COVID-19 Infections Among General Internal Medicine Faculty at a New York Teaching Hospital: a Descriptive Report

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INTRODUCTION

General Internal Medicine (GIM) faculty at New York-Presbyterian/Weill Cornell Medicine were frontline providers during the COVID-19 pandemic in the disease epicenter of the USA. Within 3 weeks of our hospital's first COVID-19 positive patient, several clinical faculty reported COVID-like illness (CLI) and/or SARS-CoV-2 PCR positivity.

Data on infection risks among US healthcare personnel (HCP) are not well documented. We developed a quality improvement project to (1) estimate the prevalence of COVID-19 among our patient-facing faculty during NYC's first 6 weeks of the pandemic and (2) characterize potential transmission sources to mitigate risks of exposure.

METHODS

GIM clinical faculty in full-time direct patient contact from March 1 to April 13, 2020, received a one-time email link to an anonymous survey. Data were collected from April 6 to April 20, 2020. Thirty multiple-choice and open-ended questions were designed to capture presumed source of exposure (work vs. community), place of direct patient care (hospital vs. ambulatory), and access to and use of personal protective equipment (PPE). Hospital PPE guidance based on the CDC varied during the study period (Fig. 1). From March 1 to March 17, PPE included contact and airborne precautions (with eye protection). Guidelines changed on March 18th restricting N95 respirators for aerosol-generating procedure. Following an increase in supply, N95s were again recommended for routine care of patients under investigation (PUI)/COVID-19-positive patients after April 10th. Faculty reporting either CLI or a positive SARS-CoV-2 PCR were categorized as CLI/COVID-19. Those without CLI or negative PCR test were categorized as COVID-negative. (HCP testing became available 3 days before the study period ended.) Data were aggregated for descriptive summary statistics as the study was intended for quality improvement and was not powered to detect statistical significance. The IRB determined that the study was exempt from review.

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RESULTS

Among 135 GIM faculty, 114 (84%) were eligible to receive the survey. Seventy-six were hospital medicine (HM) and 38 were ambulatory internal medicine (AIM) faculty. Overall response rate was 61% (70/114), 53% from HM (40/76) and 79% from AIM clinicians (30/38). All HM faculty worked with either physician assistants or house staff. Resident supervision varied by AIM practice sites.

Twenty-one faculty were CLI/COVID-19 (30% of respondents) with eight confirmed by SARS-CoV-2 PCR (8/21, 38%) (Table 1). Over a quarter (6/21, 29%) reported symptoms within 7 days of service with 57% (12/21) working in the ambulatory setting. Over half of CLI/COVID-19 faculty (13/21, 62%) cared for patients with "unknown" COVID status (absence of CLI on encounter).

The peak incidence of CLI/COVID-19 faculty preceded our hospital's highest COVID-19 inpatient census by nearly 14 days (Fig. 1). AIM attendings reported illness earlier than HM attendings. Two faculty were hospitalized (2/21, 9.5%) including one to the intensive care unit (1/21, 4.8%); none required intubation. There were no deaths.

While nearly one-third of exposures were suspected from the community (6/21, 28.6%), only three (3/21, 14%) affirmed a community-based source. Among the other 18 CLI/COVID-19 faculty, 39% (7/18) performed more auscultation during exams than COVID-negative faculty (6/48, 13%). N95 respirators were used less often when seeing patients with CLI (8/18, 44% use versus 35/48, 73% among CLI/COVID-19 and negative faculty, respectively). Twenty percent of respondents disagreed that PPE was always available when needed; most commonly cited as missing were eye protection and size-appropriate N95s. Only 22% (4/18) of CLI/COVID-19 faculty reported adherence with social isolation as compared to 60% (29/48) among those COVID-negative.

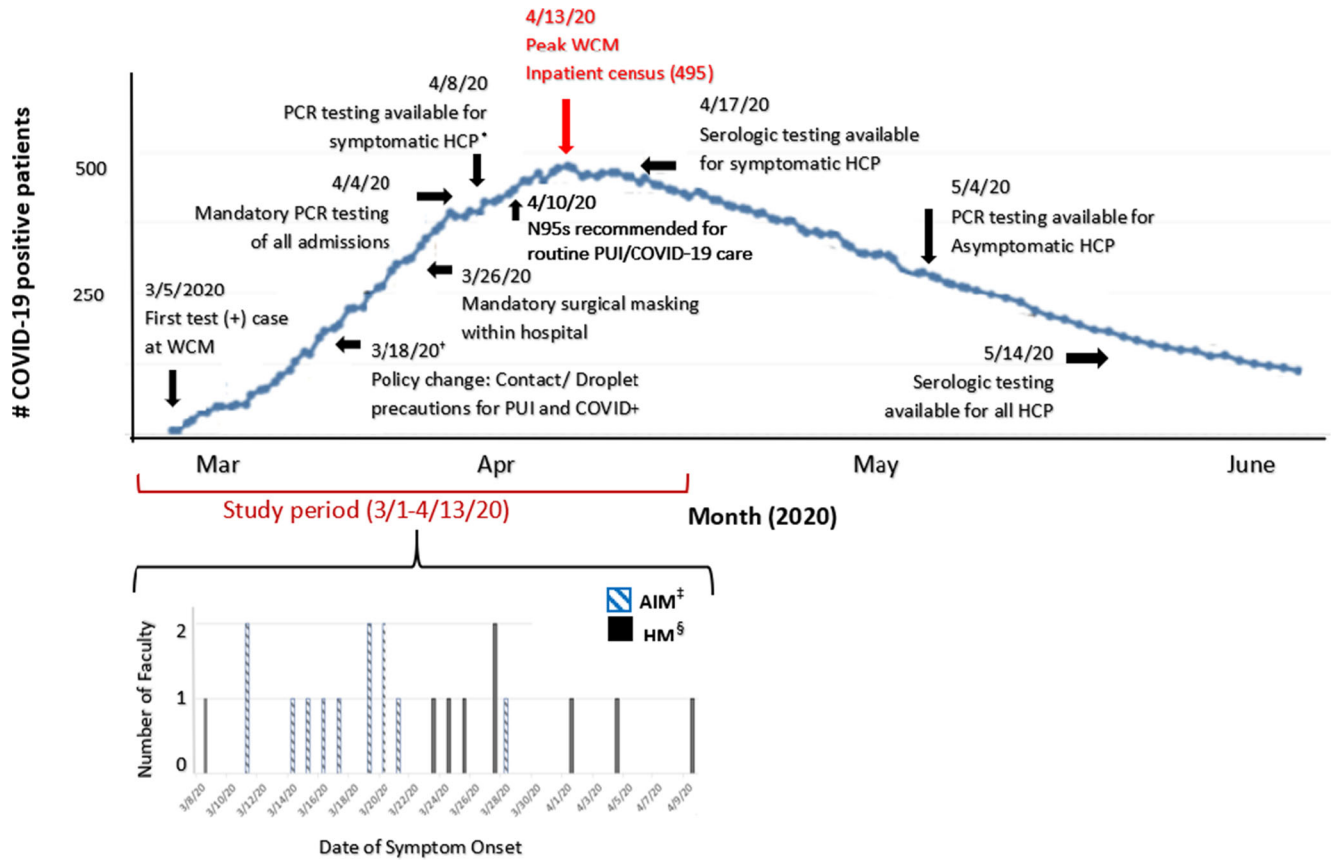

Figure. 1 Timeline of symptom onset for CLI/COVID-19-positive GIM faculty compared to total COVID-19 test positive inpatient census. *HCP, health care personnel. †Before 3/18/20, hospital recommendation. ‡AIM, ambulatory internal medicine. §HM, hospital medicine.

Table 1 Characteristics of GIM Faculty Surveyed

	COVID positive*, *N* = 21		COVID negative†, *N* = 49	
	CLI‡, *N* = 13 (%)	SARS-CoV-2 PCR +, *N* = 8 (%)	Asymptomatic, *N* = 46 (%)	SARS-CoV-2 PCR −, *N* = 3 (%)
Characteristics of GIM faculty surveyed (N = 70)				
Specialty				
Ambulatory internal medicine (AIM)	8 (62)	4 (50)	16 (35)	2 (67)
Hospital medicine (HM)	5 (38)	4 (50)	30 (65)	1 (33)
Age				
< 40	9 (69)	5 (63)	26 (57)	1 (33)
40–60	0 (0)	2 (25)	16 (35)	0
> 60	4 (31)	1 (13)	3 (6)	2 (67)
Missing			1 (2)	
Sex				
Female	8 (62)	6 (75)	27 (59)	2 (67)
Race				
Asian	8 (62)	3 (38)	16 (35)	0
Black or African American	0 (0)	0 (0)	1 (2)	0
Hispanic	0 (0)	1 (13)	3 (6)	0
White	5 (38)	4 (50)	23 (50)	3 (100)
Other	0 (0)	0 (0)	3 (6)	0
Type of patients seen§				
Known COVID	0 (0)	2 (25)	19 (41)	2 (67)
Known non-COVID	3 (23)	1 (13)	5 (11)	0
Mixed	1 (8)	1 (13)	11 (24)	0
Unknown status	9 (69)	4 (50)	11 (24)	1 (33)
Characteristics of COVID-positive GIM faculty surveyed (*N* = 21)				
Total days in patient care prior to onset of symptoms				
Less than 7	4 (31)	2 (25)		
8–14	4 (31)	3 (38)		
More than 14	5 (38)	3 (38)		
Symptoms				
Fever	9 (69)	7 (88)		

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Table 1. (continued)

	COVID positive*, N = 21		COVID negative†, N = 49	
	CLI‡, N = 13 (%)	SARS-CoV-2 PCR +, N = 8 (%)	Asymptomatic, N = 46 (%)	SARS-CoV-2 PCR −, N = 3 (%)
Chills and/or rigors	9 (69)	6 (75)		
Headache	8 (62)	6 (75)		
Fatigue	12 (92)	8 (100)		
Respiratory	12 (92)	6 (75)		
Myalgias and/or arthralgias	8 (62)	7 (88)		
GI	8 (62)	6 (75)		
Anosmia and/or dysgeusia	9 (69)	4 (50)		
Rash	1 (8)	0 (0)		
Other	0 (0)	3 (38)		
Level of clinical care received				
Did not seek care	10 (77)	1 (13)		
Ambulatory	3 (23)	4 (50)		
Emergency room visit (discharged)	0 (0)	1 (13)		
Hospitalized: inpatient floor	0 (0)	1 (13)		
Hospitalized: ICU care	0 (0)	1 (13)		
Self-reported source of exposure				
Community	4 (31)	2 (25)		
Extremely confident	2/4 (15)	1/2 (13)		
Suspected	2/4 (15)	1/2 (13)		
Colleague at the workplace	3 (23)	2 (25)		
Patient in your care	6 (46)	4 (50)		
Emergency room	0 (0)	1/4 (13)		
Inpatient	4/6(31)	2/4 (25)		
Office	2/6 (15)	1/4 (13)		

**COVID-positive = COVID-like illness and/or known SARS-CoV-2 PCR-positive*
†COVID negative = asymptomatic and/or known SARS-CoV-2 PCR-negative
‡CLI COVID-like illness
§Status was triaged based on the presence of classic symptoms and/or SARS-CoV-2 PCR results. Patients were of "unknown status" if they did not meet either criteria. Of note, mandatory testing of all admitted patients began on April 4, 2020

DISCUSSION

Early characterization of potential sources of SARS-CoV-2 virus exposure was critical to improving the safety of our frontline providers.[1,2] Exposure to PUIs and colleagues with unknown COVID-19 status due to asymptomatic transmission, delayed testing availability, and PPE shortages coupled with delayed national recommendations for universal (hospital and community) masking may have contributed to a third of respondents falling ill.[3]

We acknowledge that the small numbers of surveyed faculty and confirmed COVID-19 status are limitations to the study, but feel there was no negative impact on our intended outcome of identifying and improving prevention practices during a time of limited guidance and availability to testing. Ongoing adherence to public masking and utilization of rapid testing remain critical.[4] Governments, public health authorities, and hospitals must prioritize the provision of resources and information required to keep the frontline, and the community, safe.

Jennifer I. Lee, MD[1,2]
Brooke W. Bullington, BA[3]
Matthew S. Simon, MD MSc[1,2]
Daniel J. Crossman, MD[1,2]
Arthur T. Evans, MD MPH[1,2]
Margaret L. McNairy, MD MSc[1,2,3]

[1]NewYork-Presbyterian/Weill Cornell Medicine, New York, NY, USA
[2]Department of Medicine, Section of Hospital Medicine, Weill Cornell Medicine, New York, NY, USA
[3]Center for Global Health Weill Cornell Medicine, New York, NY, USA

Corresponding Author: *Jennifer I. Lee, MD; Department of Medicine, Section of Hospital Medicine, Weill Cornell Medicine, New York, NY, USA (e-mail: jel9026@med.cornell.edu).*

Compliance with Ethical Standards: *All ICMJE forms for each author were submitted withe the manuscript. There are no conflicts of interest for any of our authors.*

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