



# THE UNIVERSITY *of* EDINBURGH

## Edinburgh Research Explorer

### **Bend it like Beckham or fix them like Florence—proportional representation of healthcare in New Year honours: an observational study**

**Citation for published version:**

Emelifeonwu, JA, Hazelwood, JE, Nolan, O, Sharland, E, O'donald, A, Peet, A & Frazer, R 2019, 'Bend it like Beckham or fix them like Florence—proportional representation of healthcare in New Year honours: an observational study', *BMJ*, pp. l6721. <https://doi.org/10.1136/bmj.l6721>

**Digital Object Identifier (DOI):**

[10.1136/bmj.l6721](https://doi.org/10.1136/bmj.l6721)

**Link:**

[Link to publication record in Edinburgh Research Explorer](#)

**Document Version:**

Publisher's PDF, also known as Version of record

**Published In:**

BMJ

**General rights**

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

**Take down policy**

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact [openaccess@ed.ac.uk](mailto:openaccess@ed.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.





OPEN ACCESS



# Bend it like Beckham or fix them like Florence—proportional representation of healthcare in New Year honours: an observational study

John A Emelifeonwu,<sup>1</sup> James E Hazelwood,<sup>2</sup> Oscar Nolan,<sup>3</sup> Emma Sharland,<sup>3</sup> Anna O'Donald,<sup>3</sup> Alison Peet,<sup>4</sup> Ricky Frazer<sup>5</sup>

<sup>1</sup>Western General Hospital, Edinburgh EH4 2XU, UK

<sup>2</sup>Chelsea and Westminster Hospital, London SW10 9NH, UK

<sup>3</sup>University of Edinburgh Medical School, 47 Little France Crescent, Edinburgh EH16 4TJ, UK

<sup>4</sup>Stockbridge Blue Medical Practice, 1 India Place, Edinburgh EH3 6EH, UK

<sup>5</sup>Velindre Hospital, Velindre Road, Cardiff CF14 2TL, UK

Correspondence to:

J A Emelifeonwu  
johnemelifeonwu@gmail.com  
(ORCID 0000-0003-1133-1350)

Cite this as: *BMJ* 2019;367:l6721  
<http://dx.doi.org/10.1136/bmj.l6721>

Accepted: 27 November 2019

## ABSTRACT

### OBJECTIVES

To compare the proportional representation of healthcare workers in receipt of New Year honours (NYHs) with workers in other industries and to determine whether the NYH system has gender or geographical biases.

### DESIGN

Observational study of the UK honours system with a comparative analysis of proportional representation of the UK workforce and subgroup analyses of gender and geographical representations.

### PARTICIPANTS

Recipients of NYHs from 2009 to 2018.

### MAIN OUTCOME MEASURES

Absolute risk of receiving an NYH based on industry, gender, or region of the UK. Relative risk of receiving an NYH for services to healthcare compared with other industries.

### RESULTS

10 989 NYHs were bestowed from 2009 to 2018, 47% of which were awarded to women. 832 awards (7.6%) were for services to healthcare. People working in sport and in the arts and media were more likely to receive NYHs than those working in healthcare (relative risks of 22.01 (95% confidence interval 19.91 to 24.34) and 5.84 (5.31 to 6.44), respectively). There was no significant difference between the rate of receiving honours for healthcare and for science and technology ( $P=0.22$ ). 34% (3741) of awards were issued to people living in London and in the southeast of England, and only 496 of 1447 (34%) higher order awards (knighthoods, damehoods, companions of honour, and commanders of the order of the British empire) were received by women.

### CONCLUSIONS

In relation to the size of its workforce, a career in healthcare is not as “honourable” as careers in certain other industries. Geographical and gender biases might exist in the honours system.

## Introduction

The UK honours system recognises people who have “committed themselves to helping and serving the UK” (box 1). The New Year honours (NYHs) are appointments in recognition and reward of excellence in the work or charity (or both) of citizens of the UK and Commonwealth countries. They have been awarded as part of the New Year celebrations since 1890 by, or in the name of, the reigning monarch.<sup>1</sup> The public nominates people for honours, and nominees are overseen by the Cabinet Office’s honours and appointments secretariat. Honours can be received in eight sectors: community, voluntary, and local services; arts and media; health; sport; education; science and technology; business and the economy; and civil or political services.

Some awards, known as orders, exist for select groups, including the Order of the Bath for senior civil servants and military officers, the Order of St Michael and St George for diplomats and those serving the UK abroad, and the Royal Victorian Order for those who have served the Queen or monarchy in a personal way.

The honours system has been criticised for being biased in favour of those in “Royal circles,” including politicians and civil servants—the reigning monarch is the “fountain of honour,” and those around the fountain are more likely to be “splashed.” In recent years, commentators have said that this bias extends to connected people, particularly celebrities.<sup>2 3</sup> Amid concerns of cronyism and a broken system, the government has vowed to review the honours system to ensure that it “rewards genuine public service.”<sup>4</sup> The NHS is a genuine public service that employs approximately 1.5 million people and is ranked among the best in the world in terms of its quality, accessibility, and efficiency.<sup>5</sup> The health sector provides approximately 7% of the entire UK workforce.<sup>6</sup> Most are unable to influence the honour system. We determined how the proportion of NYHs awarded for healthcare compared with the proportions awarded to workers in other industries in the UK and whether there were any gender or geographical differences in the NYHs awarded.

## Methods

### Data

#### NYH list

A list of the recipients of NYHs is available on the Cabinet Office’s website.<sup>7</sup> It contains the names of all recipients of an honour, the order of the honour including its title, the sector or categories to which the recipient has provided outstanding services, and

## WHAT IS ALREADY KNOWN ON THIS TOPIC

The Queen and the government’s Cabinet Office are the “fountains of honour” in the United Kingdom

Those closest to the fountain are most likely to get splashed

## WHAT THIS STUDY ADDS

The fountain appears to disproportionately splash politicians, those in arts and media, and sportspeople over healthcare workers and people working in science and technology

**Box 1: The UK honours system**

- The UK honours system is a series of honours that are awarded by the monarch to reward achievements (of varying degrees) in public life, giving the recipient public recognition and the use of the appropriate postnominal letters
- Recipients are notified in the biannual honours lists, at New Year or around the monarch’s official birthday, and have the honour bestowed by a member of the Royal family at one of approximately 60 ceremonies throughout the year
- Nomination for an award can be made only by someone else and must include details of the work deemed rewardable and any recognition previously received
- A nomination must be further supported by letters from two people who know the nominee personally
- Nominations are assessed by the committees comprising senior civil servants and members independent from government
- Individual committees exist for different activities (arts and media, sport, and so on), which approve awards in their fields, before sending for the final approval of the main committee

the county of the UK that the recipient represents. There are six main orders: companion of honour (CH), knighthoods or damehoods (of varying orders), commander of the order of the British empire (CBE), officer of the order of the British empire (OBE), member of the order of the British empire (MBE), and the British empire medal (BEM) (table 1).

*UK workforce estimates*

To calculate the proportion of honours received by each industry, we collated data on the number of people in that industry’s workforce. This information was available in the “employee jobs by industry” database from the Office for National Statistics (ONS).<sup>8</sup> The ONS is the executive office of the UK Statistics Authority, a non-ministerial department of the UK government. The database is a quarterly estimate of jobs in various industries in the UK.

We created a spreadsheet to record data on all recipients of NYHs from 2009 to 2018. We collected data on the gender of each recipient, type of honour, which county of the UK they represented, and the sector of service. We separated NYHs into higher order (CHs, CBEs, and the various orders of knights and dames, based on a recent Cabinet Office report<sup>9</sup>) and lower order awards (all others) to determine any differences between industries for these groups.

**Analysis**

We matched each sector of service to the relevant category of the ONS report as follows: arts and media was matched with art, recreation, and entertainment; civil and political services was matched with public administration and defence and compulsory social security; health was matched with human health activity; science and technology was matched with professional scientific and technical activities; education was matched with teaching and education professions; and sports was matched with fitness and sports occupations. Honours for voluntary and community services were omitted from this analysis as there were no direct matches with ONS workforce figures.

We extracted workforce data from the final quarter of each year (2009-18). Five authors (JEH, ON, ES, AO'D, JAE) independently extracted ONS and NYH data from two years each, and the data was then cross checked by a different author. Disputes were resolved by consensus.

The relative risk (RR) of receiving an NYH for each industry compared with healthcare was calculated using the equation:

$$RR = AR(\text{industry}) \div AR(\text{healthcare})$$

Where AR (absolute risk) is the number of NYHs for a sector divided by the number of people employed in the industry (size of workforce). A similar equation was used to compare industry differences in the proportion of higher order awards. RRs and 95% confidence intervals were calculated using the Epitools package in R.<sup>10 11</sup> The significance level was set at P<0.05 (two tailed) when comparing workforces and when comparing proportions of higher order awards.

Pearson’s chi squared test was used to compare gender differences in the proportion of higher order awards received. We determined the gender of recipients either by their name or by the gender prefix used in the NYH list. Rarely, internet searches were used to determine gender.

**Patient and public involvement**

No patients were involved in setting the research question or the outcome measures, nor were they involved in developing plans for design or implementation of the study. No patients were asked to advise on

**Table 1 | UK honours system**

Honours (and postnominals) in descending order of magnitude	Description
Companion of honour (CH)	Major contribution to the arts, science, medicine, or government, lasting over a long period of time. Only 65 may ever be concurrently awarded
Knight or dame commander of the order of the British empire (Kt or DBE)	Major contribution, usually at national level. Those working in the nominee’s area will see their contribution as inspirational and substantial, requiring commitment over a long period of time
Commander of the order of the British empire (CBE)	Prominent but lesser role at national level or leading role at regional level or for distinguished, innovative contribution to any area
Officer of the order of the British empire (OBE)	Major local role in any activity, including those whose work has made them known nationally in their chosen area
Member of the order of the British empire (MBE)	Outstanding achievement or service to the community with a long term significant impact and stands out as an example to others
British empire medal (BEM)	For “hands-on” service to local community through long term charity work or innovative work for a short duration making a major difference

interpreting or writing up results. There are no plans to disseminate the results of the research to patients or study participants.

## Results

A total of 10 989 NYHs were bestowed between 2009 and 2018 (table 2). We were able to determine the gender of 10 979 recipients; 5166 were female (47.1%) and 5813 were male (52.9%). The total cohort comprised 17 CHs, 81 Orders of the Bath, 343 damehoods and knighthoods, 3 Orders of St Michael and St George, 1006 CBEs, 2353 OBEs, 5310 MBEs, and 1876 BEMs.

The proportion of awards bestowed for each of the eight sectors for each year is shown in figure 1. The most common sectors were community services (2989; 27% of all awards) and voluntary and local services (2025; 18%). Then, 1203 (11%) were bestowed for services to education, 975 (9%) for services to business and the economy, 1038 (9%) for civil and political services, 832 (8%) for services to health, 795 (7%) for services to media and the arts, 703 (6%) for services to sports, and 419 (4%) for services to science and technology. Notably, the proportion of awards for sports spiked in the years after Olympic games (2013 and 2017) (fig 1).

### Differences in relative risk between honours for health and other industries

A total of 832 NYHs were awarded for services to health between 2009 and 2018; 450 (54.1%) recipients were female. Healthcare honours constituted 7.6% of all awards received in that period. Doctors received 34.4% (286) of these awards, whereas nurses and allied

health professionals each received 14.5% (121). The remaining 36.5% (304) were awarded to healthcare support staff such as management staff. The ONS estimates for the total UK healthcare workforce in the final quarters of each year ranged from 3 846 000 in 2009 to 4 340 000 in 2018.

The RRs of receiving an NYH for services to other industries compared with healthcare are shown in table 2. The RR of receiving an NYH for services to sport was 22.01 times higher than healthcare, arts and media was 5.84 times higher, business and the economy was 3.9 times higher, and civil and political services was 2.66 times higher. There was no significant difference between the rates of receiving an NYH for services to science and technology and for services to healthcare.

### Differences in the proportion of higher order honours bestowed

There were 58 higher order awards issued for service to healthcare (CHs, knighthoods and damehoods, and CBEs). This was 6.9% of the total number of NYHs given for services to healthcare. This proportion was comparable to the proportion of higher order awards issued for services to arts and media (6.3%,  $P=0.58$ ), education (5.2%,  $P=0.08$ ) and science and technology (8.4%,  $P=0.4$ ) (table 2).

Nearly 11% of awards received for services to civil and political services were higher order. This is significantly higher than the rate for healthcare (RR 1.56; 95% confidence interval 1.15 to 2.11;  $P=0.03$ ). Conversely, only 2.8% of honours for sports were higher order, which is significantly lower than for healthcare (RR 0.4; 0.25 to 0.67;  $P<0.001$ ) (table 2).

**Table 2 | Distribution of New Year honours (NYHs) according to gender, sector of services, and order of honour between 2009 and 2018. Absolute risk (AR) of receiving an NYH is calculated for citations related to industry and the relative risk (RR) with 95% confidence interval of receiving an NYH for that sector versus healthcare**

	No of NYHs (No of higher order)	Average size of workforce (2009-18)	AR of receiving NYH	RR (95% CI) of receiving NYH for services to sector versus healthcare
<b>Gender:</b>				
Male	5813 (951)			
Female	5166 (496)			
Undetermined	10			
<b>Sector:</b>				
Arts and media	795 (50)	6 651 000	$1.20 \times 10^{-4}$	5.84 (5.31 to 6.44; $P<0.001$ )
Business and economy	975 (47)	12 221 000	$7.98 \times 10^{-5}$	3.9 (3.59 to 4.28; $P<0.001$ )
Civil and political service	1038 (113)	19 089 000	$5.44 \times 10^{-5}$	2.66 (2.43 to 2.91; $P<0.001$ )
Education	1203 (63)	31 890 000	$3.83 \times 10^{-5}$	1.87 (1.72 to 2.04; $P<0.001$ )
Science and technology	419 (35)	19 084 000	$2.20 \times 10^{-5}$	1.08 (0.95 to 1.21; $P=0.22$ )
Sport	703 (20)	1 560 000	$4.51 \times 10^{-4}$	22.01 (19.91 to 24.34; $P<0.001$ )
Healthcare	832 (58)	40 701 000	$2.04 \times 10^{-5}$	-
Community services	2989	NA	NA	
Voluntary and local services	2025	NA	NA	
<b>Order of honour:</b>				
Companion of honour	17			
Knighthood/damehood	343			
Orders of Bath	81			
Orders of St Michael and St George	3			
CBE	1006			
OBE	2353			
MBE	5310			
BEM	1876			

NA=not applicable.

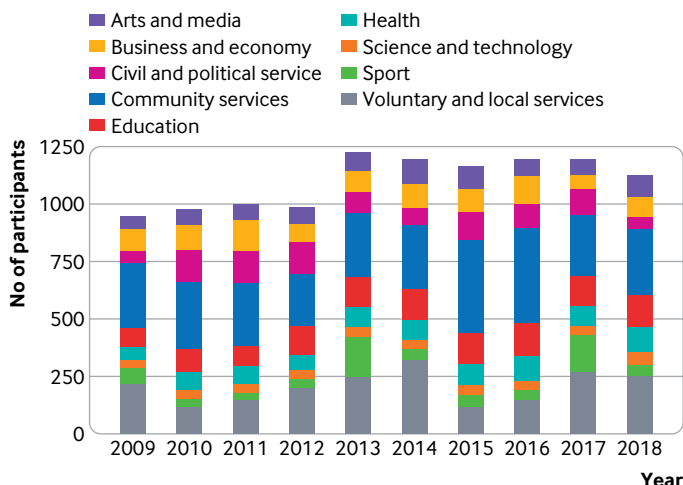


Fig 1 | Distribution (%) of NYHs for each year from 2009 to 2018

The proportional representation of women in NYHs has improved over the period studied, but only about one third (496 of 1447; 34%) of the higher order NYH recipients were female (fig 2). The rate of receiving higher order awards was significantly higher for men ( $P<0.001$ ) (table 2).

**Geographical differences in awards**

We calculated the total number of NYHs received in each region of the UK (including health and non-health categories) and compared the average number of awards for people living in each region over the past decade (fig 3). In England, London (1944; 18%)

and the south east (1797; 16%) received the highest numbers of NYHs, corresponding to an average of 23 NYHs per 100 000 persons and 20 NYHs per 100 000 persons, respectively. The south west of England was also well represented compared with the rest of England (16.5 NYHs per 100 000 persons). The east of England received the lowest number per population (11.8 per 100 000), and there was no significant difference between the number of NYH recipients in east England, Yorkshire (11.9 per 100 000), and the Midlands (12.5 per 100 000 for West Midlands and 13.1 per 100 000 for East Midlands).

People in Scotland received approximately 9% (1019) of the NYHs, corresponding to an average of 19 NYHs per 100 000 population. People in Wales received approximately 5% (562) of all NYHs, corresponding to approximately 18 NYHs per 100 000. Northern Ireland received the highest proportion throughout the UK, with approximately 38 NYHs per 100 000 population. Approximately 0.6% (78) of all NYHs were awarded to non-UK residents (in our data this included residents of the Channel Islands and the Isle of Man).

**Discussion**

**Principal findings**

In this phaleristic study, we compared the proportional representation of various industries in the NYHs from 2009 to 2018. We found that the rates of receiving an award were significantly higher for people working in sport, arts and media, and to a lesser degree in the civil and political services and in business, than for people working in healthcare or in science and technology. We also found geographical differences, with 34% of awards bestowed on people living in London or southeast England. Finally, although proportional representation has improved for women over the past decade, the proportion of women receiving the higher order awards was significantly lower than men.

**Is the honours system biased?**

In the period examined, the proportions of recipients from each industry each year has remained roughly similar (except for awards for sports, which increased markedly after each Olympic year). Perhaps the Cabinet Office uses quotas to determine how many awards are received in each category. Quota systems negatively bias groups with larger workforces due to dilution. The NHS is the fourth largest employer in the world with approximately 1.5 million employees, and many more people work in private health in the UK.<sup>12</sup> Assigning the same proportion of NYHs to the health industry as other smaller industries would reduce the chances of people in healthcare receiving an award. The higher rates of receiving an NYH in other industries than in healthcare might therefore be due to dilution rather than bias. The science and technology sector, however, is under-represented. This group has a similar size workforce to civil and political services and nearly double the size of sport but was less likely to receive an NYH than both industries.

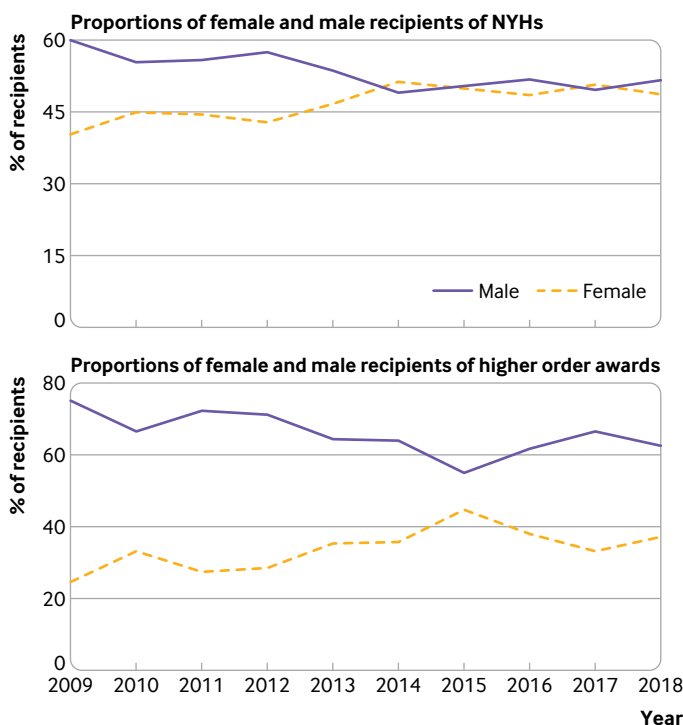


Fig 2 | a) Proportions (%) of male and female recipients of NYHs from 2009 to 2018. b) Proportions (%) of female and male recipients of higher order NYHs from 2009 to 2018

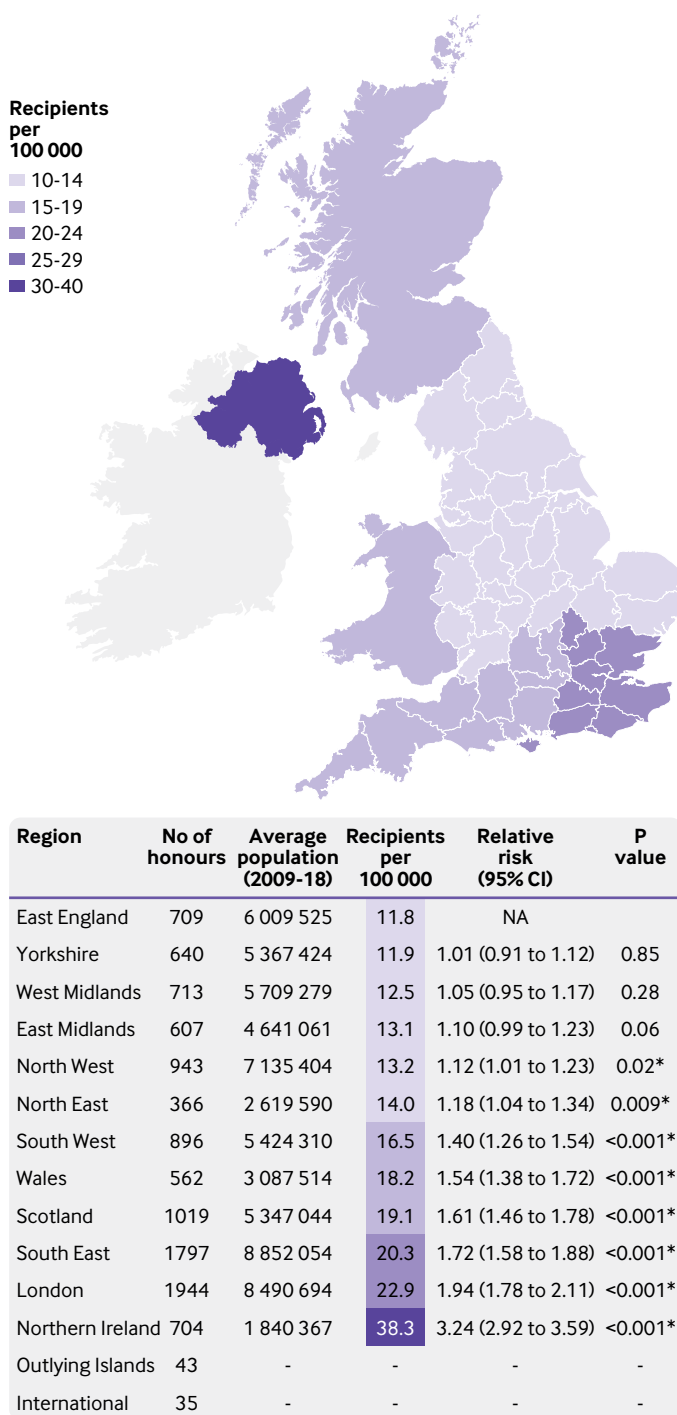


Fig 3 | a) Heat map showing the number of NYH recipients per 100 000 population in regions of the UK between 2009 and 2018. b) Number of NYHs received in regions of the UK and corresponding average rate of NYHs received in each region compared with the east of England, which received the lowest per population number of NYHs

Gender differences might be due to bias. This has been tackled to some extent by the increasing proportion of women recipients over the past 10 years (fig 2). But the low number of women receiving the higher order awards compared with men indicates that more needs to be done. Gender inequalities are not unique to the honours system. International evidence shows persistent under-representation of women in the film

industry,<sup>13</sup> corporate leadership,<sup>14 15</sup> and medicine.<sup>16</sup> A 2017 study analysed the recipients of awards from the American Academy of Physical Medicine and Rehabilitation over the past 48 years, finding that women were substantially under-represented and that, strikingly, no female physician received an award in the most prestigious categories in 40 of the 48 year history of the ceremonies.<sup>16</sup>

Initiatives have been developed to target gender inequity in different industries.<sup>17-19</sup> But clearly more needs to be done. The Cabinet Office has recognised the under-representation of women and vowed to “step up efforts in outreach work, targeting women’s business and community networks to raise awareness of the [honours] system, and encourage nominations from those groups.”<sup>9</sup>

The Parliamentary Public Administration Select Committee’s 2012 report criticised the honours system as being focused on rewarding people for simply “doing their day job.”<sup>20</sup> In particular, it noted that Whitehall bureaucrats and other senior figures, such as council chief executives, traditionally made a strong showing in the honours. The report said that too few honours were being awarded to ordinary citizens for the extraordinary contributions they make to their communities, which is what the system should be for. The report recommended that there should be no automatic honours for people who hold a certain post or for celebrities and sports stars at a certain level, which “too often seemed to still be the case.” Our results show that this over-representation probably exists, particularly in sport, arts and media, and civil and political services compared with healthcare, science and technology, and to a lesser extent education.

### Weaknesses

The ONS workforce data that we used to determine the proportion of NYHs in each industry are estimated using surveys of businesses and might not be entirely accurate. They are, therefore, a potential source of variation. Furthermore, the sector of service for NYHs might not correlate with the industry that the person works for—someone who works in education but has a voluntary role in healthcare, for example, might receive an award for services to health. We have considered the workforce data for each year independently of the other years. This approach does not take into account the proportion of people who already have an NYH in each industry and, therefore, might underestimate the proportion of recipients in each industry.

NYHs are awarded based on nominations from the public, so the differences in the proportions from different industries might simply reflect the referral practices of that industry. Thus, people in industries that work closest with the government and Cabinet Office (civil servants, politicians, those in the media) are more likely to refer a colleague for honours than people in healthcare. We contacted the Cabinet Office for a breakdown of nomination statistics, but this information was not available because of the rolling nature of nominations (a person might receive an

award in a later round to the one in which they were nominated). This makes it difficult to calculate the nomination-to-award ratio for different categories. For completeness, we could conduct a survey of honours' nomination practices between different industries to determine whether people in some industries are more likely to nominate a colleague than others.

### Conclusion and policy implications

We found that the rates of receiving an NYH are higher in some industries (arts and media, business and the economy, civil and political sciences, education, and sport) than in healthcare. The NHS is persistently voted among the best healthcare systems in the world. This is possible because of the extraordinary contributions being made by ordinary people working in healthcare—the very reason the honours system is alleged to exist. This needs to be reflected in the NYHs and may increase morale in the struggling NHS.

**Competing interests:** All authors have completed the ICMJE uniform disclosure form at [www.icmje.org/coi\\_disclosure.pdf](http://www.icmje.org/coi_disclosure.pdf) and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

**Transparency:** The corresponding author affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted.

**Contributors:** All authors contributed to the planning, conduction and reporting of the work described in this article. JAE is responsible for the overall content as guarantor and accepts full responsibility for the work. The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.

**Funding:** None of the authors are grant holders, nor did any of the authors receive any funding for this study.

**Ethical approval:** Ethical approval was not required for this study

**Data sharing:** No additional data available

This is an Open Access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

- 1 Morrison J. *Essential public affairs*. 2015.
- 2 Liddle R. At least David Beckham has exposed the honours system for the sham it really is: The ugly attitude revealed in his emails is surely shared by any number of celebrities. *Spectator* 2017. [www.spectator.co.uk/2017/02/at-least-david-beckhams-shame-shows-up-the-honours-system-too](http://www.spectator.co.uk/2017/02/at-least-david-beckhams-shame-shows-up-the-honours-system-too)

- 3 McCartney M. Margaret McCartney: Dishonourable New Year honours. *BMJ* 2016;352:i28. doi:10.1136/bmj.i28
- 4 Maidment J. Theresa May vows to overhaul honours system to ensure it "rewards genuine public service" amid cronyism concerns. *Telegraph* 2017 May 18 <https://www.telegraph.co.uk/news/2017/05/18/theresa-may-vows-overhaul-honours-system-ensure-rewards-genuine/>
- 5 Schneider EC, Sarnak DO, Squires D, Shah A, Doty MM. Mirror, mirror: how the performance of the US healthcare system compares internationally at a time of radical change. *The Commonwealth Fund* 2017. <https://interactives.commonwealthfund.org/2017/july/mirror-mirror/>
- 6 Full Fact. How many NHS employees are there? 2017. <https://fullfact.org/health/how-many-nhs-employees-are-there/>
- 7 Gov.uk. Nominate someone for an honour or award. <https://www.gov.uk/honours/honours-lists>
- 8 Office for National Statistics. JOBS03: Employee jobs by industry. <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/employeejobsbyindustryjobs03>
- 9 Cabinet Office. Fourth report on the operation of the reformed honours system 2015-19. 2019. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/807228/Report-on-the-Operation-of-the-Honours-System-Final-for-Publication-1.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/807228/Report-on-the-Operation-of-the-Honours-System-Final-for-Publication-1.pdf)
- 10 R Core Team. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. 2018. <https://www.R-project.org/>.
- 11 Aragon TJ. EpiTools: R Package for Epidemiologic Data and Graphics. 2012.
- 12 NHS Digital. *NHS workforce statistics—September 2018*. NHS Digital, 2018.
- 13 Lauzen MM. It's a man's (celluloid) world: on-screen representations of female characters in the top 100 films of 2014. [http://fontanar2.cubadebate.cu/wpcontent/uploads/2015/02/2014\\_Its\\_a\\_Mans\\_World\\_Report.pdf](http://fontanar2.cubadebate.cu/wpcontent/uploads/2015/02/2014_Its_a_Mans_World_Report.pdf)
- 14 Hesse-Biber S, Carter G. *Working women in America*. Oxford University Press, 2005.
- 15 Catalyst. Report: 2011 Catalyst census: *Financial Post* 500 women board directors. 2011. <https://www.catalyst.org/research/2011-catalyst-census-financial-post-500-women-board-directors/>
- 16 Silver JK, Bhatnagar S, Blauwet CA, et al. Female physicians are underrepresented in recognition awards from the American Academy of Physical Medicine and Rehabilitation. *PM R* 2017;9:976-84. doi:10.1016/j.pmrj.2017.02.016
- 17 Kuhlmann E, Ovseiko PV, Kurmeyer C, et al. Closing the gender leadership gap: a multi-centre cross-country comparison of women in management and leadership in academic health centres in the European Union. *Hum Resour Health* 2017;15:2-7. doi:10.1186/s12960-016-0175-y
- 18 Cook A, Glass C. Women and top leadership positions: towards an institutional analysis. *Gend Work Organ* 2014;21:91-103. doi:10.1111/gwao.12018
- 19 Ovseiko PV, Greenhalgh T, Adam P, et al. A global call for action to include gender in research impact assessment. *Health Res Policy Syst* 2016;14:50. doi:10.1186/s12961-016-0126-z
- 20 House of Commons Public Administration Select Committee. The honours system. 2012. <https://publications.parliament.uk/pa/cm201213/cmselect/cmpubadm/19/19.pdf>