Health and well-being of the front-line heath workers during COVID-19

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Abstract:

Health, safety and wellbeing should be the highest priority for all organisations. But as they reopen, businesses need to consider what a COVID-safe workplace looks like and how it can be effectively managed. The COVID-19 pandemic has highlighted the risks that can be involved in healthcare work. In this paper, we explore the issue of staff safety in clinical work using the example of personal protective equipment (PPE) in the COVID-19 crisis. We articulate some of the specific ethical challenges around PPE currently being faced by front-line clinicians, and develop an approach to staff safety that involves balancing duty to care and personal well-being. We describe each of these values, and present a decision-making framework that integrates the two. The aim of the framework is to guide the process of balancing these two values when staff safety is at stake, by facilitating ethical reflection and/or decision-making that is systematic, specific and transparent. (Rosalind J McDougall 2020).

Since its emergence, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes COVID-19, has become a global health threat. As of July 22, 2020, more than 15 million cases of COVID-19 have been documented worldwide, with nearly 6,18, 000 deaths. In the UK and the USA, Black, Asian, and minority ethnic communities have been disproportionately affected. With ongoing community transmission from asymptomatic individuals, disease burden is expected to rise. As a result, there will be an ongoing need for front-line health-care workers in patient-facing roles. Because this work requires close personal exposure to patients with SARS-CoV-2, front-line health-care workers are at high risk of infection, contributing to further spread. (Schwartz A, 2020).

Initial estimates suggest that front-line health-care workers could account for 10–20% of all diagnoses, with some early evidence that people from Black, Asian, and minority ethnic backgrounds are at higher risk. Based on experience with other respiratory viruses, consistent use of personal protective equipment (PPE) is important to reduce nosocomial transmission. (CDC COVID-19 Response Team Characteristics of health care personnel with COVID-19: United States, 2020) Guidelines from the UK and the USA recommend mask use for health-care workers caring for people with COVID-19. However, global shortages of masks, respirators, face shields, and gowns, caused by surging demand and supply chain disruptions, have led to efforts to conserve PPE through extended use or reuse, and disinfection protocols have been developed, for which scientific consensus on best practice is scarce. Although addressing the needs of front-line health-care workers during the COVID-19 pandemic is a high priority,

data to inform such efforts are scarce, and particularly so among Black, Asian, and minority ethnic communities. (Anderson RM, 2020)

While health care workers often accept increased risk of infection, as part of their chosen profession, they often exhibit concern about family transmission, especially involving family members who are elderly, immunocompromised, or have chronic medical conditions. While the CDC and Occupational Safety and Health Administration provide clear recommendations, it is evident that more is required to optimize safety in the current environment. (Livingston E, 2020).

Key words:
Health, well-being, front-line heath workers, covid-19

Introduction

About a century ago the Spanish flu pandemic killed an estimated 50 million people, more than the combined total casualties of World Wars I and II. Our understanding of disease transmission and treatments is far ahead of our position in 1918, but this new coronavirus has shown the limits of our ability to deal with major disease outbreaks. (Johns Hopkins University, 2020). Advice to protect ourselves is clear: wash your hands well and often, self-isolate if you feel unwell, maintain social distance by avoiding crowded and public spaces and, if your symptoms worsen, contact medical services. Only by following this advice rigorously can we hope to stem the tide of new infections. (Rosner B Fundamentals of biostatistics, 2020)

For now, however, the virus is spreading and, on the frontline between a nervous public and those responsible for directing national responses, the healthcare workers on whom we all depend can easily be forgotten.(Kirby T, 2020). During the Ebola outbreak six years ago, the World Health Organisation estimated that health workers were between 21 and 32 times more likely to be infected with Ebola than people in the general adult population. In West Africa more than 350 health care workers died while battling Ebola.(Verbeek JH, 2020).

Doctors, nurses, carers and paramedics around the world are facing an unprecedented workload in overstretched health facilities, and with no end in sight. They are working in stressful and frightening work environments, not just because the virus is little understood, but because in most settings they are under-protected, overworked and themselves vulnerable to infection (Garg S Kim,2020). The risk to doctors, nurses and others on the front lines has become plain. We need a whole-of-society resolve that we will not let our frontline soldiers become patients. We must do everything to support health workers who, despite their own well-founded fears, are stepping directly into COVID-19's path to aid the afflicted and help halt the virus's spread (Black JRM ,2020). Frontline health workers are integral to the global response to COVID-19. In hospitals, clinics and homes around the world, health workers are taking on significant personal risk and too often working without adequate equipment to ensure all of us can receive the care we need. The current crisis is demonstrating the essential, tireless, innovative and too-often

undervalued role of health workers in ensuring strong, resilient health systems for everyone, everywhere. The mental and physical toll this crisis is having on our frontline health workers is rapidly becoming an epidemic in itself. (Lazzerini M, 2020).

In the face of this pandemic, the Center is applying the company's expertise, resources and voice to scale solutions with the potential to make the greatest impact. In this partnership, the Center for Health Worker Innovation will:

- Co-create content, tools and resources designed to improve the resilience and well-being needs of FLHWs and their leaders in times of crisis, recovery and rebuilding.
- Distribute content, tools and resources through broad global network of partners, customers and more.
- Leverage the expertise of our Health & Wellness Solutions Behavioral Science team to guide evidence-based resilience solutions and ensure clear evaluation design, analysis and iteration to inform continual assessment and improvement. (Fischer R Morris,2020)

Table 1Baseline characteristics of front-line health-care workers compared with the general community

		Front-line health-care workers (n=99 795)	**General community (n=2 035 395)**
Country			
	UK	85·4%	93·9%
	USA	14·6%	6·1%
Age, years			
	<25	4·5%	4·7%
	25–34	24·7%	19·2%
	35–44	25·1%	21·5%
	45–54	23·6%	19·5%
	55–64	17·5%	16·2%
	≥65	3·9%	13·1%
Sex			
	Male	17·0%	37·0%
	Female	83·0%	63·0%
Race or ethnic origin			
	Non-Hispanic white	88·2%	92·5%
	Hispanic or Latinx	1·1%	0·5%
	Black	1·2%	0·6%

	Asian	4·4%	2·2%
Body-mass index (kg/m^2)			
	17·0–19·9	5·8%	8·3%
	20·0–24·9	38·1%	39·2%
	25·0–29·9	30·1%	31·5%
	≥30·0	25·9%	21·1%
Comorbidities			
	Diabetes	2·5%	3·1%
	Heart disease	1·6%	2·4%
	Lung disease	13·1%	12·2%
	Kidney disease	0·6%	0·7%
	Cancer	0·5%	1·3%
Medication use			
	Non-steroidal anti-inflammatory drugs	8·2%	6·1%
	Immunosuppressants	2·5%	3·2%
	Chemotherapy or immunotherapy	0·1%	0·3%
	Angiotensin-converting enzyme inhibitor	5·0%	4·9%
Current smoking			
	Yes	10·2%	8·5%

Data are % or median (IQR). % are calculated based on the total number of participants with available data. Polytomous variables might not add up to 100% because of rounding. Questions about history of cancer, angiotensin-converting enzyme inhibitor use, and smoking status have been asked since launch in the USA and March 29, 2020, in the UK; questions about race and ethnic origin were asked since April 17, 2020, in both the UK and the USA. Percentages within each category are based on the total population responding when the question was first asked. (US Centers for Disease Control and Prevention, 2019)

Even as they continue risking their lives, several frontline workers in India have died on the line of duty while making efforts to contain the spread of the virus. (Indian Express, 2020).

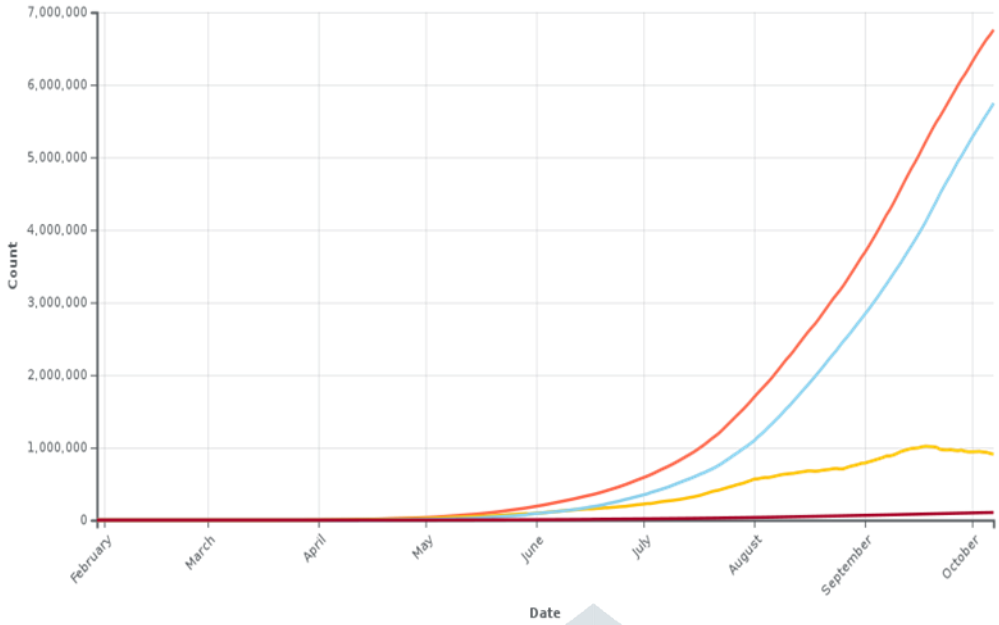

Fig-1: shows the Confirmed, Active, Recovered and deaths among front-line health workers

Findings:

Among 2, 035, 395 community individuals and 99, 795 front-line health-care workers, we recorded 5,545 incident reports of a positive COVID-19 test over 34, 435, 272 person-days. Compared with the general community, front-line health-care workers were at increased risk for reporting a positive COVID-19 test (adjusted HR 11·61, 95% CI 10·93–12·33). To account for differences in testing frequency between front-line health-care workers and the general community and possible selection bias, an inverse probability-weighted model was used to adjust for the likelihood of receiving a COVID-19 test (adjusted HR 3·40, 95% CI 3·37–3·43). Secondary and post-hoc analyses suggested adequacy of PPE, clinical setting, and ethnic background were also important factors. (Public Health England COVID-19, 2020)

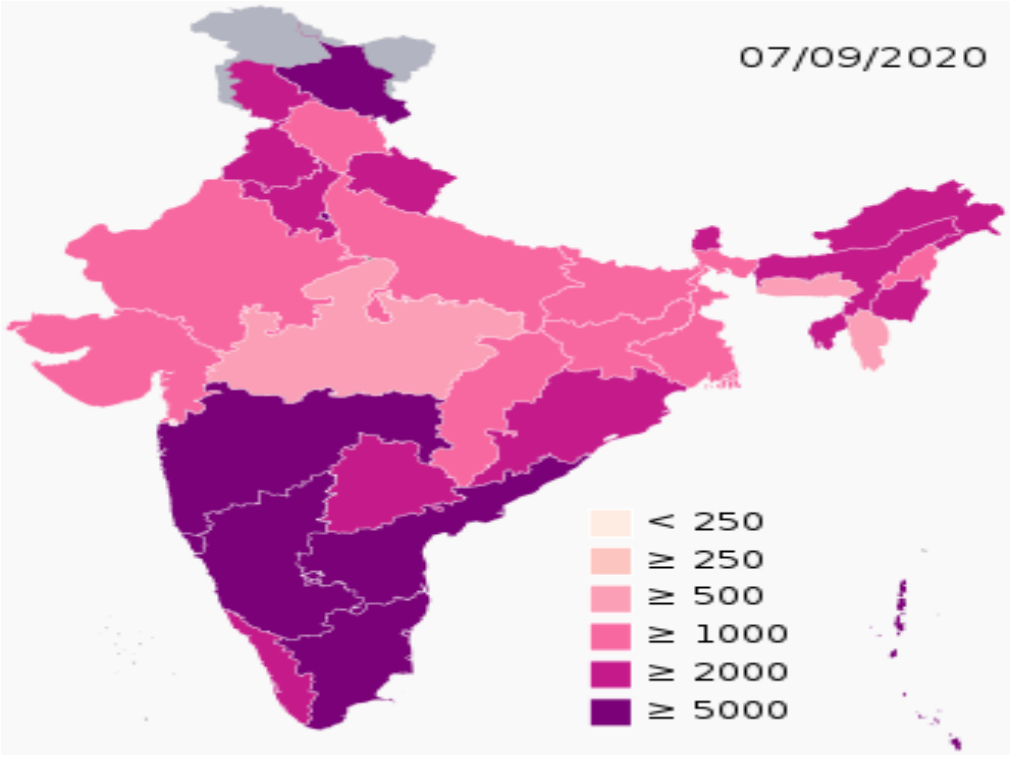

Fig-2: The incidence rate of COVID-19 in India

What's needed now to protect health workers:

The World Health Organization held a media briefing to update the public on the COVID-19 outbreak. Coronavirus infections continue to grow and as they do, health workers are getting ill. In some countries up to 10% of health workers are being infected by coronavirus and taking measures such as training and support can protect health workers and the wider public from increased rates of infection. Such infections increase the rate of infection throughout a community and can pull critical health workers out of service. “This is an alarming trend," said the Director General WHO, along with other agency officials, shared guidance on how to protect health workers at today’s WHO briefing.

To help combat these issues, WHO officials recommended the following:

1. **Training healthworkers to recognize respiratory diseases**

Some infections in healthcare workers have occurred in wards that don’t typically deal with infectious diseases, such as long-term care wards or wards for elderly individuals As a result, all healthcare workers must be educated about coronavirus, how it is transmitted and how they can protect themselves, the agency offers a range of interactive trainings on its open W.H.O. platform to help train healthcare workers about the virus and how to put on and take off PPE safely.

2. **Increased access to personal protective equipment**

Access is key and the global PPE shortage is complicating efforts for health workers to stay protected. A United Nations task force will coordinate and scale up the procurement and distribution of PPE. Every month, the task force will need to deliver an estimated 500 million medical masks and gloves, as well as other equipment such as respirators and oxygen concentrators for clinical care. Additionally, the WHO has launched a collection of tools to help managers and planners at hospitals calculate the equipment that will be needed for their patients.

3. **Support for health workers**

Many health workers are taking on long shifts without break. Exhausted, stressed health workers might be less vigilant when using personal protective equipment, through no fault of their own. We need to find ways in which we can provide some rest periods so that they don't have very long extended shifts and they have ample time to rest because that's when fatigue sets in.

4. **Strong hospital surveillance systems**

Future surveillance systems must also be in place to help prevent the spread of infection at hospitals. At one point during the outbreak of Ebola, 70 percent of cases were actually being transmitted within the healthcare system. “The health care environment is an environment in which people can be saved or treated”. But it is also an environment in which viruses are present. And we need to protect patients and we need to protect those health workers.”

5. **Recognition that every healthcare system has gaps**

Understanding that every health system is vulnerable is key to finding any existing gaps and ensuring the protection of both health workers and the public at large. Some of the strongest health systems in the world have been surprised by the pandemic and see lack of preparedness of the whole health system.

Health workers should be routinely tested for COVID-19 at no personal cost, and offered counselling when they need it for depression, burnout, and substance abuse. Their own health-related expenses should be fully covered throughout the course of this pandemic. We can advocate to local decision-makers to make all this happen. (The Lancet COVID-19, 2020)

General Guidance for All Workers and Employers

For all workers, regardless of specific exposure risks, it is always a good practice to:

- Frequently wash the hands with soap and water for at least 20 seconds. When soap and running water are unavailable, use an alcohol-based hand rub with at least 60% alcohol. Always wash hands that are visibly soiled.
- Avoid touching the eyes, nose, or mouth with unwashed hands.
- Practice good respiratory etiquette, including covering coughs and sneezes.
- Avoid close contact with people who are sick.
- Stay home if sick.
- Recognize personal risk factors. According to U.S. Centers for Disease Control and Prevention (CDC), certain people, including older adults and those with underlying conditions such as heart or lung disease or diabetes, are at higher risk for developing more serious complications from COVID-19. (OSHA and the U.S. Department of Health and Human Services (HHS),2020)

Summary:

Data for front-line health-care workers and risk of COVID-19 are limited. We sought to assess risk of COVID-19 among front-line health-care workers compared with the general community and the effect of personal protective equipment (PPE) on risk.

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