

The Pay Gap for Women in Medicine and Academic Medicine

An analysis of the WAM* database



By

Sara Connolly (University of East Anglia) and

Anita Holdcroft (Imperial College London)

* Women in Academic Medicine

Funded by the Higher Education Funding Council England, the British Medical Association, the Medical Women's Federation and Imperial College London, with agreement from Caroline Fox (Athena Forum) to publish data from ASSET 2006.



Preface

I had until now felt confident in my belief that there was a fair, indeed robust, pay structure in medicine that ensured equality. This report clearly shows that this is not so and that there is a need for exploration of the reasons for this disparity.

This report focuses on differences between men and women doctors at different stages of their careers and between NHS and University employed doctors. It compliments the present government's consultations on the Equalities Bill and encourages NHS and University employers to audit their pay according to professions and grade of staff.

The report's analysis shows the actual pay gap where men and women hold equally similar characteristics, as well as the average pay gap which is used to identify areas of additional remunerated work. By considering how pay can increase within a grade and how even when professional characteristics are similar a pay gap is measured, reasons for and solutions to the pay gap can be identified.

The report has been debated within the BMA at senior and junior levels and at the BMA Annual Representative Meeting in July 2009. It raises issues that the profession has to face and that employers can discuss given the present parliamentary activity on equalities. Of note are the steps proposed to close the pay gap: encouragement of female talent, pay audit, methods of negotiation of salary, and a review of workplace culture that devalues women's contributions. Employers and employees as well as professional societies can all contribute to the process of reducing the gaps.

In summary, the BMA as well as the Medical Women's Federation have published this report to bring evidence to doctors' employers and the profession. The report identifies tangible reasons for part of the gender pay gap but for a large part the gap is unexplained, as is that in academic medicine. Hence this report calls for changes in the workplace to remove discrimination in pay.



**Professor Averil O Mansfield, CBE, FRCS, FRCP
President**

Executive Summary

Recent UK Legislation has heightened awareness of the extent of the gender pay gap leading to consideration of causation. This report for clinical medicine uses NHS and university responses from men and women doctors in the Women in Academic Medicine cohort of the Athena Survey of Science, Engineering and Technology 2006. It is timely because actual salary data in UK clinical medicine is scarce. Based on average salaries there is a raw pay gap of £15,245 – that is in general, women doctors earn 18% less than male doctors. There were mainly two grades of staff in the cohort, trainees and consultants on NHS and academic contracts. The difference between men and women reflects the impact of the much larger proportion of male doctors earning salaries in excess of £100,000. For university employees, average salaries are 5% lower compared with those whose primary contract is with the NHS. In academia, women earn 17% less than men whereas women in the NHS earn 21% less than men, but disparities also exist within grades with male professors earning 15% more than female professors.

Factors that influence and may explain the pay gap include grade, hours worked, experience, administrative roles and specialty. In order to determine which factors may generate the pay gap and how much is unexplained due to differences in treatment, a regression analysis was utilised in order to control for the different characteristics of the respondents, that is to compare like with like. For consultants there is a 13% gender pay gap but this is only partly explained; about 40% of this gap is unexplained due to different returns for the same characteristics e.g. the benefit of having been employed in the consultant grade for longer than 10 years is a significantly higher salary for men than women. For trainees differences in experience, grade and other factors explain only half the reported salary differences. Overall, the gender pay gaps are lower for doctors starting their careers but quite sizeable gaps emerge even amongst similarly successful men and women. Our estimates that control for confounding factors so that one doctor is compared with another of similar background, suggest a true gender pay gap amongst consultants of 5.6% worth £5,500 per annum and amongst trainees of 4.1% worth £2,000 per annum. Using free text comments from the survey, we attempt to identify which, if any, aspects of the workplace culture serve to disadvantage or undermine the position of women in medicine. Caring roles, hostile culture and geographical limitations are expressed as common concerns.

This report raises equality issues on pay that warrant further research within larger and more defined groups of doctors. However, this initial evidence suggests a partly unexplained gender pay gap that will be a benchmark within the medical profession.

Context

High gender pay gaps persist in the professions despite average pay gaps in the UK being at their lowest levels since the 1970s, for example, women working in the law earn 27%, women working as medical practitioners earn 24%, and women working in Higher Education earn 15% less than men working in the same professions (see Appendix Table A1)¹. These figures are naturally of interest to women working in the professions and are increasingly of interest to employers. The Gender Equality Duty which came into force in April 2007 places particular responsibilities on public sector employers to ensure equality of treatment in the workplace. Not only has this legislation raised the profile of gender equality issues in the workplace, but it has also heightened awareness of the extent of the gender pay gap and of any causal or linking factors. This report considers the evidence and causes of the gender pay gap in medicine and academic medicine using the clinical cohort of Women in Academic Medicine (WAM) of the Athena Survey of Science, Engineering and Technology 2006 (ASSET 2006) database for male and female doctors working in the NHS, Higher Education Institutions (HE) and for other employers.

Gender pay gaps in Medicine

Gender pay gaps in medicine have been identified in a number of recent studies in both the US and the UK. Laine and Turner (2004) report evidence from the US Census Bureau that “female physicians’ wages averaged 63 cents for each dollar earned by their male colleagues”. Also in the US, Wright et al (2007) find evidence of gender pay differentials in the academic context in their study of a College of Medicine in the US where female academics earned 89% of the average male salary. Other evidence from the UK, reports pay gaps amongst scientists working at Universities of between 18% (in subjects allied to medicine) and 36% (in medicine and dentistry)².

These figures suggest that the perceptions of inequality reported by Bennett and Nickerson (1992) are justified. In their study, Bennett and Nickerson found that only 19% of women in academic medicine thought that salaries for equivalent positions were equitable, with the proportion indicating that salaries for men and women are equal falling with increasing grade of staff. The ASSET 2006 data also asks doctors whether they perceive there to be equality of treatment in salary, career progression, access to career development/training opportunities and visibility to senior management. Very small numbers (less than 5%) perceive that men experience inequality in these areas, men are more likely to perceive equality in treatment and women are split between indicating equality of treatment and women experiencing disadvantage. Women, particularly those who are parents or of senior grade/high seniority, are more likely to indicate that women experience disadvantage in relation to career progression and salary (see Figure A1 in the Appendix).

1 The average gender pay gap is measured by taking the gap between the average (mean) level of pay for men and women as a proportion of the average pay for men, this is the preferred measure of the Equality Commission:

$$[(\text{Average Male Salary} - \text{Average Female Salary}) / \text{Average Male Salary} \times 100].$$

The average gender pay gap in the 1970s was over 30% by 2007 it had fallen to 23% but has since risen slightly.

Similarly, the median gender pay gap is measured as a proportion of the median salary for men, this measure was recently adopted by the UK government:

$$[(\text{Median Male Salary} - \text{Median Female Salary}) / \text{Median Male Salary} \times 100].$$

2 Anderson and Connolly (2006) and Connolly and Long (2008) who use the ASSET 2003/4 data and the subject areas are defined using the JACS subject codes.

What can explain the gender pay gap?

A range of factors may explain the gender pay differentials. For example, the lower salaries for women are, in part, a reflection of their more recent entry into the professions, younger age and so greater concentration in more junior positions. A recent report examining careers and career progression in medicine – “Women in academic medicine – developing equality in governance and management for career progression” April 2008, which also uses the ASSET 2006 survey data – finds that women remain under-represented within the sector particularly at more senior levels³. We shall therefore explore the extent to which gender pay differences can be explained by grade and the extent to which intra-grade pay differences in salary exist.

We also expect salaries to be influenced by contract and hours worked. One explanation which is often given for the gender pay gap is that women work fewer hours, but if we control for this dimension of effort or activity we would expect to see that men and women earn similar salaries. In order to make meaningful comparisons, we split the sample into two groups according to their contract types – consultants, which also includes professors, readers, senior lecturers; and trainees, who also include lecturers – and explore the relationship between salary and hours worked.

Furthermore, gender pay gaps may arise if men and women work in different areas of the profession which themselves are rewarded differently⁴. Roberts (2005) argues that ‘Women continue to be over-represented in the lower paid, less technically focused specialties, which are more often patient centred’ and that salaries are also likely to reflect the sector in which doctors work; the salaries and remuneration associated with academic medicine are often significantly lower than in the NHS. Similarly, Goldbeck-Wood (2000) argues that doctors are ‘unwilling to choose a career path which promises little in the way of training structure, job security, flexibility, financial reward and are opting instead for the better security, career and pay offered by purely clinical posts’. Studies in the US have also found that gender pay gaps vary across areas of speciality of medicine⁵. We examine the extent to which salaries paid for the same grade differ across the NHS and HEIs, whether they are sensitive to field of specialism and whether there is a gender dimension to this.

3 The report outlines the background, causes and suggested interventions relating to career development.

4 There is evidence from the legal professions that women tend to be concentrated in areas of the profession which are less lucrative and that this partly explains the gender pay gap for lawyers, Law Society, 2008.

5 Weeks and Wallace (2007a, 2007b, 2006) use data collected by the American Medical Association between 1992 and 2001 of the salaries of a range of medical specialists and report significant gender pay gaps for Ophthalmologists, Dermatologists and Radiologists. Kaplan et al (1996) present annual salary data from a 1992 questionnaire survey – \$122,172 for men, \$102,198 for women working as paediatricians.

How much do these factors affect the gender pay gap?

Having identified a range of possibly inter-related factors which may influence salary, we attempt to disentangle their effects. We do this using regression analysis which allows us to control for the full range of factors, or explanatory variables, which might influence pay. We use regression results to decompose the average gender pay gap into two components⁶:

Those which can be explained – perhaps due to years of experience, grade or specialist field

Those which are due to differences in returns – where men and women are rewarded differently for the same characteristics.

Whilst employers and professionals may be interested in differences in pay that arise due to differences in experience and so on, it is the differences in returns that should be of greatest concern to all. Where this exists, it would mean that when we compare like with like, female doctors are paid less than male doctors.

Medicine and Academic Medicine using the WAM cohort of the Athena Survey of Science, Engineering and Technology 2006 (ASSET 2006) database

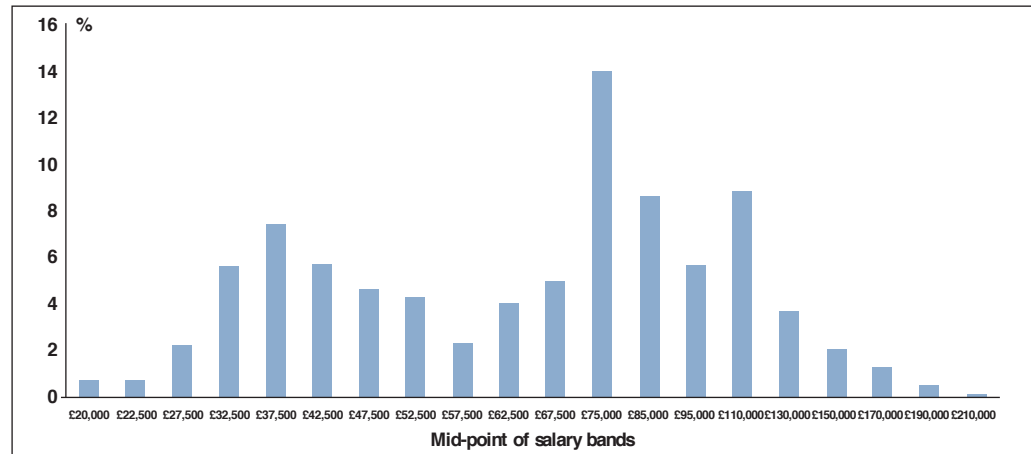
We explore these issues using the WAM cohort of ASSET 2006 data which collected details of the grade at which doctors were employed and asked them to identify who held their contract of employment e.g. the NHS or HE. The survey was completed by 1,162 doctors, providing us with a large scale and extremely comprehensive source of data to explore these issues. Information on pay and other relevant/related areas was collected⁷; in order to ensure comparability across different forms of employment respondents working part-time⁸ were asked to report the full-time equivalent of their annual gross income from their main employment. There are limitations in this approach in that some doctors work long hours and full time is a concept rather than an indication of hours worked. The distribution of salary is shown in Figure 1 – it shows salaries ranging from less than £20,000 to more than £200,000. One feature which is immediately apparent is that the distribution appears to be bimodal which reflects the fact that there are two main groups of respondents in the sample – consultants and trainees – which we will analyse separately.

6 This is done using the Oaxaca decomposition technique – Oaxaca (1973) – see technical appendix for more detail.

7 The survey used a drop down menu of salary bands in narrow bandings that were chosen in order to avoid inaccuracies such as the respondent entering one zero too many – here the salary bands are aggregated for ease of exposition.

8 The survey uses the OECD definition of part-time employment which is working less than 30 hours per week.

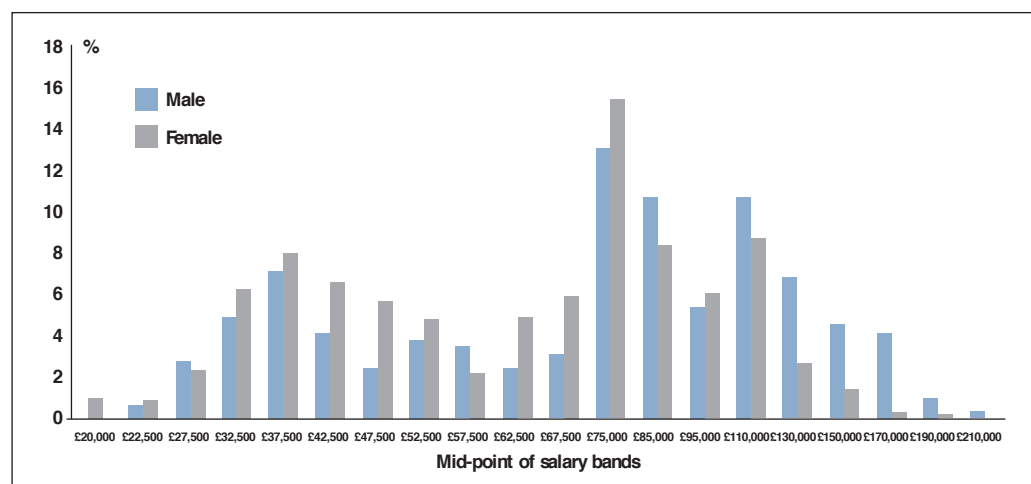
Figure 1 – Annual Salary (FTE)



Note Sample N = 1015⁹

In Figure 2, we present the distribution by gender. We see here that women are more heavily represented in the lower part of the distribution and so we can expect to find a gender pay gap. Furthermore, the distributions of salary are not symmetric – a comparison of average with the median salaries illustrates the skewed nature of the distribution. For male doctors, the average salary was found to be £83,957 compared with a median salary of £75,000 – the median is significantly lower than the average because the average reflects the impact of a number of highly paid male doctors (1 in 3 male doctors earn more than £100,000). For female doctors, the median salary is £67,500 which is much closer to the average £68,712 which reflects that they are more likely to be concentrated in the lower paid salary bands.

Figure 2 – Annual Salary (FTE) by gender



Note Sample N = 1015

9 1015 doctors provided salary details (87% of the overall sample), of these 42% worked in HEIs, 58% in the NHS and 7% in other organisations.

We can, therefore calculate two ‘raw’ salary gaps between men and women in medicine. Based on average salaries there is a raw gap of £15,245 – that is on average, women doctors earn 18% less than male doctors – and based on median salaries there is a raw gap of £7,500 – at least half of women doctors earning 10% less than male doctors¹⁰. The difference between the two reflects the impact of the much larger proportion of male doctors earning salaries in excess of £100,000 (30% of male doctors compared with 15% of female doctors).

In the following sections we explore gender salary differentials by sector and grade using the gender pay gap as an illustrative statistic. These figures are likely to be sensitive to the composition of the data. Hence conclusions about the ‘true’ nature of the gender pay gap may be limited by the type of data collection but as far as possible we control for all available explanatory factors within the regression and decomposition analysis which follows.

Salaries in the NHS and HEs sectors

In general, average salaries are 5% lower for those whose primary contract is in Higher Education (£71,641) compared with those whose primary contract is with the NHS (£75,490). Interestingly, there is a larger gap (10%) in the median salaries. If in this cohort female doctors are more likely than male doctors to have a primary contract in Higher Education than in the NHS, then these pay differentials between the two sectors might also explain part of the raw gender pay gap. However, there are a smaller proportion of females (39% of all female doctors) than of males (51% of all male doctors) in HE, so this is unlikely to be the explanation. We also identify gender pay gaps within each of these sectors; on average, women working in HE earn 17% [median 10%] less than men and those working in the NHS 21% [median 12%] less than men, so the gender pay gap is slightly higher for those whose primary contract is with the NHS.

Table 1 – Average salaries for men and women in NHS and academic medicine (Sample N = 939)

	HE	NHS
% of sample in each sector	42%	58%
Average Salary	£71,641	£75,490
Median Salary	£67,500	£75,000
% of Males in each sector	51%	49%
Male average Salary	£80,786	£90,609
Male median Salary	£75,000	£85,000
% of Females in each sector*	39%	61%
Female average Salary	£67,426	£71,276
Female median Salary	£67,500	£75,000

* more females than males responded to the ASSET 2006 survey

10 This average gender pay gap lies somewhere between the figures quoted above of a 24% gender pay gap for medical practitioners and a 15% gap for academics, reflecting the fact that the WAM cohort of the ASSET 2006 data includes doctors working in both the NHS and HE.

Salaries by level of seniority

Unsurprisingly, given the salary scales, (see Table A2 in the Appendix for a summary of the salary scales in operation in the year of the survey) we find that salaries vary considerably across academic and clinical grades and rise with seniority.

Table 2 – Average salaries for men and women by level of seniority (Sample N = 939)

	Trainees	Consultants	Other
% of sample in grade	19%	50%	31%
Average Salary	£48,156	£93,388	£58,138
Median Salary	£42,500	£85,000	£52,500
% Males in grade	14%	60%	26%
Male average Salary	£50,809	£102,823	£63,831
Male median Salary	£52,500	£95,000	£45,000
% Females in grade	21%	46%	33%
Female average Salary	£46,611	£89,094	£56,590
Female median Salary	£42,500	£85,000	£52,500

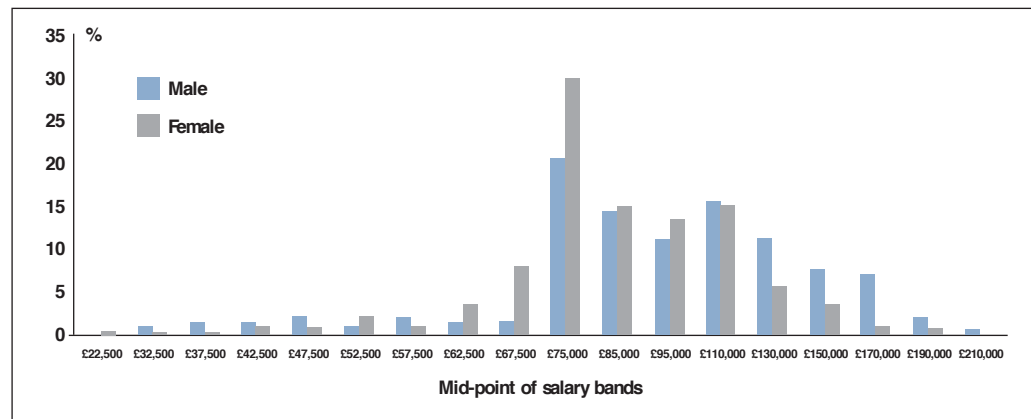
Note: Trainees – Lecturers, Clinical Researchers, Specialist Registrars, Senior House Officers and GP trainees, Consultants – Consultants, Professors, Readers and Senior Lecturers, Other – doctors working as researchers and in other teaching or clinical roles which do not fall into either of the two previous categories.

Those working as researchers or in other teaching or clinical posts account for around one-third of the sample, as the career patterns and trajectories are more varied for these groups, we therefore focus our attention on the less heterogeneous groups of consultants and trainees.

Consultants – Consultants, Professors, Readers and Senior Lecturers

The majority of our sample are consultants (50%) with salaries ranging from £25,000 to over £200,000. We see in Figure 3 that the distribution of salaries is very heavily skewed, particularly so for male consultants – with average salaries for men of £102,823 compared with a median of £95,000, see Table 2. Female consultants are more likely to be paid salaries between £60,000 and £90,000 (56% compared with 37% of male consultants) and are less likely to be paid very high salaries (25% of female consultants are paid in excess of £100,000 compared with 44% of male consultants). Amongst consultants, the average gender pay gap is 13% and the median is 11%.

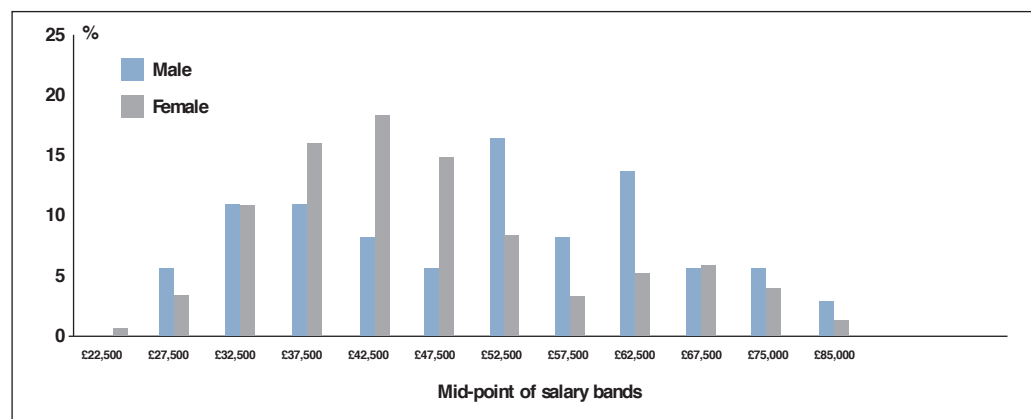
Figure 3 – Consultants, Annual Salary (FTE) by gender



Note Sample N = 470

Trainees – Lecturers, Clinical Researchers, Specialist Registrars, Senior House Officers and GP trainees
 Trainees account for 19% of the overall sample and salaries range from £20,000 to £85,000. In Figure 4 we see rather more variance in male salaries amongst the trainees, men are more likely to earn salaries in the very lowest (6% earn less than £30,000) and highest salary bands (56% of male trainees earn more than £50,000 compared with 30% of women). In contrast the large majority of women, just under 65%, earn salaries between £30,000-£50,000, compared with 38% of men. Amongst trainees, the average gender pay gap is 8% and the median is 19%.

Figure 4 – Trainees, Annual Salary (FTE) by gender



Note Sample N = 177

Hours worked

Consultants – Consultants, Professors, Readers and Senior Lecturers

The majority of consultants in the sample (86%) are employed on contracts based on time worked, so called Programmed Activities (PA). The ‘typical’ contract that generated a full time salary would be for 10-12 PAs; of those on a PA contract 86% of men and 75% of women reported this as their contract, yet many work more hours (Table 3). Only about 40% of our sample actually works 10-12 PAs. Contracts for more than 12 PAs are relatively rare (9% of men and 7% of women) yet around 25% of both men and women report working more than 12 PAs per week.

Table 3 – Consultant PAs (Numbers as % of total male or female consultants)

Number of PAs	PAs Contracted		PAs Worked	
	Men	Women	Men	Women
1-7	4	8	1	7
8-9	1	11	7	7
10	24	26	12	13
11	26	29	25	21
12	36	20	28	29
13-14	8	4	23	19
15 or more	1	3	1	7

The number of PAs worked should reflect the number of PAs in a job plan and, therefore we might expect to observe salary differentials between PAs worked. For example, the average salary for those working less than 10 PAs is around £82,000 whereas the average salary for those working 10 to 12 PAs is £91,000 rising to £106,000 for those working more than 12 PAs. Taking the 'typical' contract of 10-12 PAs we find that women consultants (across both the NHS and HE) earn around 87% of male consultants who are working exactly the same number of PAs.

Table 4 – Average salary for doctors by PAs contracted and worked

Number of PAs	PAs Contracted			PAs Worked		
	Men	Women	% average gender pay gap	Men	Women	% average gender pay gap
Less than 10	£81,625	£79,919	2	£85,543	£80,307	6
10-12	£107,938	£93,934	13	£99,694	£86,933	13
More than 12	£138,000	£103,382	25	£121,058	£99,911	17

There is a possibility that when asking doctors working part-time to provide an equivalent full time salary, those doctors who are on contracts above 12 PAs may have considered that they should reduce the salary they reported to reflect the norm of a contract between 10-12 PAs. Nevertheless, such responses should not have been specific to one gender and to the extent that this has arisen it is likely to lead to an underestimate of highest, predominantly male, salaries. With this caveat in mind, we see that there is evidence that women are working longer hours for less pay than men who work fewer hours. This is consistent with evidence from earlier studies, Schafer (1997), which argued that gender differences in salary persist in presence of confounding variables e.g. academic productivity or hours worked.

Trainees – Lecturers, Clinical Researchers, Specialist Registrars, Senior House Officers and GP trainees
We find that on average hours worked by trainees are slightly higher than the contractual hours (Table 5). With the exception of GP trainees, where the women are mostly working part-time, the differences in hours worked are relatively small with male trainees working slightly more hours than females (49 compared with 47 hours). The female trainees are slightly older; this is particularly noticeable amongst the relatively small number of GP trainees where the women qualified up to 25 years earlier than the men some of whom reported having switched into GP training after a career elsewhere in medicine.

Table 5 – Hours worked by Trainees

	<i>Average hours worked</i>				<i>Average age</i>	
	<i>Men</i>		<i>Women</i>		<i>Men</i>	<i>Women</i>
	<i>Worked</i>	<i>Contracted</i>	<i>Worked</i>	<i>Contracted</i>		
All trainees	49	45	47	43	32	33
HE						
Lecturer	50	42	45	36	35	37
Clinical researcher (trainee)	45	38	42	39	31	34
All trainees in HE	48	41	44	36	34	36
NHS						
Specialist Registrar/training post	50	43	50	45	32	33
Senior House Officer	49	54	50	50	30	28
GP trainee	52	48	27	27	28	34
All trainees in NHS	50	49	49	45	31	32

Other factors influencing the gender pay gap

Grade, sector and hours worked are all factors which may explain the gender pay gap. However, as our previous discussions have shown, pay gaps remain even when we control for these. Therefore we consider a range of further factors which may also influence salary. A set of descriptive statistics are presented in the Appendix (Tables A3 and A4).

One might expect that a doctor with more years of experience would earn more, so we should control for career history including years worked, years in grade, spells of part-time employment and any career breaks. In the ASSET 2006 sample the female consultants have fewer years of potential experience (23 compared with 25 years since obtaining their medical degree) but the female trainees have more years of potential experience (9 compared with 8 years since obtaining their medical degree). Unsurprisingly, it is much more common for female doctors to have taken career breaks (65% of female consultants compared with 9% of male consultants and 47% of female trainees compared with 16% of male trainee doctors) or to have experience of working part-time (44% of female consultants compared with 7% of male consultants and 29% of female trainees compared with 11% of male trainee doctors). Career breaks have typically been relatively short (less than a year) and those female doctors who have worked part-time have usually done so for 2 or 3 years (the average length of part-time employment is 2.5 years for female consultants and 1.3 years for female trainee doctors).

Salary increments are likely to be determined by number of years in current grade; those male doctors who are consultants have been in grade for an average of 10 years compared with 9 years for female doctors. Female trainee doctors have been in their current grade for slightly longer than male trainees (4 compared with 3 years). In Figures 5 and 6 we illustrate average salaries by years in grade, we find some evidence that average salaries for male doctors are higher than those for female doctors with the same number of years of experience in grade and that this difference is particularly noticeable for those consultants with more than 10 years of experience in the consultant grade.

Figure 5 – Average salary by years in current grade for consultants

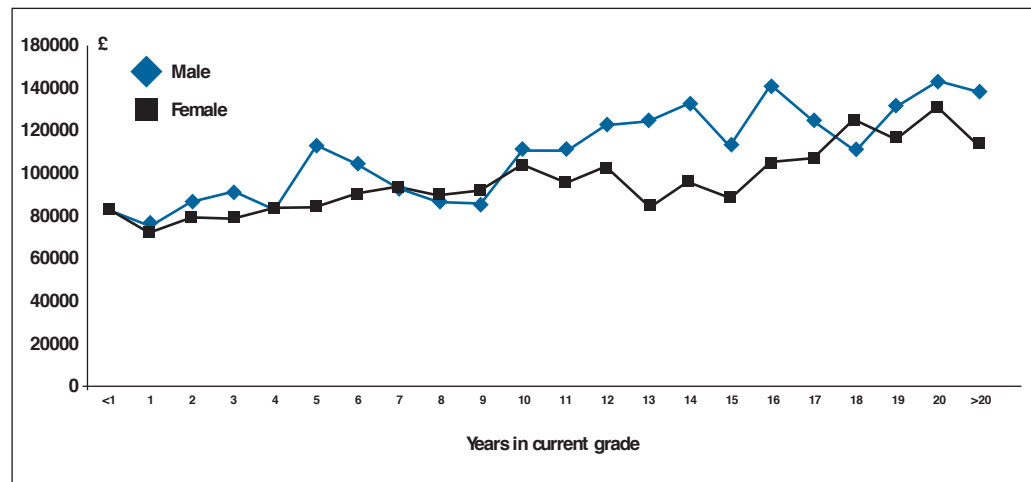
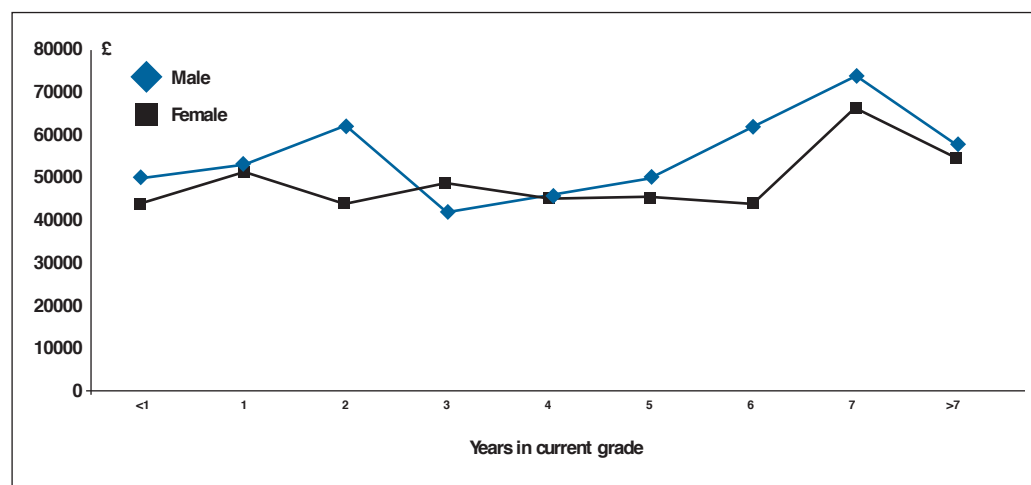


Figure 6 – Average salary by years in current grade for trainees



The ASSET 2006 data assumes that the main employment salary includes clinical excellence awards and specific details about these awards were not documented. However, we consider that medical salaries will be higher for those who have won clinical excellence awards and may explain part of the gender pay gap so measures of esteem are included in this analysis. For example, male doctors are more likely to have received prizes in the past five years, with 33% of male consultants and 39% of male trainees compared with 22% of female consultants and 27% of female trainees having achieved this measure of esteem.

Those who take on leadership or administrative roles are typically paid more and these positions are more likely to be held by males. Similarly, those who excel in research often command higher salaries – so we should control for various measures of research success (e.g publications, engagement with the research community or involvement in professional societies). Here we find that male academics were almost twice as likely to have been included in their department’s submission to the 2001 research assessment exercise and in general male doctors were more likely to be an editor or sit on the editorial board of a journal (these are documented in more detail in Women in Academic Medicine 2008).

Given that academic and medical salaries include a London weighting (worth £2,162 for 2006) we might expect to see slightly higher salaries in the capital. Average salaries outside of London are £80,744 compared with £81,238 for those working in London. The average salaries for women working within and outside of London are very similar, salaries in London are marginally higher (£76,977 compared with £75,868 for those working outside of London). There is a much more significant pay differential for men, those working in London earn on average £102,794 compared with £92,043 for those working outside of London. As a consequence, we find a larger gender pay gap amongst doctors working in London (25% compared to 18% amongst those working outside of London) which partly reflects the importance of London hospitals in providing training whereby the composition of the female academic and medical profession in London is more likely to be in training posts and in consultant or academic posts amongst male doctors.

Whilst salary scales should be common across specialist fields we do find that in this cohort, average salaries are significantly higher amongst those working in Paediatrics (£88,889) or Anaesthetics (£91,406) and may reflect their clinical workload. With the exception of Medical Education and Psychiatry, women earn less on average than men with notable gender pay gaps in Paediatrics (38%), Ophthalmology (30%) and Obstetrics and Gynaecology (28%). These figures are likely to reflect the varying composition of the doctors working within these fields, hence in our regression analysis we control for specialty, grade and experience which allow us to take account of any variation in gender composition across specialties that is, to compare women with men of similar backgrounds/CVs.

Table 6 – Average salaries by specialist field of medicine for men and women*

	% of sample	Male doctors	Female doctors	% average gender pay gap
Accident & emergency	2	£79,167	£73,438	7
Anaesthetics	8	£100,568	£83,654	17
Clinical oncology, nuclear medicine & radiology	5	£102,500	£87,738	14
General medicine	22	£86,471	£73,193	15
General practice	6	£83,333	£72,250	13
Geriatrics	3	£82,917	£71,000	14
Medical education	1	£63,750	£84,375	-32
Obstetrics and Gynaecology	8	£110,000	£78,857	28
Ophthalmology	3	£107,500	£74,853	30
Paediatrics	7	£119,167	£73,750	38
Pathology	12	£92,125	£77,731	16
Psychiatry	8	£67,500	£81,220	-20
Public health	6	£90,833	£78,879	13
Surgery	6	£92,250	£73,482	20

* 2% of the sample did not give medical specialty details

Finally, other studies of the gender pay gap have found evidence of a ‘mommy’ penalty, where comparing like with like, women who are mothers are paid less than women who are not, Harkness and Waldfogel (2003); we therefore also explore the possible impact of domestic responsibilities. We find evidence of a marriage and parenthood gap – 93% of the male consultants and 76% of the male trainees are married compared with 83% of the female consultants and 75% of the female trainees and 27% of the female consultants are not parents compared with 6% of the male consultants.

Explaining the Gender Pay Gap separately for women and men

We have run separate regressions for men and women as this allows us to compare the impact of the variables and identify whether they have differential effects for men and women. The results discussed in the text below are statistically significant at the 5% level. Our statistical modelling (see the discussion and results in Tables TA1 and TA2 in the Technical Appendix) estimates a coefficient that describes the proportional effects on salary e.g. among men, the estimated coefficient for being a professor is 0.22 meaning that male professors are estimated to have a 22% higher salary than male NHS consultants and other academic consultants such as readers or senior lecturers. Finally, we use our regression results to decompose the average gender pay gap into components which are explained – perhaps due to years of experience or specialist field – and those which are unexplained due to differences in treatment.¹¹ Here we simply summarise the main results of our regression analysis which explores the causes of the gender pay gap for consultants and trainees separately.

The Consultant – why are there differences in salary?

There is a 13% average gender pay gap for consultants but salaries vary by experience and other factors as follows:

Grade

Within the medical consultant grade, there is a pay premium for professors – male professors earn 22% more than men working in other grades, whereas female professors earn 8% more than women working in other grades.

Experience

Those who are more experienced and have been in post for longer – those who have been in their current clinical grade for more than ten years – earn a 34% (men) and 13% (women) pay premium compared to those with less experience.

Specialty

There is evidence that salaries are higher in some fields of medicine – salaries are higher for men working in Geriatrics (24%) or Paediatrics (11%)¹².

Programmed activity

Pay does rise with PAs contracted and worked for both men and women, but, when controlling for all other variables, the impact is relatively small and only statistically significant for men.

11 See technical appendix for more detail.

12 These salary differentials are smaller than those reported in Table 6, clearly some of the raw gender pay differential within specialty was due to the composition of the data e.g. more junior women in some of the specialty fields.

Professional portfolio

In general, salaries are higher for those with a national profile or being involved with their professional societies than for those who do not engage in this way. Administrative responsibilities form another dimension of seniority e.g. being a Clinical Director or having a senior administrative position in an NHS Trust is associated with higher salaries for both men and women. With regard to measures of esteem, women who have been a keynote speaker at a conference, a member of a grant giving panel or have senior levels of responsibility within the professional organisations are paid more.

Career progression/mobility

Those in more senior positions earn more, but those women who have been promoted by their own employer earn less (5%) than those in the same position who moved to achieve promotion.

Location

All other things being equal, men working in London benefit from a pay premium, whereas there is no significant difference in salary for women working in the capital.

Career breaks

Although careers may be interrupted by breaks or spells of part-time employment, it is quite surprising that these have no statistically significant impact for women and so do not contribute in any meaningful way to lower salaries for women. For men, those who have worked part-time have higher (full-time equivalent) salaries than those working full-time (though the impact diminishes with the length of the spell of part-time employment).

Domestic responsibilities

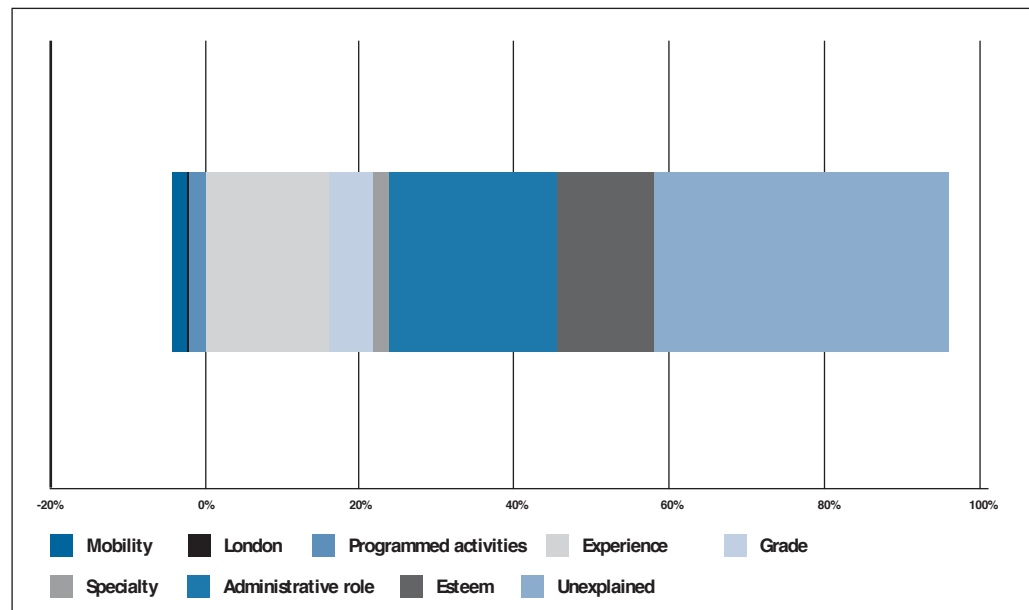
There is no direct pay penalty associated with motherhood or care responsibilities for women. We do find that average salaries for the small number of men who are primary carers for their partners or parents are lower compared to those without care responsibilities but this difference is not statistically significant in the regression analysis.

Summary of Differences in Treatment for Female Consultants

Women in consultant positions within medicine earn less than men. This is partly because they are less likely to hold the high level positions, the levels of esteem or level of involvement in professional organisations of their male colleagues. However, this explains only about 59% of the gender pay gap (Figure 7), the remainder worth approximately £5,500, is due to difference in treatment for the same characteristics:

- the premium for being a professor is 22% for men but only 8% for women
- those men who have been in their current clinical grade for more than 10 years earn a return of 34% compared with those with less experience in the consultant grade but it is only 13% for women
- men benefit from a significant pay premium associated with working in London

Figure 7 The amount of influence that each of the factors responsible for the gender pay gap may exert for consultants



Using these results, having controlled for any differences in characteristics or composition of the consultant sample, we are able to provide an estimate of the true gender pay gap which exists amongst consultants which is 5.6%, worth just over £5,500 per annum.

The Trainee – why are there differences in salary?

Although the average gender salary gap is lower in both proportion and monetary terms for trainees, the percentage gap is 8%, again we find that salaries vary by grade, experience and other factors as follows:

Experience

Experience is measured by the number of years since obtaining the main medical qualification; for both men (7%) and women (4%) there is a higher salary for each year of experience.

Sector

Women whose main contract is in the NHS earn less than women whose primary contract is in HE.

Location

Both men and women working in London earn less than those working outside of London, despite a London Weighting Allowance. However, the impact is only statistically significant for women.

Speciality

In this cohort, there appears to be a significant salary premium for women associated with working in General Practice compared to working in general medicine and other fields.

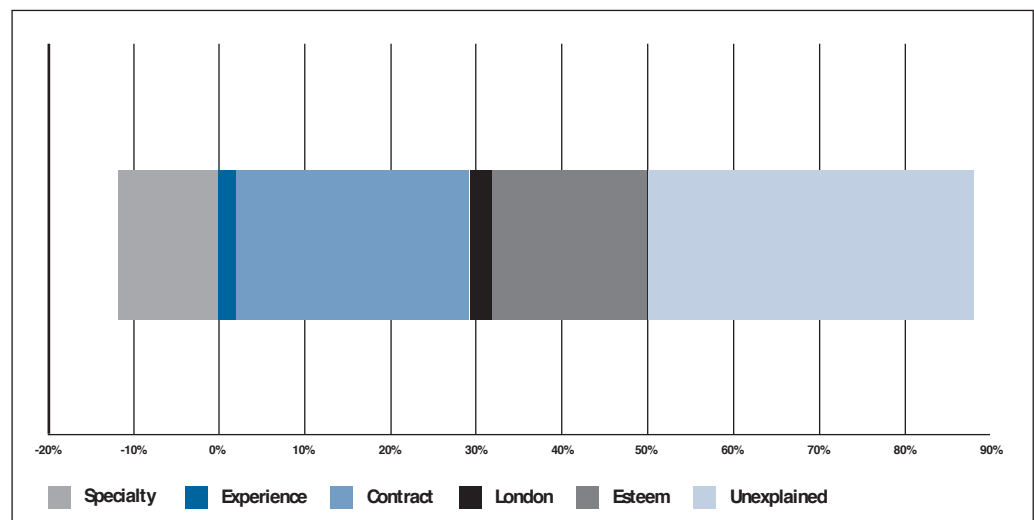
Professional experience

There is a pay premium for those women who have been keynote or plenary speakers at conferences compared to those women who have not attended or given papers at conferences.

Summary of Differences in Treatment for Female Trainees

Differences in experience and roles appear to explain about 50% of the gender pay gap (Figure 8) but the other half remains unexplained. Of those differences that are explained – for example, women receive a lower return in salary for each year of experience than men – employers and professionals can actively reduce these differentials.

Figure 8 The amount of influence that each of the factors responsible for the gender pay gap may exert for trainees



Using these results, having controlled for any differences in the characteristics or composition of the trainee sample, we are able to provide an estimate of the true gender pay gap which exists amongst trainees which is 4.1% – worth just over £2,000 per annum.

What this report shows

Our analysis of pay information taken from the WAM cohort of the Athena Survey of Science, Engineering and Technology 2006 (ASSET 2006) database for male and female doctors finds that on average women earn £15,245 less per year than men. We find evidence that significant raw average gender pay gaps exist within sectors (17% in HE, 21% in the NHS), within grades (13% for consultants and 8% for trainees) and within fields of speciality medicine (ranging from 7% in Accident and Emergency to 38% in Paediatrics). The raw gender pay gaps are lower for those doctors at the start of their career (£4,198 for trainees) but quite sizeable gaps emerge even amongst similarly successful men and women (£13,729 for consultants).

We undertake a decomposition analysis which allows us to identify the extent to which the gender pay gap can be explained because women are younger, have fewer years of experience, more likely to have had career breaks, less likely to hold high profile administrative or research posts. These factors explain about 60% of the gender pay gap amongst consultants and 50% of the pay gap amongst trainees. The remaining 40-50% of these respective gender pay gaps are unexplained and are the result of different returns for men and women working in these fields. Female consultants are less well rewarded for each additional year of experience or extra PA worked; unlike male consultants they do not benefit from a salary premium when they work part-time. Within specialties, the female consultants working in the field of Paediatrics do not receive the same salary premium; females do not benefit as much as men when they are promoted unless they also move employer. Similarly, female trainees do not receive the same premiums for extra years of experience. Our estimates suggest a true gender pay gap amongst consultants which is 5.6%, worth about £5,500 per annum and amongst trainees which is 4.1%, worth just over £2,000 per annum. Even controlling for confounding factors so that one doctor would be compared with another doctor having a similar background by using the regression analysis, our results demonstrate significant gender differences in salaries especially within consultant grades.

One step in closing the gender pay gap in medicine would be to close the grade gap. We need to ensure that female talent is encouraged so that more women meet the relevant criteria for promotion and that those who do are promoted. A second step is that the medical profession considers the mechanisms for determining salary at an individual level. Our results clearly show that men and women with identical experience and expertise are paid differently – which suggests evidence of discrimination. Given the greater onus that the Gender Equality Duty places on employers to ensure equality of treatment, we would argue that institutions need to conduct reflective reviews of salary or gender pay audits in order to ensure compliance with the legislation. Wright et al (2007) provide evidence of an institution in the US which undertook such a review, salary disparities were identified for 21 of the 400 members of faculty, salary adjustments averaging \$17,323 were paid to eight women and the raw gender pay gap closed from 11% to 6.5%.

A second would be to consider why such differences in salary returns exist. One possibility identified in the literature (Babcock and Laschever (2003)) is that women are poor or unwilling negotiators and that this may explain why men have a salary advantage over similarly well qualified women. This might offer a plausible explanation for the higher salary returns that we observe for men who work additional PAs or for the existence of a premium to men who work part-time. Similarly, a reluctance to bargain or negotiate hard over salary might explain why women who are promoted by their current employer earn less than those who are promoted when they move employer.

Finally, we attempt to identify which, if any, aspects of the workplace culture serve to disadvantage or undermine the position of women in medicine. Both men and women indicate that medical careers are demanding – requiring hard work and involving long hours – making it hard to achieve a good

work-life balance. Women do anticipate and have direct experience that taking maternity leave and career breaks will have a quite significant impact upon their career. The quotations below relate to comments posted as free text to highlight barriers to progress¹³.

“ Not having any children which has allowed me to work long hours“ , “ I am nervous that having a family will significantly slow my career progression“ , “ Am about to go on maternity leave, with inevitable consequences on research projects during this time; it will take 1-2 years minimum post leave to re-build group.” , “ I was offered but had to turn down a clinical senior lecturer post because I cannot work as few hours as I need to and the responsibilities are too great to juggle with new motherhood” , “ They had very stereotypical views about women with young children. A female colleague who was childless was promoted over my head despite much lower experience, but I applied for promotion through an appeal process and got it.” , “ Senior female staff exist in our organisation, but they do not have children and take the view that we should be ‘flexible’ and prepared to relocate if necessary” .

Parents cite the difficulties in arranging appropriate and flexible child-care and the heavier burden that women often have in managing other domestic responsibilities: “ How many male consultants do the supermarket shopping...“ , “ Lack of childcare for long hours” , “ Progressing in medicine whilst managing to find the right work life balance which is more difficult for women than it is for men.” , “ Unable to attend meetings and sit in committees due to childcare difficulties” .

Many women attempt to manage the dual responsibilities of home and work by switching into part-time employment. However, these are not always easy to find: “ I had to wait 8 years for a part-time consultant post“ , “ It is not encouraged for NHS academics to work part time and I will have to make a decision in the long run about what is more important“ , “ Too difficult to balance research, teaching and clinical commitments within a part-time position. The department is actively discouraging part time work for clinical researchers/ clinical lecturers.” Career progression for those working part-time is often regarded as more limited: “ Being part-time, still regarded as inferior to full-time male colleagues” , “ Part-time working still seems to be incompatible with a successful academic career – I cannot see how to be competitive (as judged by RAE¹⁴ etc) against full time male colleagues with fewer responsibilities.”

Beyond this, women are more likely than men to either have found their career progression limited because of family commitments – for example, they have moved as their husband has moved jobs or are unwilling to move and uproot the family in order to achieve promotion: “ Like many women I had the choice ‘stay in this job or leave’ rather than being able to apply for good jobs in other towns.” , “ My career has often been interrupted in full flow by my husband moving jobs and my following.” , “ Personal family commitments e.g. young, old family members; partner’s career helped and made move difficult.” . The willingness to apply for jobs elsewhere is clearly used as a bargaining tool for promotion or higher salaries “ Getting a job elsewhere and using it to trade with” but for women, their perceived lack of mobility is identified by some as weakening their bargaining strength “ Being in a position to

13 One quarter of the sample, 340 doctors, provided free text comments in addition to completing the questionnaire, of these 120 commented on areas which relate to various dimensions of equality of opportunity. Most (70) identified some form of direct discrimination (gender or race), a further 30 mentioned difficulties which relate to motherhood and the remaining 20 mention issues relating to flexibility of employment, part-time employment and other work-life balance issues.

14 The RAE is the periodic Research Assessment Exercise through which the research activity and outputs of academic departments are peer reviewed and upon which the allocation of research income is based.

threaten to leave seems to work for those staff who can be believed. This is not possible for those who are known to be constrained by their partner's job." The reluctance of women to use an alternative job offer as a bargaining tool and the fact that employers may perceive the exit threat as weak may serve to reinforce the argument made earlier in relation to men and women having different motivations and skills in regard to negotiating for a better deal. This may explain why we find that women who achieve promotion with their current employer earn less than those who move to be promoted.

More worrying is that so many women regard the work culture as being unsupportive and even hostile: "Ignoring discriminating comments from senior colleagues", "It is still difficult for women to progress their careers in hospital medicine due to the long hours and lack of flexibility in working patterns and training. You need to have 110% commitment to progress. I have made many personal lifestyle sacrifices", "Hate to say it but I still think you have to work twice as hard to get anywhere especially if you are of an ethnic minority and female. People make judgements on first impressions and you have to work hard to show them otherwise.", "There is no support or encouragement for women in the workplace", "Female of ethnic minority, non-EU National.", "The old boy network", "Old fashioned conservative attitudes", "Alpha male culture", "Racism and sexism", "It is still a man's world – especially at the top."

The combined results from our decomposition analysis together with the individual comments by respondents suggest inequalities in workplace progress and remuneration for women doctors. Part of the gender pay gap has been identified by factors that can be explained but the majority of the gap is unexplained by objective structured analysis. It is the qualitative comments that identify some of the subtle issues that have created the present situation. Employer and professional recognition of the pay gap and its causes can create a responsible approach to reducing this gap so that women's contributions in medicine are valued and equality achieved.

References

- Anderson J & Connolly S (2006) *Equal Measures: investigating university science pay and opportunities for success, Research Briefing, UK Resource Centre for Women in Science, Engineering and Technology*. Norwich: University of East Anglia.
(Available at <http://www.uea.ac.uk/eco/ecopeople/ConnollyShtml-6#6>)
- Ash AA, Carr PL, Goldstein R et al (2004) Compensation and advancement of women in academic medicine – is there equity? *Annals of Internal Medicine*. **141**: 205-12.
- Babcock L & Laschever S (2003) *Women Don't Ask: Negotiation and the Gender Divide*. Princeton: Princeton University Press.
- Bennett NM & Nickerson KG (1992) Women in academic medicine: perceived obstacles to advancement. *Journal of the American Medical Women's Association* **47**: 115-8.
- British Medical Association (2004) *Women in academic medicine: challenges and issues. A report by the Health Policy and Economic Research Unit for the Medical Academic Staff Committee*. London: British Medical Association.
- British Medical Association (2008) *Women in academic medicine. Developing equality in governance and management for career progression. Full Report*. London: British Medical Association.
- Connolly S & Long S (2008) *Women in science – fulfilment or frustration? Evidence on gender pay gaps from the UK, University of East Anglia, Economics Research Centre, Discussion Paper 2008-2*. Norwich: University of East Anglia.
- Goldbeck-Wood S (2000) Reviving Academic Medicine in Britain. *BMJ* **320**: 591-2.
- Harkness S & Waldfogel J (2003) The family gap in pay: evidence from seven industrialized countries. *Research in Labor Economics*. **22**: 369-414.
- Kaplan SH, Sullivan LM, Dukes KA et al (1996) Sex differences in academic advancement – Results of a national study of pediatricians. *New England Journal of Medicine*. **335**: 1282-9.
- Laine C & Turner BJ (2004) Unequal pay for equal work: the gender gap in academic medicine. *Annals of Internal Medicine*. **141**: 238-40.
- The Law Society (2008) *Earnings and work of private practice solicitors in 2007*. London: The Law Society.
- Oaxaca R (1973) Male-female wage differentials in urban labour markets. *International Economic Review* **14**: 693-709.
- Roberts J (2005) The feminisation of medicine. *BMJ Careers*. 8 January, 13-5.
- Schafer J (1997) Despite progress women in academic medicine find glass ceiling still in place. *Journal of Investigative Medicine*. **45**: 211-20.
- Weeks WB & Wallace AE (2006) Gender differences in diagnostic radiologists' annual incomes. *Academic Radiology*. **13**: 1266-73.
- Weeks WB & Wallace AE (2007a) Gender differences in ophthalmologists' annual incomes. *Ophthalmology* **114**: 1696-701.
- Weeks WB & Wallace AE (2007b) Gender differences in dermatologists' annual incomes. *Cutis*. **80**: 325-32.
- Wright AL, Ryan K, St Germain P et al (2007) Compensation in academic medicine: progress toward gender equity. *Journal of General Internal Medicine*. **22**: 1398-402.

Appendix

Table A1 – Average annual salary for selected Professions¹⁵

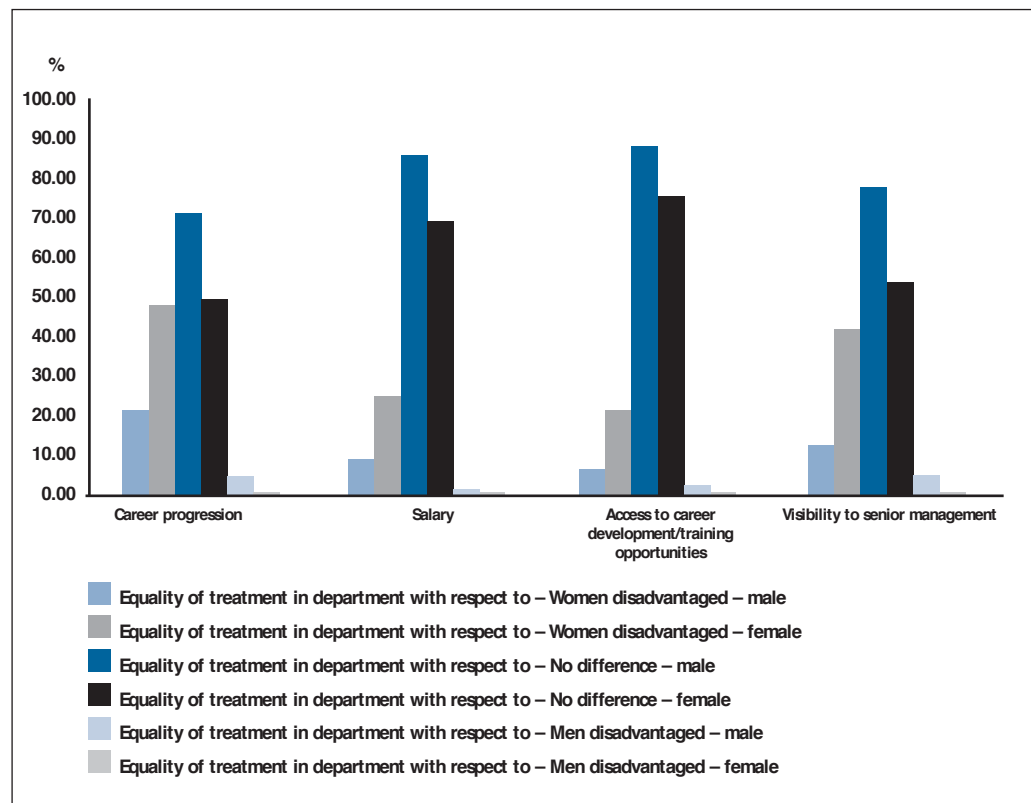
Profession	Male	Female	% gender pay gap
Medical practitioners	£85,712	£65,324	24
Psychologists	£44,952	£35,743	20
Pharmacists/pharmacologists	£39,439	£34,967	11
Ophthalmic opticians	£46,119	£30,635	34
Dental practitioners	£53,695	£36,629	32
Veterinarians	£41,711	£30,957	26
Higher education teaching	£44,303	£37,502	15
Further education teaching	£33,104	£28,531	14
Education officers, school inspectors	£40,084	£35,464	12
Secondary education teaching	£35,763	£31,701	11
Primary and nursery education teaching	£34,586	£30,331	12
Solicitors and lawyers, judges and coroners	£61,519	£44,828	27
Chartered and certified accountants	£41,417	£36,392	12
Management accountants	£40,726	£34,270	16
Management consultants, actuaries, economists and statisticians	£59,282	£38,873	34
Architects	£42,712	£29,507	31
Town planners	£36,594	£28,726	22
Chartered surveyors (not quantity surveyors)	£44,493	£32,132	28

Source: New Earnings Survey.

¹⁵ Gross (£) – For full-time employees: United Kingdom, 2006 (the same year as the Women in Academic Medicine survey was undertaken)

Figure A1

Question and answers on perceptions of equality of treatment with respect to salary and other issues



Source: WAM cohort ASSET 2006 data.

What is your perception of the equality of treatment in your department with respect to the following:

- a Career progression**
- b Salary**
- c Access to career development and training opportunities**
- d Visibility to senior management**

Response options:

- Women significantly disadvantaged
- Women slightly disadvantaged
- No difference
- Men slightly disadvantaged
- Men significantly disadvantaged
- No opinion / don't know

Table A2 – Summary of medical pay scales with effect from 1st April 2006

<i>Whole-time salaries</i>	<i>Points on Scale</i>	<i>Salary Scale</i>
House officer	Minimum	£20,741
	Maximum	£23,411
Senior house officer	Minimum	£25,882
	Maximum	£36,292
Specialist registrar	Minimum	£28,930
	Maximum	£43,931
Staff grade practitioner	Minimum	£31,547
	Maximum (normal)	£44,942
	Maximum (discretionary)	£59,968
Associate specialist	Minimum	£34,977
	Maximum (normal)	£63,422
	Maximum (discretionary)	£77,039
Consultant (2003 contract, England and Scotland for main pay thresholds)	Minimum	£70,822
	Maximum (without awards)	£95,831
	Maximum (with awards)	
	England and Northern Ireland	£168,899
	Scotland	£168,989
Consultant (2003 contract, Wales)	Minimum	£68,606
	Maximum (without awards)	£89,368
	Maximum (with awards)	£162,436
Consultant (pre-2003 contract)	Minimum	£58,632
	Maximum (without awards)	£76,300
	Maximum (with awards)	£162,436
Clinical medical officer	Minimum	£30,179
	Maximum	£41,996
Senior clinical medical officer	Minimum	£43,059
	Maximum	£61,829

For detailed salary scales see Appendix A of the 35th Report of the Review Body on Doctors' and Dentists' remuneration, <http://www.ome.uk.com/review.cfm?body=5&all#documents>

Table A3 – Summary statistics for Consultants (as mean or %)

Experience	Men	Women
Years since obtained main medical qualification	25	23
Years since becoming a consultant	10	9
Age (years)	49	47
In current academic grade for at least 10 years	24%	13%
In current clinical grade for at least 10 years	53%	46%
Taken a career break	9%	65%
Length of career break (total in years)	0.09	0.88
Ever in part-time employment	7%	44%
Length of time in PT employment (total in years)	0.09	2.48
Grade		
Professor	31%	17%
Reader	8%	7%
Senior lecturer	31%	36%
Primary contract in NHS not HE	51%	59%
Programmed Activities		
Number of Programmed Activities actually worked	12.84	12.51
Number of Programmed Activities in contract	11.06	10.65
Prizes and fellowships		
Prize/medal – Yes, in last 5 years	33%	22%
Prize/medal – Yes, between 5 & 10 years ago	11%	12%
Prize/medal – Yes, more than 10 years ago	19%	16%
Prize/medal – No	38%	48%
Have you been awarded any research fellowships?	46%	38%
Specialty		
Accident & Emergency	2%	2%
Anaesthetics	14%	6%
Clinical oncology, nuclear medicine & radiology	10%	7%
General medicine	20%	22%
General practice	5%	5%
Geriatrics	3%	2%
Medical education	1%	1%
Obstetrics & Gynaecology	7%	6%
Ophthalmology	4%	4%
Paediatrics	9%	7%
Pathology	10%	14%
Psychiatry	4%	9%
Public health	3%	9%
Surgery	7%	5%
No speciality given	4%	1%
Administrative roles		
Dean of faculty/Head of medical school	2%	1%
Deputy dean of faculty/Head of medical school	3%	2%
Head of dept or division	27%	17%
Director of research of UG/FG studies	9%	9%
Head of research group/section	28%	23%
Undergraduate (UG) admissions	5%	5%
Postgraduate (PG) admissions	2%	3%

Student support/welfare	5%	9%
Other departmental admin posts	22%	27%
Medical director	10%	4%
GP principal	5%	4%
Director of NHS Trust/clinical director	15%	9%
Member of local medical committees	10%	8%
Research output		
Included in your department's submission in the 2001		
Research Assessment Exercise	44%	29%
No information on 2001 Research Assessment Exercise submission	36%	50%
Has no sole authored publications	54%	46%
Has 1 sole authored publication	9%	8%
Has 2 sole authored publications	3%	4%
Has 3 sole authored publications	3%	2%
Has 4 sole authored publications	3%	1%
Has 5 sole authored publications	1%	2%
Has more than 5 sole authored publications	4%	3%
No information on number of sole authored publications	23%	34%
Has no lead authored publications	31%	30%
Has 1 lead authored publication	9%	10%
Has 2 lead authored publications	11%	15%
Has 3 lead authored publications	4%	9%
Has 4 lead authored publications	8%	7%
Has 5 lead authored publications	4%	7%
Has more than 5 lead authored publications	33%	23%
Has no joint authored publications	19%	22%
Has 1 joint authored publication	6%	10%
Has 2 joint authored publications	9%	11%
Has 3 joint authored publications	8%	10%
Has 4 joint authored publications	6%	7%
Has 5 joint authored publications	9%	4%
Has more than 5 joint authored publications	43%	35%
Involvement in conferences		
Keynote-plenary speaker at a conference	46%	42%
Specialist/break-out session speaker at a conference	54%	49%
Sessional chair at a conference	53%	47%
Has not attended a conference	6%	4%
Teaching		
Proportion of teaching in FA contract	7%	9%
Proportion of teaching in FA worked	7%	9%
Esteem indicators		
Member of a national advisory/policy committee	57%	42%
Editorial board of an academic/profession/learned journal	52%	34%
Assessor for a research council	48%	27%
Member of grant giving panel	46%	26%
Member of an international advisory/policy committee	29%	18%
Company supported at professional meetings	18%	9%
Board member of a PLC company or equivalent	10%	7%
Editor of an academic/profession/learned journal	22%	10%
Member of European Commission expert groups	9%	6%

Professional societies

Attend meetings	83%	80%
Present papers	46%	36%
Member of special interest group	38%	36%
Member of Council (professional)	22%	23%
Member conference programme committee	23%	22%
College examiner	31%	21%
College tutor	20%	15%
Running local/regional group	17%	10%
President/Chair/Senior office	13%	12%
Member of awards panel	14%	9%
Member editorial board	18%	9%
Regional advisor	13%	8%

Career progression

Changed employer in last year	4%	5%
Changed employer in last 1 to 5 years	23%	31%
Been with current employer for more than 5 years	73%	64%
Promoted by current employer	37%	32%
Moved to achieve promotion	34%	28%

Location

London	11%	21%
--------	-----	-----

Domestic responsibilities

Married or has a partner	93%	83%
Not a parent	6%	27%
Has children aged <6	23%	18%
Has children aged 6-16	42%	43%
Has joint or sole care responsibilities for children	61%	62%
Has care responsibilities for partner or parents	11%	17%

White

	83%	88%
--	-----	-----

Table A4 – Summary statistics for Trainees (as mean or %)

	<i>Men</i>	<i>Women</i>
Experience		
Years since obtained main medical qualification	8	9
Years in current grade	3	4
Taken a career break	16%	47%
Length of career break (total in years)	0.09	0.7
Ever in part-time employment	11%	29%
Length of time in PT employment (total in years)	0.14	1.32
Grade		
Lecturer	53%	33%
Clinical researcher (trainee)	5%	9%
Specialist Registrar/training post	58%	53%
Senior House Officer	16%	18%
GP Trainee	5%	7%
Primary contract with NHS not HE	53%	75%
Prizes and fellowships		
Prize/medal – Yes, in last 5 years	39%	27%
Prize/medal – Yes, between 5 & 10 years ago	8%	7%
Prize/medal – Yes, more than 10 years ago	8%	4%
Prize/medal – No	47%	56%
Have you been awarded any research fellowships?	32%	28%
Specialism		
Accident & Emergency	3%	1%
Anaesthetics	6%	6%
Clinical oncology, nuclear medicine & radiology	0%	2%
General medicine	21%	25%
General practice	3%	14%
Geriatrics	3%	3%
Medical education	3%	0%
Obstetrics & Gynaecology	6%	11%
Ophthalmology	0%	3%
Paediatrics	9%	7%
Pathology	15%	9%
Psychiatry	15%	7%
Public health	3%	2%
Surgery	12%	8%
No speciality given	3%	1%
Administrative roles		
Student support/welfare	8%	1%
Other departmental administrative posts	11%	3%
Member of local medical committees	8%	4%
Research output		
Has no sole authored publications	71%	54%
Has 1 sole authored publication	3%	7%
Has 2 sole authored publications	3%	1%
Has 3 sole authored publications	0%	0%
Has more than 3 sole authored publications	3%	2%
No information on number of sole authored publications	21%	37%
Has no lead authored publications	29%	44%

Has 1 lead authored publication	23%	16%
Has 2 lead authored publications	16%	15%
Has 3 lead authored publications	16%	6%
Has more than 3 lead authored publications	16%	19%
Has no joint authored publications	26%	45%
Has 1 joint authored publication	17%	13%
Has 2 joint authored publications	29%	22%
Has 3 joint authored publications	11%	10%
Has more than 3 joint authored publications	17%	10%
<i>Involvement in conferences</i>		
Keynote-plenary speaker at a conference	26%	11%
Specialist/break-out session speaker at a conference	26%	16%
Sessional chair at a conference	13%	6%
Has not attended a conference	5%	15%
<i>Esteem indicators</i>		
Member of an editorial board	12%	4%
<i>Professional societies</i>		
Attend meetings	79%	54%
Present papers	29%	21%
Member of special interest group	15%	11%
<i>Career progression</i>		
Changed employer in last year	26%	20%
Changed employer in last 1 to 5 years	58%	53%
Been with current employer for more than 5 years	16%	27%
Promoted by current employer	16%	17%
Moved to achieve promotion	29%	18%
<i>Location</i>		
London	11%	13%
<i>Domestic responsibilities</i>		
Married or has a partner	76%	75%
Not a parent	63%	60%
Has children aged <6	24%	27%
Has children aged 6-16	16%	17%
Has joint or sole care responsibilities for children	26%	37%
Has care responsibilities for partner or parents	8%	12%
<i>White</i>	63%	74%

Technical Appendix

The report uses the Oaxaca (1973) decomposition technique which disaggregates the average differential observed between men's and women's pay into two components: the part which reflects differing characteristics relevant to productivity in work, and the part reflecting the differing rewards which they receive for the same characteristics.

Suppose that we denote men's and women's pay as w_M and w_F respectively, and the factors which influence their pay - their productive characteristics - as C_M and C_F . The underlying relationship between pay and these explanatory factors can be expressed in terms of (the logarithm of) average pay for each group¹.

$$\ln w_M = \alpha_M + \beta_M C_M \text{ and } \ln w_F = \alpha_F + \beta_F C_F$$

When these models are estimated using ordinary least squares, one of the properties of the estimators is that the results may be written as follows:

$$\overline{\ln w_M} = \hat{\alpha}_M + \hat{\beta}_M \overline{C_M} \text{ and } \overline{\ln w_F} = \hat{\alpha}_F + \hat{\beta}_F \overline{C_F}$$

where $\hat{\beta}_M$ and $\hat{\beta}_F$ denote the estimated pay reward per unit of productive characteristics received by men and women respectively and $\overline{\ln w_M}$, $\overline{\ln w_F}$, $\overline{C_M}$, $\overline{C_F}$ are average levels of salary and productive characteristics

Using this, the average gender pay gap ($\overline{\ln w_M} - \overline{\ln w_F}$) can be written as:

$$\overline{\ln w_M} - \overline{\ln w_F} = \hat{\alpha}_M - \hat{\alpha}_F + (\hat{\beta}_M - \hat{\beta}_F) \overline{C_M} + \hat{\beta}_F (\overline{C_M} - \overline{C_F})$$

$(\overline{C_M} - \overline{C_F})$ measures any differences in the average productive characteristics which men and women bring to the job (such as experience) and any differences in the net advantages of their jobs (such as grade). $(\hat{\beta}_M - \hat{\beta}_F)$ captures any difference in the estimated rewards to these characteristics.

This formulation allows us to decompose the observed pay gap into the part attributable to the differing characteristics of men and women and their respective jobs,

$\hat{\beta}_F (\overline{C_M} - \overline{C_F})$, and the part due to the different pay rewards which they receive for

these attributes. The latter part of the pay gap, $(\hat{\alpha}_M - \hat{\alpha}_F)$ and $(\hat{\beta}_M - \hat{\beta}_F) \overline{C_M}$, is often

taken as a measure of pure discrimination.

¹ We use the natural log of salary partly for ease of interpretation as the estimated regression coefficients indicate the proportionate effects that a particular variable has upon salary but also, this semi-logarithmic functional form has the advantage that it does not predict negative earnings for those with low levels of productive characteristics.

Table TA1 – Preferred model for all Consultants including Honorary Consultants who are Professors, Readers, Senior lecturers in HE
Coef = Estimated regression coefficient, t-stat = Estimated t-statistics

	Men		Women	
	Coef	t-stat	Coef	t-stat
Experience				
In current clinical grade for at least 10 years	0.34	7.43	0.13	5.53
Length of time in PT employment	0.53	2.57	-0.01	-0.52
Square of years in PT employment	-0.29	-2.56	0.00	0.02
Grade				
Professor	0.22	3.04	0.08	1.88
Senior lecturer	0.07	1.42	-0.02	-0.81
NHS Consultants (not HE)	0.13	2.89	0.05	1.83
Programmed activities				
Number of FAs actually worked	0.01	1.67	0.00	1.36
Number of FAs in contract	0.01	1.57	0.00	-0.09
Specialties				
Geriatrics	0.24	2.13	-0.01	-0.08
Paediatrics	0.11	1.77	-0.03	-0.75
Anaesthetics	0.03	0.55	0.07	1.47
Psychiatry	-0.02	-0.24	0.04	1.18
London	0.20	3.08	0.01	0.21
Career mobility/ progression				
Changed employer in last 1 to 5 years	0.06	1.17	0.00	0.10
Promoted by current employer	0.05	1.06	-0.05	-1.75
Administrative responsibilities				
Dean of faculty/Head of medical school	0.04	0.21	0.24	2.61
Head of dept or division	0.15	3.19	0.05	1.53
UG admissions	0.07	0.65	-0.06	-0.94
PG admissions	-0.20	-1.28	0.16	2.02
Medical director	0.07	1.16	0.19	3.38
Director of NHS Trust/clinical director	0.07	1.36	0.18	4.34
Conferences Keynote-plenary speaker	0.00	0.05	0.08	3.17
Esteem/Professional Societies				
Member of grant giving panel	-0.05	-0.94	0.12	3.47
Outreach/schools/equivalent activities for professional organisation	-0.24	-2.57	0.06	0.95
President/Chair or VP/VC/Treasurer/Other senior officer of professional organisation	0.10	1.47	0.15	4.43
Constant ¹⁷	10.87	147.9	11.16	256.7
Adjusted R-squared	0.6717		0.5285	

17 The constant term reflects the average salary (measured in natural logs) when all of the explanatory variables take a value of zero. This is interpreted as the reference group.

Table TA2 – Preferred model for Trainees in the NHS or Academic grades
Coef = Estimated regression coefficient, t-stat = Estimated t-statistics

	Men		Women	
	coef	t-stat	coef	t-stat
Experience				
Years since obtained main medical qualification	0.07	1.92	0.04	3.91
Square of years since obtained main medical qualification	0.00	-2.15	0.00	-3.25
Contract				
Works in NHS not HE	-0.25	-1.18	-0.13	-2.01
Has a PT contract	-0.08	-0.64	-0.07	-1.26
Specialty				
Pathology	0.18	1.33	0.08	1.06
Anaesthetics	0.13	0.64	0.15	1.55
General practice	0.25	0.87	0.14	2.15
Works in London				
Keynote-plenary speaker at a conference	0.14	1.09	0.12	1.80
Constant	10.47	43.87	10.48	113.69
Adjusted R-squared	0.1304		0.2054	

BMA Medical Academics
British Medical Association, BMA House, Tavistock Square, London, WC1H 9JP
www.bma.org.uk

© British Medical Association, 2009