NHS RACE & HEALTH OBSERVATORY

REACH-OUT: Caring for the healthcare workforce post-COVID-19

A longitudinal mixed-methods study of post-COVID-19 outcomes in healthcare workers from diverse ethnicities

November 2024

University of Leicester

The University of Nottingham | UCL | University of Leicester | UK-REACH REACH-OUT

Contents

Research Team & Partners

Research Team

Prof. Manish Pareek
Chief Investigator UK-REACH
Clinical Professor, University of Leicester

Prof. Katherine Woolf
Co-investigator UK-REACH
Professor, University College London

Dr. Laura Nellums
Co-investigator UK-REACH
Associate Professor, University of Nottingham

Prof. Carolyn Tarrant
Professor, University of Leicester

Amani Al-Oraibi
REACH-OUT Study Lead
University of Leicester

Partners

The NHS Race and Health Observatory
Led by Dr Habib Naqvi, CEO of the NHS Race and Health Observatory and the team.

Introduction

REACH-OUT is a mixed-methods study that examines the long-term impacts of COVID-19 on healthcare workers (HCWS) from diverse ethnic backgrounds in the UK, estimating the prevalence of long COVID and understanding its impact on various aspects of their health.

This update report presents progress to date, which includes the completion of a cross-sectional analysis on the prevalence of and factors associated with long COVID among HCWs in the UK (work package 2). Based on the main findings of this study, we also share some important implications and policy recommendations. Additionally, The REACH-OUT second questionnaire data, focusing on post-COVID-19 outcomes, was completed (work package 2) with over 4,000 participants, including those from ethnic minority backgrounds. Recruitment for the qualitative study (work package 3) involving HCWs, their support network members and healthcare managers was completed with a total of 42 interviews conducted.

Background to the REACH-OUT study

The REACH-OUT study aims to investigate the long-term impacts of COVID-19 on healthcare workers (HCWs) from diverse ethnic backgrounds in the United Kingdom (UK). The study is a collaboration between the NHS Race and Health Observatory and the University of Leicester, and it builds upon the UK-REACH project. The primary objectives of REACH-OUT are to estimate the prevalence of long COVID among HCWs, characterise the syndrome, and understand its effects on the mental, physical, and occupational health of HCWs and their work and home lives.

To achieve these goals, the study employs a mixed-methods approach. Firstly, a systematic review and meta-analysis to determine the global prevalence of long COVID among HCWs and identify the symptoms associated with the condition. This analysis will help identify common symptoms and their clustering patterns. Secondly, a longitudinal quantitative survey study using baseline and follow-up questionnaires to estimate the prevalence of long COVID in HCWs. This analysis will also investigate whether the prevalence of long COVID differs based on factors such as age, sex, ethnicity, and occupation.

Additionally, qualitative research will be used to gain insights into the short- and medium-term impacts of long COVID on HCWs. This qualitative component involves interviews and discussions with HCWs, their families, and their colleagues. By gathering qualitative data, the study aims to understand the personal experiences and perspectives of HCWs affected by long COVID.

The findings from the study will be used to enhance the understanding of how HCWs can be supported during their recovery process. The evidence generated through the study will contribute to developing effective support mechanisms for HCWs and inform policy recommendations aimed at facilitating the recovery of the healthcare system.

For further details on methods, please read our first report: https://www.nhsrho.org/wp-content/uploads/2022/11/RHO-REACH_OUT-Caring-for-the-healthcare-workforce-post-Covid-19.pdf

Progress to date

Work package 1: Global prevalence of long COVID and its most common symptoms among healthcare workers: a systematic review and meta-analysis

- This review was completed in Summer 2023. The main findings, policy implications, and recommendations can be found in our previous report: https://www.nhsrho.org/wp-content/uploads/2022/11/RHO-REACH-OUT-post-Covid-August-2023.pdf

Work package 2: Baseline and longitudinal quantitative survey study of healthcare workers from diverse ethnic backgrounds who have had COVID-19

- The REACH-OUT second questionnaire ran from **October 2023 to January 2024**, where a total of **6071 participants consented to REACH-OUT, 4,572 started the questionnaire**, and **4,332 completed the questionnaire**. The questions focused on:
    - Reporting having or not having long COVID.
    - Reporting long COVID symptoms and access to long COVID services.
    - Occupational support related to long COVID and the types of support received from employers.
- A cross-sectional analysis on the prevalence of, and factors associated with, long COVID among HCWs from diverse ethnic backgrounds has been completed. You can read the main findings in the next section.
    - The cross-sectional study abstract was submitted, accepted, and presented during poster session at the 34th ESCMID Global (European Society of Clinical Microbiology and Infectious Diseases), which took place in Barcelona, Spain from 27 – 30 April 2024.
    - The cross-sectional study abstract was accepted as a poster presentation at the 17th European Public Health Conference 2024, which will take place in Lisbon, Portugal from 13 – 15 November 2024.

Work package 3: A qualitative study on the experiences of healthcare workers with long COVID and its impacts on the NHS Workforce

- Figure 1 illustrates the sampling flow chart for the total of 41 interviews completed for this work package.

- A total of **42 interviews were completed with HCWs** who had COVID-19 at least once and may have experienced long COVID, using a purposive sampling method based on their ethnicity and job roles.

- A total of **five interviews with HCWS' support network members**, which included partners, friends, household members, colleagues, and/or neighbours were completed.

- A total of **13 interviews with healthcare managers**, including managerial teams within the NHS and HR managers, were completed to explore:

    - The personal experiences, challenges, and coping mechanisms of healthcare managers dealing with long COVID and/or post-COVID effects in their teams, organisations, and practices.

    - The existing support systems and resources available to healthcare managers dealing with HCWs who have long COVID. This may include examining the effectiveness of organisational policies, employee support programs, and other support mechanisms.

    - The strategies and approaches that healthcare managers and HR managers have adopted to tackle the challenges posed by long COVID/ post-COVID in their respective healthcare settings.

    - Specific training and development need for healthcare managers in relation to long COVID/post-COVID management, team support, and well-being.

Figure 1. REACH-OUT WP3 sampling flow chart

A total of
42 interviews

Spring / Summer 2023

24 Healthcare workers
(Previous COVID-19 infections & possibly long COVID)

Autumn 2023

5 Support network members (i.e., healthcare colleagues, friends, household members)
(Snowball sampling)

Winter 2024

13 Healthcare managers
(with experience leading an employee with long COVID)

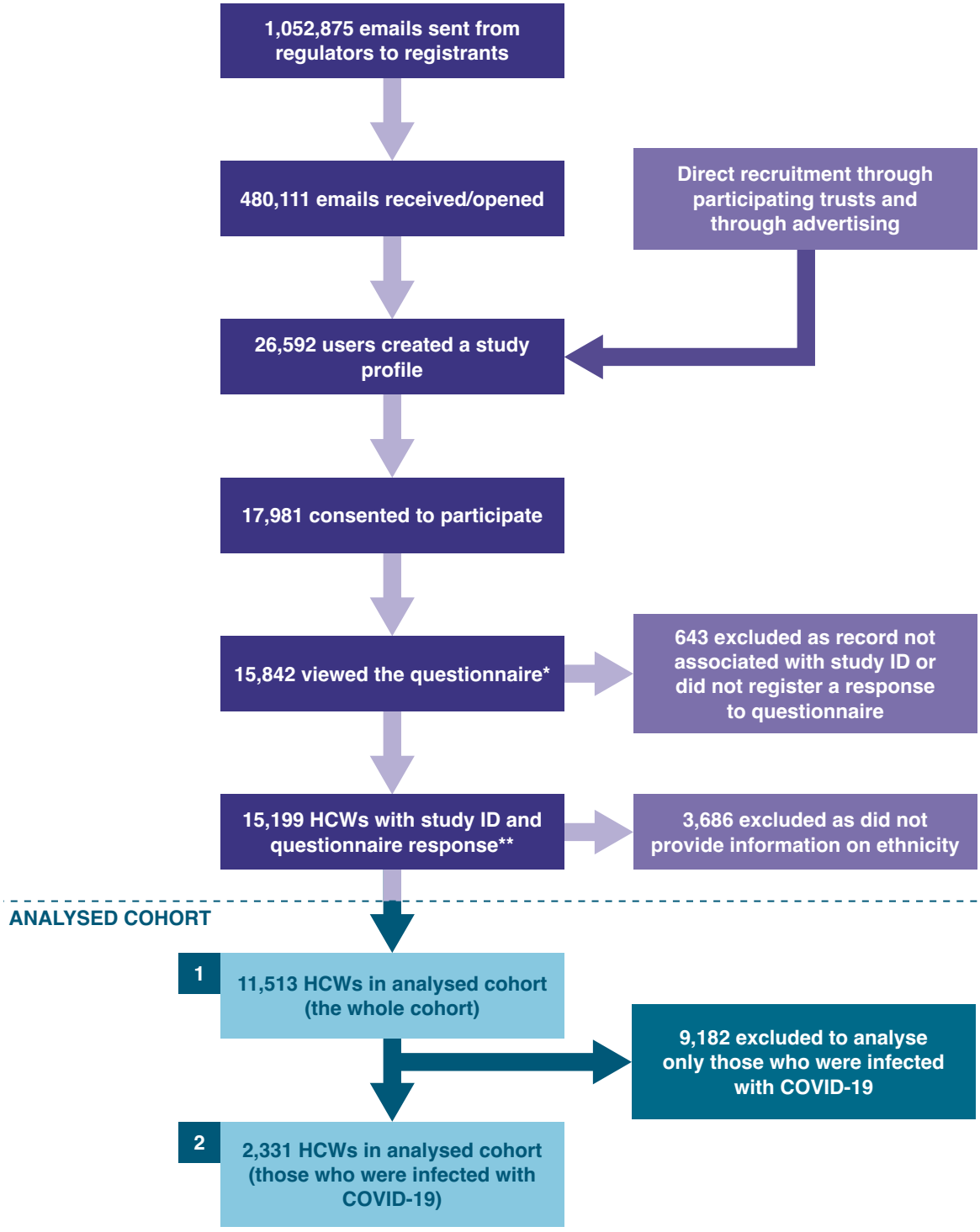
Main findings of work package 2

Prevalence of and Factors Associated with Long COVID Among Diverse Healthcare Workers in the United Kingdom: A Cross-sectional Analysis

Formation and description of the analysed cohort

Figure 2 illustrates the recruitment of the cohort. In summary, 11,513 HCWs formed the analysis sample, of whom 2,331 (20.2%) reported having had COVID-19.

Figure 2. Formation of the analysed cohort



HCW - Healthcare worker (those in professional healthcare roles or ancillary workers in a healthcare setting or registered with one of the seven participating UK healthcare professional regulatory bodies - see methods for a list of participating regulatory bodies).
*There were 15997 views of the questionnaire, 155 duplicate records were removed leaving 15,842 unique HCW views.
**Corresponds to an effective response rate of 57.1% of those who registered/created a profile on the study website (and 84.5% of those who consented, 1.4% of those who were sent an email and 3.2% of those who opened the email).
12,402 / 15,199 HCWs answered the last question of the questionnaire corresponding to a completion rate of 81.6%.

Table 1 presents a description of the analysed cohort. The majority of participants (75.6%) identified as female, and the median age was 42 years (IQR: 33 – 52). Approximately 27% of the cohort was from an ethnic minority group (16.7% Asian, 4.1% Black, 4.6% Mixed, and 1.8% Other). 23.3% were born outside the UK.

Table 1. Description of the analysed cohort

Variable	**Total cohort** N=11,513 **Analysed cohort** Those who were infected with COVID-19 N=2,331
Ethnicity	
White	1,699 (72.9%)
Asian	389 (16.7%)
Black	95 (4.1%)
Mixed	107 (4.6%)
Other	41 (1.8%)
Missing	0 (0.0%)
Migration Status	
Born in UK	1,786 (76.6%)
Born abroad	544 (23.3%)
Missing	1 (0.0%)
Age, median (IQR)	42 (33 – 52)
Missing	17 (0.7%)
Sex	
Male	559 (24.0%)
Female	1,762 (75.6%)
Missing	10 (0.4%)
Index of multiple deprivation quintile	
1 (most deprived)	226 (9.7%)
2	369 (15.8%)
3	412 (17.7%)
4	492 (21.1%)
5 (least deprived)	579 (24.8%)
Missing	253 (10.9%)

Comorbidities	
Not diabetic	1,666 (92.3%)
Diabetic	57 (3.2%)
Missing	83 (4.6%)
Comorbidities	
No other lung conditions	2,206 (94.6%)
Other lung conditions	20 (0.9%)
Missing	105 (4.5%)
Comorbidities	
No depression	1,964 (84.3%)
Depression	262 (11.2%)
Missing	105 (4.5%)
Comorbidities	
No anxiety	1,875 (80.4%)
Anxiety	351 (15.1%)
Missing	105 (4.5%)
Comorbidities	
Not asthmatic	1,913 (82.1%)
Asthmatic	313 (13.4%)
Missing	105 (4.5%)
Comorbidities	
No other cardiovascular diseases[a]	2,012 (86.3%)
Other cardiovascular diseases	214 (9.2%)
Missing	105 (4.5%)
Body Mass Index	
<25	990 (42.5 %)
>25 & >30	659 (28.3%)
>30 & >40	380 (16.3%)
>40	63 (2.7%)
Missing	239 (10.3%)
Alcohol consumption	
1 (non-drinker)	371 (15.9%)
2 (monthly or less)	545 (23.4%)
3 (2 - 4 times per month)	594 (25.5%)

4 (2 - 3 times per week)	559 (24.0%)
5 (4+ times per week)	251 (10.8%)
Missing	11 (0.5%)
Smoking status	
Never / ex-smoker	2,205 (94.6%)
Current smoker	101 (4.3%)
Missing	25 (1.1%)
Occupation	
Doctor or medical support	496 (21.3%)
Nurse, NA or Midwife	524 (22.5%)
Allied Health Professional**	1,018 (43.7%)
Dental	111 (4.8%)
Admin, estates or other	97 (4.2%)
Missing	85 (3.7%)

*Includes those who have not had COVID-19 and those who have had COVID-19 without prolonged symptoms
**Also includes pharmacists, healthcare scientists, ambulance workers and those in optical roles
95% CI: 95% confidence interval
[a]heart diseases, heart problem, stroke, HTN
OR: odds ratio
Ref: reference category for catergorical variables

Prevalence data

Overall, we found that among HCWs with a self-reported history of acute COVID-19 (2,331) **22.5% (525/2,331) experienced long COVID**.

Age and Gender

- Participants with long COVID (**median age 46 [IQR 36-54)]**) were slightly older than those without long COVID (**median age 41 [IQR 31-52]**).

- **80.0%** of those reporting long COVID were female, while **74.3%** of those without long COVID were female.

Ethnicity and Migration status

- **21.7%** (114) of those who experienced long COVID were from ethnic minority groups, compared to **28.6%** (518) who did not experience long COVID.

- Amongst those who experienced long COVID, **17.3%** were born abroad, compared to **25.1%** amongst those who did not experience long COVID.

Symptoms' Duration

We found that 316/2,331 **(13.6%) HCWs experienced symptoms lasting more than three months**, and 215/2,331 **(9.2%) experienced symptoms lasting more than 6 months**. Of those, 65/316 (20.6%) and 38/215 (17.7%) were from ethnic minorities, respectively.

Factors associated with long COVID

Multivariable analysis of risk factors for long COVID

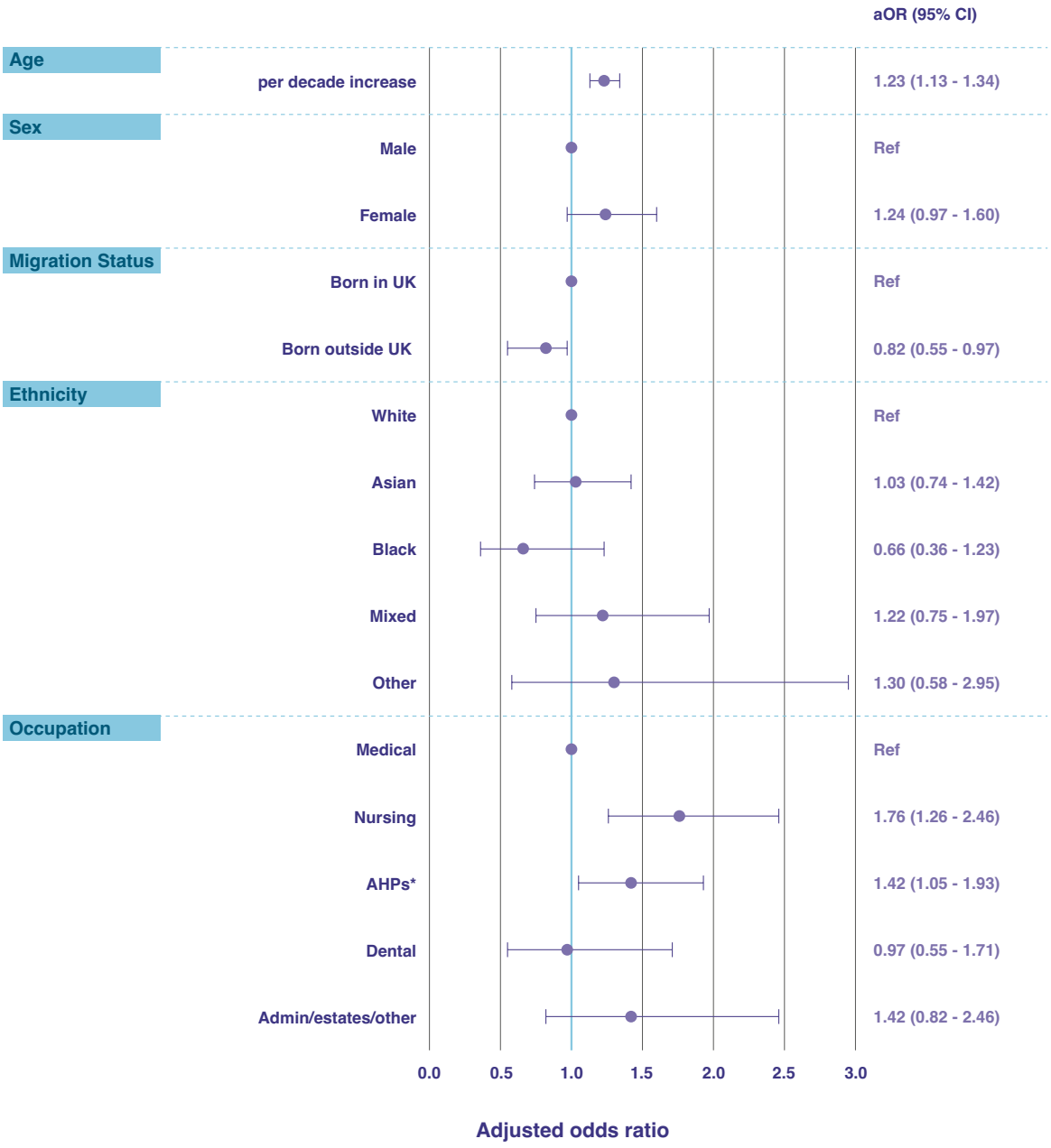
Demographic, occupational and health risk factors

On multivariable analysis (Figure 3), after adjusting for migration status, age, sex, and job role, we found that older HCWs were more likely to experience long COVID (aOR 1.23, 95%CI 1.13 – 1.34, p<0.001) for each decade increase in age. HCWs who were born outside the UK were less likely to experience long COVID compared to those born in the UK (aOR 0.55, 95%CI 0.55– 0.97, p=0.031). Compared to medical roles, those working in nursing and midwifery roles (aOR 1.76, 95%CI 1.26 – 2.46, p=0.001) and allied health professionals (aOR 1.42, 95%CI 1.05– 1.93, p=0.023) were more likely to experience long COVID.

Association of ethnicity with long COVID risk

There were no significant differences in risk of long COVID by ethnic group.

Figure 3. Multivariable logistic regression demonstrating the factors associated with long COVID



*Included in the AHPs group are healthcare scientists, pharmacists, ambulance workers and those in optical roles.
Figure 1 details the result of a multivariable logistic regression analysis. Results are displayed as adjusted odds ratios (circles) and 95% confidence intervals (bars). Circles without bars are shown for the reference group of a categorical variable. Odds ratios are mutually adjusted for all variables in the Figure.

Implications for policy and practice

The findings from this study highlight the significant burden of long COVID among HCWs in the UK, emphasising the need for targeted policies to address this ongoing challenge. With a prevalence rate of 22.5% among those infected with COVID-19, long COVID not only impacts the health and well-being of HCWs but also poses a threat to healthcare service delivery through prolonged absences and reduced workforce capacity. This is particularly concerning for those in nursing and allied health professions, who are at higher risk of experiencing long COVID. Additionally, the study identifies key demographic and health factors, such as older age, and female gender that are associated with an increased risk of long COVID. Given these findings, there is a clear need for comprehensive strategies to support HCWs affected by long COVID, ensure their well-being, and maintain the quality of care in healthcare settings.

The study did not find significant differences in the risk of long COVID by ethnicity. This absence of association might be influenced by socio-cultural factors, including potential underreporting of symptoms among ethnic minority HCWs due to fear of job security, or cultural stigma. Therefore, while the direct link between ethnicity and long COVID risk was not established, the study's implications for ethnic minority groups remain critical, particularly in ensuring equitable access to healthcare and support services.

We suggest the following implications and policy recommendations:

1. **Targeted Support for High-Risk Groups**
   Given the higher prevalence of long COVID among older HCWs, females, and those in particular occupational roles such as those in nursing professions or allied health professionals, regular health screenings and targeted health interventions to reduce the burden on these vulnerable groups in particular and support their continued participation in the workforce.

2. **Developing Comprehensive and Inclusive Support Programs**
   Healthcare institutions should develop and implement support programs that address the specific needs of HCWs affected by long COVID. These programs should provide access to specialised healthcare services, financial assistance, and flexible working arrangements, particularly for those experiencing prolonged illness and disability.

3. **Promoting Research on Long COVID and Ethnic Disparities**
   Continued research into the long-term effects of COVID-19, particularly among ethnic minority HCWs, is essential. Funding should be directed towards understanding the socio-cultural factors that may influence the

reporting and experience of long COVID, as well as the development of interventions that address these disparities.

4. **Ensuring Culturally Sensitive Communication and Education**
   Culturally sensitive communication strategies that promote awareness of long COVID symptoms and encourage early reporting and management need to be considered. Educational initiatives should be tailored to address the specific concerns and barriers faced by ethnic minority HCWs, ensuring that they are fully informed and supported.

These implications and policy recommendations serve as a starting point and can further be expanded and tailored to specific regional contexts with considerations of cultural and regional differences.

What comes next?

The next phase of the project will involve:

1. Analysing the 1st and 2nd REACH-OUT questionnaires' data for work package 2.

2. Analysing HCWs', their support network members and healthcare managers transcripts for work package 3.

3. Engaging with the REACH-OUT Professional Expert Panel group through meetings to provide updates on the study and to get their insights on the planned analysis.

nhsrho.org

@nhs_rho