

Letters

RESEARCH LETTER

Symptom Screening at Illness Onset of Health Care Personnel With SARS-CoV-2 Infection in King County, Washington

As the coronavirus disease 2019 (COVID-19) pandemic continues, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) exposures among US health care personnel (HCP) during health care delivery and from community contacts will increase. Results from real-time reverse

transcriptase-polymerase chain reaction suggest that high viral loads may be detected soon after illness onset, including in minimally symptomatic persons.¹ Current COVID-19 HCP screening guidance² includes assessing fever and respiratory symptoms (cough, shortness of breath, or sore throat) with clinical discretion for evaluation for other symptoms (eg, myalgias). We assessed the spectrum of symptoms at onset of COVID-19 among HCP and evaluated current screening criteria for identifying COVID-19 cases early in illness course.

Table. Clinical Course and Outcomes of Health Care Personnel With Confirmed SARS-CoV-2 Infection—King County, Washington

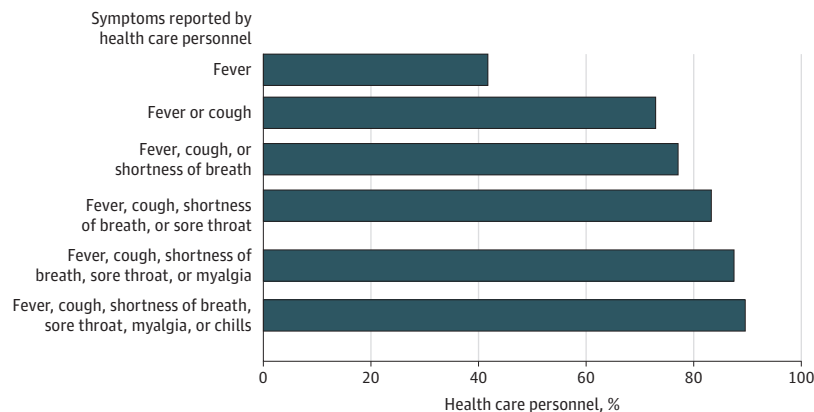
	No. (%)		
	Total health care personnel (N = 48)	Onset with fever, cough, shortness of breath, or sore throat (n = 40 [83.3%])	Onset without fever, cough, shortness of breath, or sore throat (n = 8 [16.7%])
Initial symptoms			
Cough	24 (50.0)	24 (60.0)	0
Fever ^a	20 (41.7)	20 (50.0)	0
Myalgias	17 (35.4)	15 (37.5)	2 (25.0)
Headache	8 (16.7)	7 (17.5)	1 (12.5)
Chills	7 (14.6)	5 (12.5)	2 (25.0)
Sore throat	7 (14.6)	7 (17.5)	0
Coryza	6 (12.5)	4 (10.0)	2 (25.0)
Shortness of breath	5 (10.4)	5 (12.5)	0
Malaise	5 (10.4)	3 (7.5)	2 (25.0)
Diarrhea	3 (6.3)	3 (7.5)	0
Voice hoarseness	2 (4.2)	1 (2.5)	1 (12.5)
Anorexia	1 (2.1)	1 (2.5)	0
Nausea/vomiting	1 (2.1)	1 (2.5)	0
Abdominal pain	1 (2.1)	0	1 (12.5)
Symptoms over illness course			
Cough	42 (87.5)	36 (90.0)	6 (75.0)
Fever ^a	36 (75.0)	32 (80.0)	4 (50.0)
Myalgias	29 (60.4)	25 (62.5)	4 (50.0)
Headache	20 (41.7)	17 (42.5)	3 (37.5)
Chills	16 (33.3)	14 (35.0)	2 (25.0)
Diarrhea	16 (33.3)	13 (32.5)	3 (37.5)
Shortness of breath	15 (31.3)	13 (32.5)	2 (25.0)
Malaise	14 (29.2)	9 (22.5)	5 (62.5)
Sore throat	12 (25.0)	10 (25.0)	2 (25.0)
Coryza	10 (20.8)	8 (20.0)	2 (25.0)
Nausea/vomiting	8 (16.7)	6 (15.0)	2 (25.0)
Anorexia	3 (6.3)	3 (7.5)	0
Voice hoarseness	2 (4.2)	1 (2.5)	1 (12.5)
Abdominal pain	1 (2.1)	0	1 (12.5)
Outcomes			
Hospitalized	3 (6.3)	3 (7.5)	0
Intensive care unit admission	0	0	0
Death	0	0	0
Worked while symptomatic ^b	31 (64.6)	27 (67.5)	4 (50.0)
Days worked while symptomatic, median (range)	2 (1-10)	2 (1-10)	2.5 (1-5)
Days from symptom onset to resolution of all symptoms, median (range)	10 (1-21)	10 (1-21)	4 (3-18)

Abbreviation: SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

^a Fever is either measured as a temperature ≥ 100.0 °F (38 °C) or subjective fever.

^b Includes health care personnel who reported any of the following symptoms: cough, fever, myalgias, headache, chills, sore throat, coryza, shortness of breath, malaise, diarrhea, voice hoarseness, anorexia, nausea/vomiting, or abdominal pain.

Figure. Symptom Screening Combination for Health Care Personnel With Coronavirus Disease 2019 at Illness Onset (N = 48)



Methods | All laboratory-confirmed SARS-CoV-2 infections in HCP residing in King County, Washington, beginning February 28, 2020, the date the first confirmed case was recognized in a King County long-term care facility,³ through March 13, 2020, were included. HCP were tested after meeting their facilities' signs and symptoms criteria for testing, which varied. We conducted telephone interviews soliciting the following: demographics, chronic medical conditions (eg, obesity, hypertension, diabetes, and hepatic, cardiac, and pulmonary disease), nature of patient care, occupation and work location, symptom history, days worked while symptomatic, and clinical outcome. Symptoms at illness onset included all those reported for the calendar day during which the HCP first felt unwell. Data collection was conducted as part of a public health response and was deemed by the Centers for Disease Control and Prevention to be exempt from review by an institutional review board.

Results | Fifty of the HCP were identified through March 13, 2020; we interviewed 48. The median age was 43 years (range, 22-79 years); 37 (77.1%) were female. Most of the HCP (37 [77.1%]) performed direct patient care; the remainder included administrative assistants, environmental service workers, and maintenance workers. Twenty-three of the HCP (47.9%) had chronic medical conditions. The HCP worked in 22 health care settings including long-term care facilities (24 [50.0%]), outpatient clinics (13 [27.1%]), and acute care hospitals (6 [12.5%]). Three of the HCP concurrently worked at more than 1 health care facility.

The most common initial symptoms were cough (24 [50.0%]), fever (20 [41.7%]), and myalgias (17 [35.4%]) (Table). Eight of the HCP (16.7%) did not report fever, cough, shortness of breath, or sore throat at symptom onset; among this group, the most common symptoms were chills, myalgia, coryza, and malaise. One of the HCP did not have fever, cough, shortness of breath, or sore throat at any time during illness and only reported coryza and headache. For the other 7 HCP, the median time from illness onset to symptoms currently used to screen for COVID-19 was 2 days (range, 1-7 days). If myalgias and chills are included in screening criteria at illness

onset, case detection among HCP increased from 40 (83.3%) to 43 cases (89.6%) (Figure). Among those interviewed, 31 (64.6%) reported working a median of 2 days (range, 1-10 days) while exhibiting any symptoms.

Discussion | In this cohort, screening only for fever, cough, shortness of breath, or sore throat might have missed 17% of symptomatic HCP at the time of illness onset; expanding criteria for symptoms screening to include myalgias and chills may still have missed 10%. The data indicate that HCP worked for several days while symptomatic, when, according to a growing body of evidence, they may transmit SARS-CoV-2 to vulnerable patients and other HCP.¹ Interventions to prevent transmission from HCP include expanding symptoms-based screening criteria,² furloughing symptomatic HCP,² facilitating testing of symptomatic HCP,⁴ and creating sick leave policies that are nonpunitive, flexible, and consistent with public health guidance.⁵ Face mask use by all HCP for source control might prevent transmission from mildly symptomatic and asymptomatic HCP. This may be particularly important in long-term care facility settings and regions with widespread community transmission.^{5,6}

Limitations to this study included small sample size, short study time frame, variability in each facility's testing criteria for HCP, and limited testing availability at the time of this investigation. Because this study was centered on testing based on symptoms, those with atypical and absent symptoms may be underestimated.

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