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## Short Report

# COVID-19: how prepared are front-line healthcare workers in England?

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## SUMMARY

National efforts are underway to prepare the UK National Health Service (NHS) for the COVID-19 pandemic; however, the efficacy of these interventions is unknown. In view of this, a cross-sectional survey of front-line healthcare workers (HCWs) at two large acute NHS hospital trusts in England was undertaken to assess their confidence and perceived level of preparedness for the virus. The survey found that there has been moderate success in readying HCWs to manage COVID-19, but that more still needs to be done, particularly in relation to educating HCWs about laboratory diagnostics.

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## Introduction

On 31<sup>st</sup> December 2019, the World Health Organization (WHO) was notified of unusual cases of pneumonia linked to a seafood wholesale market in Huanan, Wuhan Province, China [1,2].

By early January 2020, the causative agent was identified as a novel betacoronavirus with >85% identity with a bat severe acute respiratory syndrome coronavirus (SARS-CoV) genome [3]. The new virus has been named 'SARS-CoV-2' and the disease has been named 'coronavirus disease 2019 (COVID-19)' [2]. Coronaviruses are enveloped RNA viruses that can infect both animals and humans, and are capable of zoonotic spread.

Most present as mild coryzal illnesses, but those of zoonotic spread, such as SARS-CoV and Middle East respiratory syndrome (MERS-CoV), can manifest with fatal respiratory illnesses [4].

With human-to-human transmission, COVID-19 has spread globally and was declared a public health emergency of international concern on 30<sup>th</sup> January 2020 [1,2]. As of 11<sup>th</sup> March 2020, 114 countries, areas or territories were affected, with 118,223 confirmed cases and 4291 deaths [2]. The UK had reported 373 cases [2].

International (WHO) and national [Public Health England (PHE)] guidance has been issued on infection prevention and control (IPC) of COVID-19 (see WHO and PHE websites for details). Healthcare workers (HCWs) need to be able to identify patients at risk of COVID-19, and respond appropriately to any risk, in order to protect themselves and others from this infection.

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Levels of HCW confidence and feelings of preparedness are unknown. As such, an online cross-sectional questionnaire-based survey of front-line HCWs at two large acute National Health Service (NHS) hospital trusts in England was undertaken to ascertain how prepared they felt to manage COVID-19. The timing of the survey coincided with a national direction to all acute NHS hospital trusts that they establish priority assessment pods for patients concerned about COVID-19. Thus, HCWs should have been prepared to encounter cases.

## Methods

An online cross-sectional questionnaire-based survey was designed using Online Surveys (formerly BOS) to ascertain the confidence and preparedness of front-line HCWs to manage potential cases of COVID-19. The survey included nine questions and was anonymized by name and place of work. The first two questions ascertained the respondent's profession and how long they had been qualified. The subsequent five questions assessed, on a rating scale, how confident the HCW felt in various management aspects of COVID-19. The eighth question asked respondents where, if at all, they had sought information about the virus, with a free-text option for additional responses. The final question allowed free text for respondents to express anything else they wished to highlight in terms of how prepared they felt.

The online survey was live from 10:40 h on 6<sup>th</sup> February 2020 until 16:00 h on 17<sup>th</sup> February 2020. It was sent to front-line HCWs at Nottingham University Hospitals NHS Trust and Birmingham Women's and Children's NHS Foundation Trust. Those considered to be front-line HCWs were doctors, nurses and advanced clinical practitioners working in areas most likely to encounter early cases of COVID-19. Across the hospital trusts, this included those working in emergency departments, intensive care units, designated COVID-19 paediatric admission areas and infectious diseases departments. The survey was sent to a key person in each of these areas to disseminate, with reminders sent out once the survey was live to encourage participation. At the time the survey went live, work had already commenced in both hospital trusts to prepare front-line HCWs for COVID-19.

As the survey was anonymized by name and place of work, no ethical approval was required.

## Results

Between 6<sup>th</sup> and 17<sup>th</sup> February 2020, 158 respondents completed the survey. As it was disseminated via a key person in each area, it was not possible to calculate the response rate as these figures are unknown. The results of Questions 1–8 are displayed in [Figure 1](#).

Question 8 allowed respondents to select more than one answer, and had a free-text option to enable them to elaborate on where they had sought information about the virus. Responses included colleagues in infectious diseases departments, local IPC teams and internet/media sources.

Question 9 was a free-text question asking respondents if there was anything else they wished to mention about how prepared they felt for COVID-19. In total, there were 30 responses. The major themes covered were clarity surrounding personal protective equipment (PPE), the desire for more

information/communications, concerns regarding lack of capacity to manage cases and lack of preparation in certain areas, lack of guidance around staff travel and safety to work, and a request for simulations to help staff preparedness.

## Discussion

Over the last decade, there have been a number of emerging infectious diseases posing a global threat to human health. HCWs surveyed during these times demonstrated a lack of knowledge surrounding these pathogens and a need for further education/training [8,9]. Outbreaks of novel pathogens can be extremely stressful and detrimental to HCWs, but this stress can be lessened by clear guidelines from hospitals and IPC teams [10]. Healthcare systems must ensure that all HCWs feel equipped to manage new and emerging threats. As the threat of COVID-19 grows, the authors wanted to assess the confidence of front-line HCWs to manage possible cases. As far as is known, this is the first such survey to gauge the feelings of HCWs about preparedness in England.

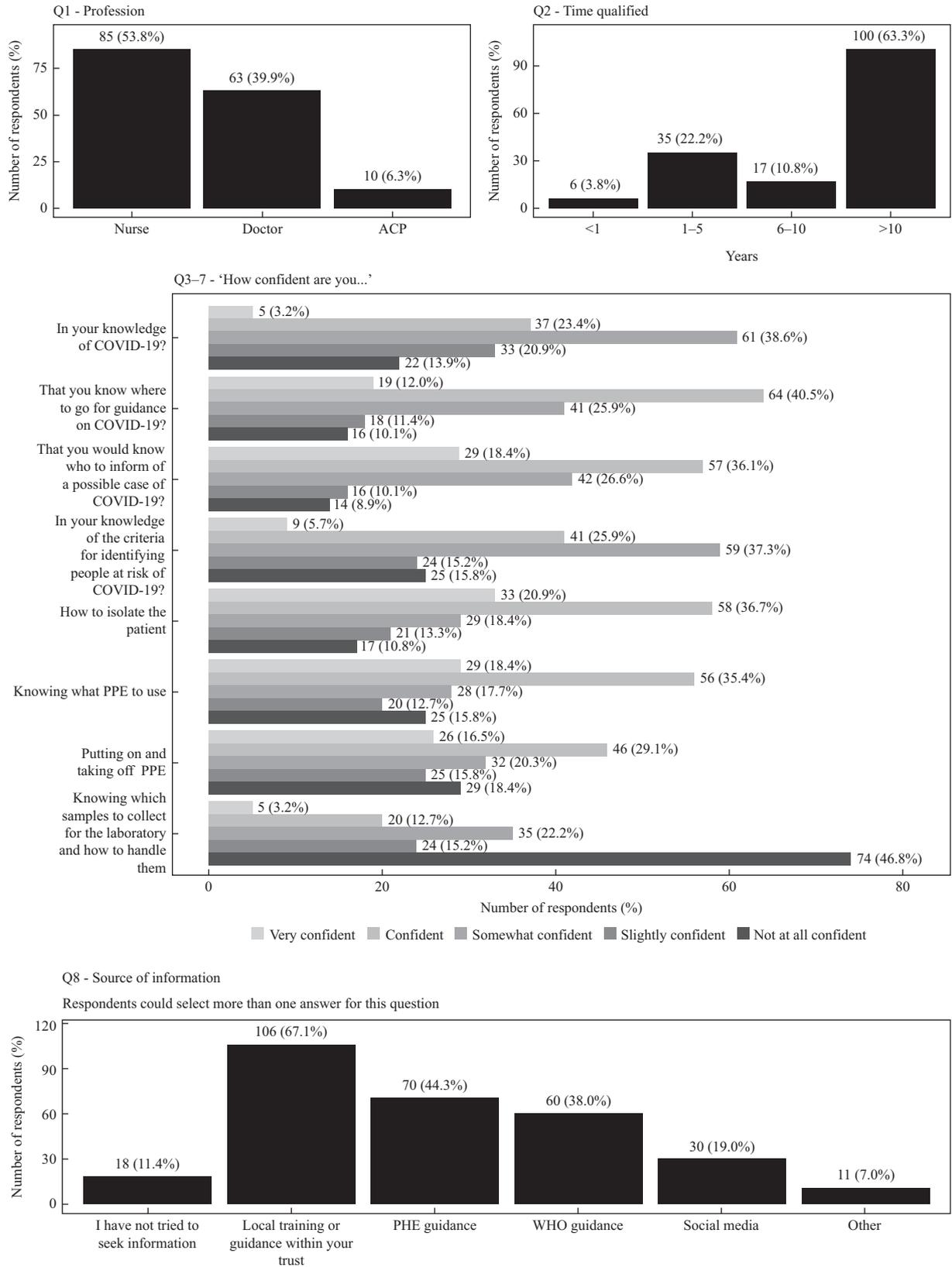
Almost two-thirds of respondents had been qualified for >10 years, suggesting that many would have been practising during the emergence of MERS-CoV (2012), Ebola virus (2013) and, possibly, SARS-CoV (2002/2003) and influenza A H1N1 (2009). As such, this cohort is likely to have some experience in preparing for novel infectious diseases.

During the containment phase of a possible pandemic, healthcare systems are required to ready themselves to manage possible cases. This preparation generally starts by focusing on key front-line areas and then expanding efforts throughout organizations. An important component of this preparation is providing staff with the knowledge they require to identify and manage cases. At the time this survey went live, formal guidance on COVID-19 had been issued by WHO and PHE. In addition, the hospital trusts surveyed were actively working with front-line HCWs in the participating areas to equip them with the knowledge and skills needed. Neither of the hospital trusts had encountered a positive case of COVID-19 at the time of the survey. This survey demonstrated moderate success of these interventions, with 65% of respondents feeling somewhat confident or greater in their knowledge of COVID-19. However, if there is to be success in managing this pandemic, knowledge levels of HCWs must increase rapidly.

In view of the rapidly evolving nature of pandemics and the frequency with which information changes, it is vital that HCWs know where to go for up-to-date guidance. Seventy-nine percent of respondents felt at least somewhat confident in knowing where to go for guidance on COVID-19. Healthcare organizations must ensure that their staff know where to access key guidance in order to reduce their anxiety and optimize their performance.

It is crucial that relevant personnel are informed of possible cases of COVID-19 so that these patients are managed effectively, other patients are not put at risk, and the flow of the organization is not unduly compromised. Eighty-one percent of respondents felt at least somewhat confident about who to inform of a possible case.

The hopes of containment of COVID-19 rely on swift and effective identification of potential cases. Sixty-nine percent of respondents felt somewhat confident or greater in their knowledge of the criteria for identifying those at risk. A delay



**Figure 1.** Results of the survey [5–7]. ACP, advanced clinical practitioner; PPE, personal protective equipment; PHE, Public Health England; WHO, World Health Organization.

in identifying possible cases may have a detrimental effect on the patient and, with a reported basic reproduction number ( $R_0$ ) of 2.2, may put other patients and HCWs at risk [1]. Strategies must be implemented to enable all HCWs to recognize those who may be harbouring the virus.

Containment of the virus also relies heavily on IPC interventions. Seventy-six percent of respondents felt at least somewhat confident in how to isolate a suspected case, and 72% felt at least somewhat confident about what PPE to use. However, 66% of respondents had the same level of confidence in how to don and doff PPE. This must be addressed as any lapse in IPC will place other patients and HCWs at risk, and could hinder containment of the virus. As shown in previous studies, this can be extremely anxiety provoking for HCWs [10].

This survey identified laboratory diagnostics as the area where HCWs had the least confidence. Only 38% of respondents were somewhat confident or greater in their knowledge of how to collect/handle laboratory samples; almost 50% of respondents were not at all confident. This may be, in part, because neither hospital trust had had to perform diagnostic testing at the time of the survey. In addition, whilst there was published guidance from PHE on the collection and handling of diagnostic samples, local variation in laboratory testing methods may have added to the uncertainty felt by HCWs. Diagnostics is a vital part of managing a pandemic, allowing early detection and isolation of cases, and ‘freeing up’ resources following identification of negative cases. This survey suggests that hospital trusts should focus on educating HCWs on the laboratory diagnostics of COVID-19 through integration of guidance from laboratories and the IPC team.

Sixty-seven percent of respondents had used local training/guidance to gain knowledge about COVID-19, 44% had referred to PHE guidance, 38% had referred to WHO guidance, 11% had not sought information from any additional sources and 19% had used social media. Whilst employers have a responsibility to provide employees with the knowledge they require to carry out their roles, individual HCWs also have an obligation to their patients to ensure that they keep up to date with current guidance.

In this survey, respondents highlighted areas where they would like additional information and areas where they had concerns. Hospital trusts should have mechanisms in place to seek out and address employees’ concerns to keep anxiety to a minimum and performance at its best.

This survey had a number of limitations that should be considered when interpreting the data. The results represent a ‘snapshot’ in time at an early stage of preparations. The relatively small number of hospital trusts surveyed means that the results may not be generalizable across England, and only a small proportion of HCWs in each hospital trust were surveyed. A larger-scale study would be useful to add to the findings of this study. Finally, this survey assessed levels of HCW confidence rather than competence, and there may not be a direct correlation between the two.

In conclusion, this survey demonstrated that hospital trusts and individual HCWs have acted quickly and with moderate success to make preparations for COVID-19. However, more still needs to be done if HCWs are to feel confident and prepared to tackle this global threat. In particular, a lack of confidence in the collection and handling of diagnostic samples was identified.

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### Conflict of interest statement

None declared.

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