

Introduction

Ongoing SARS-CoV-2 has infected over 36 million people worldwide with coronavirus disease (COVID-19) causing over 1.08 million deaths. Healthcare workers (HCWs) are at the frontline of this pandemic, risking infection through hospital contacts.

In this study, we conducted a retrospective analysis to characterize predisposing factors of HCWs who tested SARS-CoV-2 PCR positive and who were seen in a designated COVID-19 testing clinic.

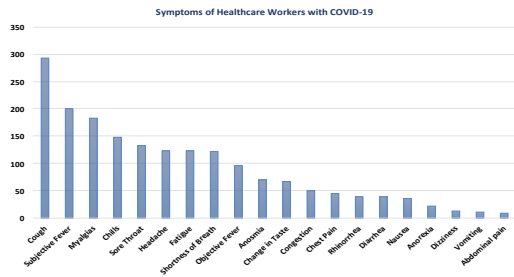


Figure 1: Presenting Symptoms of Healthcare Workers that tested positive for COVID-19

Methods

Retrospective analysis was performed for HCWs who presented for COVID-19 screening at a designated COVID-19 clinic at Medstar Washington Hospital Center in Washington, DC between 3/13/2020 – 5/28/2020

Variables extracted included: profession, known exposure to COVID-19, presenting symptoms and past medical history

Outcomes data included: hospital admission, ICU admission and death due to COVID-19 disease

Univariate analysis was performed using Fischer's exact tests with significance defined as $p < 0.05$. IRB approval was obtained.

Results

- A total of 881 HCW presented for COVID-19 testing
- 316 (35.8%) tested positive for COVID-19; mean age of infection was 39
- Cough was the most common presenting symptom (Figure 1)
- Hospitalizations occurred in 22 HCWs (6.9%) and 2 HCWs (0.6%) died from COVID-19 infection
- African Americans were 4.5 times more likely to be hospitalized (OR 4.52, CI₉₅ 1.54-12.50)
- Comorbidities associated with increased risk of hospitalization included: hypertension (OR 3.14, 1.32-7.23) and obesity (OR 2.98, 1.25-6.89)
- HCWs who were hospitalized with COVID-19 were more likely to have fever, myalgias, fatigue and shortness of breath (Table 2)

Baseline characteristics of HCWs tested for COVID-19 infection	
Sex	Female: 68.4% (n=216) Male: 32.6% (n=100)
Race/Ethnicity (based on total study population=881)	African American: 41.4 % (n=365) Caucasian: 20.1% (n=177) Hispanic/Latino: 3.5% (n=31) Asian: 4.6% (n=41) Native American: 0.5% (n=5) Other: 18.27% (n=161) Not specified: 11.5% (n=102)
Occupation	Registered nurses: 34.8% (n=110) Physicians: 12.3% (n=39) NPs/PAs: 2.8% (n=9) Patient care tech: 11.7% (n=37) Clerical staff: 6.0% (n=19) Food services: 7.3% (n=23) Phlebotomist: 1.9% (n=6) Respiratory therapist: 1.3% (n=4) Other/not specified: 46.8% (n=148)

Table 1: Characteristics of Healthcare Workers that Tested Positive for COVID-19

Symptoms associated with Hospitalization in Healthcare Workers positive for COVID 19		
	Odds Ratio	Confidence Interval (CI ₉₅)
Fever	OR 4.16	CI ₉₅ 1.54-10.44
Myalgia	OR 2.46	CI ₉₅ 1.02-5.73
Fatigue	OR 2.63	CI ₉₅ 1.16-5.94
Shortness of Breath	OR 6.01	CI ₉₅ 2.41-15.53

Table 2: COVID-19 Symptoms and associated Odds Ratios of Hospitalization

Discussion

COVID-19 disease poses a continuous risk to Healthcare Workers, particularly Registered nurses who have repeated close contact exposure to patients. African American HCWs were more likely to be hospitalized due to COVID 19 disease. Comorbidities such as hypertension, obesity and symptoms of fever and shortness of breath were significantly associated with risk of hospitalization.

Conclusion

Healthcare workers with pre-existing conditions including hypertension and obesity are at higher risk of hospitalization due to COVID-19 infection.

Further studies may be required to explore strategies to prevent exposure in HCWs with pre-existing conditions, including universal testing and effect of different workplace assignments and roles to minimize contact with those affected with COVID 19.

References

- Chou R, Dana T, Buckley DI, Selph S, Fu R, Totten AM. Epidemiology of and risk factors for coronavirus infection in health care workers: a living rapid review. *Annals of internal medicine*. 2020 May 5.

Conflict of Interest:

Dawn Fishbein, MD, MS: Gilead HCV Advisory Board and grant support