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

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Summary

National efforts are underway to prepare our health service for the pandemic of COVID-19; however, the efficacy of these interventions is unknown. In view of this, we carried out a cross-sectional survey of front line healthcare workers (HCW) at two large acute NHS hospital Trusts in England, to assess their confidence and perceived level of preparedness for the virus. We demonstrate that there has been moderate success in readying HCW to manage COVID-19, but that more still needs to be done, particularly in relation to educating HCW about the laboratory diagnostics.

Introduction

On 31st December 2019 the World Health Organisation (WHO) was notified of unusual cases of pneumonia linked to a Seafood Whole Sale Market in Huanan, in the Chinese province of Wuhan [1, 2].

By early January 2020 the causative agent was identified as a novel betacoronavirus with greater than 85% identity with a bat SARS-CoV genome [3]. The new virus has been named SARS-CoV-2 and the disease COVID-19 [2]. Coronaviruses are enveloped RNA viruses which 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 Severe Acute Respiratory Syndrome (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 30th January 2020 [1, 2]. As of 11th March 114 countries, areas or territories were affected with 118,223 confirmed cases and 4,291 deaths [2]. The UK had reported 373 cases [2].

Internationally, the WHO, and nationally Public Health England (PHE), have issued guidance on the infection prevention and control of COVID-19 (see websites for details). HCW 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.

Levels of HCW confidence and feelings of preparedness are unknown. As such we carried out an online cross sectional questionnaire based survey of front line HCW at two large acute NHS hospital Trusts in England 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 HCW should have been prepared to encounter cases.

Methods

We designed an online cross-sectional questionnaire-based survey using Online Surveys (formerly BOS) to ascertain how confident and prepared front line HCW felt in managing potential COVID-19 cases. The survey comprised of 9 questions and was anonymised by name and place of work. The

first 2 questions ascertained the respondent's profession and for how many years they had been qualified. The subsequent 5 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 wanted to highlight in terms of how prepared they felt.

The online survey was live from Thursday 6th February at 10:40am until 4pm Monday 17th February. It was sent to front line HCW at Nottingham University Hospitals NHS Trust and Birmingham Women's & Children's NHS Foundation Trust. Those considered to be front line HCW were doctors, nurses and advanced clinical practitioners (ACP) working in areas most likely to encounter early cases of COVID-19. Across the hospital Trusts this included those working in the Emergency Departments, Intensive Care Units, designated COVID-19 paediatric admission areas and Infectious Diseases. 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 in both hospital Trusts had already begun to prepare front line HCW for COVID-19.

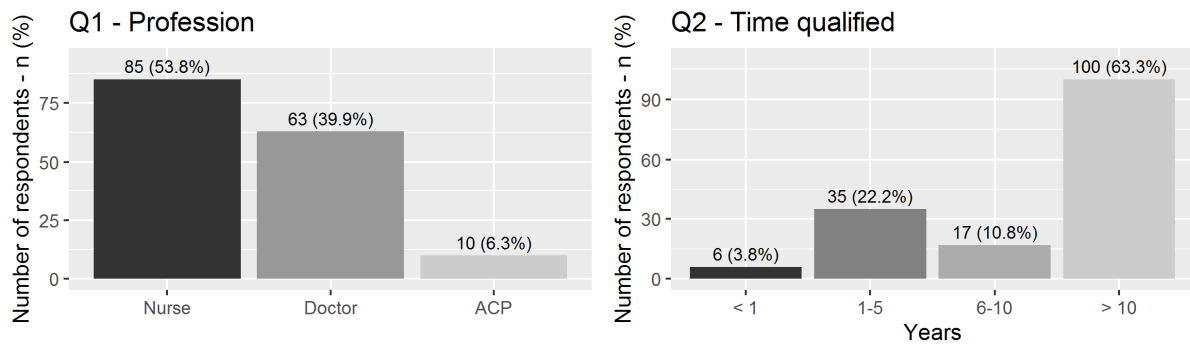
As the survey was anonymised by name and place of work no ethical approval was required.

Results

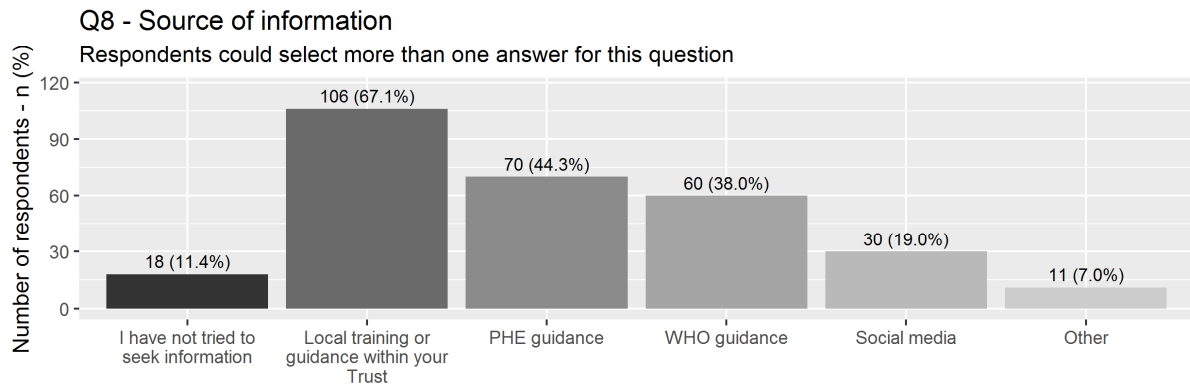
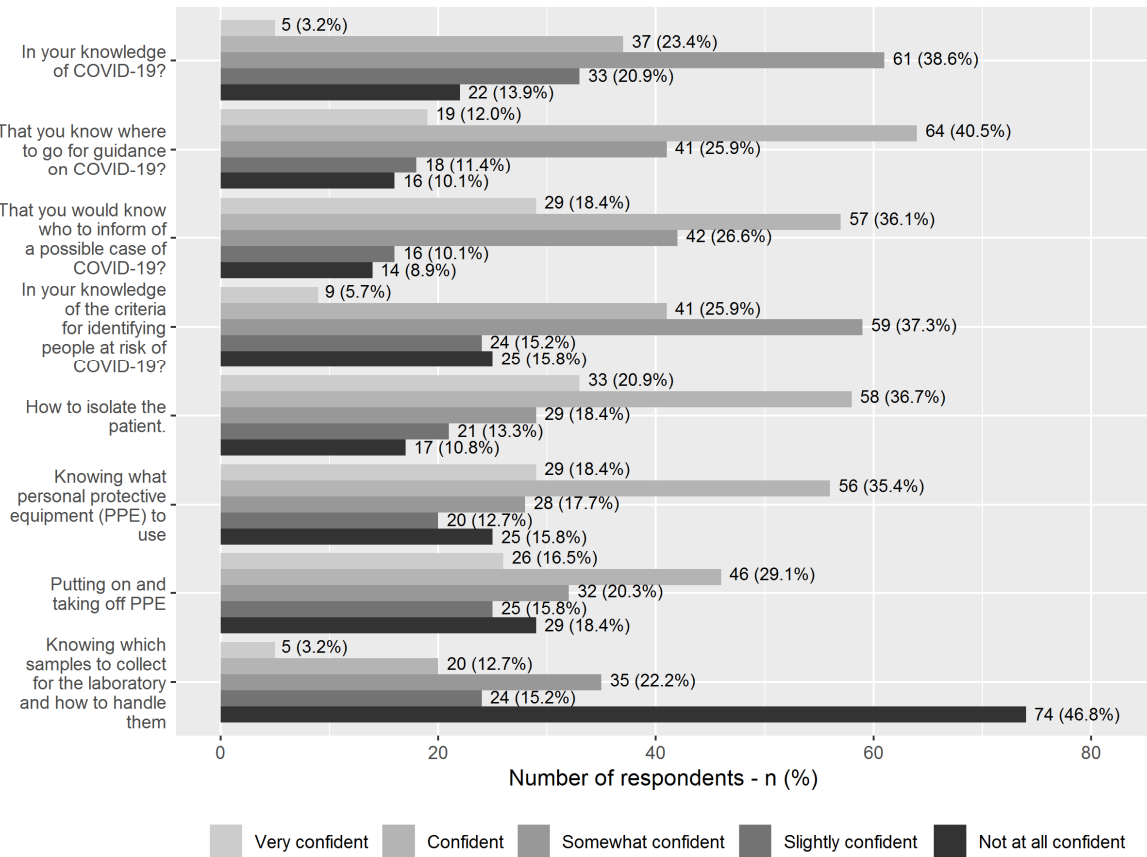
Between 6th and 17th February 158 respondents completed the survey. As it was disseminated via a key person in each area it was not possible to calculate the response rate as these figures are unknown.

The results of Questions 1-8 are displayed in *Figure 1*.

Figure 1 – Results of the survey [5-7].



Q3-7 - "How confident are you..."



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 on the virus. Responses included colleagues in Infectious Diseases, local Infection Control teams (IPC) and internet/media sources.

Question 9 was a free text question asking respondents if there was anything else they wanted to mention about how prepared they felt for COVID-19. In total there were 30 responses. The major themes covered were to do with clarity surrounding 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

During the last decade there have been a number of emerging infectious diseases posing a global threat to human health. HCW 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 HCW; but this stress can be lessened by clear guidelines from hospitals and IPC teams [10]. Healthcare systems must ensure all HCW feel equipped to manage new and emerging threats. As the threat of COVID-19 grows, we wanted to assess how confident our front line HCW felt to manage possible cases. To the best of our knowledge this is the first such survey to gauge HCW feelings of preparedness in England.

Almost two thirds of respondents had been qualified for over 10 years, suggesting many will have been practising during the emergence of MERS-CoV in 2012 and Ebola virus in 2013 and possibly SARS-CoV in 2002/3 and influenza A H1N1 in 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 focussing on key front line areas and then expanding efforts throughout organisations. An important component of these preparations is providing staff with the knowledge they require to identify and manage cases. At the time this survey went live there was already formal guidance on COVID-19 issued by the WHO and PHE. In addition, the hospital Trusts surveyed were actively working with front line HCW in the participating areas to equip them with the knowledge and skills needed. Neither hospital Trust had yet encountered a positive case of COVID-19. This survey demonstrates only moderate success with 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, levels of HCW knowledge must rapidly increase.

In view of the rapidly evolving nature of pandemics and the frequency with which information changes it is vital that HCW know where to go for up to date guidance. 78.5% of respondents felt at least somewhat confident in knowing where to go for COVID-19 guidance. Healthcare organisations must ensure their staff know where to access key guidance in order to reduce their anxiety and optimise 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 that the flow of the organisation is not unduly compromised. 81% of respondents felt at least somewhat confident of who to inform of a possible case.

The hopes of containment of COVID-19 rely on swift and effective identification of those possibly infected. This survey found that 69% of respondents felt somewhat confident or greater in their knowledge of the criteria for identifying those at risk. A delay in identifying possible cases may have a detrimental effect on the patient, and with a reported R_0 of 2.2 put other patients and HCW at risk [1]. Strategies must be implemented to enable all HCW to recognise those who may be harbouring the virus.

Containment of the virus also relies heavily on IPC interventions. 76% of respondents felt at least somewhat confident in how to isolate a suspected case and 71.5% of what PPE (personal protective equipment) to use. However, 65.8% had the same level of confidence in how to don and doff the PPE. This must be addressed as any lapse in IPC will place other patients and HCW at risk and could hinder containment of the virus. As shown in previous studies this can be extremely anxiety provoking for HCW [10].

This survey identified laboratory diagnostics as the area where HCW 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% were not at all confident. This may in part be because neither hospital Trust had had to perform diagnostic testing at that time. 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 HCW. Diagnostics is a vital part of managing a pandemic, allowing early detection and isolation of cases and freeing up of resources following identification of negatives. This survey suggests hospital Trusts should focus on educating HCW on the laboratory diagnostics of COVID-19 through integration of guidance from laboratories and the IPC team.

67.1% of respondents had used local training/guidance to gain knowledge on COVID-19. 44.3% had referred to PHE guidance and 38% WHO guidance. 11.4% 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 HCW also have an obligation to their patients to ensure they keep up to date with current guidance.

In our 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.

There are a number of limitations in this survey that should be considered when interpreting this data. It is a snap shot in time, at an early stage of preparations. The relatively small number of hospital Trusts surveyed means the results may not be generalizable across England and only a small proportion of HCW in each hospital Trust were surveyed. A larger scale study would be useful to add to the findings of our study. Finally, this survey was assessing levels of HCW confidence not competence and there may not be a direct correlation between the two.

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

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Conflict of interest statement

The authors of this manuscript declare no conflicts of interest.

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