The information we will get from the study will serve as a basis for making effective policy decisions.

There is a small risk of upset to participants by raising potentially sensitive topics. If any participant finds these discussions upsetting they could contact a dedicated support service such as promoted by the BMA (www.bma.org.uk/advice/work-life-support/your-wellbeing/bma-counselling-and-doctor-advisor-service). We do not foresee any other disadvantages to taking part in the study other than your time invested. However please do let us know if this is not the case.

How is the project being funded?

The project is being funded by the Department of Health and Social Care (www.nationalhealthexecutive.com/Health-Care-News/Page-202/review-into-medical-gender-pay-gap-launched)

This study has been given a favourable ethical opinion by the University of Surrey Ethics Committee.

Who should I contact for further information?

If you have any questions or require more information about this study, please contact me using the following contact details:

Professor Carol Woodhams
Professor of Human Resource Management
People and Organisations Department
Surrey Business School
University of Surrey
Guildford
Surrey GU2 7XH, UK
01483 682006

Email: C.Woodhams@surrey.ac.uk

Who is handling my data?

The University of Surrey, as the sponsor, will act as the "Data Controller" for this study. We will process your personal data on behalf of the controller and are responsible for looking after your information and using it properly. This information will include gender, family circumstances, age, specialism and career stage, which is regarded as "personal data" and ethnicity, which is regarded as a "special category personal data". We will use this information as explained in the "What is the purpose of the study" section above.

What will happen to my data?

As a publicly-funded organisation, we have to ensure when we use identifiable personal information from people who have agreed to take part in research, this data is processed fairly and lawfully and is done so on the basis of public interest This means that when you agree to take part in this research study, we will use your data in the ways needed to conduct and analyse the research study.

All project data related to the administration of the project will be held for at least six years and all research data for at least ten years in accordance with university policy. Your personal data will be held and processed in the strictest confidence, and in accordance with current data protection regulations.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you decide to withdraw your data from the study, we have provided the means for you to do so by citing the randomly generated unique number at the end of the survey and contacting the team on paygapsmedics@surrey.ac.uk Instructions can also be found at the start and the end of the survey. To safeguard your rights, we will use the minimum personally-identifiable information possible.

You can find out more about how we use your information by visiting: www.surrey.ac.uk/information-management/data-protection and/or by contacting dataprotection@surrey.ac.uk

This information will not identify you and will not be combined with other information in a way that could identify you. The information will only be used for the purpose of research, and cannot be used to further contact you or to affect you. Findings will be presented to the Department of Health and Social Care (for England) and via other channels for devolved nations. Findings will be aggregated. No individuals will be identifiable within the presentation of findings. It will not be used to make decisions about future services available to you, such as insurance.

What if I want to complain about the way data is handled?

If you wish to raise a complaint on how we have handled your personal data, you can contact our Data Protection Officer Mr James Newby who will investigate the matter. If you are not satisfied with our response or believe we are processing your personal data in a way that is not lawful you can complain to the Information Commissioner's Office (ICO) by visiting https://ico.org.uk/

For contact details of the University of Surrey's Data Protection Officer please visit www.surrey.ac.uk/information-management/data-protection

Limits to confidentiality

Confidentiality will be respected unless there are compelling and legitimate reasons for this to be breached, for example if we receive information that someone is at risk of harm. If this was the case we would normally inform you first of any decisions that might limit confidentiality.

What if something goes wrong?

If you wish to make a complaint about the conduct of the study you can contact the Senior Policy Manager at the Department of Health and Social Care using the details below for further advice and information:

Katie Kennington
Senior Policy Manager
Workforce Division
Acute Care and Workforce Directorate
Department of Health & Social Care
Quarry House
Leeds LS2 7UE, UK

Email: katie.kennington@dh.gsi.gov.uk

The University has in force the relevant insurance policies which apply to this study. If you wish to complain, or have any concerns about any aspect of the way you have been treated during the course of this study, then you should follow the instructions given above.

Appendix I: Survey consent form

Please complete this form after you have read the Information Sheet.

Title of Study: __ The Gender Pay Gap in Medicine Review Survey ____

Thank you for considering taking part in this research. If you have any questions arising from the Information Sheet, please contact the research lead Professor Carol Woodhams at C.Woodhams@surrey.ac.uk before you decide whether to join in.

By ticking/initialling each box you are consenting to this element of the study. It will be assumed that unticked/uninitialled boxes mean that you DO NOT consent to that part of the study and you may be deemed ineligible for the study.

Please tick or initial

1. I confirm that I have read and understood the information sheet for the above study. I have had the opportunity to consider the information and asked questions which have been answered satisfactorily ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time during the study without giving any reason and without being disadvantaged in any way. Furthermore, I understand that I will be able to withdraw my data up to one month after the interview ☐
3. I consent to the processing of my personal information for the purposes explained to me. I understand that such information will be handled in accordance with current data protection regulations ☐
4. I agree for my special category data (gender, career stage, specialism, family circumstances and age) to be collected for the purposes stated in the information sheet ☐
5. I understand that my information may be subject to review by responsible individuals from the University of Surrey and/or regulators for monitoring and audit purposes ☐
6. I understand that confidentiality and anonymity will be maintained and the researcher will not identify me in any research output ☐

____________________	____________________	____________________
Name of participant	**Date**	**Signature**

Appendix J: Covering letter (via email)

Department of Health & Social Care

Dear [enter name via mailmerge],

As you may be aware, I have been asked by the Department of Health and Social Care to lead an independent review into the gender pay gap in medicine. The review will make recommendations on how to close the gap. It is an important piece of work which will lead to policy changes.

As part of the research, you have been randomly selected to complete a survey, sent to doctors from all groups and backgrounds, which should only take you 20 minutes. [Insert link to survey] The survey will stay open for three weeks. It is important that the information is gathered from a representative sample, to reflect the whole profession. The review has support from across the profession, including the Academy of Medical Royal Colleges, the British Medical Association, the Hospital Consultants and Specialists Association, Health Education England and the General Medical Council.

We have commissioned an independent team of researchers from the University of Surrey to gather evidence on working in medicine, for example, career opportunities and choices, working patterns, training pathways, caring responsibilities, access to flexible working, the role of line managers, and the wider cultural experience of working in medicine. We are aware that there are many factors that underpin pay gaps such as differences between men and women, in working hours and career breaks. We are using statistical methods to analyse the influence of each of these factors on pay.

It is therefore crucial that we receive as much information that is as accurate as possible. The survey contains questions about your pay and financial information. However confidentiality and anonymity will be maintained and the research team will not seek to identify you. A full participant Information Sheet can be seen here plus a list of frequently asked questions about the research here.

Your participation is voluntary and you are free to withdraw at any time during the study without giving any reason and without being disadvantaged in any way.

Many thanks for taking part in this important work.

Professor Dame Jane Dacre

Chair of the Gender Pay Gap in Medicine Review

University College London

Appendix K: Survey reminder email

Dear [enter salutation via mail merge],

Re Gender Pay Gap Review Survey.

This is a polite reminder that **you were randomly selected to complete a survey as part of the Gender Pay Gap Review**, but we have not yet heard from you. I would really appreciate if you could find the time to take part. The review will make recommendations on how to close the gap in medicine. It is an important piece of work which will lead to policy changes.

The survey was sent to doctors from all groups and backgrounds. **The survey closes next week, and should only take you 20 minutes.** Here is a unique link to the survey. It should not be forwarded on to anyone else.

Click here to start the survey

We have had an excellent level of engagement so far. However, **it is important that the information is gathered from as representative a sample as possible, to reflect the whole profession**.

Given the nature of the research, the survey contains questions about your pay and financial information. You are not obliged to supply this information but if you do, please be assured, that confidentiality and anonymity will be maintained and the research team will not seek to identify you.

A full participant Information Sheet can be seen here plus a list of frequently asked questions about the research here. Your participation is voluntary and you are free to withdraw at any time during the study without giving any reason and without being disadvantaged in any way.

Many thanks for taking part in this important work.

Professor Dame Jane Dacre

Chair of the Gender Pay Gap in Medicine Review

University College London

Appendix L: Representativeness of sample

Representativeness of achieved sample; GPs and HCHS doctors and the consequences for gender pay gap calculations

The mean pay for HCHS Doctors in the ESR data is £80,425, which is close to the £77,019 mean value (Table 1) reported in the self-report GPGiM survey. There is no difference in the mean of men's pay between the two data sources (£90,184 compared with £90,403), however, there is a larger difference in women's pay (£68,200 compared with £65,682). With respect to comparison of median pay rates (Table 2), women's pay rates are overall, and in each sub-category, fairly accurate.

There is, however, a higher overall mean gender pay gap in the self-report survey sample than in the ESR population (27.3% compared to 24.4%) but a lower median (25.9% compared with 28.7%) (Table 3). This indicates a higher representation of lower-paid staff represented in the GPGiM survey sample that is a right-hand skewed distribution, in comparison with the left-skewed pay distribution in the ESR population.

It is clear when the sample is broken down into sub-groups, where the gender pay gap discrepancy originates. The split of consultants/non-consultants responding to the GPGiM survey is close to representative (45.3% of the respondents being consultants, a figure very close to the 44.2% figure in the ESR data), however, a) mean consultant pay is underestimated in the GPGiM survey sample especially for women (mean of £99,379 in the ESR data and £90,156 within the survey), adding to the gap, and b) mean non-consultant pay is overestimated for men in the survey (£64,033 compared with £59,977), also adding to the gap.

Finally, as with the GPs (below) and adding to the gender pay gap, there is a general overrepresentation of women respondents in the GPGiM survey sample; both consultant and non-consultant. Women make up 54.5% of survey respondants, while in the ESR data the figure for the female population is 44.4%.

Overall, we can conclude in looking at pay and the gender pay gap, differences can be accounted for by the differences in composition of the two achieved samples. We must bear in mind when reporting GPGiM survey data for HCHS doctors that gender pay gaps are overestimated because lower-paid consultants and women are over-represented.

Table L1. Mean pay for HCHS doctors (£).

	Electronic Staff Record September 2018			GPGiM survey		
	Men	Women	All	Men	Women	All
All HCHS	90,184	68,200	80,425	90,403	65,682	77,019
Consultant	119,564	99,379	112,267	114,324	90,156	103,109
Non-consultant	59,977	50,700	55,254	64,033	49,919	55,468

Table L2. Median pay for HCHS doctors (£).

	Electronic Staff Record September 2018			GPGiM survey		
	Men	Women	All	Men	Women	All
All HCHS	84,015	59,874	69,534	81,000	60,000	67,696
Consultant	113,747	95,828	107,394	105,000	86,000	96,000
Non-Consultant	57,001	48,616	51,528	55,000	46,000	48,434

Figure L1. Composition of the HCHS profession.

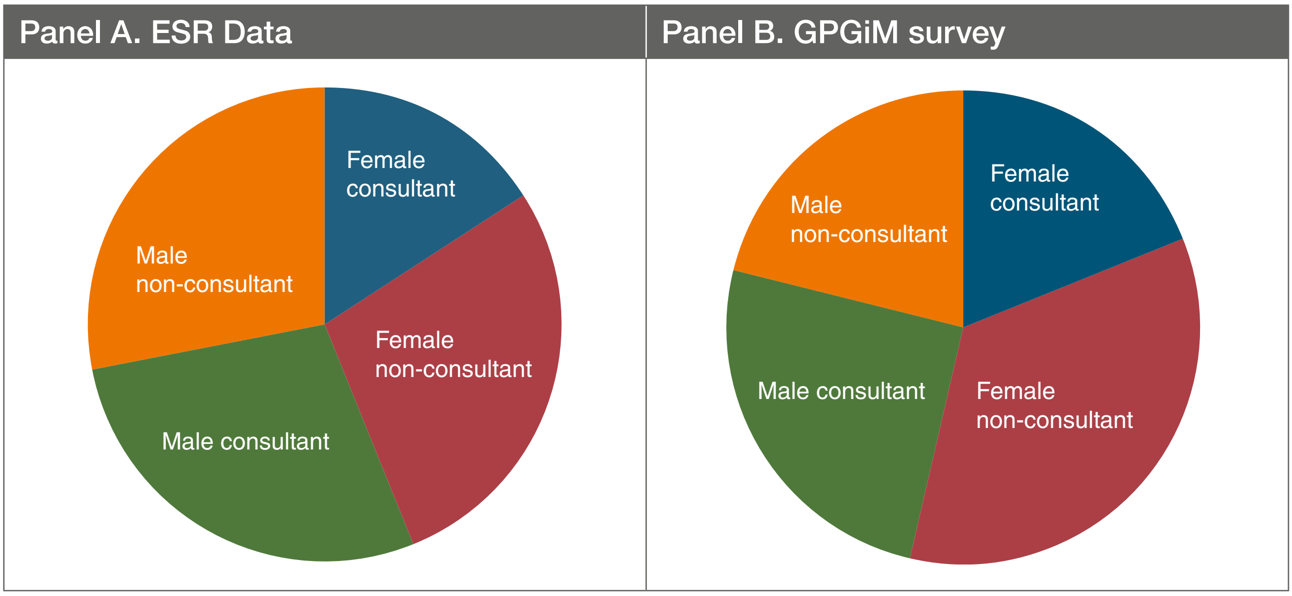


Table L3. Overall gender pay gaps in annual pay among HCHS doctors by grade (%).

	Electronic Staff Record September 2018		GPGiM survey	
	Mean	Median	Mean	Median
All HCHS	24.4	28.7	27.3	25.9
Consultant	16.9	15.8	21.1	18.1
Non-consultant	15.5	14.7	22.0	16.3

According to published NHS Digital reports, mean annual pay of GPs in England for the 2016 to 17 tax year was £93,700[1]. This is substantially higher than the GPGiM survey, where the mean for GPs in England in 2018 was £77,323 (Table 4). A similar discrepancy is found for median pay too (Table 5). This likely partly reflects the disproportionate number of women GPs taking the survey. NHS Digital reports 52.5% of GPs in England are women, while in the GPGiM survey, the corresponding figure is 68.1%. However, the main reason is likely the overrepresentation of salaried GPs/non-contractor GPs, who on average earn significantly less. Indeed, the average pay (mean and median) for both genders are still lower in the GPGiM survey than the NHS Digital/HMRC estimates. According to NHS Digital/HMRC estimates, 30% of GPs are salaried, whereas 60% of the GPGiM survey sample are non-partner GPs. The magnitude of bias in the GPGiM survey sample in favour of salaried/non-partner GPs is similar for both genders.

One reason for this bias is the underrepresentation of certain types of non-partner GPs in the NHS Digital/HMRC data. In the GPGiM survey, 60% of non-partner GPs declare themselves as salaried GPs, with 16.7% and 25.7% reporting being GP registrars or locum GPs respectively. These two groups are not captured in the NHS Digital/HMRC data. Indeed, if we exclude them, 34% of GPs GPGiM survey sample report being salaried GPs – close to the 30% figure reported by NHS Digital/HMRC as being salaried GPs.

However, when we compare mean or median pay by gender and by GP type (Table 6), the discrepancies between the two datasets are minimal. This implies that there is minimal bias with respect to pay within gender-GP type cells in the GPGiM survey and cautious confidence in self-reported GP salary data.

Table L4. Mean annual pay by gender and GP type (£).

	NHS Digital/HMRC			GPGiM survey		
	Men	Women	All	Men	Women	All
All GPs	113,600	75,600	93,700	99,118	67,314	77,323
Contractor/ partner GPs	121,600	94,000	109,600	124,575	94,391	106,384
Salaried GPs	73,600	50,600	56,600	80,459	55,762	61,054

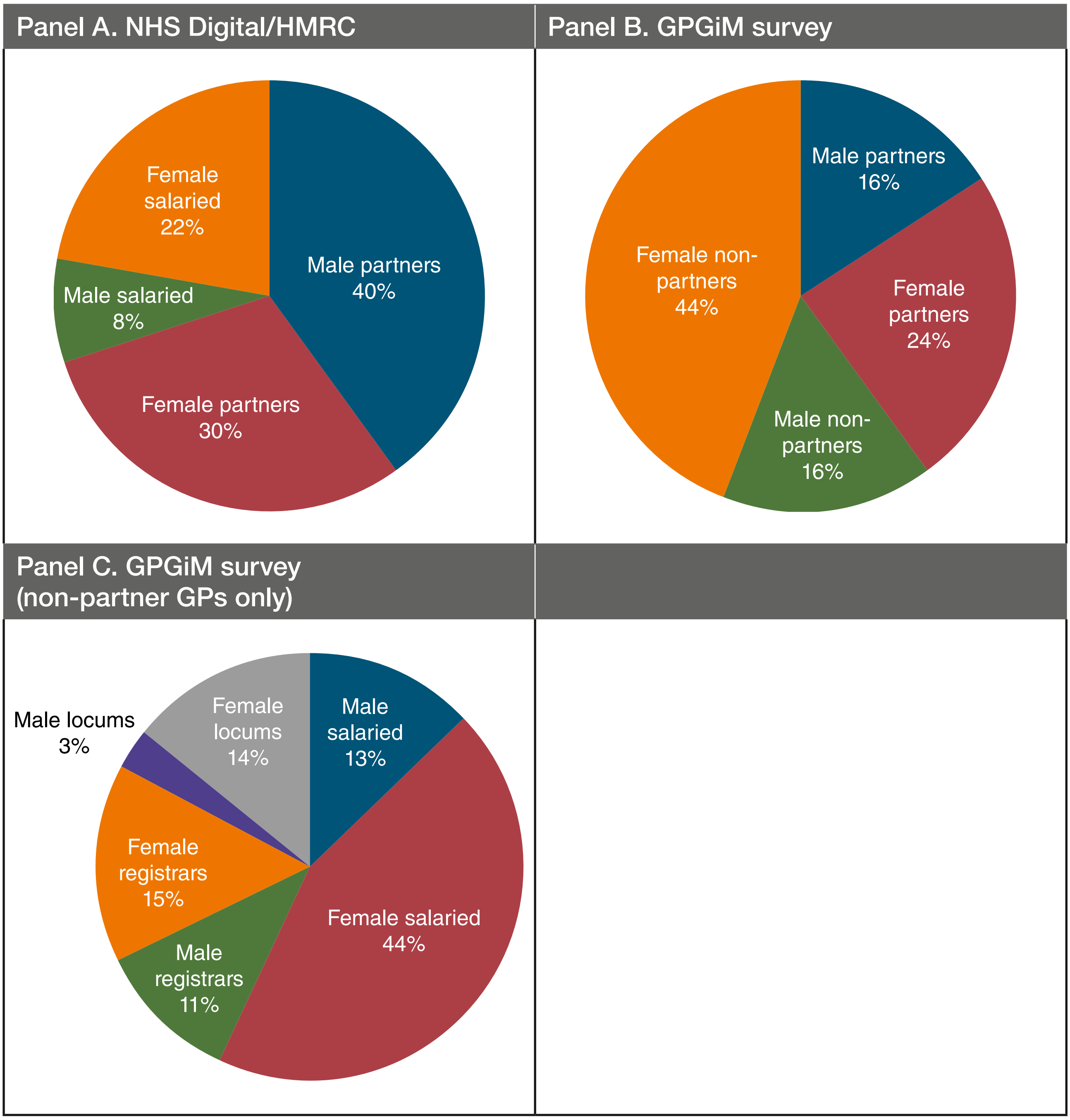
Sources: NHS Digital (2018a; 2018b)[1,2]; GPGiM survey (author's calculations).

Table L5. Median annual pay by gender and GP type (£).

	NHS Digital/HMRC			GPGiM survey		
	Men	Women	All	Men	Women	All
All GPs	107,800	71,800	87,900	92,500	58,000	69,600
Contractor/ partner GPs	115,700	89,500	104,200	120,000	91,000	100,000
Salaried GPs	68,600	47,700	52,700	74,500	51,800	55,000

Sources: NHS Digital (2018a; 2018b)[1,2]; GPGiM survey (author's calculations).

Figure L2. Composition of the GP profession.



Sources: NHS Digital (2018b)[2]; GPGiM survey (author's calculations).

Table L6. Overall gender pay gaps in annual pay among GPs by GP type (%).

	NHS Digital/HMRC		GPGiM survey	
	Mean	Median	Mean	Median
All GPs	33.5	33.4	32.1	37.3
Contractor/partner GPs	22.7	22.6	24.2	24.2
Salaried GPs	31.3	30.5	30.7	30.5

Appendix M: GPGiM survey achieved sample characteristics and gender (%)

	Contractor GPs			Salaried GPs			All GPs		
	Men	Women	Difference	Men	Women	Difference	Men	Women	Difference
Personal characteristics									
Non-white ethnicity	21.3	11.5	-9.8	28.8	20.3	-8.5	28.9	19.5	-9.4
UK/Ireland born	78.3	86.1	7.8	59.6	83.4	23.8	71.7	81.4	9.7
Age (mean) (years)	49.4	47.0	-2.4	45.6	41.7	-3.9	47.4	42.8	-4.6
Disability	4.2	0.0	-4.2	0.0	3.8	3.8	2.1	2.1	0.0
Private school education	39.3	27.5	-11.8	45.8	38.2	-7.6	40.7	34.7	-6.0
Married	95.9	91.1	-4.8	89.7	88.2	-1.5	90.6	86.5	-4.1
Parent	89.3	87.3	-2.0	75.9	79.6	3.7	81.6	78.5	-3.1
Has dependent children	52.5	60.2	7.7	50.0	67.8	17.8	50.2	62.0	11.8
Main parent	18.1	34.8	16.7	25.7	45.0	19.3	22.2	40.7	18.5
Caring responsibilities	9.8	14.3	4.5	10.0	9.5	-0.5	11.7	11.6	-0.1
Work characteristics									
UK/Ireland medical qualification	84.8	90.0	5.2	75.7	89.6	13.9	81.6	87.6	6.0
Years of experience (years)	24.9	22.9	-2.0	20.3	16.8	-3.5	22.5	17.9	-4.6
Tenure (years)	15.8	14.1	-1.7	7.4	4.8	-2.6	11.6	7.7	-3.9
Partner GP	100	100	0.0	1.4	0.8	-0.6	48.4	34.5	-13.9
Salaried GP	0.7	1.0	0.3	100	100	0.0	24.6	39.4	14.8
Locum GP	3.6	2.9	-0.7	10.0	6.3	-3.7	25.6	17.4	-8.2
GP Registrar	0.0	0.0	0.0	0.0	0.0	0.0	6.0	12.5	6.5
Has second job	37.0	26.7	-10.3	48.6	32.9	-15.7	43.4	31.9	-11.5
Has additional pay	36.2	45.7	9.5	41.4	30.8	-10.6	34.4	33.9	-0.5
Previous LTFT	26.2	86.3	60.1	45.8	80.2	34.4	34.1	79.2	45.1
Previous maternity/paternity leave	42.6	84.6	42.0	38.3	77.0	38.7	36.7	75.3	38.6
Previous career break	22.1	33.0	10.9	35.0	34.4	-0.6	29.4	36.7	7.3
Time: patients	52.2	51.3	-0.9	48.9	49.7	0.8	50.7	51.5	0.8
Time: admin	18.8	18.8	0.0	18.0	16.6	-1.4	16.4	16.5	0.1
Time: research/teaching	6.4	6.8	0.4	12.8	6.9	-5.9	9.8	7.1	-2.7
Time: managing others	39.2	38.0	-1.2	20.9	18.6	-2.3	28.9	25.6	-3.3
Time: developing others	8.1	6.0	-2.1	9.6	5.4	-4.2	9.3	6.1	-3.2
Time: committee/other work	13.6	15.0	1.4	10.8	9.1	-1.7	12.5	10.9	-1.6
Autonomy: task volume	2.6	2.6	0.0	2.3	1.9	-0.4	2.6	2.3	-0.3
Autonomy: task time	2.7	3.0	0.3	2.5	2.5	0.0	2.7	2.7	0.0
Autonomy: task notice	2.4	2.5	0.1	2.4	1.9	-0.5	2.4	2.2	-0.2
Workplace characteristics									
Public sector	83.3	84.7	1.4	94.3	98.7	4.4	81.9	87.9	6.0
Private sector	28.3	17.5	-10.8	14.7	7.2	-7.5	27.6	16.9	-10.7
Third sector	23.2	14.5	-8.7	22.1	19.1	-3.0	21.3	16.2	-5.1
Northern England	26.1	33.8	7.7	27.1	26.3	-0.8	25.0	26.9	1.9
Midlands/East England	28.3	24.8	-3.5	30.0	23.3	-6.7	27.8	24.6	-3.2
Southern England	45.7	41.4	-4.3	42.9	50.4	7.5	47.2	48.5	1.3

References

1. NHS Digital (2018a). GP Earnings and Expenses Estimates, 30th August 2018. Available at https://files.digital.nhs.uk/AC/7BD0F9/gp-earn-exp-1617-rep.pdf [accessed 13th March 2019].
2. NHS Digital (2018b). GP Earnings and Expenses Estimates by Gender and Weekly Working Hours England 2016/17: Experimental statistics. Available at https://files.digital.nhs.uk/11/40E2DC/gp-earn-exp-weekly-working-hours-1617-rep.pdf [accessed 13th March 2019].

Chapter 4. Appendices

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Tables

Appendix N

Regarding individual earnings, there are several variables measuring pay elements. For most of the analysis in Appendix O, we will be using two of those pay elements, namely basic pay and total earnings. The former refers to the actual basic pay (salary) earned by an individual doctor in a given month, that being before additions, and the latter to their total earnings during the same period. According to ESR description files, total earnings comprise the sum of all the earnings-related payroll elements present in the data warehouse[1]. it is the sum of the following actual pay elements: basic pay, additional programmed activities, additional standard time payments, band supplements, bonus or performance-related payments, clinical excellence awards, directors of public health supplements, discretionary points, distinction award payments, geographic allowances, occupational absence payments, on-call or standby allowances, overtime or additional working hours, protected pay payments, shift or flexible working payments, and recruitment and retention premia payments. it excludes any employer costs associated with national insurance and pension.

Of course, it is possible that one of the reasons that women earn less than men is that they work fewer hours. The ESR data contain a series of information on working hours. In Appendix O, we will be using the contracted full-time equivalent (FTE). The contracted FTE for an employee is calculated by dividing the contracted hours (or sessions) for their assignments by the standard hours (or sessions) for the grade. On average, the mean contracted FTE in the working sample of the ESR data is 0.95, corresponding to 154 total hours worked in a month or about 35 hours per week, on average.

Next, there is a series of variables referring to personal and demographic characteristics. Using the difference between the date of birth and the date of the data extract (the last day of each month during the period covered by the ESR data), we calculated the age in years for each employee. Gender is measured with a binary variable indicating whether an employee is a woman or man doctor. For ease of analysis, the nationality variable was recoded as a categorical variable; indicating whether an employee is British (or Irish), has any other nationality, or their nationality is unknown or not disclosed. This is the nationality of an employee as declared by the individual on appointment, or as advised by the individual during their employment, should they change their nationality status. Ethnicity was similarly recoded using a categorical indicator on whether an employee has white ethnic origin, any other ethnic origin, or their ethnic origin is unknown or not disclosed. This is the ethnic category to which an employee belongs, as determined by the individual employee. Religious belief is indicated by a categorical variable indicating whether an employee is Christian, is of any other religion, or their religious belief is unknown or not disclosed. The sexual orientation of a person is also classified in three categories: firstly, heterosexual; secondly, homosexual or “other”; and thirdly, unknown or not disclosed. Disability status indicates whether the employee considers either himself or herself to be disabled, and it is classified through a categorical variable into “Yes”, “No”, and “Unknown/Not stated” categories.

We also use several variables referring to job-role characteristics. The first one is grade. In the original ESR extract, grade was classified into a very large number (533) of 4-digit alphanumeric codes. After consultation and guidance from NHS pay experts, we used those codes to classify doctors into a number of grades: Consultant, Associate Specialist, Specialty Doctor, Staff Grade, Specialty Registrar, Core Training, Foundation Year 1, Foundation Year 2, Hospital Practitioners & Clinical Assistants (HP/CA), and Other & local grades.

There are three different fields in the ESR data that can be used to measure an individual doctor’s specialty, namely primary area of work, secondary area of work and tertiary area of work. The primary area of work field classifies doctors into one of the following fields: clinical oncology, clinical support, general acute, imaging, medicine, no area of work specified, obstetrics and gynaecology, occupational health, pathology, psychiatry, public health medicine, and surgery. The secondary area of work field is more disaggregated and classifies doctors into 95 different specialties, such as paediatrics, cardiology, elderly care medicine, anaesthetics, plastic surgery, respiratory medicine and so on. The tertiary area of work field is even more detailed, grouping doctors into 191 different specialties.

We use the Type of Contract field to classify doctors into those working under fixed-term temporary contracts and permanent contracts. Also, we use the Assignment Number field to group doctors into those having one or more than one assignment within a given month. There are also other variables regarding the location of each hospital, that is, the Trust Code field indicates the organisation within which each person is observed, and the Strategic Health Authority field that groups the 225 NHS organisations into ten broad geographical areas: North East, North West, Yorkshire & The Humber, East Midlands, West Midlands, East of England, London, South East Coast, South Central, and South West.

Appendix O

Table O1. Estimation of the overall gender pay gap for FTE-corrected basic pay (September 2009 to September 2018): full results.

	Total sample	Total sample	Trimmed sample	Trimmed sample
Variable name	Raw gap	Adjusted gap	Raw gap	Adjusted gap
Female	-0.2190*** (0.0053)	-0.0296*** (0.0017)	-0.2003*** (0.0051)	-0.0128*** (0.0006)
Age in years	-	0.0269*** (0.0010)	-	0.0309*** (0.0007)
Age in years (squared)	-	-0.0002*** (0.0000)	-	-0.0002*** (0.0000)
Associate Specialist	-	-0.1700*** (0.0034)	-	-0.1815*** (0.0021)
Specialty Doctor	-	-0.4092*** (0.0040)	-	-0.3941*** (0.0023)
Staff Grade	-	-0.5307*** (0.0195)	-	-0.4769*** (0.0065)
Specialty Registrar	-	-0.6416*** (0.0146)	-	-0.6003*** (0.0048)
Core Training	-	-0.7471*** (0.0128)	-	-0.7103*** (0.0050)
Foundation Year 1	-	-1.0073*** (0.0141)	-	-0.9670*** (0.0053)
Foundation Year 2	-	-0.8203*** (0.0138)	-	-0.7970*** (0.0051)
HP/CA	-	-0.5034*** (0.0340)	-	-0.4495*** (0.0089)
Other & local grades	-	-0.7393*** (0.0920)	-	-0.4170*** (0.0449)
Allergy	-	0.0153 (0.0165)	-	0.0132 (0.0122)
Ambulance Services	-	-0.0012 (0.0116)	-	0.0001 (0.0059)
Anaesthetics	-	0.0234*** (0.0046)	-	0.0235*** (0.0024)
Audio Vestibular Medicine	-	0.0357* (0.0213)	-	0.0037 (0.0124)
Audiological Medicine	-	-0.0315 (0.0347)	-	0.0062 (0.0058)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
Blood Sciences	-	0.0007 (0.0195)	-	0.0195** (0.0095)
Breast Screening	-	0.0506*** (0.0129)	-	0.0308*** (0.0078)
Burns Care	-	-0.0144 (0.0259)	-	-0.0656*** (0.0103)
Cancer Support	-	0.0166 (0.0101)	-	0.0280*** (0.0041)
Cardiac, Vascular, Respiratory & Sleep Sciences	-	-0.0272*** (0.0101)	-	-0.0567*** (0.0069)
Cardio-thoracic Surgery	-	0.0130** (0.0062)	-	0.0109*** (0.0037)
Cardiology	-	0.0117** (0.0051)	-	0.0126*** (0.0027)
Cellular Sciences	-	-0.0007 (0.0088)	-	0.0096* (0.0057)
Chemical Pathology	-	-0.0196 (0.0306)	-	0.0145*** (0.0035)
Child & Adolescent Psychiatry	-	0.0039 (0.0207)	-	0.0035 (0.0042)
Chiropody/Podiatry	-	0.0903 (0.2075)	-	0.1594** (0.0659)
Clinical Cytogenetics & Molecular Genetics	-	0.0311 (0.0552)	-	-0.0122 (0.0362)
Clinical Engineering	-	0.0036 (0.0126)	-	0.0003 (0.0202)
Clinical Genetics	-	-0.0099 (0.0293)	-	0.0127*** (0.0043)
Clinical Haematology	-	0.0086 (0.0084)	-	0.0162*** (0.0034)
Clinical Informatics	-	0.0216 (0.0135)	-	0.0330* (0.0199)
Clinical Neurophysiology	-	0.0007 (0.0085)	-	0.0073 (0.0051)
Clinical Oncology	-	0.0104 (0.0066)	-	0.0125*** (0.0032)
Clinical Pharmacology & Therapeutics	-	0.0264*** (0.0099)	-	0.0224*** (0.0072)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
Clinical Physiology	-	0.1827 (0.1403)	-	-0.0024 (0.0150)
Clinical Psychology	-	0.0269 (0.0474)	-	0.0024 (0.0155)
Clinical Radiology	-	0.0215*** (0.0052)	-	0.0226*** (0.0027)
Clinical Support	-	0.0878*** (0.0323)	-	0.0225 (0.0146)
Complementary Medicine/ Therapy	-	0.0309* (0.0183)	-	0.0080** (0.0035)
Counselling	-	0.2287*** (0.0443)	-	-0.0978*** (0.0199)
Dermatology	-	0.0489*** (0.0141)	-	0.0318*** (0.0045)
Dietetics	-	-0.1370* (0.0828)	-	-0.0901*** (0.0183)
Elderly Care Medicine	-	-0.0071 (0.0048)	-	-0.0037* (0.0021)
Endocrinology & Diabetes Mellitus	-	0.0160* (0.0091)	-	0.0150*** (0.0029)
Forensic Psychiatry	-	0.0502* (0.0268)	-	0.0182*** (0.0055)
Gastroenterology	-	0.0167** (0.0064)	-	0.0165*** (0.0028)
General Acute	-	-0.4193 (0.3407)	-	0.0017 (0.0081)
General Medicine	-	-0.0183** (0.0078)	-	-0.0056** (0.0024)
General Pathology	-	0.0556** (0.0267)	-	0.0275** (0.0107)
General Psychiatry	-	0.0102 (0.0232)	-	0.0012 (0.0039)
General Surgery	-	0.0066 (0.0045)	-	0.0087*** (0.0026)
Genito Urinary Medicine	-	0.0017 (0.0079)	-	0.0094*** (0.0034)
Haematology	-	0.0089 (0.0061)	-	0.0145*** (0.0027)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
Health Promotion	-	0.7102*** (0.0901)	-	0.2615*** (0.0420)
Histopathology	-	0.0161** (0.0078)	-	0.0225*** (0.0026)
Imaging	-	0.0247*** (0.0062)	-	0.0315*** (0.0038)
Immunology	-	0.0182 (0.0193)	-	0.0209** (0.0099)
Infectious Diseases	-	-0.0052 (0.0100)	-	0.0119*** (0.0038)
Intensive Care Medicine	-	0.0128* (0.0068)	-	0.0107*** (0.0039)
Maternity	-	-0.0156 (0.0148)	-	-0.0072 (0.0049)
Medical Illustration	-	0.1051*** (0.0101)	-	0.0873*** (0.0063)
Medical Microbiology & Virology	-	0.0143** (0.0061)	-	0.0152*** (0.0032)
Medical Oncology	-	-0.0103 (0.0137)	-	0.0076* (0.0040)
Medical Ophthalmology	-	-0.0212 (0.0178)	-	-0.0316*** (0.0057)
Medical Physics	-	0.0281** (0.0123)	-	0.0241*** (0.0076)
Medical Psychotherapy	-	0.0409* (0.0225)	-	0.0121* (0.0069)
Medicine	-	-0.0124 (0.0078)	-	-0.0046 (0.0035)
Neonatal Intensive Care	-	-0.0021 (0.0144)	-	-0.0005 (0.0041)
Neurology	-	-0.0096 (0.0121)	-	0.0113*** (0.0029)
Neurosurgery	-	-0.0048 (0.0077)	-	0.0044 (0.0042)
No area of work specified	-	0.0042 (0.0147)	-	0.0034 (0.0042)
Nuclear Medicine	-	0.0370*** (0.0109)	-	0.0220*** (0.0057)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
Obstetrics & Gynaecology	-	-0.0033 (0.0052)	-	-0.0032 (0.0024)
Occupational Health	-	0.0262 (0.0480)	-	0.0252*** (0.0078)
Old Age Psychiatry	-	0.0059 (0.0245)	-	-0.0063 (0.0040)
Operating Department	-	0.0301 (0.0206)	-	0.0192 (0.0146)
Ophthalmology	-	-0.0001 (0.0051)	-	-0.0080** (0.0040)
Orthoptics/Optics	-	0.0660 (0.0536)	-	0.0109 (0.0352)
Otolaryngology	-	0.0053 (0.0058)	-	0.0021 (0.0029)
Outpatients	-	0.1333* (0.0763)	-	0.0621 (0.0474)
Paediatric Cardiology	-	0.0206** (0.0087)	-	0.0136* (0.0071)
Paediatric Surgery	-	0.0091 (0.0101)	-	0.0099** (0.0043)
Paediatrics	-	0.0017 (0.0045)	-	0.0018 (0.0020)
Pain Management	-	-0.0104 (0.0682)	-	0.0074 (0.0062)
Palliative Medicine	-	0.0130 (0.0117)	-	0.0141** (0.0055)
Pathology	-	0.0279*** (0.0073)	-	0.0219*** (0.0036)
Pharmaceutical Medicine	-	-0.6875 (0.7753)	-	0.0285* (0.0145)
Physiotherapy	-	-0.2474 (0.5498)	-	0.1164 (0.0890)
Plastic Surgery	-	-0.0050 (0.0108)	-	0.0060 (0.0038)
Prosthetics & Orthotics	-	-0.0968 (0.2027)	-	0.0463*** (0.0136)
Psychiatry	-	-0.0100 (0.0204)	-	-0.0091** (0.0041)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
Psychiatry of Learning Disability	-	0.0289 (0.0222)	-	0.0036 (0.0051)
Psychotherapy	-	0.0754** (0.0320)	-	0.0037 (0.0077)
Public Health Medicine	-	0.0524 (0.0384)	-	0.0035 (0.0251)
Rehabilitation	-	-0.0177 (0.0173)	-	-0.0083* (0.0045)
Renal Medicine	-	0.0079 (0.0081)	-	0.0132*** (0.0028)
Respiratory Medicine	-	0.0069 (0.0062)	-	0.0139*** (0.0025)
Rheumatology	-	0.0190** (0.0086)	-	0.0185*** (0.0026)
Sport & Exercise Medicine	-	0.0363* (0.0206)	-	0.0431*** (0.0068)
Stoma Care	-	0.1486*** (0.0059)	-	0.0927*** (0.0031)
Surgery	-	0.0100 (0.0100)	-	0.0057 (0.0035)
Trauma & Orthopaedic Surgery	-	0.0021 (0.0079)	-	0.0083*** (0.0024)
Tropical Medicine	-	-0.0422*** (0.0153)	-	-0.0507*** (0.0034)
Urology	-	0.0084* (0.0049)	-	0.0039 (0.0027)
Permanent contract	-	0.0478*** (0.0133)	-	0.0491*** (0.0035)
Multiple assignments	-	0.0419*** (0.0123)	-	0.0049 (0.0042)
Other nationality	-	-0.0085*** (0.0022)	-	-0.0094*** (0.0010)
Not stated nationality	-	-0.0007 (0.0059)	-	0.0051*** (0.0019)
Other ethnicity	-	-0.0031* (0.0016)	-	-0.0074*** (0.0008)
Not stated ethnicity	-	-0.0195*** (0.0049)	-	-0.0083*** (0.0012)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
Other religion	-	0.0001 (0.0015)	-	-0.0005 (0.0006)
Not stated religion	-	-0.0017 (0.0025)	-	-0.0013 (0.0008)
Other sexual orientation	-	0.0083* (0.0044)	-	-0.0038** (0.0017)
Not stated sexual orientation	-	0.0005 (0.0022)	-	0.0021*** (0.0008)
No disability	-	0.0295*** (0.0111)	-	0.0010 (0.0025)
Not stated disability	-	0.0242** (0.0112)	-	0.0045 (0.0030)
Year: 2010	0.0217*** (0.0025)	0.0142*** (0.0020)	0.0208*** (0.0013)	0.0130*** (0.0005)
Year: 2011	0.0383*** (0.0034)	0.0252*** (0.0031)	0.0305*** (0.0020)	0.0195*** (0.0009)
Year: 2012	0.0501*** (0.0072)	0.0329*** (0.0072)	0.0384*** (0.0022)	0.0238*** (0.0011)
Year: 2013	0.0661*** (0.0067)	0.0407*** (0.0071)	0.0531*** (0.0033)	0.0292*** (0.0010)
Year: 2014	0.0806*** (0.0067)	0.0475*** (0.0069)	0.0652*** (0.0040)	0.0345*** (0.0010)
Year: 2015	0.0899*** (0.0065)	0.0490*** (0.0066)	0.0741*** (0.0046)	0.0366*** (0.0010)
Year: 2016	0.1041*** (0.0067)	0.0548*** (0.0068)	0.0936*** (0.0052)	0.0441*** (0.0012)
Year: 2017	0.1464*** (0.0069)	0.0893*** (0.0071)	0.1268*** (0.0050)	0.0786*** (0.0012)
Year: 2018	0.1727*** (0.0075)	0.1115*** (0.0076)	0.1528*** (0.0050)	0.1005*** (0.0016)
February	-0.0021** (0.0009)	-0.0050*** (0.0010)	-0.0003 (0.0002)	-0.0035*** (0.0002)
March	0.0061*** (0.0006)	0.0022*** (0.0006)	0.0043*** (0.0003)	-0.0001 (0.0002)
April	0.0039*** (0.0010)	-0.0016* (0.0009)	0.0070*** (0.0005)	-0.0011*** (0.0002)
May	0.0182*** (0.0008)	0.0113*** (0.0007)	0.0133*** (0.0005)	0.0076*** (0.0003)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
June	0.0148*** (0.0010)	0.0063*** (0.0007)	0.0133*** (0.0005)	0.0047*** (0.0002)
July	0.0055** (0.0023)	-0.0031 (0.0019)	0.0150*** (0.0005)	0.0042*** (0.0002)
August	-0.0116*** (0.0019)	-0.0159*** (0.0019)	0.0192*** (0.0015)	-0.0021*** (0.0005)
September	0.0138*** (0.0012)	0.0105*** (0.0013)	0.0137*** (0.0006)	0.0113*** (0.0003)
October	0.0154*** (0.0014)	0.0119*** (0.0014)	0.0118*** (0.0006)	0.0098*** (0.0004)
November	0.0214*** (0.0012)	0.0172*** (0.0012)	0.0156*** (0.0005)	0.0128*** (0.0003)
December	0.0210*** (0.0011)	0.0155*** (0.0012)	0.0173*** (0.0006)	0.0121*** (0.0002)
Constant	8.3792*** (0.0063)	7.9270*** (0.0310)	8.4126*** (0.0039)	7.8612*** (0.0194)
Observations	10,365,953	10,365,953	10,179,248	10,179,248
R-squared	0.0549	0.4709	0.0955	0.9480
Hospital fixed effects	Yes	Yes	Yes	Yes

Source: Electronic Staff Records (ESR), NHS Digital.

Notes: OLS estimates. FTE-corrected basic and FTE-corrected total pay are measured in logarithms. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

Table O2. Estimation of the overall gender pay gap for FTE-corrected total pay (September 2009 to September 2018): full results.

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
Female	-0.2593*** (0.0061)	-0.0770*** (0.0023)	-0.2293*** (0.0055)	-0.0588*** (0.0019)
Age in years	-	0.0316*** (0.0008)	-	0.0360*** (0.0007)
Age in years (squared)	-	-0.0002*** (0.0000)	-	-0.0003*** (0.0000)
Associate Specialist	-	-0.2734*** (0.0054)	-	-0.2759*** (0.0046)
Specialty Doctor	-	-0.4488*** (0.0062)	-	-0.4297*** (0.0049)
Staff Grade	-	-0.5416*** (0.0203)	-	-0.4919*** (0.0131)
Specialty Registrar	-	-0.4026*** (0.0129)	-	-0.3726*** (0.0065)
Core Training	-	-0.5020*** (0.0103)	-	-0.4750*** (0.0069)
Foundation Year 1	-	-0.8039*** (0.0123)	-	-0.7500*** (0.0074)
Foundation Year 2	-	-0.5959*** (0.0111)	-	-0.5775*** (0.0069)
HP/CA	-	-0.5955*** (0.0200)	-	-0.5919*** (0.0145)
Other & local grades	-	-0.4424*** (0.0482)	-	-0.3051*** (0.0342)
Allergy	-	-0.1788*** (0.0194)	-	-0.1783*** (0.0189)
Ambulance Services	-	-0.0004 (0.0134)	-	-0.0051 (0.0066)
Anaesthetics	-	0.0058 (0.0042)	-	0.0032 (0.0039)
Audio Vestibular Medicine	-	-0.1926*** (0.0151)	-	-0.2086*** (0.0153)
Audiological Medicine	-	-0.1479*** (0.0236)	-	-0.1237*** (0.0246)
Blood Sciences	-	-0.1492** (0.0673)	-	-0.1262*** (0.0480)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
Breast Screening	-	-0.0696*** (0.0224)	-	-0.0683*** (0.0186)
Burns Care	-	-0.1010*** (0.0309)	-	-0.1404*** (0.0166)
Cancer Support	-	-0.0511*** (0.0109)	-	-0.0543*** (0.0081)
Cardiac, Vascular, Respiratory & Sleep Sciences	-	-0.0999*** (0.0084)	-	-0.1143*** (0.0080)
Cardio-thoracic Surgery	-	0.0643*** (0.0090)	-	0.0468*** (0.0069)
Cardiology	-	-0.0102 (0.0063)	-	-0.0157*** (0.0049)
Cellular Sciences	-	-0.1355*** (0.0185)	-	-0.1205*** (0.0129)
Chemical Pathology	-	-0.0647*** (0.0169)	-	-0.0700*** (0.0120)
Child & Adolescent Psychiatry	-	-0.0978*** (0.0116)	-	-0.0815*** (0.0078)
Chiropody/Podiatry	-	-0.2121 (0.2200)	-	-0.0402 (0.0648)
Clinical Cytogenetics & Molecular Genetics	-	-0.2439** (0.0953)	-	-0.2968*** (0.0744)
Clinical Engineering	-	-0.2498*** (0.0768)	-	-0.2540*** (0.0890)
Clinical Genetics	-	-0.1857*** (0.0365)	-	-0.1596*** (0.0140)
Clinical Haematology	-	-0.0311*** (0.0115)	-	-0.0259*** (0.0075)
Clinical Informatics	-	0.0846 (0.0989)	-	0.0886 (0.1074)
Clinical Neurophysiology	-	-0.1144*** (0.0135)	-	-0.1128*** (0.0121)
Clinical Oncology	-	-0.0672*** (0.0068)	-	-0.0691*** (0.0060)
Clinical Pharmacology & Therapeutics	-	-0.0677** (0.0308)	-	-0.0762** (0.0318)
Clinical Physiology	-	0.0779 (0.1293)	-	-0.0193 (0.0640)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
Clinical Psychology	-	-0.1138*** (0.0189)	-	-0.1217*** (0.0253)
Clinical Radiology	-	-0.0165* (0.0091)	-	-0.0260*** (0.0067)
Clinical Support	-	0.0036 (0.0424)	-	-0.0282 (0.0266)
Complementary Medicine/ Therapy	-	-0.1346*** (0.0237)	-	-0.1309*** (0.0099)
Counselling	-	0.0154 (0.0328)	-	0.0013 (0.0408)
Dermatology	-	-0.0656*** (0.0114)	-	-0.0694*** (0.0075)
Dietetics	-	-0.2161 (0.1401)	-	-0.1571* (0.0907)
Elderly Care Medicine	-	-0.0471*** (0.0050)	-	-0.0499*** (0.0035)
Endocrinology & Diabetes Mellitus	-	-0.0248*** (0.0063)	-	-0.0305*** (0.0050)
Forensic Psychiatry	-	-0.0315* (0.0185)	-	-0.0295* (0.0151)
Gastroenterology	-	0.0126** (0.0063)	-	-0.0011 (0.0043)
General Acute	-	-0.0940 (0.0722)	-	-0.0455* (0.0233)
General Medicine	-	-0.0589*** (0.0058)	-	-0.0606*** (0.0042)
General Pathology	-	-0.0211 (0.0544)	-	-0.0287 (0.0423)
General Psychiatry	-	-0.0826*** (0.0099)	-	-0.0704*** (0.0070)
General Surgery	-	0.0088* (0.0051)	-	-0.0010 (0.0040)
Genito Urinary Medicine	-	-0.1083*** (0.0084)	-	-0.1010*** (0.0067)
Haematology	-	-0.0331*** (0.0069)	-	-0.0290*** (0.0050)
Health Promotion	-	0.2565*** (0.0433)	-	0.1123*** (0.0306)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
Histopathology	-	-0.0989*** (0.0130)	-	-0.0960*** (0.0091)
Imaging	-	-0.0099 (0.0125)	-	-0.0159 (0.0102)
Immunology	-	-0.0926*** (0.0316)	-	-0.0855*** (0.0221)
Infectious Diseases	-	-0.0324*** (0.0092)	-	-0.0285*** (0.0071)
Intensive Care Medicine	-	0.0360*** (0.0073)	-	0.0313*** (0.0046)
Maternity	-	-0.0418** (0.0168)	-	-0.0374*** (0.0116)
Medical Illustration	-	0.0122* (0.0062)	-	-0.0220 (0.0210)
Medical Microbiology & Virology	-	-0.0381*** (0.0097)	-	-0.0356*** (0.0077)
Medical Oncology	-	-0.0886*** (0.0152)	-	-0.0739*** (0.0077)
Medical Ophthalmology	-	-0.1142*** (0.0300)	-	-0.1210*** (0.0221)
Medical Physics	-	0.0023 (0.0287)	-	-0.0236 (0.0175)
Medical Psychotherapy	-	-0.1061*** (0.0164)	-	-0.1067*** (0.0148)
Medicine	-	-0.0629*** (0.0142)	-	-0.0619*** (0.0125)
Neonatal Intensive Care	-	-0.0083 (0.0140)	-	-0.0061 (0.0071)
Neurology	-	-0.0672*** (0.0100)	-	-0.0636*** (0.0059)
Neurosurgery	-	0.0128 (0.0108)	-	0.0148 (0.0092)
No area of work specified	-	-0.0743*** (0.0153)	-	-0.0656*** (0.0072)
Nuclear Medicine	-	-0.0957*** (0.0205)	-	-0.1071*** (0.0169)
Obstetrics & Gynaecology	-	-0.0285*** (0.0053)	-	-0.0300*** (0.0040)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
Occupational Health	-	-0.1613*** (0.0218)	-	-0.1725*** (0.0158)
Old Age Psychiatry	-	-0.0912*** (0.0114)	-	-0.0782*** (0.0081)
Operating Department	-	-0.0197 (0.0318)	-	-0.0218 (0.0292)
Ophthalmology	-	-0.0554*** (0.0073)	-	-0.0635*** (0.0068)
Orthoptics/Optics	-	-0.0599 (0.0442)	-	-0.0987* (0.0503)
Otolaryngology	-	-0.0112* (0.0059)	-	-0.0143*** (0.0048)
Outpatients	-	0.0410 (0.0783)	-	-0.0040 (0.0398)
Paediatric Cardiology	-	0.0366 (0.0314)	-	0.0204 (0.0324)
Paediatric Surgery	-	0.0312** (0.0120)	-	0.0288*** (0.0083)
Paediatrics	-	-0.0332*** (0.0049)	-	-0.0330*** (0.0038)
Pain Management	-	-0.0409 (0.0294)	-	-0.0585*** (0.0188)
Palliative Medicine	-	-0.0956*** (0.0103)	-	-0.0838*** (0.0085)
Pathology	-	-0.0726*** (0.0137)	-	-0.0811*** (0.0118)
Pharmaceutical Medicine	-	-0.7986 (0.8266)	-	-0.0274 (0.0297)
Physiotherapy	-	0.0763 (0.0733)	-	0.0358 (0.0612)
Plastic Surgery	-	-0.0302*** (0.0076)	-	-0.0338*** (0.0075)
Prosthetics & Orthotics	-	-0.3156 (0.1997)	-	-0.1567*** (0.0286)
Psychiatry	-	-0.1064*** (0.0105)	-	-0.0846*** (0.0077)
Psychiatry of Learning Disability	-	-0.0764*** (0.0135)	-	-0.0734*** (0.0114)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
Psychotherapy	-	-0.0788*** (0.0226)	-	-0.1021*** (0.0245)
Public Health Medicine	-	-0.2493*** (0.0260)	-	-0.2664*** (0.0209)
Rehabilitation	-	-0.0849*** (0.0088)	-	-0.0824*** (0.0061)
Renal Medicine	-	-0.0017 (0.0111)	-	0.0016 (0.0061)
Respiratory Medicine	-	-0.0254*** (0.0077)	-	-0.0270*** (0.0051)
Rheumatology	-	-0.0937*** (0.0098)	-	-0.0898*** (0.0058)
Sport & Exercise Medicine	-	-0.1910*** (0.0561)	-	-0.1934*** (0.0558)
Stoma Care	-	0.0898*** (0.0064)	-	0.0432*** (0.0051)
Surgery	-	0.0180* (0.0108)	-	-0.0022 (0.0060)
Trauma & Orthopaedic Surgery	-	-0.0221*** (0.0054)	-	-0.0274*** (0.0046)
Tropical Medicine	-	-0.0866*** (0.0059)	-	-0.0979*** (0.0146)
Urology	-	0.0216*** (0.0059)	-	0.0064 (0.0052)
Permanent contract	-	0.1184*** (0.0119)	-	0.1075*** (0.0055)
Multiple assignments	-	-0.0108 (0.0093)	-	-0.0196*** (0.0068)
Other nationality	-	-0.0116*** (0.0021)	-	-0.0128*** (0.0016)
Not stated nationality	-	0.0034 (0.0067)	-	0.0087** (0.0044)
BAME ethnicity	-	-0.0067*** (0.0015)	-	-0.0102*** (0.0011)
Not stated ethnicity	-	-0.0314*** (0.0044)	-	-0.0199*** (0.0022)
Other religion	-	0.0003 (0.0014)	-	0.0008 (0.0011)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
Not stated religion	-	-0.0053** (0.0022)	-	-0.0033* (0.0018)
Other sexual orientation	-	-0.0048 (0.0044)	-	-0.0101*** (0.0038)
Not stated sexual orientation	-	0.0037* (0.0022)	-	0.0052*** (0.0016)
No disability	-	0.0433*** (0.0089)	-	0.0223*** (0.0042)
Not stated disability	-	0.0470*** (0.0090)	-	0.0314*** (0.0048)
Year: 2010	0.0081*** (0.0024)	0.0020 (0.0020)	0.0084*** (0.0013)	0.0026*** (0.0009)
Year: 2011	0.0114*** (0.0029)	0.0012 (0.0030)	0.0093*** (0.0021)	-0.0007 (0.0014)
Year: 2012	0.0208*** (0.0067)	0.0074 (0.0072)	0.0153*** (0.0023)	0.0024 (0.0016)
Year: 2013	0.0352*** (0.0062)	0.0145** (0.0069)	0.0263*** (0.0032)	0.0071*** (0.0017)
Year: 2014	0.0511*** (0.0060)	0.0240*** (0.0067)	0.0399*** (0.0039)	0.0153*** (0.0018)
Year: 2015	0.0617*** (0.0060)	0.0282*** (0.0066)	0.0492*** (0.0043)	0.0192*** (0.0021)
Year: 2016	0.0771*** (0.0062)	0.0354*** (0.0069)	0.0626*** (0.0046)	0.0255*** (0.0021)
Year: 2017	0.1022*** (0.0065)	0.0533*** (0.0073)	0.0843*** (0.0047)	0.0432*** (0.0022)
Year: 2018	0.1101*** (0.0067)	0.0574*** (0.0073)	0.0924*** (0.0050)	0.0482*** (0.0024)
February	0.0001 (0.0010)	-0.0022** (0.0010)	0.0006 (0.0004)	-0.0015*** (0.0004)
March	0.0086*** (0.0008)	0.0051*** (0.0007)	0.0043*** (0.0004)	0.0014*** (0.0004)
April	0.0073*** (0.0010)	0.0022** (0.0010)	0.0042*** (0.0005)	0.0004 (0.0005)
May	0.0206*** (0.0008)	0.0142*** (0.0008)	0.0157*** (0.0005)	0.0100*** (0.0004)
June	0.0172*** (0.0009)	0.0093*** (0.0008)	0.0149*** (0.0005)	0.0076*** (0.0004)

Variable name	Total sample Raw gap	Total sample Adjusted gap	Trimmed sample Raw gap	Trimmed sample Adjusted gap
July	0.0084*** (0.0022)	0.0004 (0.0018)	0.0175*** (0.0005)	0.0075*** (0.0005)
August	-0.0121*** (0.0017)	-0.0149*** (0.0017)	-0.0047*** (0.0011)	-0.0074*** (0.0008)
September	0.0094*** (0.0011)	0.0073*** (0.0011)	0.0087*** (0.0007)	0.0072*** (0.0005)
October	0.0095*** (0.0013)	0.0072*** (0.0013)	0.0068*** (0.0007)	0.0051*** (0.0005)
November	0.0160*** (0.0011)	0.0127*** (0.0012)	0.0115*** (0.0005)	0.0090*** (0.0004)
December	0.0128*** (0.0010)	0.0083*** (0.0011)	0.0077*** (0.0006)	0.0049*** (0.0004)
Constant	8.7380*** (0.0060)	8.0151*** (0.0213)	8.7555*** (0.0037)	7.9468*** (0.0178)
Observations	10,365,953	10,365,953	10,159,019	10,159,019
R-squared	0.0592	0.4427	0.0940	0.8101
Hospital fixed effects	Yes	Yes	Yes	Yes

Source: Electronic Staff Records (ESR), NHS Digital.

Notes: OLS estimates. FTE-corrected basic and FTE-corrected total pay are measured in logarithms. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

Table O3. Estimation of the probability of receiving CEA payments (September 2009 to September 2018): full results.

	Raw gap	Adjusted gap
Female	-0.0666*** (0.0027)	-0.0517*** (0.0022)
Age in years	-	-0.0229*** (0.0014)
Age in years (squared)	-	-0.0002*** (0.0000)
Allergy	-	-0.0418** (0.0170)
Ambulance Services	-	0.0263 (0.0341)
Anaesthetics	-	-0.0354*** (0.0062)
Audio Vestibular Medicine	-	-0.1134** (0.0511)
Audiological Medicine	-	-0.0567*** (0.0191)
Blood Sciences	-	0.1159 (0.0711)
Breast Screening	-	-0.0194 (0.0203)
Burns Care	-	0.0142 (0.0610)
Cancer Support	-	0.0053 (0.0229)
Cardiac, Vascular, Respiratory and Sleep Sciences	-	-0.0881*** (0.0052)
Cardio-thoracic Surgery	-	0.0876*** (0.0203)
Cardiology	-	0.0093 (0.0116)
Cellular Sciences	-	-0.0755*** (0.0105)
Chemical Pathology	-	-0.0143 (0.0203)
Child and Adolescent Psychiatry	-	-0.0328*** (0.0106)
Chiropody/Podiatry	-	-0.0535** (0.0271)

	Raw gap	Adjusted gap
Clinical Engineering	-	-0.2491*** (0.0206)
Clinical Genetics	-	-0.0197 (0.0245)
Clinical Haematology	-	0.0181 (0.0192)
Clinical Informatics	-	-0.1396*** (0.0056)
Clinical Neurophysiology	-	-0.0898*** (0.0140)
Clinical Oncology	-	-0.0389*** (0.0087)
Clinical Pharmacology and Therapeutics	-	0.0653 (0.0685)
Clinical Physiology	-	0.1665** (0.0719)
Clinical Psychology	-	-0.0835*** (0.0144)
Clinical Radiology	-	0.0206** (0.0085)
Clinical Support	-	-0.0086 (0.0442)
Complementary Medicine/Therapy	-	-0.1770*** (0.0120)
Counselling	-	-0.1115*** (0.0071)
Dermatology	-	-0.0271*** (0.0088)
Dietetics	-	-0.0847*** (0.0102)
Elderly Care Medicine	-	-0.0140 (0.0085)
Endocrinology and Diabetes Mellitus	-	0.0329*** (0.0118)
Forensic Psychiatry	-	-0.0276** (0.0127)
Gastroenterology	-	0.0180* (0.0100)
General Acute	-	-0.0166 (0.0162)

	Raw gap	Adjusted gap
General Medicine	-	0.0016 (0.0081)
General Pathology	-	-0.0227 (0.0255)
General Psychiatry	-	-0.0361*** (0.0102)
General Surgery	-	0.0131 (0.0081)
Genito Urinary Medicine	-	0.0291 (0.0189)
Haematology	-	0.0184 (0.0130)
Histopathology	-	-0.0248*** (0.0079)
Imaging	-	0.0040 (0.0145)
Immunology	-	0.0060 (0.0349)
Infectious Diseases	-	0.0177 (0.0183)
Intensive Care Medicine	-	0.0236* (0.0120)
Maternity	-	-0.0347* (0.0200)
Medical Illustration	-	-0.0864*** (0.0062)
Medical Microbiology and Virology	-	-0.0279** (0.0118)
Medical Oncology	-	-0.0283** (0.0133)
Medical Ophthalmology	-	-0.0805*** (0.0257)
Medical Physics	-	0.0427 (0.0299)
Medical Psychotherapy	-	-0.0570** (0.0281)
Medicine	-	-0.0069 (0.0149)
Neonatal Intensive Care	-	-0.0012 (0.0155)

	Raw gap	Adjusted gap
Neurology	-	-0.0450*** (0.0105)
Neurosurgery	-	-0.0057 (0.0211)
No Area of Work specified	-	-0.0182** (0.0077)
Nuclear Medicine	-	-0.0078 (0.0297)
Obstetrics and Gynaecology	-	-0.0219*** (0.0072)
Occupational Health	-	-0.0815*** (0.0216)
Old Age Psychiatry	-	-0.0326*** (0.0118)
Operating Department	-	-0.0446*** (0.0142)
Ophthalmology	-	-0.0271*** (0.0094)
Orthoptics/Optics	-	-0.0971*** (0.0058)
Otolaryngology	-	-0.0229** (0.0115)
Outpatients	-	-0.0443** (0.0220)
Paediatric Cardiology	-	-0.0114 (0.0300)
Paediatric Surgery	-	-0.0154 (0.0211)
Paediatrics	-	-0.0241*** (0.0061)
Pain Management	-	-0.0146 (0.0243)
Palliative Medicine	-	-0.0353*** (0.0084)
Pathology	-	0.0156 (0.0131)
Pharmaceutical Medicine	-	-0.1247*** (0.0084)
Physiotherapy	-	-0.0613*** (0.0097)

	Raw gap	Adjusted gap
Plastic Surgery	-	-0.0626*** (0.0141)
Prosthetics and Orthotics	-	-0.0231 (0.0307)
Psychiatry	-	-0.0384*** (0.0121)
Psychiatry of Learning Disability	-	-0.0489*** (0.0142)
Psychotherapy	-	-0.0573** (0.0290)
Public Health Medicine	-	-0.0963* (0.0514)
Rehabilitation	-	-0.0487*** (0.0111)
Renal Medicine	-	0.0529*** (0.0135)
Respiratory Medicine	-	0.0058 (0.0092)
Rheumatology	-	0.0002 (0.0111)
Sport and Exercise Medicine	-	-0.0325 (0.0255)
Surgery	-	-0.0090 (0.0134)
Trauma and Orthopaedic Surgery	-	-0.0556*** (0.0081)
Urology	-	0.0043 (0.0113)
Type of contract	-	0.0585*** (0.0034)
Multiple assignments	-	0.0370*** (0.0086)
Other nationality	-	-0.0192*** (0.0024)
Not stated nationality	-	-0.0013 (0.0056)
Other ethnicity	-	-0.0209*** (0.0026)
Not stated ethnicity	-	-0.0248*** (0.0060)

	Raw gap	Adjusted gap
Other religion	-	-0.0013 (0.0037)
Not stated religion	-	-0.0070 (0.0044)
Other sexual orientation	-	-0.0185* (0.0099)
Not stated sexual orientation	-	-0.0040 (0.0041)
No disability	-	0.0169* (0.0100)
Not stated disability	-	0.0191* (0.0106)
Year: 2010	-0.0057*** (0.0015)	-0.0055*** (0.0015)
Year: 2011	-0.0112*** (0.0022)	-0.0108*** (0.0021)
Year: 2012	-0.0126*** (0.0026)	-0.0126*** (0.0025)
Year: 2013	-0.0116*** (0.0028)	-0.0119*** (0.0027)
Year: 2014	-0.0094*** (0.0031)	-0.0099*** (0.0030)
Year: 2015	-0.0118*** (0.0037)	-0.0130*** (0.0036)
Year: 2016	-0.0169*** (0.0040)	-0.0187*** (0.0038)
Year: 2017	-0.0209*** (0.0042)	-0.0235*** (0.0040)
Year: 2018	-0.0260*** (0.0043)	-0.0293*** (0.0041)
February	0.0035*** (0.0008)	0.0036*** (0.0008)
March	0.0051*** (0.0011)	0.0051*** (0.0011)
April	0.0053*** (0.0011)	0.0053*** (0.0011)
May	0.0034*** (0.0010)	0.0032*** (0.0010)
June	0.0022** (0.0009)	0.0018** (0.0009)

	Raw gap	Adjusted gap
July	0.0009 (0.0010)	0.0002 (0.0010)
August	0.0020** (0.0009)	0.0017* (0.0009)
September	-0.0009 (0.0009)	-0.0010 (0.0008)
October	-0.0014* (0.0008)	-0.0013 (0.0008)
November	-0.0012 (0.0008)	-0.0012 (0.0008)
December	-0.0019** (0.0009)	-0.0022** (0.0009)
Constant	0.1293*** (0.0031)	-0.6194*** (0.0380)
Observations	4,320,135	4,320,135
R-squared	0.0256	0.0726
Hospital fixed effects	Yes	Yes

Source: Electronic Staff Records (ESR), NHS Digital.

Notes: OLS estimates. Dependent variable indicates whether an individual received a CEA payment. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

Table O4. Estimation of the gender pay gap in CEA payments (September 2009 to September 2018): full results.

	Raw gap	Adjusted gap
Female	-0.0085 (0.0072)	0.0037 (0.0062)
Age in years	-	-0.0745*** (0.0059)
Age in years (squared)	-	0.0007*** (0.0001)
Allergy	-	-0.1230*** (0.0396)
Ambulance Services	-	0.1226** (0.0611)
Anaesthetics	-	-0.0617*** (0.0167)
Audiological Medicine	-	-0.1670*** (0.0347)
Blood Sciences	-	-0.1549*** (0.0345)
Breast Screening	-	-0.1050** (0.0529)
Burns Care	-	0.0013 (0.1607)
Cancer Support	-	0.0736 (0.0976)
Cardiac, Vascular, Respiratory and Sleep Sciences	-	0.2111*** (0.0187)
Cardio-thoracic Surgery	-	0.0289 (0.0253)
Cardiology	-	-0.0648*** (0.0201)
Cellular Sciences	-	-0.0969** (0.0430)
Chemical Pathology	-	-0.1303*** (0.0276)
Child and Adolescent Psychiatry	-	-0.0800** (0.0343)
Clinical Genetics	-	-0.0127 (0.0309)

	Raw gap	Adjusted gap
Clinical Haematology	-	-0.0866** (0.0359)
Clinical Neurophysiology	-	-0.1128*** (0.0400)
Clinical Oncology	-	-0.1175*** (0.0236)
Clinical Pharmacology and Therapeutics	-	-0.0142 (0.0890)
Clinical Physiology	-	-0.1906*** (0.0216)
Clinical Psychology	-	-0.0976*** (0.0330)
Clinical Radiology	-	0.0002 (0.0209)
Clinical Support	-	-0.0078 (0.0682)
Complementary Medicine/Therapy	-	-0.0029 (0.0170)
Counselling	-	0.1755 (0.2684)
Dermatology	-	-0.0585** (0.0227)
Elderly Care Medicine	-	-0.0684*** (0.0233)
Endocrinology and Diabetes Mellitus	-	-0.0878*** (0.0194)
Forensic Psychiatry	-	-0.0874** (0.0355)
Gastroenterology	-	-0.0473** (0.0221)
General Acute	-	-0.1206** (0.0472)
General Medicine	-	-0.0310 (0.0228)
General Pathology	-	-0.0596* (0.0316)
General Psychiatry	-	-0.0848*** (0.0305)

	Raw gap	Adjusted gap
General Surgery	-	-0.0118 (0.0202)
Genito Urinary Medicine	-	-0.1000*** (0.0292)
Haematology	-	-0.0918*** (0.0226)
Histopathology	-	-0.0736*** (0.0231)
Imaging	-	0.0110 (0.0324)
Immunology	-	-0.0268 (0.0774)
Infectious Diseases	-	-0.0498 (0.0625)
Intensive Care Medicine	-	-0.0408 (0.0270)
Maternity	-	-0.1524** (0.0750)
Medical Microbiology and Virology	-	-0.0898*** (0.0241)
Medical Oncology	-	-0.0493 (0.0324)
Medical Ophthalmology	-	0.1779*** (0.0245)
Medical Physics	-	0.1451 (0.0885)
Medical Psychotherapy	-	-0.1189*** (0.0376)
Medicine	-	0.0375 (0.0375)
Neonatal Intensive Care	-	-0.1196*** (0.0323)
Neurology	-	-0.0111 (0.0374)
Neurosurgery	-	0.0001 (0.0337)
No area of work specified	-	-0.0592** (0.0239)

	Raw gap	Adjusted gap
Nuclear Medicine	-	-0.1123** (0.0529)
Obstetrics and Gynaecology	-	-0.0755*** (0.0176)
Occupational Health	-	-0.1520*** (0.0255)
Old Age Psychiatry	-	-0.1075*** (0.0335)
Operating Department	-	-0.0855*** (0.0162)
Ophthalmology	-	-0.0095 (0.0293)
Orthoptics/Optics	-	-0.0229 (0.0153)
Otolaryngology	-	-0.0554** (0.0229)
Paediatric Cardiology	-	-0.0226 (0.0293)
Paediatric Surgery	-	-0.0704** (0.0329)
Paediatrics	-	-0.1056*** (0.0168)
Pain Management	-	-0.0332 (0.0392)
Palliative Medicine	-	-0.0708** (0.0317)
Pathology	-	-0.0632* (0.0348)
Pharmaceutical Medicine	-	0.4648*** (0.0175)
Physiotherapy	-	-0.1219*** (0.0263)
Plastic Surgery	-	0.0065 (0.0275)
Prosthetics and Orthotics	-	-0.2533*** (0.0298)
Psychiatry	-	-0.0595* (0.0320)

	Raw gap	Adjusted gap
Psychiatry of Learning Disability	-	-0.0726 (0.0571)
Psychotherapy	-	-0.0696 (0.0513)
Public Health Medicine	-	-0.2747*** (0.0553)
Rehabilitation	-	-0.0032 (0.0519)
Renal Medicine	-	-0.0915*** (0.0215)
Respiratory Medicine	-	-0.0812*** (0.0210)
Rheumatology	-	-0.1103*** (0.0218)
Surgery	-	-0.0053 (0.0524)
Trauma and Orthopaedic Surgery	-	0.0328 (0.0291)
Urology	-	-0.0024 (0.0240)
Type of contract	-	-0.1335*** (0.0147)
Multiple assignments	-	0.0417*** (0.0126)
Other nationality	-	0.0911*** (0.0092)
Not stated nationality	-	-0.0165 (0.0111)
Other ethnicity	-	0.0757*** (0.0091)
Not stated ethnicity	-	0.0487*** (0.0170)
Other religion	-	0.0366*** (0.0088)
Not stated religion	-	0.0109 (0.0097)
Other sexual orientation	-	0.0192 (0.0329)

	Raw gap	Adjusted gap
Not stated sexual orientation	-	0.0079 (0.0085)
No disability	-	-0.0424 (0.0261)
Not stated disability	-	-0.0421 (0.0264)
Year: 2010	-0.0397*** (0.0064)	-0.0360*** (0.0052)
Year: 2011	-0.0625*** (0.0082)	-0.0559*** (0.0064)
Year: 2012	-0.0607*** (0.0087)	-0.0576*** (0.0067)
Year: 2013	-0.0423*** (0.0094)	-0.0439*** (0.0072)
Year: 2014	-0.0143 (0.0100)	-0.0260*** (0.0078)
Year: 2015	0.0030 (0.0106)	-0.0127 (0.0079)
Year: 2016	0.0201* (0.0113)	0.0019 (0.0087)
Year: 2017	0.0449*** (0.0109)	0.0226*** (0.0083)
Year: 2018	0.0608*** (0.0118)	0.0359*** (0.0094)
February	0.0143*** (0.0039)	0.0111*** (0.0037)
March	0.0167*** (0.0048)	0.0130*** (0.0045)
April	0.0231*** (0.0043)	0.0163*** (0.0038)
May	0.0215*** (0.0044)	0.0161*** (0.0041)
June	0.0117*** (0.0035)	0.0070** (0.0032)
July	0.0045 (0.0042)	0.0009 (0.0038)
August	0.0164*** (0.0044)	0.0107*** (0.0041)

	Raw gap	Adjusted gap
September	0.0118*** (0.0039)	0.0076** (0.0036)
October	0.0093** (0.0039)	0.0044 (0.0037)
November	0.0121***	0.0070* (0.0039)
December	0.0048 (0.0039)	0.0010 (0.0036)
Constant	8.2270*** (0.0090)	10.4912*** (0.1541)
Observations	411,689	411,689
R-squared	0.798	0.1663
Hospital fixed effects	Yes	Yes

Source: Electronic Staff Records (ESR), NHS Digital.

Notes: OLS estimates. CEA pay is measured in logarithms. Robust standard errors (in parentheses) are corrected for heteroscedasticity and clustering by hospital. Asterisks ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively.

References

1. NHS Electronic Staff Record. ESR-NHS0131 Data Warehouse Overview and Data Item Description. 2018. Version 11.0.

Chapter 5. Appendix

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Appendix P

Table P1. Full Oaxaca-Blinder results among contractor and salaried GPs.

	Contractor and salaried GPs		Contractor GPs		Salaried GPs	
	Annual pay	FTE-corrected pay	Annual pay	FTE-corrected pay	Annual pay	FTE-corrected pay
Overall						
Mean log men pay	11.538***	11.678***	11.626***	11.713***	11.092***	11.497***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.014)	(0.017)
Mean log women pay	11.098***	11.507***	11.370***	11.657***	10.731***	11.305***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.008)	(0.009)
Difference	0.439***	0.170***	0.256***	0.057***	0.361***	0.192***
	(0.008)	(0.008)	(0.009)	(0.009)	(0.016)	(0.020)
Endowments	0.283***	0.110***	0.136***	0.020***	0.103***	0.046***
	(0.007)	(0.005)	(0.007)	(0.004)	(0.009)	(0.009)
Coefficients	0.232***	0.115***	0.156***	0.051***	0.352***	0.211***
	(0.010)	(0.009)	(0.011)	(0.008)	(0.020)	(0.021)
Interaction	-0.076***	-0.055***	-0.036***	-0.015**	-0.095***	-0.065***
	(0.009)	(0.007)	(0.009)	(0.006)	(0.015)	(0.014)
Endowments						
Non-white ethnicity	0.004**	-0.000	0.006***	0.002	0.002	-0.002
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)
Missing ethnicity/ prefer not to say	-0.000	0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Age	0.114***	0.172***	0.078***	0.074**	0.035	0.063*
	(0.028)	(0.032)	(0.023)	(0.025)	(0.026)	(0.031)
Age-squared	-0.100***	-0.141***	-0.078**	-0.073**	-0.020	-0.027
	(0.030)	(0.034)	(0.026)	(0.028)	(0.029)	(0.035)
Contracted hours	0.260***		0.286***		0.115***	
	(0.020)		(0.022)		(0.020)	
Contracted hours-squared	-0.126***		-0.172***		-0.041*	
	(0.018)		(0.019)		(0.019)	
Length of service	-0.002	-0.002	0.028***	0.027***	0.008*	0.008*
	(0.009)	(0.010)	(0.008)	(0.008)	(0.004)	(0.004)
Length of service-squared	0.014	0.010	-0.014	-0.011	0.002	0.002
	(0.010)	(0.011)	(0.009)	(0.009)	(0.002)	(0.003)

	Contractor and salaried GPs		Contractor GPs		Salaried GPs	
	Annual pay	FTE-corrected pay	Annual pay	FTE-corrected pay	Annual pay	FTE-corrected pay
Registered interest	0.000	0.001	-0.000	0.000	0.004	0.004
	(0.000)	(0.001)	(0.000)	(0.000)	(0.002)	(0.003)
Missing registered interest	0.000	0.000	0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Contractor GP	0.120***	0.073***				
	(0.004)	(0.004)				
PMS contract	-0.001*	-0.001*	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)
Yorkshire and Humber	-0.001	-0.001	-0.000	-0.000	-0.002	-0.003
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)
Lancashire and South Cumbria	0.000	0.000	0.001	0.001	-0.002	-0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Greater Manchester	-0.000	-0.000	-0.000	-0.000	-0.003	-0.003
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.002)
Cumbria and North East	0.001	0.001	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Cheshire and Merseyside	0.000	0.000	0.000	0.000	-0.000	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
North Midlands	-0.001**	-0.002**	-0.001	-0.001	-0.000	-0.000
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
West Midlands	-0.001	-0.001	-0.000	-0.000	-0.002	-0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)
Central Midlands	-0.001**	-0.002**	-0.001	-0.001	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
East England	-0.000	-0.001	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
South West South	-0.001	-0.001	-0.003*	-0.002*	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
South West North	0.002***	0.002**	0.002*	0.001*	0.002*	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Hampshire, Isle of Wight and Thames Valley	0.002***	0.002***	0.001*	0.001*	0.003*	0.004**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)

	Contractor and salaried GPs		Contractor GPs		Salaried GPs	
	Annual pay	FTE-corrected pay	Annual pay	FTE-corrected pay	Annual pay	FTE-corrected pay
Kent, Surrey, Sussex	-0.000	-0.000	-0.000	0.000	0.002	0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Dispensing	0.000	0.000	0.001	0.001	-0.001	0.000
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Coefficients						
Non-white ethnicity	-0.005	-0.004	-0.006	-0.002	-0.022*	-0.039***
	(0.004)	(0.005)	(0.005)	(0.005)	(0.009)	(0.011)
Missing ethnicity/ prefer not to say	-0.000	0.001	-0.002	-0.002	-0.005	-0.007
	(0.003)	(0.003)	(0.003)	(0.003)	(0.006)	(0.007)
Age	0.690	0.070	0.265	-0.017	1.861**	1.851*
	(0.380)	(0.424)	(0.522)	(0.562)	(0.650)	(0.767)
Age-squared	-0.462*	-0.143	-0.263	-0.067	-0.997**	-0.971**
	(0.187)	(0.208)	(0.266)	(0.286)	(0.305)	(0.356)
Contracted hours	-0.028		-0.076		-0.177	
	(0.107)		(0.152)		(0.166)	
Contracted hours-squared	-0.030		-0.002		0.009	
	(0.046)		(0.067)		(0.069)	
Length of service	0.130***	0.064*	0.068	0.007	0.129***	0.099*
	(0.026)	(0.029)	(0.041)	(0.045)	(0.039)	(0.046)
Length of service-squared	-0.056***	-0.028	-0.036	-0.012	-0.028	-0.022
	(0.014)	(0.015)	(0.024)	(0.026)	(0.015)	(0.018)
Registered interest	0.001	0.002	0.003	0.004	-0.001	0.003
	(0.003)	(0.004)	(0.003)	(0.004)	(0.007)	(0.009)
Missing registered interest	-0.003	-0.006	-0.005	-0.006	-0.004	-0.014
	(0.005)	(0.006)	(0.007)	(0.007)	(0.010)	(0.013)
Contractor GP	-0.072***	-0.077***				
	(0.012)	(0.014)				
PMS contract	0.006	0.001	-0.001	-0.003	0.014	-0.017
	(0.006)	(0.007)	(0.006)	(0.006)	(0.014)	(0.017)
Yorkshire and Humber	0.003	0.004	-0.000	-0.002	0.011*	0.011
	(0.003)	(0.003)	(0.004)	(0.004)	(0.005)	(0.007)
Lancashire and South Cumbria	-0.003**	-0.004**	-0.006***	-0.006***	-0.001	-0.004
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)

	Contractor and salaried GPs		Contractor GPs		Salaried GPs	
	Annual pay	FTE-corrected pay	Annual pay	FTE-corrected pay	Annual pay	FTE-corrected pay
Greater Manchester	0.000	-0.001	-0.002	-0.003	0.003	0.000
	(0.002)	(0.003)	(0.002)	(0.003)	(0.005)	(0.006)
Cumbria and North East	0.001	0.000	-0.001	-0.002	0.008*	0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.005)
Cheshire and Merseyside	-0.000	-0.002	0.001	-0.000	-0.003	-0.010
	(0.002)	(0.002)	(0.003)	(0.003)	(0.005)	(0.006)
North Midlands	0.003	0.003	0.003	0.003	0.000	0.000
	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)	(0.006)
West Midlands	0.006*	0.004	0.001	-0.001	0.012*	0.013*
	(0.002)	(0.003)	(0.002)	(0.003)	(0.005)	(0.007)
Central Midlands	0.006*	0.003	0.005	0.001	0.003	0.004
	(0.002)	(0.003)	(0.003)	(0.003)	(0.005)	(0.006)
East England	0.007**	0.005	0.004	0.002	0.013**	0.008
	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)	(0.005)
South West South	0.001	-0.001	0.002	0.000	0.006	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.005)
South West North	0.003	0.003	0.003	0.002	0.008	0.009
	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.006)
Hampshire, Isle of Wight and Thames Valley	0.009***	0.006	0.006*	0.002	0.018*	0.014
	(0.003)	(0.003)	(0.003)	(0.003)	(0.007)	(0.009)
Kent, Surrey, Sussex	0.009**	0.007*	0.005	0.003	0.019**	0.009
	(0.003)	(0.003)	(0.003)	(0.004)	(0.006)	(0.007)
Dispensing practice	0.004	0.005	0.002	0.002	-0.011	-0.010
	(0.004)	(0.004)	(0.005)	(0.005)	(0.008)	(0.009)
Constant	0.012	0.203	0.186	0.149	-0.513	-0.721
	(0.203)	(0.213)	(0.267)	(0.272)	(0.368)	(0.408)

	Contractor and salaried GPs		Contractor GPs		Salaried GPs	
	Annual pay	FTE-corrected pay	Annual pay	FTE-corrected pay	Annual pay	FTE-corrected pay
Interaction						
Non-white ethnicity	-0.002	-0.002	-0.003	-0.001	-0.010*	-0.018**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.005)	(0.006)
Missing ethnicity/ prefer not to say	0.000	-0.000	0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Age	0.068	0.007	0.015	-0.001	0.115**	0.114*
	(0.038)	(0.042)	(0.029)	(0.032)	(0.043)	(0.049)
Age-squared	-0.097*	-0.030	-0.032	-0.008	-0.148**	-0.144**
	(0.040)	(0.044)	(0.032)	(0.034)	(0.048)	(0.055)
Contracted hours	-0.008		-0.016		-0.035	
	(0.030)		(0.031)		(0.033)	
Contracted hours-squared	-0.017		-0.001		0.004	
	(0.026)		(0.027)		(0.030)	
Length of service	0.065***	0.032*	0.017	0.002	-0.012*	-0.010
	(0.013)	(0.015)	(0.010)	(0.011)	(0.006)	(0.006)
Length of service-squared	-0.052***	-0.026	-0.017	-0.006	-0.002	-0.002
	(0.013)	(0.014)	(0.011)	(0.012)	(0.003)	(0.003)
Registered interest	0.000	0.000	0.000	0.000	-0.000	0.002
	(0.001)	(0.001)	(0.000)	(0.000)	(0.004)	(0.005)
Missing registered interest	-0.000	-0.000	-0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Contractor GP	-0.032***	-0.035***				
	(0.006)	(0.006)				
PMS contract	-0.000	-0.000	-0.000	-0.000	0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Yorkshire and Humber	0.000	0.000	-0.000	-0.000	0.002	0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.002)
Lancashire and South Cumbria	-0.002*	-0.002*	-0.001	-0.001	-0.001	-0.003
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Greater Manchester	0.000	-0.000	0.000	0.000	0.001	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.003)
Cumbria and North East	-0.000	-0.000	0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)

	Contractor and salaried GPs		Contractor GPs		Salaried GPs	
	Annual pay	FTE-corrected pay	Annual pay	FTE-corrected pay	Annual pay	FTE-corrected pay
Cheshire and Merseyside	0.000	0.000	-0.000	0.000	-0.001	-0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)
North Midlands	0.001	0.001	0.000	0.000	0.000	0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
West Midlands	0.001	0.000	0.000	-0.000	0.002	0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.002)
Central Midlands	0.001*	0.001	0.001	0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
East England	0.001	0.001	0.000	0.000	0.001	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)
South West South	0.000	-0.000	0.000	0.000	-0.001	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
South West North	-0.001	-0.001	-0.001	-0.000	-0.002	-0.003
	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)
Hampshire, Isle of Wight and Thames Valley	-0.002**	-0.001	-0.001	-0.000	-0.006*	-0.004
	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)
Kent, Surrey, Sussex	0.000	0.000	0.000	0.000	-0.004	-0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.002)
Dispensing practice	0.000	0.000	0.000	0.000	0.002	0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.002)
N	**15,999**	**15,999**	**11,049**	**11,049**	**4,950**	**4,950**

Notes: Standard errors in parentheses. Statistical significance * p<0.05, ** p<0.01, *** p<0.001.

Source: NHS Digital/HMRC (commissioned analyses).

Chapter 6. Appendix

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Tables

Appendix Q

Table Q1. Full FTE-corrected Oaxaca-Blinder decomposition.

	(1) All	(2) Professors	(3) Non-professors
Overall			
Mean log men pay	11.332***	11.506***	11.226***
	(0.005)	(0.005)	(0.007)
Mean log women pay	11.199***	11.495***	11.129***
	(0.008)	(0.010)	(0.008)
Difference	0.133***	0.011	0.096***
	(0.009)	(0.011)	(0.011)
Endowments	0.112***	0.018	0.060***
	(0.009)	(0.011)	(0.010)
Coefficients	0.035***	0.001	0.039***
	(0.005)	(0.005)	(0.006)
Interaction	-0.013**	-0.008	-0.002
	(0.004)	(0.004)	(0.004)
Endowments			
Age	0.460***	0.004	0.257***
	(0.029)	(0.016)	(0.028)
Age-squared	-0.388***	0.009	-0.217***
	(0.027)	(0.016)	(0.024)
Known disability	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)
Non white	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
Unknown	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
Postgraduate qualification	0.003***	-0.000	0.002*
	(0.001)	(0.001)	(0.001)
Undergraduate qualification	0.002*	0.000	0.001
	(0.001)	(0.000)	(0.001)
School level or other qualification	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)

	(1) All	(2) Professors	(3) Non-professors
Other ethnicity	0.002**	0.000	0.002**
	(0.001)	(0.000)	(0.001)
Unknown ethnicity	0.000	0.000	0.000
	(0.000)	(.)	(0.000)
Proportion at work	-0.007***	0.002*	-0.008***
	(0.001)	(0.001)	(0.002)
Has teaching-only contract	0.007*	0.000	0.006
	(0.003)	(.)	(0.003)
Has research-only contract	0.025***	0.001	0.017***
	(0.005)	(0.001)	(0.004)
Has teaching and research contracts	-0.011	0.002	-0.006
	(0.008)	(0.002)	(0.006)
Has Clinical Excellence Award	0.011***	0.004*	0.010***
	(0.003)	(0.002)	(0.002)
Has multiple contracts	-0.015**	-0.013	-0.011
	(0.005)	(0.009)	(0.006)
Professorial grade	0.019***	0.000	0.000
	(0.002)	(.)	(.)
North West	0.004	-0.000	0.000
	(0.004)	(0.004)	(0.000)
Yorkshire and The Humber	-0.003	0.001	0.000
	(0.003)	(0.001)	(0.001)
East Midlands	-0.005	0.001	-0.000
	(0.004)	(0.002)	(0.001)
West Midlands	0.005	-0.002	-0.004
	(0.004)	(0.002)	(0.002)
East of England	-0.002	0.001	0.001
	(0.003)	(0.001)	(0.001)
London	0.016	0.000	-0.001
	(0.011)	(0.002)	(0.001)
South East	-0.013	0.006	-0.005
	(0.008)	(0.005)	(0.007)

	(1) All	(2) Professors	(3) Non-professors
South West	0.001	-0.003	0.000
	(0.002)	(0.003)	(.)
Wales	-0.000	0.000	0.000
	(0.001)	(.)	(0.001)
Scotland	0.000	0.001	-0.000
	(0.001)	(0.001)	(0.001)
Northern Ireland	0.000	0.000	0.000
	(.)	(0.000)	(0.000)
The Open University	0.000	0.000	0.000
	(.)	(.)	(.)
University of Chester	0.000	0.000	0.000
	(.)	(.)	(.)
Canterbury Christ Church University	0.000	0.000	0.000
	(.)	(.)	(.)
Bournemouth University	-0.000	0.000	-0.000
	(0.000)	(.)	(0.000)
The University of Brighton	0.002	0.000	0.001
	(0.001)	(.)	(0.001)
The University of Lincoln	0.000	0.000	0.000
	(.)	(.)	(.)
University of Plymouth	0.000	-0.000	0.000
	(0.000)	(0.000)	(.)
The University of Sunderland	0.000	0.000	0.000
	(.)	(.)	(.)
University of the West of England, Bristol	0.000	0.000	0.000
	(.)	(.)	(.)
The University of Birmingham	-0.001	0.000	0.003*
	(0.000)	(.)	(0.001)
The University of Bristol	-0.000	0.002	0.000
	(0.001)	(0.002)	(0.001)
The University of Cambridge	0.000	0.000	0.000
	(.)	(.)	(.)

	(1) All	(2) Professors	(3) Non-professors
City, University of London	0.000	0.003	0.000
	(.)	(0.002)	(.)
University of Durham	0.000	-0.001	0.000
	(.)	(0.001)	(.)
The University of East Anglia	0.000	-0.001	0.000
	(0.000)	(0.001)	(0.001)
The University of Exeter	0.000	-0.001	-0.000
	(0.000)	(0.001)	(0.000)
The University of Hull	0.000	0.000	0.000
	(.)	(.)	(.)
Keele University	-0.001	0.000	0.000
	(0.001)	(0.000)	(.)
The University of Lancaster	-0.000	0.000	0.000
	(0.000)	(.)	(0.000)
The University of Leeds	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)
The University of Leicester	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.001)
Imperial College of Science, Technology and Medicine	0.008	-0.000	-0.000
	(0.005)	(0.001)	(0.000)
King's College London	0.001	-0.000	-0.000
	(0.004)	(0.000)	(0.000)
London School of Hygiene and Tropical Medicine	-0.003	0.002	0.002^{*}
	(0.001)	(0.002)	(0.001)
Queen Mary University of London	-0.007	0.000	0.000
	(0.004)	(0.001)	(0.001)
St George's University of London	-0.005^{*}	0.000	0.000
	(0.002)	(.)	(.)
University College London	0.004	0.000	-0.000
	(0.004)	(0.000)	(0.000)
Newcastle University	0.000	-0.001	-0.000
	(0.001)	(0.001)	(0.000)

	(1) All	(2) Professors	(3) Non-professors
University of Nottingham	0.000	0.000	0.000
	(.)	(.)	(.)
The University of Oxford	0.007	0.001	0.009
	(0.005)	(0.003)	(0.006)
The University of Sheffield	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)
The University of Southampton	-0.001	0.000	-0.003
	(0.002)	(0.001)	(0.003)
The University of Surrey	0.000	0.000	-0.001
	(0.001)	(.)	(0.001)
The University of Sussex	0.002	0.000	0.001
	(0.001)	(.)	(0.001)
The University of Warwick	0.000	0.002	0.000
	(.)	(0.001)	(0.001)
The University of York	0.000	0.000	0.000
	(0.000)	(.)	(0.000)
The University of Edinburgh	-0.003	-0.003	0.001
	(0.002)	(0.004)	(0.001)
The University of Glasgow	0.001	0.000	-0.000
	(0.001)	(0.000)	(0.001)
The University of Aberdeen	0.003	0.000	0.001
	(0.001)	(0.000)	(0.001)
The University of Dundee	-0.000	0.000	0.000
	(0.000)	(.)	(.)
The University of St Andrews	0.000	0.000	-0.000
	(.)	(.)	(0.000)
Bangor University	0.000	0.000	0.000
	(.)	(.)	(0.000)
Cardiff University	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Swansea University	-0.000	0.001	0.000
	(0.000)	(0.001)	(.)
Queen’s University Belfast	-0.000	0.000	0.000
	(0.001)	(.)	(.)

	(1) All	(2) Professors	(3) Non-professors
The Institute of Cancer Research	-0.008**	0.000	0.001
	(0.003)	(.)	(0.000)
The University of Manchester	0.000	0.000	-0.001
	(0.000)	(0.001)	(0.001)
Liverpool School of Tropical Medicine	0.000	0.000	0.001
	(0.000)	(.)	(0.000)
Year 2018	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
Coefficients			
Age	0.436*	2.053***	0.550*
	(0.212)	(0.395)	(0.270)
Age-squared	-0.131	-1.017***	-0.186
	(0.102)	(0.198)	(0.127)
Known disability	0.030	0.023	0.012
	(0.035)	(0.034)	(0.044)
Non white	-0.004	0.003	-0.004
	(0.002)	(0.002)	(0.003)
Unknown	-0.002	-0.000	-0.002
	(0.001)	(0.001)	(0.002)
Postgraduate qualification	0.007	0.001	0.001
	(0.004)	(0.003)	(0.005)
Undergraduate qualification	0.001	0.000	-0.001
	(0.003)	(0.001)	(0.003)
School level or other qualification	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)
Other ethnicity	0.002	0.002	0.001
	(0.002)	(0.002)	(0.003)
Unknown ethnicity	-0.000	0.000	-0.001
	(0.001)	(.)	(0.001)
Proportion at work	0.025	-0.055*	0.016
	(0.016)	(0.022)	(0.019)
Has teaching-only contract	0.020*	-0.013	0.022*
	(0.009)	(0.008)	(0.010)

	(1) All	(2) Professors	(3) Non-professors
Has research-only contract	0.043**	-0.001	0.052*
	(0.016)	(0.003)	(0.022)
Has teaching and research contracts	0.037*	-0.088*	0.031
	(0.019)	(0.043)	(0.017)
Has Clinical Excellence Award	-0.004*	0.002	-0.002
	(0.002)	(0.004)	(0.001)
Has multiple contracts	-0.002	0.000	-0.002
	(0.002)	(0.002)	(0.002)
Professorial grade	0.060***	0.000	0.000
	(0.011)	(.)	(.)
North West	0.020	-0.010	-0.010
	(0.022)	(0.010)	(0.009)
Yorkshire and The Humber	0.008	-0.004	-0.004
	(0.011)	(0.004)	(0.007)
East Midlands	0.009	-0.002	-0.003
	(0.009)	(0.003)	(0.004)
West Midlands	0.019	-0.007	-0.017*
	(0.016)	(0.006)	(0.007)
East of England	0.019	-0.002	0.002
	(0.011)	(0.003)	(0.005)
London	0.278***	-0.138***	-0.065*
	(0.080)	(0.023)	(0.030)
South East	0.055	-0.005	0.082***
	(0.038)	(0.009)	(0.021)
South West	0.006	-0.011	-0.004*
	(0.011)	(0.010)	(0.002)
Wales	0.002	-0.001	-0.007*
	(0.007)	(0.001)	(0.004)
Scotland	0.013	-0.003	-0.002
	(0.026)	(0.009)	(0.011)
Northern Ireland	0.000	-0.001	-0.001
	(.)	(0.001)	(0.001)

	(1) All	(2) Professors	(3) Non-professors
The Open University	0.000	0.000	0.000
	(.)	(.)	(.)
University of Chester	0.000	0.000	0.000
	(.)	(.)	(.)
Canterbury Christ Church University	0.000	0.000	0.000
	(.)	(.)	(.)
Bournemouth University	-0.000	0.000	-0.001
	(0.000)	(.)	(0.000)
The University of Brighton	-0.001	0.000	-0.005**
	(0.001)	(.)	(0.001)
The University of Lincoln	0.000	0.000	0.000
	(.)	(.)	(.)
University of Plymouth	0.000	0.000	0.000
	(0.001)	(0.000)	(.)
The University of Sunderland	0.000	0.000	0.000
	(.)	(.)	(.)
University of the West of England, Bristol	0.000	0.000	0.000
	(.)	(.)	(.)
The University of Birmingham	-0.001	0.001	0.007**
	(0.002)	(0.001)	(0.003)
The University of Bristol	0.001	0.005	0.000
	(0.005)	(0.007)	(0.002)
The University of Cambridge	-0.007***	0.000	-0.007**
	(0.001)	(.)	(0.002)
City, University of London	0.000	0.003	0.000
	(.)	(0.002)	(.)
University of Durham	0.000	-0.001	0.000
	(.)	(0.001)	(.)
The University of East Anglia	0.001*	-0.000	0.002**
	(0.000)	(0.001)	(0.001)
The University of Exeter	0.000	0.000	0.000
	(0.001)	(0.000)	(0.001)

	(1) All	(2) Professors	(3) Non-professors
The University of Hull	0.000	0.000	-0.001
	(.)	(.)	(0.001)
Keele University	-0.003**	0.000	0.000
	(0.001)	(0.000)	(.)
The University of Lancaster	-0.000	0.000	-0.000
	(0.000)	(.)	(0.000)
The University of Leeds	-0.000	0.000	-0.003
	(0.001)	(0.002)	(0.002)
The University of Leicester	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.001)
Imperial College of Science, Technology and Medicine	-0.056***	0.030***	0.009
	(0.013)	(0.006)	(0.005)
King's College London	-0.046***	0.017***	0.007
	(0.010)	(0.004)	(0.004)
London School of Hygiene and Tropical Medicine	-0.011***	0.006**	0.000
	(0.003)	(0.002)	(0.001)
Queen Mary University of London	-0.037***	0.017***	0.008*
	(0.009)	(0.004)	(0.003)
St George's University of London	-0.011***	0.004*	0.000
	(0.003)	(0.002)	(.)
University College London	-0.040***	0.039***	0.003
	(0.009)	(0.007)	(0.003)
Newcastle University	0.008	-0.002	-0.002
	(0.007)	(0.004)	(0.003)
University of Nottingham	0.000	-0.000	0.000
	(0.001)	(0.001)	(.)
The University of Oxford	-0.022	-0.004	-0.068***
	(0.019)	(0.005)	(0.013)
The University of Sheffield	0.001	0.000	-0.001
	(0.001)	(0.001)	(0.002)
The University of Southampton	-0.006	0.001	-0.017***
	(0.006)	(0.003)	(0.004)

	(1) All	(2) Professors	(3) Non-professors
The University of Surrey	-0.000	0.000	-0.001
	(0.000)	(.)	(0.001)
The University of Sussex	-0.001	0.000	-0.005**
	(0.001)	(.)	(0.001)
The University of Warwick	0.000	0.004**	0.000
	(.)	(0.001)	(0.001)
The University of York	0.000	0.000	-0.000
	(0.000)	(.)	(0.000)
The University of Edinburgh	-0.003	-0.002	-0.007***
	(0.003)	(0.003)	(0.002)
The University of Glasgow	0.004	-0.001	-0.004
	(0.004)	(0.003)	(0.002)
The University of Aberdeen	0.005	-0.000	-0.000
	(0.003)	(0.001)	(0.002)
The University of Dundee	0.003	0.000	0.000
	(0.002)	(.)	(.)
The University of St Andrews	-0.000	0.000	-0.000
	(0.000)	(.)	(0.000)
Bangor University	0.000	0.000	-0.000
	(.)	(0.000)	(0.000)
Cardiff University	0.002	-0.003	0.003
	(0.003)	(0.002)	(0.002)
Swansea University	0.000	-0.000	0.000
	(0.001)	(0.000)	(0.000)
Queen’s University Belfast	0.003	0.000	0.000
	(0.003)	(.)	(.)
The Institute of Cancer Research	-0.015***	0.000	0.004*
	(0.004)	(.)	(0.002)
The University of Manchester	0.000	-0.001	-0.001
	(0.002)	(0.002)	(0.003)
Liverpool School of Tropical Medicine	-0.000	0.000	-0.000
	(0.000)	(.)	(0.000)

	(1) All	(2) Professors	(3) Non-professors
Year 2018	-0.001	0.004	-0.003
	(0.005)	(0.004)	(0.006)
Constant	-0.675**	-0.837***	-0.342
	(0.242)	(0.217)	(0.184)
Interaction			
Age	0.047*	0.100***	0.034*
	(0.023)	(0.023)	(0.017)
Age-squared	-0.030	-0.098***	-0.025
	(0.023)	(0.023)	(0.017)
Known disability	0.000	0.000	0.000
	(0.000)	(0.001)	(0.000)
Non white	-0.000	0.000	-0.001
	(0.000)	(0.000)	(0.000)
Unknown	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
Postgraduate qualification	-0.002	-0.000	-0.000
	(0.001)	(0.001)	(0.001)
Undergraduate qualification	-0.000	0.000	0.000
	(0.001)	(0.000)	(0.001)
School level or other qualification	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)
Other ethnicity	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
Unknown ethnicity	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)
Proportion at work	0.003	-0.002	0.002
	(0.002)	(0.001)	(0.002)
Has teaching-only contract	-0.010*	0.009	-0.009*
	(0.004)	(0.006)	(0.004)
Has research-only contract	-0.016**	0.000	-0.011*
	(0.006)	(0.001)	(0.005)
Has teaching and research contracts	0.020*	-0.013	0.015
	(0.010)	(0.007)	(0.009)

	(1) All	(2) Professors	(3) Non-professors
Has Clinical Excellence Award	-0.006*	0.001	-0.004
	(0.003)	(0.002)	(0.002)
Has multiple contracts	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)
Professorial grade	-0.014***	0.000	0.000
	(0.003)	(.)	(.)
North West	-0.003	0.004	0.000
	(0.004)	(0.005)	(0.001)
Yorkshire and The Humber	0.002	-0.001	-0.001
	(0.003)	(0.002)	(0.001)
East Midlands	0.004	-0.001	-0.001
	(0.004)	(0.002)	(0.001)
West Midlands	-0.004	0.002	0.003
	(0.004)	(0.002)	(0.002)
East of England	0.004	-0.001	0.000
	(0.003)	(0.001)	(0.001)
London	-0.015	-0.002	0.003
	(0.010)	(0.011)	(0.003)
South East	0.006	-0.003	0.004
	(0.005)	(0.006)	(0.006)
South West	-0.000	0.003	0.001
	(0.001)	(0.003)	(0.001)
Wales	0.000	-0.000	-0.000
	(0.001)	(0.000)	(0.001)
Scotland	-0.001	-0.000	0.000
	(0.001)	(0.001)	(0.001)
Northern Ireland	0.000	-0.000	-0.000
	(.)	(0.000)	(0.000)
The Open University	0.000	0.000	0.000
	(.)	(.)	(.)
University of Chester	-0.000	-0.001	-0.000
	(0.000)	(0.000)	(0.000)

	(1) All	(2) Professors	(3) Non-professors
Canterbury Christ Church University	0.000	-0.000	0.000
	(.)	(0.000)	(.)
Bournemouth University	0.000	0.000	0.000
	(0.000)	(.)	(0.000)
The University of Brighton	-0.001	-0.000	-0.001
	(0.001)	(0.001)	(0.001)
The University of Lincoln	-0.000	-0.000	0.000
	(0.000)	(0.000)	(.)
University of Plymouth	0.000	0.000	0.000
	(0.000)	(0.000)	(.)
The University of Sunderland	0.000	0.000	0.000
	(0.000)	(.)	(0.000)
University of the West of England, Bristol	0.000	0.000	0.000
	(.)	(.)	(.)
The University of Birmingham	0.000	-0.000	-0.002
	(0.000)	(0.000)	(0.001)
The University of Bristol	-0.000	-0.002	-0.000
	(0.001)	(0.003)	(0.001)
The University of Cambridge	-0.002*	0.000	-0.002
	(0.001)	(.)	(0.001)
City, University of London	0.000	-0.003	0.000
	(.)	(0.002)	(.)
University of Durham	0.000	0.001	0.000
	(.)	(0.001)	(.)
The University of East Anglia	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.001)
The University of Exeter	0.000	0.001	-0.000
	(0.000)	(0.001)	(0.000)
The University of Hull	0.000	0.000	-0.000
	(.)	(.)	(0.000)
Keele University	0.001	0.000	0.000
	(0.001)	(0.000)	(.)

	(1) All	(2) Professors	(3) Non-professors
The University of Lancaster	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)
The University of Leeds	-0.000	0.000	-0.001
	(0.000)	(0.001)	(0.001)
The University of Leicester	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.001)
Imperial College of Science, Technology and Medicine	-0.008	0.011	0.001
	(0.005)	(0.006)	(0.001)
King's College London	-0.001	0.001	0.001
	(0.004)	(0.004)	(0.001)
London School of Hygiene and Tropical Medicine	0.005*	-0.002	-0.000
	(0.002)	(0.002)	(0.001)
Queen Mary University of London	0.007	-0.005	-0.000
	(0.004)	(0.004)	(0.001)
St George's University of London	0.005*	-0.000	0.000
	(0.002)	(0.002)	(.)
University College London	-0.004	-0.001	-0.000
	(0.004)	(0.006)	(0.000)
Newcastle University	-0.000	0.001	0.000
	(0.001)	(0.001)	(0.000)
University of Nottingham	0.000	-0.000	0.000
	(0.000)	(0.000)	(.)
The University of Oxford	-0.002	-0.002	-0.008
	(0.003)	(0.003)	(0.006)
The University of Sheffield	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)
The University of Southampton	0.000	-0.000	0.003
	(0.001)	(0.000)	(0.003)
The University of Surrey	-0.000	0.000	0.000
	(0.000)	(.)	(0.001)
The University of Sussex	-0.001	-0.000	-0.001
	(0.001)	(0.001)	(0.001)

	(1) All	(2) Professors	(3) Non-professors
The University of Warwick	0.000	-0.002	-0.000
	(.)	(0.001)	(0.000)
The University of York	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)
The University of Edinburgh	-0.002	-0.000	-0.003*
	(0.001)	(0.001)	(0.001)
The University of Glasgow	-0.001	-0.000	0.001
	(0.001)	(0.000)	(0.001)
The University of Aberdeen	-0.002	0.000	0.000
	(0.001)	(0.000)	(0.000)
The University of Dundee	0.000	0.000	0.000
	(0.000)	(.)	(.)
The University of St Andrews	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Bangor University	0.000	-0.000	-0.000
	(.)	(0.000)	(0.000)
Cardiff University	-0.000	-0.000	-0.000
	(0.000)	(0.001)	(0.001)
Swansea University	0.000	-0.001	0.000
	(0.000)	(0.001)	(0.000)
Queen’s University Belfast	0.000	0.000	0.000
	(0.001)	(.)	(.)
The Institute of Cancer Research	0.007**	0.000	-0.002
	(0.003)	(.)	(0.001)
The University of Manchester	-0.000	-0.000	0.000
	(0.001)	(0.000)	(0.001)
Liverpool School of Tropical Medicine	-0.000	0.000	-0.000
	(0.000)	(.)	(0.000)
Year 2018	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
r2			
N	8,669.000	2,704.000	5,965.000

Standard errors in parentheses.* p<0.05, ** p<0.01, *** p<0.001.

Table Q2. Decomposition of FTE-corrected gender pay gap among professorial clinical academics (%).

	FTE-corrected total pay
% of the gap due to differences in:	
Total endowments	**163.6**
Individual characteristics	109.1
Work characteristics	-36.4
Workplace characteristics	100
Total coefficients	**9.1**
Individual characteristics	9,681.8
Work characteristics	-140
Workplace characteristics	-609.1
Constant	-7,609.1
Total interactions	**-72.7**

Table Q3. Decomposition of FTE-corrected gender pay gap among non-professorial clinical academics (%).

	FTE-corrected total pay
% of the gap due to differences in:	
Total endowments	**62.5**
Individual characteristics	46.9
Work characteristics	7.3
Workplace characteristics	7.3
Total coefficients	**40.6**
Individual characteristics	385.4
Work characteristics	120.8
Workplace characteristics	-112.5
Constant	-360.4
Total interactions	**-2.1**

Chapter 9. Appendices

Contents

Appendix R: Oaxaca-Blinder decomposition for HCHS doctors based on GPGiM survey data

	lnftepay
Overall	
group_1	11.0623*** (0.018)
group_2	10.8456*** (0.017)
difference	0.2167*** (0.025)
endowments	0.1724*** (0.019)
coefficients	0.0787*** (0.022)
interaction	-0.0344* (0.013)
Endowments	
ethnic	-0.0027 (0.002)
age	0.1301** (0.048)
agesq	-0.0921* (0.047)
region_5	0.0003 (0.001)
region_6	0.0027 (0.002)
region_7	-0.0000 (0.001)
region_8	-0.0001 (0.002)
region_9	0.0004 (0.002)
region_10	-0.0002 (0.003)
region_11	0.0002 (0.001)
region_12	-0.0005 (0.002)

	lnftepay
mult_assign	0.0005 (0.001)
seniority	0.0440*** (0.008)
nhstenure	0.0774*** (0.016)
specialty_nob	0.0124** (0.004)
Coefficients	
ethnic	0.0021 (0.012)
age	1.7267** (0.541)
agesq	-0.7554** (0.239)
region_5	-0.0005 (0.012)
region_6	-0.0099 (0.009)
region_7	0.0051 (0.009)
region_8	0.0007 (0.007)
region_9	-0.0047 (0.007)
region_10	-0.0123 (0.022)
region_11	-0.0054 (0.014)
region_12	-0.0020 (0.014)
mult_assign	-0.0062 (0.015)
seniority	-0.0263 (0.020)
nhstenure	-0.0608 (0.053)
specialty_nob	0.0304 (0.028)

	lnftepay
_cons	-0.8029** (0.305)
Interaction	
ethnic	0.0006 (0.003)
age	0.2186** (0.071)
agesq	-0.2120** (0.070)
region_5	-0.0000 (0.001)
region_6	-0.0035 (0.003)
region_7	-0.0012 (0.002)
region_8	0.0003 (0.003)
region_9	-0.0018 (0.003)
region_10	0.0026 (0.005)
region_11	-0.0001 (0.001)
region_12	0.0005 (0.003)
mult_assign	-0.0008 (0.002)
seniority	-0.0102 (0.008)
nhstenure	-0.0216 (0.019)
specialty_nob	-0.0056 (0.005)
r2	
N	**2512.0000**

Standard errors in parentheses

* p<0.05, ** p<0.01, *** p<0.001.

Appendix S: Oaxaca-Blinder decomposition for GPs based on GPGiM survey data

	lnftepay
Overall	
group_1	11.2440*** (0.038)
group_2	11.0898*** (0.021)
difference	0.1542*** (0.043)
endowments	0.0544** (0.025)
coefficients	0.1822*** (0.049)
interaction	-0.0824** (0.038)
Endowments	
ethnic	0.0096 (0.006)
age	0.1710* (0.094)
agesq	-0.2287** (0.108)
partner	0.0328*** (0.011)
region_5	-0.0016 (0.004)
region_6	-0.0041 (0.005)
region_7	-0.0030 (0.004)
region_8	0.0049 (0.005)
region_9	-0.0044 (0.005)
region_10	0.0042 (0.005)
region_11	-0.0007 (0.003)

	lnftepay
region_12	-0.0005 (0.004)
non_dispens	0.0019 (0.003)
nhstenure	0.0731*** (0.026)
Coefficients	
ethnic	-0.0797*** (0.021)
age	2.9913** (1.479)
agesq	-0.9915 (0.687)
partner	-0.0130 (0.032)
region_5	-0.0240 (0.025)
region_6	-0.0000 (0.018)
region_7	-0.0181 (0.016)
region_8	0.0212 (0.022)
region_9	-0.0055 (0.016)
region_10	0.0278 (0.037)
region_11	0.0006 (0.033)
region_12	-0.0040 (0.031)
non_dispens	0.0057 (0.052)
nhstenure	-0.4804*** (0.146)
_cons	-1.2481 (0.819)
Interaction	
ethnic	-0.0390** (0.018)

	lnftepay
age	0.3257* (0.172)
agesq	-0.2377 (0.170)
partner	-0.0061 (0.015)
region_5	0.0088 (0.010)
region_6	-0.0000 (0.010)
region_7	-0.0062 (0.008)
region_8	-0.0053 (0.007)
region_9	-0.0026 (0.008)
region_10	-0.0083 (0.012)
region_11	0.0000 (0.002)
region_12	-0.0001 (0.001)
non_dispens	-0.0005 (0.005)
nhstenure	-0.1112*** (0.043)
r2	
N	**720.0000**

Standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01.

Appendix T: Integrative models[ap]

Model 1. HCHS doctors: women less likely to be in senior grades

DV= Consultant/associate specialist/specialty doctor and above 75th percentile of earnings

a. Intersectional disadvantage **Bcountry = 2**, from disadvantaged class background **Fschool = 4**.
b. Senior status doesn't fit with my personal career values or priorities
    a. I prioritise WL balance **DChoice = 5**
    b. I prefer to deal with patients than procedures. **Dchoice = 2**
    c. I don't work to maximise my earnings **Epayatt3 = 4,5**
    d. I choose/need to avoid long hours **Dcareerbar1 (4) = 3,4**
    e. Personality factors: I am high on agreeableness FB5 2 = 1,2. I do not work to maximise my earnings **Epayatt3 = 4,5**
    f. Specialties: Occupational Medicine, Psych, Public health, Obstetrics, Radiology
c. I find the culture unsupportive of women and promotion
    a. I was bullied **Dcareerbar1 (2) = 3,4**
    b. I was harassed **Dcareerbar1 (13) = 3,4**
    c. Lack of mentorship/role models and org support all items in **Dcareer = 4, 5 Dcareerbar1 (1) = 3,4 Dcareerbar1 (3) = 3,4**
d. I find the training and education structure unsupportive and inflexible, including issues with Deanery, geography and pay negotiation.
    a. I work in a rural location **Cubnrrl = 3**
    b. The system of allocating training places isn't flexible enough **Dappproc, Dmove, Dremote = 1, 2 Dcareerbar1 (10) = 3,4**
    c. The Deanery hasn't helped me **DDCCT = 4,5** and/or **DMLtrg = 4,5**
    d. I don't have much control over the tasks that I perform, how much notice I get and when I am expected to perform them **Caut1 =3, 4**, **Caut2 = 3, 4 and Caut3 = 3, 4**
    e. I have been penalised for LTFT and flexible working **Dcareerbar1 (8) = 3,4 Dcareerbar1 (9) = 3,4 Dcareerbar1(11) = 3,4 Dcareerbar1 (12) = 3,4**
    f. Lack of opportunities for professional development **Dcareerbar (5) = 3,4**
    g. Specialties with long training: **Anaesthetics, Opthalmology, Surgery**
    h. I didn't negotiate/didn't know that I should. **Epayatt4 & Epayatt5**
e. I have family and domestic responsibilities
    a. I have taken over three months maternity or adoption leave. **Dmat1 = 1 – 3** distinguished from **Dmat1 >3** also
    b. I took a break or moved to LTFT working for reasons related to family or maternity **Dbreak >3 months** if **Dbreakrsn = 1, 8, Dltft = 1**

[ap] Items in bold cross-refer to survey codes.

c. I have a child/many children **Fparent = 1, Fyoung > 0, Fkids > 0.** I have a big family **fkids>2** or other caring responsibilities **Fcareoth = 1**

d. My career is of secondary importance **Fpartdiv = 2 Dcareerbar1 (7) = 3, 4** I am (or have been) in a personal relationship with another doctor **Fpartocc = 1, 2, 3.** I am primary carer. **Fcarekids1 = max,** childcare is expensive **Dcareerbar1 (6) = 3,4**

Model 2. HCHS doctors: women less likely to be have the same quantity of meaningful experience

DV= HCHS doctor plus CtenureNHS

a. Achieving consultant status doesn't fit with my personal career values or priorities
   i. I prioritise WL balance **DChoice = 5**
   ii. I prefer to deal with patients than procedures **Dchoice = 2**
   iii. I don't work to maximise my earnings **Epayatt3 = 4,5**
   iv. I choose/ need to avoid long hours **Dcareerbar1 (4) = 3,4**
   v. Personality factors: I am high on agreeableness **FB5 2 = 1,2.** I do not work to maximise my earnings **Epayatt3 = 4,5**
   vi. Specialties: Occupational Medicine, Psych, Public health, Obstetrics, Radiology?

b. I find the culture unsupportive of women and promotion
   i. I was bullied **Dcareerbar1 (2) = 3,4**
   ii. I was harassed **Dcareerbar1 (13) = 3,4**
   iii. Lack of mentorship/role models and org support all items in **Dcareer = 4, 5 Dcareerbar1 (1) = 3,4 Dcareerbar1 (3) = 3,4**

c. I find the training and education structure unsupportive and inflexible, including issues with Deanery, geography and pay negotiation.
   i. I work in a rural location **Cubnrrl = 3**
   ii. The system of allocating training places isn't flexible enough **Dappproc, Dmove, Dremote = 1, 2 Dcareerbar1 (10) = 3,4**
   iii. The Deanery hasn't helped me **DDCCT = 4,5** and/or **DMLtrg = 4,5**
   iv. I don't have much control over the tasks that I perform, how much notice I get and when I am expected to perform them **Caut1 =3, 4**, **Caut2 = 3, 4 and Caut3 = 3, 4**
   v. I have been penalised for LTFT and flexible working **Dcareerbar1 (8) = 3,4 Dcareerbar1 (9) = 3,4 Dcareerbar1(11) = 3,4 Dcareerbar1 (12) = 3,4**
   vi. Lack of opportunities for professional development **Dcareerbar (5) = 3,4**
   vii. Specialties with long training: **Anaesthetics, Opthalmology, Surgery**
   viii. I didn't negotiate/didn't know that I should. **Epayatt4 & Epayatt5**

d. I have family and domestic responsibilities
   i. I have taken over three months maternity or adoption leave. **Dmat1** = 1 – 3 distinguished from **Dmat1** >3 also

ii. I took a break or moved to LTFT working for reasons related to family or maternity **Dbreak** >3 mnths if **Dbreakrsn** = 1, 8, **Dltft** = 1,

iii. I have a child/many children **Fparent = 1, Fyoung > 0, Fkids > 0.** I have a big family **fkids>2** or other caring responsibilities **Fcareoth = 1**

iv. My career is of secondary importance **Fpartdiv = 2 Dcareerbar1 (7) = 3, 4** I am (or have been) in a personal relationship with another doctor **Fpartocc = 1, 2, 3.** I am primary carer. **Fcarekids1 = max,** childcare is expensive **Dcareerbar1 (6) = 3,4**

e. The quality of my experience is not as valuable.

i. I am less likely to have research in my career profile Below the average in **Cduties = 4**

ii. Specialty effects – I am in a specialty with lower % of women: **Surgery, Ophthalmology, No specialty**

f. I am thinking of leaving. **FEx1 = 1, 2** if below 75th percentile of pay

Model 3: women less likely to be a GP partner/contractor

DV = GP doctor plus CSeniority2 1 & 3

a. Intersectional disadvantage – gender x disability **Fdis,** gender and health **FGH1 = 1,2**

b. Personal career values and priorities

i. I prefer to deal holistically with patients **Dchoice = 2**

ii. I don't work to maximise my earnings **Epayatt3 = 4,5**

iii. I choose/ need to avoid long hours **Dcareerbar1 (4) = 3,4**

iv. Personality factors: I am high on agreeableness **FB5 2 = 1,2**.

c. Culture is unsupportive

i. I was bullied **Dcareerbar1 (2) = 3,4**

ii. I was harassed **Dcareerbar1 (13) = 3,4**

iii. Lack of mentorship/role models and org support all items in **Dcareer = 4, 5 Dcareerbar1 (1) = 3,4 Dcareerbar1 (3) = 3,4**

d. I find the training and education structure unsupportive and inflexible, including issues with Deanery, geography and pay negotiation.

i. I work in a rural location **Cubnrrl = 3**

ii. The system of allocating training places isn't flexible enough **Dappproc, Dmove, Dremote = 1, 2 Dcareerbar1 (10) = 3,4**

iii. The Deanery hasn't helped me **DDCCT = 4,5** and/or **DMLtrg = 4,5**

iv. I didn't negotiate my pay/I didn't know that I could. **Combine Epayatt4 & Epayatt5**

v. I don't have much control over the tasks that I perform, how much notice I get and when I am expected to perform them **Caut1 =3, 4**, **Caut2 = 3, 4 and Caut3 = 3, 4**

vi. I have been penalised for LTFT and flexible working **Dcareerbar1 (8) = 3,4 Dcareerbar1 (9) = 3,4 Dcareerbar1(11) = 3,4 Dcareerbar1 (12) = 3,4**

vii. Lack of opportunities for professional development **Dcareerbar (5) = 3,4**

e. I have family and domestic responsibilities

i. I have taken maternity and/or adoption leave. **Dmat1 = 1 – 3 distinguished from Dmat1 >3**

ii. I took a break or moved to LTFT working for reasons related to family or maternity **Dbreak >3 mnths** if **Dbreakrsn = 1, 8,**

iii. I have a child/children **Fparent = 1, Fyoung > 0, Fkids > 0 or** other caring responsibilities **Fcareoth = 1**

iv. My career is of secondary importance **Fpartdiv = 2 Dcareerbar1 (7) = 3, 4**

v. I am (or have been) in a personal relationship with another doctor **Fpartocc = 1, 2, 3.**

vi. I am primary carer **Fcarekids1 = max,**

vii. I agree that childcare is expensive **Dcareerbar1 (6) = 3,4**

Model 4: GPs: Women less likely to be have the same quantity of meaningful experience

DV = GP doctor plus CtenureNHS

a. Personal career values and priorities

i. I prefer to deal holistically with patients **Dchoice = 2**

ii. I don't work to maximise my earnings **Epayatt3 = 4,5**

iii. I choose/ need to avoid long hours **Dcareerbar1 (4) = 3,4**

iv. Personality factors: I am high on agreeableness **FB5 2 = 1,2**.

b. The culture is unsupportive of women and promotion

i. I was bullied **Dcareerbar1 (2) = 3,4**

ii. I was harassed **Dcareerbar1 (13) = 3,4**

iii. Lack of mentorship/role models and org support all items in **Dcareer = 4, 5 Dcareerbar1 (1) = 3,4 Dcareerbar1 (3) = 3,4**

c. The training and education structure are unsupportive and inflexible, including issues with Deanery, geography.

i. I work in a rural location **Cubnrrl = 3**

ii. The system of allocating training places isn't flexible enough **Dappproc, Dmove, Dremote = 1, 2 Dcareerbar1 (10) = 3,4**

iii. The Deanery hasn't helped me **DDCCT = 4,5** and/or **DMLtrg = 4,5**

iv. I don't have much control over the tasks that I perform, how much notice I get and when I am expected to perform them **Caut1 = 3, 4**, **Caut2 = 3, 4 and Caut3 = 3, 4**

v. I have been penalised for LTFT and flexible working **Dcareerbar1 (8) = 3,4 Dcareerbar1 (9) = 3,4 Dcareerbar1(11) = 3,4 Dcareerbar1 (12) = 3,4**

vi. Lack of opportunities for professional development **Dcareerbar (5) = 3,4**

vii. I didn't negotiate/didn't know that I should **Combine Epayatt4 & Epayatt5**

d. I have family and domestic responsibilities
   i. I have taken maternity and/or adoption leave **Dmat1 = 1 – 3 distinguished from Dmat1 >3**
   ii. I took a break or moved to LTFT working for reasons related to family or maternity **Dbreak >3 mnths** if **Dbreakrsn = 1, 8,**
   iii. I have a child/children **Fparent = 1, Fyoung > 0, Fkids > 0 or** other caring responsibilities **Fcareoth = 1**
   iv. My career is of secondary importance **Fpartdiv = 2 Dcareerbar1 (7) = 3, 4**
   v. I am (or have been) in a personal relationship with another doctor **Fpartocc = 1, 2, 3.**
   vi. I am primary carer **Fcarekids1 = max,**
   vii. I agree that childcare is expensive **Dcareerbar1 (6) = 3,4**

e. I am thinking of leaving **FEx1 = 1, 2** if pay<75th percentile

Glossary

A&E	Accident and Emergency
Additional NHS Responsibilities	Special responsibilities in an employing organisation not generally carried out by doctors, which are agreed between the doctor and the employer and that cannot be absorbed in the time set aside for Supporting Professional Activities.
Additional Programmed Activities (APAs)	Additional Programmed Activities are not linked to spare professional capacity but can be used to reflect regular, additional duties or activities (whether scheduled or unscheduled) that cannot be contained within a standard ten programmed activities contract. They can be used, for example, to recognise an unusually high routine workload, or to recognise additional responsibilities.
Adjusted gap	The gender pay gap is the pay disparity between men and women expressed as a percentage of men's earnings. This statistic is considered the raw, or unadjusted gender pay gap because it does not account for factors that may affect earnings (for example, hours worked, age, and so on). The raw figure differs from the adjusted gender pay gap, which accounts for these variables.
Advisory Committee on Clinical Excellence Awards (ACCEA)	The Advisory Committee on Clinical Excellence Awards advises health ministers on the presentation of clinical excellence awards to consultants working in the NHS. The ACCEA is an advisory non-departmental public body, sponsored by the Department of Health and Social Care.
Agenda for Change (AfC)	Agenda for Change is the national pay system for all NHS staff, with the exception of doctors, dentists and most senior managers.
Alternative Provider Medical Services (APMS)	This enables NHS England to contract with "any person" under local commissioning arrangements.
AoMRC	Academy of Medical Royal Colleges

Annual Review of Competence Progression (ARCP)	Annual Review of Competence Progression is the means by which doctors in postgraduate training are reviewed each year to ensure that they are offering safe, quality patient care, and to assess their progression against standards set down in the curriculum for their training programme.
ASHE	Annual Survey of Hours and Earnings
BAME	Black, Asian and Minority Ethnic
Banding supplements	Junior doctors on the old 2002 contract received a multiplier to their basic salary based on a number of factors which correspond to the number of hours worked, availability for on-call and the unsocial hours they work.
Basic pay	Annual salary without any allowances or additional payments.
BMA	British Medical Association
Bonus or performance-related payments	Any form of bonus or performance-related pay excluding discretionary points, distinction awards and clinical excellence awards which are grouped separately.
Branches of medicine	For the purposes of this review; branches of medicine refers to Hospital and Community Services, general practice or academic medicine.
Certificate of Completion of Training	A certificate of completion of training confirms a doctor has completed an approved UK training programme and is eligible for entry onto the Specialist Register or GP Register.
Certificate of Eligibility for Specialist Registration (CESR)	The Certificate of Eligibility for Specialist Registration is the route to specialist registration for doctors who have not completed a GMC-approved programme but who can demonstrate that their specialist training, qualifications and experience are equivalent to the requirements for the award of the Certificate of Completion of Training in the UK. CESR holders can apply for substantive consultant posts in the UK.
Clinical Commissioning Groups (CCGs)	The groups of general medical practitioners and other healthcare professionals that took over commissioning from primary care trusts in England.
Clinical Excellence Awards (CEAs)	All levels of Clinical Excellence Awards are consolidated and pensionable, with the exception of payments that provide consultants with financial reward for exceptional achievements and contributions to patient care. All levels of Clinical Excellence Awards are pensionable, with the exception of local CEAs in England awarded from March 2018. See also Distinction awards, Discretionary points.
Consultant (Con.)	A senior doctor who has overall responsibility for the care of patients in hospital. They have completed a minimum of six years' training in their specialty area to gain a certificate of completion of training and listing on the GMC's specialist register.

Core medical training (CMT)	Core medical training forms the first stage of specialty training for most doctors in training following a two-year foundation programme.
CPI	Consumer Price Index
CST	Core Surgical Training
CT 1-3	Core Training years 1-3 for junior doctors
Data warehouse	Electronic Staff Record (ESR) is the human resources and payroll IT system for the NHS in England and Wales. A data warehouse has been developed populated by extracts from ESR to provide reporting across the NHS.
DCC	Direct Clinical Care
DHSC	Department of Health and Social Care
Directors of Public Health supplements	Usually employed on the NHS consultant contract, Directors of Public Health receive a pay supplement based on the size of the populations they are responsible for, and they may also receive additional programmed activities in recognition of their work.
Discretionary points	Payments made to consultants employed under the pre-2003 contract who have reached the maximum of the salary scale. Now replaced by local Clinical Excellence Awards in England. They remain payable to existing holders until the holder retires or gains a new award. All levels of Discretionary points are pensionable. See also Clinical Excellence Awards, Commitment awards, Distinction awards.
Distinction awards	Consolidated payments that provide consultants with financial reward for exceptional achievements and contributions to patient care. Now replaced by national Clinical Excellence Awards in England. They remain payable to existing holders until the holder retires or gains a new award. All levels of Distinction awards are pensionable.
Doctors and Dentists Pay Review Body (DDRB)	The Review Body on Doctors' and Dentists' Remuneration is an independent body and advises the government on the annual pay award for doctors and dentists, through a transparent process, informed by evidence from a range of stakeholders including the BMA It is an advisory non-departmental public body, sponsored by the Department of Health and Social Care.
Electronic Staff Record (ESR)	Human resources and payroll system used by 99% of NHS organisations in England and Wales.
Equal pay	Equal pay means that men and women in the same employment should receive equal pay for work of equal value enshrined in the Equality Act 2010. Any difference must be objectively justified.
Equality Act 2010	The Equality Act 2010 legally protects people from discrimination in the workplace and in wider society.

FHO	Foundation House Officer
Foundation Training	Part of a doctor's training and takes place after the completion of a medical degree at university. It comprises a series of rotations in different specialties within hospitals or in the community. The first year of training is known as FY1 and the second FY2. Foundation training precedes specialist training.
Foundation Year 1 (FY1)	This is known as the "foundation programme" and is the first level of clinical training for qualified doctors that bridges the gap between medical school and specialty training. Completion of Foundation Year one allows junior doctors to gain full registration with the GMC.
Foundation Year 2 (FY2)	This is known as the "foundation programme" and is the first level of clinical training for qualified doctors that bridges the gap between medical school and specialty training. Completion of Foundation Year two allows them to apply for further study and training in a specialised area of medicine.
Full-time equivalent (FTE)	Full-time equivalent is a standardised measure of the workload of an employee. An FTE of 1.0 means that a person is equivalent to a full-time worker, an FTE of 0.5 signals that the worker is half (part) time.
GDPR	General Data Protection Regulation
Gender pay gap (GPG)	The difference between the average earnings per hour of men and women expressed as a percentage of men's earnings.
Gender pay gap reporting	Equality Act Amendment (2016) required all public, private and voluntary sectors with 250+ staff to publish their gender pay gaps and action plans on proposals to tackle it.
General Medical Services Contract	One of the types of contract primary care organisations can have with primary care providers. It is the mechanism for providing funding to individual general medical practices, which includes basic payment for every practice, and further payments for specified quality measures and outcomes.
Geographic allowances	A payment relating to cost of living normally based on a geographical area.
GMC	General Medical Council
GMP	General Medical Practitioner
GMS	General Medical Services
Government Equalities Office	The Government Equalities Office leads work on policy relating to women, sexual orientation and transgender equality. They are responsible for a range of equalities' legislation including mandatory gender pay gap reporting.
GP	General Practitioner
GPGiM	Gender Pay Gap in Medicine internet survey
GPMS	General and Personal Medical Services

GPST	General Practice Specialty Training
HCHS	Hospital and Community Health Services
HCSA	Hospital Consultants and Specialists Association
HEE	Health Education England
HEI	Higher Education Institution
HESA	Higher Education Statistics Agency
HMRC	Her Majesty's Revenue and Customs
HMRC self-assessment tax records	Self-assessment is a system HM Revenue and Customs uses to collect income tax. Tax is usually deducted automatically from wages, pensions and savings.
HO	House Officer
Hospital and Community Health Services Staff	Consultants, doctors and dentists in training, specialty doctors and associate specialists, and others (including: hospital practitioners, clinical assistants, and some public health and community medical and dental staff).
JDC	Junior Doctors Committee
LTFT	Less than full-time
Married doctors retainer scheme	A scheme with payments to enable female doctors to keep up to date with the medical profession while raising a family.
Modernising Medical Careers (MMC)	Modernising Medical Careers is a programme for postgraduate medical training introduced in the United Kingdom in 2005. The programme replaced the traditional grades of medical career before the level of consultant.
MTAS	Medical Training Application System
NAO	National Audit Office
National Insurance	National Insurance is a tax on earnings and self-employed profits.
NHS	National Health Service
NHS Digital (NHSD) (formerly Health and Social Care Information Centre)	NHS Digital is the trading name of the Health and Social Care Information Centre, which is the national provider of information, data and IT systems for commissioners, analysts and clinicians in health and social care in England.
NTN	National Training Number
OBD	Oaxaca-Blinder decomposition
OBR	Office of Budgetary Responsibility
Occupational absence payments	Occupational pay for adoption, maternity and paternity, excluding statutory absence payments.
OLS	Ordinary least squares regression analysis
OME	Office of Manpower Economics

On-call or standby allowances	Any form of payment for staff either on-call or on standby, including payments when staff are actually called into work.
ONS	Office for National Statistics
Overtime or additional working hours' payments	Any payment for additional time beyond the standard FTE for the grade.
PCTMS	Primary Care Trust Medical Services
Personal Medical Services (PMS)	A voluntary option for GPs and other NHS staff to enter into locally negotiated contracts.
Programmed Activities (PA)	Under the 2003 contract, consultants have to agree the number of programmed activities (PAs) they will work to carry out direct clinical care (DCC). Each programmed activity is four hours, or three hours in "premium time", which is defined as between 7pm and 7am during the week, or any time at weekends.
Protected pay payments	Payments for staff who have moved onto a new contract but whose previous contract provided higher pay overall.
Public sector Equality Duty	This is a duty on public authorities to monitor and report on how their policies or decisions affect people who are protected under the Equality Act.
Qualitative	Qualitative evidence provides broad in-depth information based on interviews, open survey questions or case examples.
Quantitative	Numerical or statistical information.
Raw pay data	Primary data that has not been processed and is referred to in the review as "annual" or "gross" pay.
RCP	Royal College of Physicians
Recruitment and retention premia payments (RRP)	Pay supplements which can be applied to individual jobs, or groups of jobs, where labour market pressures make it difficult for employers to recruit and retain staff in sufficient numbers at the normal salary rate.
Rota	The working pattern of an individual doctor or group of doctors. It includes out-of-hours working.
Rotation	A rotation is a series of consecutive placements for doctors and dentists in training, made by the HEE local office, into posts with one or more employers or host organisations. These can be at one or more locations.
RPI	Retail Price Index
Salaried contractors (including salaried GMPs)	General medical practitioners who are employed by either a primary care organisation or a practice under a nationally agreed model contract.
Self-assessment tax records	See HMRC self-assessment tax records.

Sex Discrimination Act (1975)	An Act to render unlawful certain kinds of sex discrimination and discrimination on the ground of marriage and establish a Commission with the function of working towards the elimination of such discrimination and promoting equality of opportunity between men and women generally; and for related purposes. Now part of the Equality Act (2010) and the Equality and Human Rights Commission.
Specialty and Associate Specialist (SAS)	Doctors in the SAS grades work at the senior career-grade level in hospital and community specialties. The group comprises specialty doctors, associate specialists, staff grades, clinical assistants, hospital practitioners and other non-standard, non-training "trust" grades. Specialty Doctor is currently the only open SAS grade
ST	Specialist training
Sub-specialty	A narrow field of study or work within a specialty, such as chemical pathology or child and adolescent psychiatry.
Supporting Professional Activities (SPAs)	Activities that underpin Direct Clinical Care. These might include, but are not restricted to, participation in: • audit • continuing professional development • local clinical governance activities • training • formal training • appraisal • job planning • research A number of supporting professional activities (SPAs) are also agreed within the job-planning process to carry out training, continuing professional development, job planning, appraisal and research.
Total pay	A measure of pay that includes, where applicable, basic plus additional programmed activity payments, additional standard time payments, band supplements, bonus or performance-related payments, CEAs, directors of public health supplements, discretionary points, distinction award payments, geographic allowances, occupational absence payments, on-call or standby allowances, overtime or additional working hours, protected pay payments, shift or flexible working payments and recruitment and retention premia.
UCAS	Universities and Colleges Admissions Service
UKFPO	UK Foundation Programme Office

Workforce Minimum Data Set (wMDS)	The Workforce Minimum Data Set is a national quarterly extraction of workforce data from NHS primary care organisations in England. GP practices are both contractually and legally required under the terms of their GP contract to provide the information requested for the wMDS.

Acknowledgements

Over the course of the Review, we have had the opportunity of speaking to doctors across the length and breadth of England within foundation trusts, NHS trusts, mental health trusts, GP practices and universities.

Each time, we encountered enthusiastic, dedicated and passionate doctors working incredibly hard and through difficult times; prepared to find the time to speak to us and openly share their thoughts and views on the causes of gender pay gaps in medicine. Their stories are personal and occasionally distressing; however, they have helped shape this review and we hope that we have done justice to their accounts.

We are also grateful to all those doctors who took the time to fill out our online survey.

We have met with a number of health sector organisations and experts, too many to name here but we would like to thank them all for giving their considered opinions.

We would like to thank the analysts at NHS Digital, HMRC, the GMC and Higher Education Statistics Agency (in particular Kieron Walsh), for their patience and cooperation in providing the necessary high-quality data that provides the basis for the conclusions and recommendations. We are grateful for the oversight provided by Tom Evans at the ONS.

The University of Surrey Business School has been a source of support that has been key in bringing together this report; our thanks go to Steve Wood in particular, in his role as Research Director and now Dean of the Business School. We would also like to thank UCL, particularly UCL Medical School for their support and encouragement.

Thanks must be given to officials at the Department of Health and Social Care who have been a great source of support, guidance and knowledge during this process. Tim Sands and especially Katie Kennington, who were a tireless source of practical help, persistence and commitment in coordinating all aspects of the production of this report. We have been a team throughout.

We would also like to thank the research and authoring team who supported the project beyond what was expected of them: Professor Carol Atkinson of Manchester Metropolitan University; Dr Mark Williams of QMUL; Dr Ioannis Laliotis of City, University of London; Dr Jo Blanden of the University of Surrey; Sheila Wild of Equal Pay Portal; and Dr Duncan Brown of the Institute of Employment Studies. We also benefited from the support of Gabriele Dente, Dr Emily Unwin, Danula Gamage, Colleen Shannon and Natasha Williams.

Thank you to each and every individual from the organisations below who gave their time so generously in steering groups and stakeholder meetings. Your insights were invaluable and we look forward to your contribution to the implementation phase.

Last, but not least, we would like to express our love and gratitude to our families who have endured months of real and virtual absence from us. In particular Andrew, Cameron and Mitchell Manson and Nigel Dacre.

Name	Organisation
A	
Dr Huma Afzal	British Association of Physicians of Indian Origin
Dr Rachel Ali	British Medical Association
Samantha Allen	Health & Care Women Leaders Network
Professor Jane Anderson	Homerton University Hospital NHS Foundation Trust
Dr John Appleby	Nuffield Trust
Anne-Marie Archard	Health Education England, London and Kent
Professor Mary Armitage	Department of Health and Social Care (ACCEA)
Professor Carol Atkinson	Manchester Metropolitan University
B	
Emma Banfi	Department of Health and Social Care
Dr Hannah Barham-Brown	British Medical Association
Caroline Beardall	NHS England and NHS Improvement
Stephen Bevan	Institute for Employment Studies
Celia Bielawski	Royal College of Physicians
Professor David Black	Joint Royal Colleges of Physicians Training Board
Heather Blakey	Health Education England
Dr Jo Blanden	University of Surrey
Dr Henrietta Bowden-Jones	Medical Women's Federation
Dr Pallavi Bradshaw	Medical Protection Society
Josephine Brady	Formerly British Medical Association
Dr Liam Brennan	Royal College of Anaesthetists
Sally Brett	British Medical Association
Dr Duncan Brown	Institute of Employment Studies
Lucy Bryant	British Medical Association
Hannah Burd	Behavioural Insights Team

Name	Organisation
C	
Dr Charlotte Cattlin	Imperial College London
Joe Chattin	Hospital Consultants and Specialists Association
(trade union)	NHS England
Farah Cheema	Hospital Consultants and Specialists Association
Yvonne Coghill	NHS England
Caroline Corrigan	NHS England and NHS Improvement
Dr Christina Costache	British Medical Association
Aisling Creedon	Formerly Department of Health and Social Care
Dr Gill Cresswell	Berkshire Healthcare NHS Foundation Trust
Dr Jane Currie	Royal College of Obstetrics and Gynaecology
D	
Professor Dame Jane Dacre	University College London
David Darton	General Medical Council
Shoshana Davidson	Behavioural Insights Team
Dr Angharad Davies	Swansea University Medical School
Dr Lucy-Jane Davies	British Medical Association
Dr Sally Davies	Medical Women's Federation
Anthea Davy	Women in Surgery Forum
Dr Phil de Warren Penny	British Medical Association
Paul Deemer	NHS Employers
Julie Dennis	Advisory, Conciliation and Arbitration Service
Gabriele Dente	University of Surrey
Dr Stuart Dollow	Department of Health and Social Care (ACCEA)
Edward Donkor	Government Equalities Office
Dr Geraldine Donnelly	British Medical Association (Scotland)
E	
Tom Evans	Office for National Statistics
F	
Dr Helen Fidler	British Medical Association
Dr David Flower	Faculty of Occupational Medicine
Dr Maddy Fogarty-Hover	British Medical Association

Name	Organisation
G	
Vanita Gandhi	Health Education England
Danula Gamege	Queen Mary University of London
George Georgiou	GMB Union
Dr Clare Gerada	Practitioner Health Programme
Dr Alison Graham	NHS (Scotland)
Dr Zoe Greaves	British Medical Association
H	
Jisha Hales	Government Equalities Office
Oliver Hanmer	Department of Health and Social Care
Dr Oliver Hauser	University of Exeter
Alastair Henderson	Academy of Medical Royal Colleges
Professor Jenny Higham	Medical Schools Council.
Professor Mary Horgan	Royal College of Physicians (Ireland)
I	
Celia Ingham-Clark	NHS England and NHS Improvement
Wendy Irwin	Royal College of Nursing
J	
Dr Raj Jethra	British Medical Association
Mohamed Jogi	NHS Employers
Julie Johnson	Health & Care Women Leaders Network
K	
Tony Kavanagh	Lincolnshire Partnership NHS Trust
Katie Kennington	Department of Health and Social Care
Dr Camilla Kingdon	Royal College of Paediatrics and Child Health
Dr Katie Knight	Health Education England
L	
Dr Ioannis Laliotis	City, University of London
Una Lane	Director of Registration and Revalidation
Gavin Larner	Department of Health and Social Care
Beth Lawton	Sussex Partnership Trust
Helen Lewis	NHS Digital
Claire Light	General Medical Council

Name	Organisation
M	
Professor Averil Mansfield	Imperial College London
Professor Dame Clare Marx	General Medical Council
Professor Carrie McEwan	Academy of Medical Royal Colleges
Professor Jean McEwan	University of Exeter
Dr Helena McKeown	British Medical Association
Professor Sheona McLeod	Health Education England
Professor Chris McManus	University College London
Dr Claire McNaught	Royal College of Surgeons Edinburgh
Dr Ruth Anna McQueen	British Medical Association
Selina Mehra	Royal College of Obstetrics and Gynaecology
Dr Anthea Mowat	British Medical Association/Medical Women's Federation
Kimberly Murrell	Medical Women's Federation
N	
Madeha Nain	Her Majesty's Revenue and Customs
Dr Leander Neckles	NHS England
Dr Christina Neely	British Medical Association (Northern Ireland)
O	
Yemisi Osibote	Royal Free Hospital
P	
Dr Claudia Paoloni	Hospital Consultants and Specialists Association
Alisa Parker	NHS Confederation
Lyndsay Paterson	Royal College of Physicians, Edinburgh
Dr Katie Petty-Saphon	Medical Schools Council
Ian Piczenick	NHS Employers
Dr Carol Postlethwaite	Royal College of Physicians
Ben Powell	Hospital Consultants and Specialists Association
(trade union)	Faculty of Public Health
R	
Eleanor Ransom	NHS Employers
Professor Mala Rao	Imperial College London
Dr Francesca Rubulotta	Committee of Medical Managers
Mr Harry Rutter	Faculty of Public Health

Name	Organisation
S	
Dr Adalina Sacco	Royal College of Obstetrics and Gynaecology
Joan Saddler	NHS Confederation
Tim Sands	Department of Health and Social Care
Ms Laura Schlepper	Nuffield Trust
Professor Ruth Seely	Exeter Business School
Professor Carol Seymour	Royal Free Hospital
Dr Nisha Shah	North East London NHS Foundation Trust
Colleen Shannon	Healthcare Writing
Professor Iqbal Singh	British Association of Physicians of Indian Origin
Dr Carmen Soto	British Medical Association
Jo Spear	Unison
Paul Spooner	Electronic Staff Record
Erica Stamp	British Medical Association (Wales)
Dr David Strain	British Medical Association
Dr Sonia Swart	Northampton General Hospital
T	
Dr Cath Taylor	University of Surrey
Dr Victoria Tzortziou-Brown	Royal College of General Practitioners
U	
Dr Emily Unwin	University College London
V	
Mike Vickerman	Department of Health and Social Care
Tony Vickers-Byrne	Chartered Institute of Personnel and Development
W	
Angie Walsh	Department of Health and Social Care
Keiron Walsh	Electronic Staff Record
Dr Manni Waraich	Faculty of Intensive Care Medicine/Royal College of Physicians
Deborah Ward	King’s Fund
Professor Dame Margaret Whitehead	Institution of Population Health Sciences
Neil Wilcock	NHS Digital
Sheila Wild	Equal Pay Portal
Dr Mark Williams	Queen Mary University of London

Name	Organisation
Natasha Williams	University of Surrey
Olsen Williams	Royal College of Physicians/Medical Women's Federation
Clare Woodford	Formerly British Medical Association
Professor Carol Woodhams	University of Surrey
Y	
Christine Yau	Her Majesty's Revenue and Customs
Dr Asiya Yunus	London Local Medical Committee