no gastrointestinal or respiratory symptoms, including cough and sore throat, reported or observed by the physicians. Chest CT images on January 27 and 31 showed no significant abnormalities. Her C-reactive protein level and lymphocyte count were normal (Table). Results of RT-PCR testing were negative on January 26, positive on January 28, and negative on February 5 and 8.

Patients 2 through 6 developed COVID-19. Four were women, and ages ranged from 42 to 57 years. None of the patients had visited Wuhan or been in contact with any other people who had traveled to Wuhan (except patient 1).

Patients 2 through 5 developed fever and respiratory symptoms between January 23 and January 26 and were admitted to the hospital on the same day. All patients had RT-PCR test results positive for COVID-19 within 1 day. Patient 6 developed fever and sore throat on January 17 and went to the local clinic for treatment. There was no report of COVID-19 at the clinic. Her symptoms improved over the next few days but worsened on January 24, when she was admitted to the hospital and confirmed to have COVID-19 on January 26. Two patients developed severe pneumonia; the other infections were moderate.

All asymptomatic patients had multifocal ground-glass opacities on chest CT, and 1 also had subsegmental areas of consolidation and fibrosis. All the symptomatic patients had increased C-reactive protein levels and reduced lymphocyte counts (Table).

Discussion | A familial cluster of 5 patients with COVID-19 pneumonia in Anyang, China, had contact before their symptom onset with an asymptomatic family member who had traveled from the epidemic center of Wuhan. The sequence of events suggests that the coronavirus may have been transmitted by the asymptomatic carrier. The incubation period for patient 1 was 19 days, which is long but within the reported range of 0 to 24 days.4 Her first RT-PCR result was negative; false-negative results have been observed related to the quality of the kit, the collected sample, or performance of the test. RT-PCR has been widely deployed in diagnostic virology and has yielded few false-positive outcomes.5 Thus, her second RT-PCR result was unlikely to have been a false-positive and was used to define infection with the coronavirus that causes COVID-19.

One previous study reported an asymptomatic 10-year-old boy with COVID-19 infection, but he had abnormalities on chest CT.6 If the findings in this report of presumed transmission by an asymptomatic carrier are replicated, the prevention of COVID-19 infection would prove challenging. The mechanism by which asymptomatic carriers could acquire and transmit the coronavirus that causes COVID-19 requires further study.

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Published Online: February 21, 2020. doi:10.1001/jama.2020.2565

Author Contributions: Drs Yao and Wang had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis; Drs Bai, Yao, and Wei contributed equally to the work.

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Conflict of Interest Disclosures: None reported.

Additional Contributions: We thank Taiyuan Liu, MD, Rushi Chen, MD, and Wei Wei, MD (Henan Provincial People’s Hospital and the People’s Hospital of Zhengzhou University), for data analysis and literature research. None of these persons received any compensation for their contributions.

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Association Between Nocturnist Supervision and Perceived Overnight Supervision Adequacy Among Internal Medicine Residents in the US

Overnight supervision of internal medicine residents has traditionally been indirect1 and provided by a physician outside the hospital. During the past 15 years, the complexity and volume of overnight inpatient medical services have increased.2,3 This, coupled with data that increased resident supervision is associated with improved patient safety,4 has led many teaching hospitals to employ hospitalists in-house overnight (nocturnists).5

Little is known about the national landscape of resident overnight supervision, including how commonly internal medicine residency programs use nocturnists and how they affect residents’ supervision. We tested whether residents in programs with nocturnists perceived nighttime supervision differently than those in programs without nocturnists.

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The American College of Physicians Internal Medicine In-Training Examination (IM-ITE) includes a voluntary survey. The 2017 survey asked residents, “How often do you receive adequate supervision to ensure patient safety when you are working overnight?” using a 5-point Likert scale (responses of “always,” “most of the time,” “sometimes,” “rarely,” or “never”). Presence or absence of nocturnists was determined by a yes or no response to “Does your internal medicine residency program have an attending physician who stays in the hospital overnight and is responsible for directly supervising internal medicine residents providing care on medical wards?”

This analysis was confined to residents in US programs. Because patient safety is a minimum standard of supervision, we used Pearson $\chi^2$ or adjusted Wald $\chi^2$ statistics to compare the “always” response for receiving adequate supervision with all other responses in respondents with and without nocturnists, with an $\alpha$ level of $P \leq .05$. We also performed group-based hypothesis testing among all responses using the Pearson $\chi^2$ statistic. Because senior residents may supervise their juniors, we conducted analyses overall and stratified by postgraduate year using the adjusted Wald $\chi^2$ statistic and the Kendall $\tau_b$ correlation coefficient interacting presence or absence of nocturnist and postgraduate year with all responses and an $\alpha$ level of $P \leq .01$. The data analysis was conducted in Stata SE version 14.2 (StataCorp).

This study was declared exempt by the George Washington University institutional review board.

Of 24,620 internal medicine residents in US programs who completed the IM-ITE in 2017, 23,533 participated in the survey. After excluding 2,809 residents who did not allow their data to be used for research purposes, responses from 20,744 internal medicine residents (84% response rate) were analyzed (Table 1). Fifty-six percent were male and 86.1% were residents in categorical programs, with no differences between respondents with nocturnists and without nocturnists.

Overall, 51.4% of respondents reported that their supervision at night was “always” adequate to ensure patient safety. 31.9% responded “most of the time,” 10.6% responded “sometimes,” 4.4% responded “rarely,” and 1.7% responded “never” (Table 2). Fifty-three percent of residents reported having a nocturnist. Significantly more residents who reported having a nocturnist reported “always” receiving adequate supervision to ensure patient safety overnight compared with residents who reported not having a nocturnist (61.3% vs 40.5%, respectively; $P < .001$). The results for residents having a nocturnist vs not having a nocturnist were statistically significant when “always” vs all other responses were compared and when all response categories were compared. Results were similar by postgraduate year (Table 2).

Discussion | Fifty-one percent of internal medicine residents reported that their overnight supervision was always adequate to ensure patient safety. When nocturnists were present, more residents (61%) reported always receiving adequate supervision than when they were not (40%). However, a substantial percentage did not report always receiving adequate supervision despite having a nocturnist, possibly reflecting variability in nocturnist job descriptions across institutions. Some nocturnists provide care independently while being available for indirect supervision, whereas others primarily provide direct supervision.1,5

Strengths of this study include its large size, high response rate, and capture of a substantial majority of US internal medicine residents. Limitations include measurement of perception rather than objective data and cross-sectional survey design. Program characteristics (eg, university-based or community-based) were not collected and confounding due to program-level variability is possible. These data do not
Table 2. Perception of Adequacy of Supervision to Ensure Patient Safety Overnight

<table>
<thead>
<tr>
<th></th>
<th>How often do you receive adequate supervision to ensure patient safety when you are working overnight?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>All respondents*</td>
<td>20 744</td>
</tr>
<tr>
<td>With nocturnist</td>
<td>10 902</td>
</tr>
<tr>
<td>Without nocturnist</td>
<td>9842</td>
</tr>
<tr>
<td>PGY:3*</td>
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<tr>
<td>Without nocturnist</td>
<td>3457</td>
</tr>
<tr>
<td>PGY:2</td>
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</tr>
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</tr>
<tr>
<td>Without nocturnist</td>
<td>3610</td>
</tr>
<tr>
<td>PGY:1</td>
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</tr>
<tr>
<td>With nocturnist</td>
<td>4242</td>
</tr>
<tr>
<td>Without nocturnist</td>
<td>2775</td>
</tr>
</tbody>
</table>

*The Pearson $\chi^2$ or adjusted Wald $\chi^2$ bivariate test statistics were used to compare the group with nocturnists vs the group without nocturnists for a dichotomous comparison between the “always” response and the 4 other response options combined. The $\alpha$ level was .05; $P < .001$ for all group-based comparisons.

bTo ensure no confounding of the results based on postgraduate year (PGY) or the presence or absence of a nocturnist, all response options were tested for independence using the adjusted Wald $\chi^2$ test stratified by PGY level (the $\alpha$ level was .05; $P < .001$) and the Kendall $\tau_b$ correlation coefficient, $-0.0353$ (the $\alpha$ level was .01; $P < .001$).

account for other factors that may affect perceived supervision, including safety culture and other personnel.

Hospitals should assess adequacy of their nighttime supervision of residents to ensure patient safety. Best practices for roles of nocturnists merit further study.

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Accepted for Publication: January 22, 2020.

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Supervision: Chick.

Conflict of Interest Disclosures: None reported.

Additional Contributions: We thank the American College of Physicians for including our survey questions on the 2017 Internal Medicine In-Training Examination resident survey and sharing the data with us for analysis. We also thank the Alliance for Academic Medicine and the Association of Program Directors in Internal Medicine survey committee for its assistance with editing the survey questions.

Suicides Among Opioid Overdose Deaths

To the Editor Dr Olsson and colleagues’ examined trends in the rates of opioid-related mortality, stratified by intentionality. Concerns about whether a significant proportion of opioid overdose suicides have been misclassified, and therefore that the suicide component of the opioid epidemic is underestimated, cannot be answered with death certificate data.

The Centers for Disease Control and Prevention has been struggling with the difficulty of classifying suicides among overdose deaths for years.2 Several studies have estimated the proportion of misclassification in the National Violent Death Reporting System, using suicide notes or advanced statistical methods, and have generally agreed on a figure ranging between 21% and 33%.3-4 Therefore, it seems likely that a significant number of suicides is hidden within deaths from the opioid epidemic.

COMMENT & RESPONSE


