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The experience of D/deaf healthcare professionals during the coronavirus pandemic

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Background	The coronavirus pandemic, in particular the introduction of masks, presented a huge challenge for the UK's D/deaf community, many of whom rely on visual cues in lipreading and sign language. This particularly affected D/deaf healthcare professionals (HCPs), who faced significant communication challenges at work due to the lack of transparent masks or other reasonable adjustments.
Aims	To determine the impact that a lack of transparent masks and reasonable adjustments had on communication, confidence at work and well-being among D/deaf HCPs during the coronavirus pandemic.
Methods	A survey was sent to all members of the 'UK Deaf Healthcare Professionals Group' on Facebook, the 'Healthcare Professionals with Hearing Loss' listserver and promoted on Social Media.
Results	Eighty-three responses were received. Nine (11%) individuals had access to transparent masks. Over three-quarters of respondents reported feeling anxious and fearful of making a mistake due to communication difficulties. Fourteen (17%) were removed from clinical roles due to a lack of reasonable adjustments. One-third felt they would need to consider an alternative career if improvements were not made. Seventy-eight per cent felt the communication needs of D/deaf HCPs had not been met during the pandemic.
Conclusions	D/deaf HCPs felt left behind, isolated and frustrated by a lack of transparent masks and reasonable adjustments to meet their communication needs. Loss of experienced, qualified HCPs has a significant economic and workforce impact, particularly during a pandemic. Urgent action is needed to ensure D/deaf HCPs are provided with the workplace support required under the Equality Act (2010).
Key words	Coronavirus; Deaf; disabled; healthcare workers; occupational health.

Introduction

Facemasks prevent viral transmission by droplets and aerosols [1] and are needed for infection control purposes during the coronavirus pandemic. However, their widespread introduction was not accompanied by equality impact assessments, leaving D/deaf people experiencing isolation, communication difficulties and employment issues.

The difficulty in obtaining transparent masks, suitable for use in healthcare settings to facilitate lipreading and non-manual features of British Sign Language (BSL) has previously been described by deaf doctors [2]. Whilst significant efforts were made to produce visors and scrubs, the need for high-quality, transparent Type IIR and Filtering Face Piece Respirators, Class 3 (FFP3) facemasks for use in healthcare settings was not prioritized despite media coverage, and lobbying of civil servants and government ministers [3,4].

The UK government eventually ordered 250 000 ClearMask™ masks for the entire UK NHS [5] and social care. This is inadequate for a population of 68 million, where 11 million individuals have some degree of hearing loss.

The ClearMask™ masks are supplied by a US-based company and manufactured in China. Tests by the Health

Key learning points

What is already known about this subject:

- There are no previously published data on the workplace experience of D/deaf professionals working in healthcare.
- The introduction of masks during the coronavirus pandemic has led to significant challenges for D/deaf people who rely on lipreading and facial expressions for communication.
- Ensuring good communication in healthcare is vital for ensuring patient safety, and staff well-being.

What this study adds:

- There are many highly qualified D/deaf healthcare professionals working in the UK.
- D/deaf healthcare professionals were discriminated against during the coronavirus pandemic through lack of suitable transparent masks or reasonable adjustments, and in some cases were removed from clinical roles they were qualified and trained for.
- The lack of support for communication in the workplace continues to have significant impact on the well-being of D/deaf healthcare professionals.

What impact this may have on practice or policy:

- Ensuring access to transparent masks and other reasonable adjustments is vital for the autonomy, belonging and competence of D/deaf healthcare professionals.
- Policymakers must ensure equality impact assessments are routinely undertaken, and that the ongoing efforts to improve equality and diversity include those who are D/deaf and disabled.
- There is still a need for UK-based manufacturers of transparent masks meeting Type IIR and FFP3 standards.

and Safety Executive confirmed that they provided a 'splash-proof' defence, but not equivalent protection as standard Type IIR surgical masks [6]. Consequently, many infection control teams deemed these masks unsuitable for use in clinical areas or where FFP3 masks are required, as they are when caring for patients with confirmed or suspected Covid-19. Visors, although transparent, are not a suitable alternative, as they do not provide a sufficient seal around the mouth for the purposes of infection prevention and control.

We have previously written about the communication challenges experienced during the Covid-19 pandemic [2], and it was clear among support networks for D/deaf healthcare staff, that our experience was not unique.

We surveyed D/deaf healthcare professionals (HCPs) in the UK to determine the impact of communication challenges during the pandemic, and highlight areas where support urgently needs to be increased.

We have used the term D/deaf throughout this article. 'Deaf' (capital D) is typically used to refer to those individuals who are part of the Deaf community, and use BSL as their first language, whereas 'deaf' (little d) refers to those who use spoken English and lipreading. Individuals in either group may wear cochlear implants or hearing aids to assist with hearing environmental sounds and speech.

Methods

A Google survey (Appendix 1, available as Supplementary data at *Occupational Medicine* Online) was designed by the authors following published guidance [7] and piloted amongst a group of five D/deaf healthcare workers from different professional backgrounds.

The survey was distributed via a snowball sampling technique [8] to members of the 'UK Deaf Healthcare Professionals' group on Facebook (194 members), the 'UK Healthcare Professionals with Hearing Loss' e-mail group (145 members) and promoted on Social Media. A 2 weeks' time frame was allocated for respondents to complete the survey.

All questions were optional, and free text boxes were included for individuals to describe their experiences in greater detail. Due to the sensitive nature of some questions, all D/deaf HCPs could complete the survey anonymously.

This study met the definition of research. NHS research ethics approval was sought, but not required, as all study participants were HCPs. HRA approval was sought, but not required as participants were recruited solely by virtue of their professional capacity, and not by virtue of their employment with a particular organization.

Data were collected in accordance with General Data Protection Regulation (GDPR) and author contact details were available in case of queries. All data were analysed using SPSS version 24. Contingency tables and the chi-square (Fisher's exact) test were used to assess relationships between categorical variables in survey responses. Graphs were prepared using Microsoft Excel version 14.4.

Results

Eighty-three responses were received. Most respondents were working in the NHS (74%). Over two-thirds

(68%) had a severe or profound hearing loss. A total of 31 different professions in the health service were represented. Eighteen (22%) were doctors, and 14 (17%) were nurses. There were fewer responses from those in community settings and social work; this may partly be due to larger networks in hospital settings, which would have influenced recruitment to the survey via snowball sampling.

Forty-seven (57%) respondents wore hearing aids. Twelve (15%) wore cochlear implants, and seven wore a cochlear implant with a hearing aid. Four used a bone-anchored hearing aid.

Seventy-three respondents used specialist equipment in the workplace. The most common devices, used by 26 respondents, were FM microphone systems, which transmit sound directly to the wearer's hearing aid or cochlear implant. The use of amplified stethoscopes, automated captions and telephone loop systems were also popular technological aids (Table 1, available as Supplementary data at *Occupational Medicine* Online).

The vast majority (87%) reported reliance on lipreading. Seventeen respondents (21%) used sign language and had interpreter support (Figure 1).

Seventy-seven respondents (93%) were working in patient-facing clinical roles prior to the pandemic, mostly on medical wards, outpatients, paediatrics, community health settings and general practice (Table 1, available as Supplementary data at *Occupational Medicine* Online). After the coronavirus pandemic, 26 of these clinical HCPs were working wholly or partly from home as a result of the pandemic, and further 14 (18%) were removed from patient-facing roles as a direct result of communication difficulties caused by masks and a lack of reasonable adjustments. This included three doctors, two band 5 nurses, three nurses at bands 6–8 and four band 6 allied health professionals. Some individuals were redeployed to administrative duties, including death certification, clinical governance and quality improvement projects. However, not all were provided with work to do. Only one HCP was off sick for the entire duration of the pandemic.

Eighty-nine per cent found that the introduction of opaque masks made communication with patients and colleagues 'harder' or 'impossible', and yet the majority (87%) did not have access to transparent masks. Ten individuals did have access to transparent masks, although these were not all of a clinical standard (Figure 2). Only two individuals, neither of whom relied on lipreading, reported that the introduction of opaque facemasks had not hindered communication at work.

At the time of the survey, only 24 individuals reported that their workplace had received a supply of ClearMask™ through the NHS supply chain. These were deemed unsuitable for clinical use by infection control teams in 20/24 cases, due lack of compatibility with Type IIR standards. Only one respondent had access to a ClearMask™ though the NHS England supply chain that they were permitted to use in the workplace.

Forty-nine individuals reported that colleagues removed masks to facilitate lipreading, and 30 reported

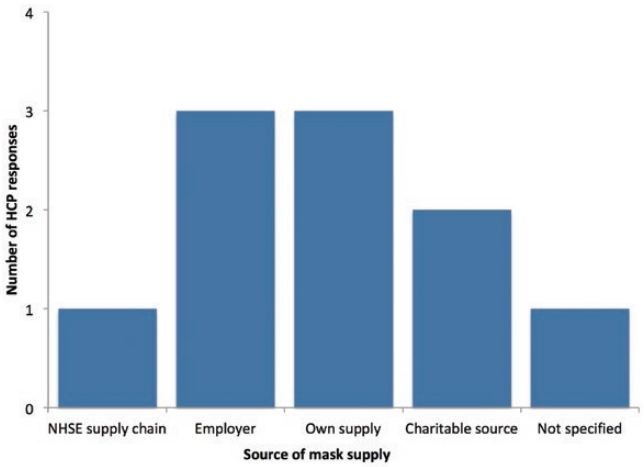

Figure 2. Source of transparent masks used by D/deaf HCPs during the coronavirus pandemic.

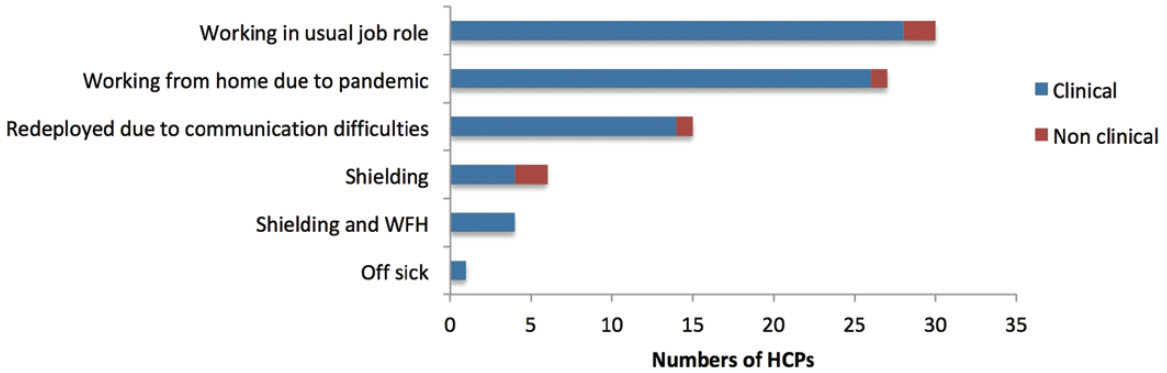

Figure 1. Roles of D/deaf HCPs during the coronavirus pandemic.

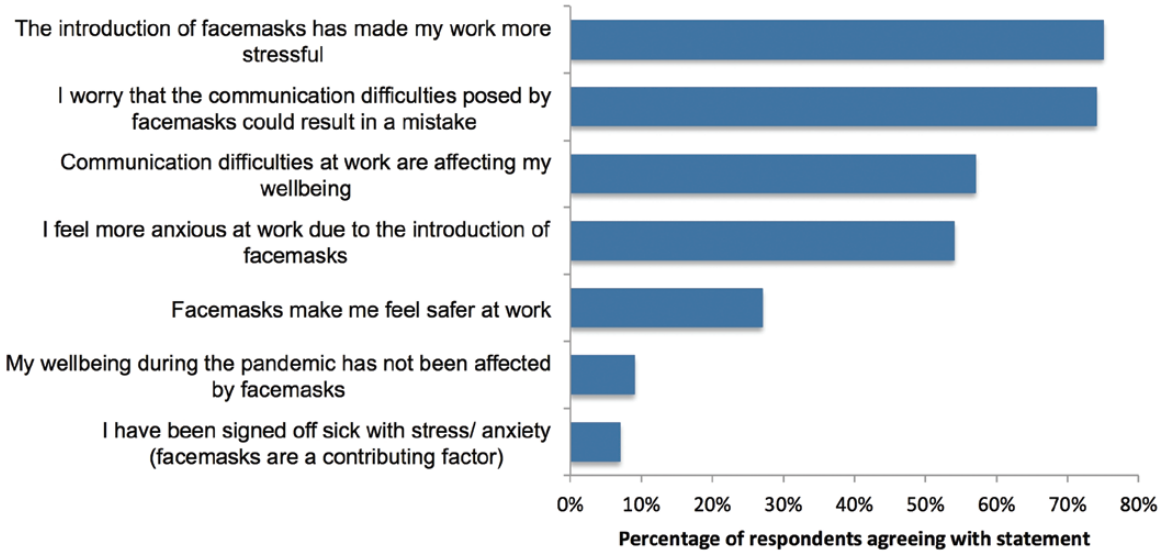

Figure 3. Effect of facemask introduction on well-being at work for D/deaf HCPs.

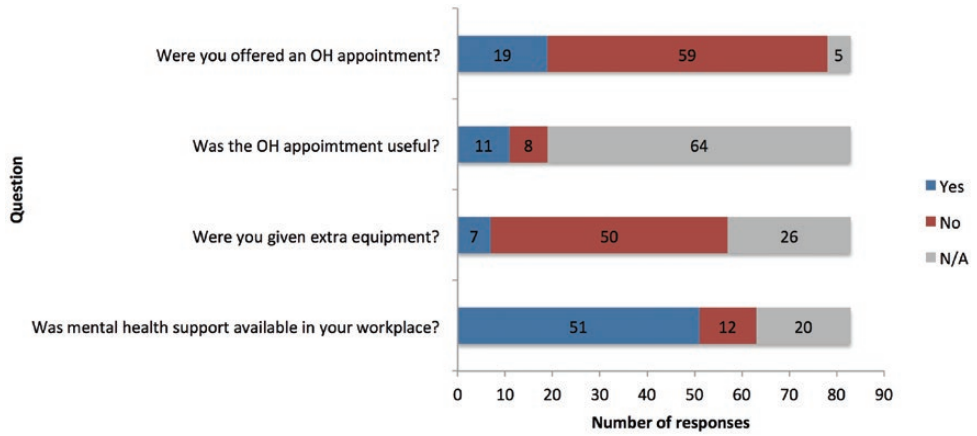

Figure 4. OH and well-being support available to D/deaf HCPs during the coronavirus pandemic.

that patients would remove their masks, although infection control measures mean that in most places this is not permitted. Gestures, written notes, using an interpreter and speech to text apps (although not always accurate) were also found to be helpful.

The lack of transparent masks, adequate support and reasonable adjustments was devastating for D/deaf healthcare workers. Over three-quarters of survey respondents found that their work was more stressful and were worried about making a mistake at work due to communication difficulties. Half felt more anxious at work since the introduction of masks (Figure 3), and this was strongly associated with the degree of hearing loss, with severe and profoundly deaf HCPs more likely to report anxiety ($P < 0.0001$).

Only 19 D/deaf healthcare workers were offered an occupational health (OH) assessment during the pandemic to discuss reasonable adjustments (Figure 4). Those who were redeployed were not more likely to be offered an OH assessment ($P = 0.35$). Fifty-six (66%) agreed, or strongly agreed that they had informal support from colleagues, but only 33 (39%) had the equipment or reasonable adjustments needed (Figure 5). In some cases, the recommended reasonable adjustments advised by OH departments were not implemented due to objections from infection control teams.

When asked if they could do the same job as prior to the pandemic, 34 (40%) respondents did not feel that they could. This response was more common in those who relied on lipreading or sign language at work ($P = 0.045$). Over half were worried about the impact of masks on their future career, and one-third felt that they would need to look for an alternative career if transparent masks or alternatives were not made available. The majority (78%) felt the communication needs of D/deaf healthcare workers had not been considered during the pandemic.

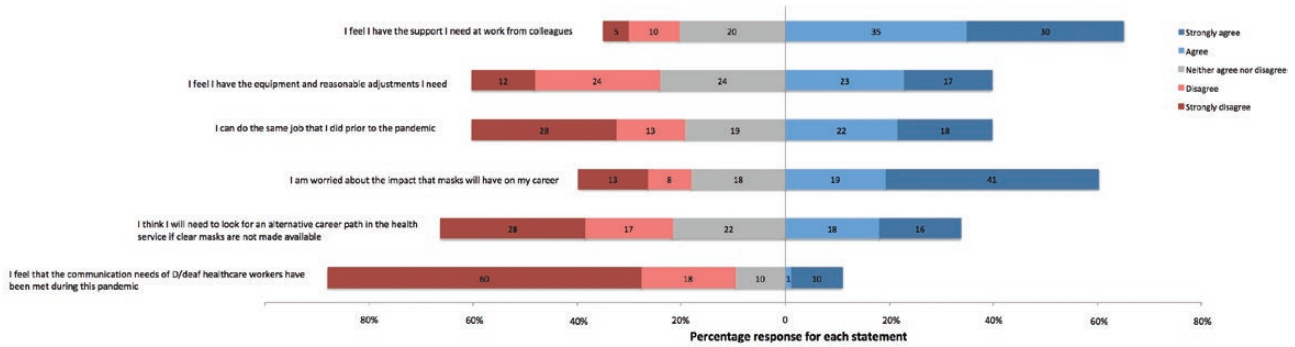

Figure 5. The views of D/deaf HCPs on support provided during the coronavirus pandemic.

Discussion

This survey clearly highlights that D/deaf HCPs were adversely affected by a lack of access to transparent masks during the coronavirus pandemic, and that urgent action is needed to ensure these highly skilled individuals are provided with the required reasonable adjustments, to enable them to remain in the health and social care workforce.

A survey of this nature is likely to have some inherent bias; the snowball sampling method used for this study will have inevitably missed HCPs who do not use social media and will have likely attracted a younger demographic. However, our approach was the only feasible means of identifying and reaching D/deaf HCPs given the available time frame and resources. Most respondents were in clinical (patient-facing) roles and were severely (22%) or profoundly (46%) deaf, and we surmise that those most affected by communication difficulties and lack of reasonable adjustments would complete a survey relating to their experience. We were also unable to target non-responders for follow-up, as the survey could be completed anonymously.

It was unsurprising that most respondents were female, as 77% of the NHS workforce are women. A low (10%) response from minority ethnic groups was concerning, contrasting with Workforce Race Equality Standard (WRES) data indicating that 19.7% of staff working for English NHS Trusts and Clinical Commissioning Groups (CCGs) were from a black and minority ethnic background [9]. It is not clear whether the lower rate of participation from minority ethnic groups in our study was due to our failure to reach out to these groups, or due to a lack of recruitment of D/deaf individuals from minority ethnic groups to health service careers.

There are no accurate data on the number of healthcare workers with hearing loss. The NHS Workforce Disability Equality Survey (WDES) [10] and the NHS staff survey [11] only publish data on 'disability' as a single entity. However, data from 2017 indicate around 4.4 million adults of working age in the UK had a hearing loss, of whom 65% (~2.8 million) were in employment [12]. An estimated 6% of the UK workforce are employed in healthcare [13], so there are potentially several thousand individuals with hearing loss, working in health and social care. The small numbers presented here should be interpreted with caution, although studies examining the experiences of D/deaf employees in other professions indicate that discrimination, lack of reasonable adjustments and reluctance to disclose hearing loss are sadly, common themes [14,15].

Some respondents were reluctant to disclose hearing loss at work for fear of discrimination. This is unsurprising; data from the WDES highlight the discrepancy between the percentage of employees who are recorded as having a disability on electronic staff records, compared to WDES responses [10]. Future workforce surveys need to identify the true prevalence of hearing loss amongst healthcare workers. Even where hearing loss is mild, the resulting lack of support results in 41% leaving the workforce early [14].

Asking specifically about hearing loss, and not just 'disability' improves data capture. For example, when job applicants were asked to self-identify their disability, chronic health condition or learning disability, the response rate increased from 4 to 15% [16]. We anticipate that the same would be true for employees with hearing loss, who may not identify as 'disabled'.

This study could have been further enhanced with improved data on the numbers of D/deaf HCPs, access to a means of contacting all healthcare staff with disclosed hearing loss and resources to conduct face-to-face interviews for detailed qualitative research. With improved data, a larger, follow-up study, in conjunction with OH professionals and NHS Health at Work would yield valuable information. Despite the limitations present this is, to the best of our knowledge, the only survey of D/deaf HCPs undertaken anywhere in the world.

A sense of autonomy, belonging and competence have all been cited as critical factors in ensuring the well-being of healthcare staff [17]. And yet, here there was an overwhelming sense of loss expressed; a loss of autonomy and independence with needing to rely on colleagues, and a loss of belonging—with several D/deaf HCPs feeling isolated due to communication difficulties,

and a loss of ability to demonstrate competence in job roles trained for.

Over half of our respondents felt anxious at work due to the introduction of masks, and three-quarters were under increased stress at work and fearful of making a mistake due to the lack of reasonable adjustments and subsequent communication difficulties.

Although required for infection control purposes in the context of the pandemic, the 2-m social distancing rule, together with the use of masks, further increases the challenges of communication, even where hearing loss is mild. When distance increases, every doubling of the distance drops audibility of speech by 6 dB [18]. In addition, listening fatigue [19] affects concentration, and can increase stress in the workplace.

Only 19 of those surveyed had received an OH assessment to discuss reasonable adjustments during the pandemic, including just 5 of the 15 who were removed from their workplace due to communication difficulties.

It was striking that only 39% of D/deaf HCPs surveyed here were provided with reasonable adjustments they required; contrasting with data from the WDES in which 72.4% disabled staff reported that their employer had facilitated reasonable adjustments [10]. Several respondents had purchased their own equipment or had recommended adjustments refused; highlighting how deafness is often hidden, and perhaps looked on with less understanding than other disabilities.

Employers and training bodies have legal responsibilities towards D/deaf and disabled staff and students, under the Equality Act 2010. Workplace managers and training program leads should liaise with OH clinicians and audiologists for expert advice where required. Every effort should be made to explore technological solutions and reasonable adjustments to enable D/deaf HCPs to fulfil the role for which they are trained and qualified.

Simply redeploying highly qualified staff to non-clinical roles, or away from colleagues, is not the solution as this hides the issue from plain sight whilst leaving D/deaf HCPs in a position of stress, anxiety and loss of agency at not being able to fulfil the role which they have trained for.

Junior doctors, students and allied health professionals on rotation are further disadvantaged by short placements requiring frequent moves between teams, or employers. Government 'Access to Work' funding for support can take up to 12 weeks to process, hindering access to reasonable adjustments in the time frame needed. Employers, universities and training bodies should therefore undertake a proactive approach to ensure that all necessary equipment and support is in place *prior* to the start of placements.

Some respondents reported that colleagues resorted to shouting through masks or ignored them altogether. Unkind behaviour such as this leaves D/deaf HCPs isolated and highlights a need for deaf awareness training. In a world where kindness is vital, both for patient outcomes and staff well-being [20], D/deaf HCPs need to be fully included in the workplace and supported to utilize their strengths.

Whilst deaf awareness training is now available as part of a module on E-Learning for Health [20], it is rarely a part of induction or mandatory training, despite being recommended by the Department of Health in 1995 [21]. Employers need to consider how they can provide deaf awareness training to staff, particularly given the impact of the pandemic on D/deaf HCPs and patients [2].

There remains an urgent need for a fully funded commitment to provision of sufficient numbers of transparent masks, of both IIR and FFP3 standards suitable for use in healthcare settings. NHS England have recently started a project focused on development and procurement of transparent masks, including sustainable options, from UK-based manufacturers, although these are unlikely to be available until 2022.

The NHS people plan, published in July 2020, promises 'action for us all' [22]. It promises a more compassionate, inclusive culture, and the need to create an organizational culture where 'everyone can feel they belong'. Nowhere does it reference the needs of D/deaf or disabled staff members. If the ambitions of the NHS Long Term Plan to 'expand and develop' the workforce are to be realized, then a suitable starting point would be to ensure that fully trained, qualified and committed HCPs with hearing loss, and other disabilities, are provided with the reasonable adjustments and support they need to remain as highly qualified and competent professionals in the workplace.

Any inquiry into the Government's handling of the coronavirus pandemic needs to acknowledge that there has been widespread, systemic discrimination of D/deaf HCPs, in clinical practice and policy during the coronavirus pandemic. That highly trained HCPs were removed from clinical practice, as a direct result of a lack of transparent masks or other reasonable adjustments reflects an appalling failure of employers, training bodies and organizations responsible for Personal Protective Equipment (PPE) procurement to fulfil their duties under the Equality Act of 2010. There has been a complete lack of regard by policymakers for the importance of equality impact assessments; the official NHS guidance on redeployment [23] makes no reference to the needs of D/deaf HCPs, or indeed to staff with disabilities, and no equality impact report was undertaken for policies relating to doctors in training during the pandemic [24]. The resulting adverse effects on career progression and employment opportunities are still being felt by those affected and may continue. The NHS cannot afford to lose valuable, highly qualified and experienced staff, least of all during a pandemic.

Government, and NHS policy must be more than platitude; it needs to be translated into action and funding for required reasonable adjustments, together with a

culture shift among employers and staff to tackle discrimination, and recognize disabled staff as an asset, and not a burden. Only then will D/deaf healthcare workers be confident that their skills, education and training are respected and highly valued, in an NHS that provides a '*compassionate, inclusive culture… where everyone can belong*' [22].

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This study was unfunded.

Competing interests

The authors are all members of the 'UK Deaf Healthcare Professionals' group. This is an informal support group that is not in receipt of funding. The authors have no other interests to declare other than personal experiences of the current impact of opaque masks in the workplace.

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