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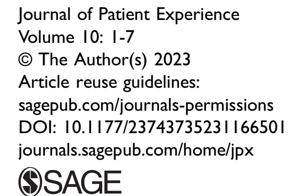

Changes in Patient Perceptions of the Provider Most Involved in Care During COVID-19 and Corresponding Effects on Patient Trust

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Abstract

During COVID-19 routine clinical operations were disrupted, including limits on the types of providers allowed to perform in-person care and frequency of times they could enter a patient's room. Whether these changes affected patients' trust in the care they received during hospitalization is unknown. Hospitalized patients on the general medicine service were called after discharge and asked to identify who (attending, resident, etc.) was most involved in their inpatient care, and how much trust they had in the physician caring for them. During the pandemic patients were more likely to report attending physicians (29% to 34%) and nurses (30% to 35%), and less likely to report residents/interns (8.1% to 6.5%) or medical students (1.7% to 1.4%) as most involved in their care (chi-squared test, $p = 0.04$). Patients reporting their attending physician as most involved in their care were more likely to report trusting their doctor (chi-squared test, $p < 0.01$). As such, trends in medical education that limit trainees' time in direct patient care may affect the development of clinical and interpersonal skills necessary to establish patient trust.

Keywords

patient trust, clinical education, patient-centered care

Introduction

An essential part of patients' overall trust in the healthcare system is the doctor-patient relationship and how much patients trust their doctor.[1–3] Patient trust in their doctor is associated with greater satisfaction with care received and improved patient outcomes.[4,5] A Gallup poll from December 2020 showed that patient perception of physician honesty, already high compared to almost all other professions, reached an all-time high during the pandemic with a 12 percentage point increase from 65% in 2019 to 77% in 2020.[6] While Gallup did not collect data describing the causes of increased honesty in physicians, the poll was taken during the height of the COVID-19 pandemic (summer 2020), suggesting that the increase was at least in part tied to physicians' role in the pandemic. For example, believing that physicians were placing patients' interest above their own despite personal risk in caring for patients with COVID-19 may have increased the public's perception of physician honesty.[7] However, the pandemic also uncovered long-standing inequities, such as disproportionate access to testing, optimal care, and outcomes, that have been contributing to declining trust in physicians and the healthcare system overall.[7–9]

One significant threat that the pandemic presented to the doctor-patient relationship and patients' trust in their physician was the disruption of routine clinical care. Routine inpatient care was disrupted by social distancing guidelines and limits on contact between providers and patients, resulting in changes in which healthcare providers went into patients' rooms as well as how often they went into patients' rooms. In teaching medical centers, resident-driven team-based care and rounding were disrupted due to lack of PPE, the need

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to cohort patients, and the need to implement medical distancing to protect clinicians and other patients from getting sick. Many teaching hospitals even reduced resident staffing during the pandemic, resulting in attending physicians taking greater roles in direct inpatient care.[10–12] Medical students were also temporarily removed from inpatient rotations as a result of guidance from the AAMC.[13] While these changes in routine care were necessary to limit the nosocomial spread of COVID-19, they may have led to significant changes in whom patients perceive as responsible for their hospital care, and as a result their trust in the physician taking care of them as well as the overall care they were receiving.

The aim of this study was to determine whether patients' perceptions of who was most involved in their hospital care has changed since the COVID-19 pandemic began, and whether any changes in whom patients perceived as most involved in their care are also associated with changes in patients' trust in their inpatient physicians.

Methods

Data for this study comes from an ongoing research infrastructure for studying hospital-based care at an academic medical center. Between July 2005 and June 2021, all adult general medicine inpatients were approached for consent to participate in this research database, which includes an inpatient in-person interview and a follow-up interview conducted by phone 30-days after hospital discharge. Patients were included in this analysis if they were admitted to one of the inpatient general medicine teaching services from 1/1/2019–7/27/2021 and completed the inpatient and follow-up interview. Before the pandemic, the inpatient general medicine teaching services were staffed by 1 attending, 1 resident, 2 interns, and 1 or 2 medical students. From March 2020 to August 2020 in-person patient bedside team rounding was suspended, and virtual team rounding over Zoom was encouraged. Entry into patient rooms was limited to individuals and tasks critical to patient care, and medical students were removed from this service structure. After August 2020, medical students returned and team rounding could occur as a group if it included four people or less. However, most resident teams rounded in workrooms with their attending after pre-rounding, followed by attendings seeing the patients alone or with the medical student.

Who Patients Perceive as Involved in Their Care and Their Trust in Their Physicians

During the 30-day follow-up interview patients were asked: "During your hospital stay, who was most involved in your care and treatment?" Response options included "Attending Physician," "Resident," "Intern," "Medical Student," "Nurse," "I don't know," "Other," and "Refused."[14]

During the 30-day follow-up interview patients were also asked: "During your hospital stay, did you have confidence and trust in the doctors treating you?" Responses included (1) Yes, always, (2) Yes, Sometimes, and (3) No.[15]

Pre-COVID-19 and COVID-19 Timeframe

Patients admitted from 1/1/2019 to 2/28/2020 were categorized as pre-COVID-19. Patients admitted from 3/1/2020 through 7/27/2021 were categorized as having been cared for during the COVID-19 pandemic. The date of 7/27/2021 was the final admission date of patients who were able to complete their follow-up interview and be included in this study by the time the data was curated for analysis in September of 2021. The length of the pre-COVID-19 time frame was limited to a little over one year prior to the start of the pandemic in order to maintain a comparable length of time to the data available during the COVID-19 time frame.

Patient Demographic and Clinical Data

Patient demographic and clinical data including age, gender, race, ethnicity, insurance status, length of stay, and Charlson Comorbidity Index (CCI) were obtained from the administrative database which includes data on all hospitalized patients at this academic institution. The CCI was included in the analysis to control for comorbid conditions.[16]

Data Analysis

Descriptive statistics were used to characterize patient demographics. Continuous variables were compared between patients in the pre-COVID-19 and COVID-19 timeframes using t-tests (normally distributed) and Mann-Whitney U tests (non-normal), while categorical variables were compared using chi-squared tests.

Chi-squared tests were used to compare patients' perceptions of who was involved in their care during the pre-COVID-19 and COVID-19 timeframe, patients' perceptions of who was involved in their care and their trust in their physician, and patients' trust in their physician during the pre-COVID-19 and COVID-19 timeframe.

An ordinal logistic regression model was specified to test the association between patients' trust in their physician and whom they perceived as most involved in their care. Patient's trust in their physician was the dependent variable (options included "Yes, always", "Yes, Sometimes", and "No"). The primary independent variables of interest were whom patients perceived as most involved in their care (options included "Attending Physician", "Resident", "Intern", "Medical Student", "Nurse", "I don't know", "Other", and "Refused") and whether they were admitted during the pre-COVID-19 or COVID-19 timeframe. All models controlled for patients' age, gender, race, ethnicity, insurance status, length of stay, and CCI.

COVID-19 patients admitted to the respiratory isolation unit (COVID-19 unit) were not included in this analysis since they were not on the general medicine teaching service. After the COVID-19 unit was decommissioned, COVID-19 positive patients who were cared for on the general medicine teaching service and completed the study questionnaire were eligible for this study ($n = 14$). All analyses were examined independently in these patients, but since the results were not different compared to the overall sample these 14 patients were included in our aggregate analysis and not reported separately.

All statistical analysis was performed using Stata statistical software STATA/MP 16.1 (StataCorp, College Station, TX) with statistical significance defined as $p < 0.05$.

Results

A total of 3,065 patients were admitted to an inpatient general medicine teaching service and consented from 1/1/2019 to 7/27/2021. Of these, 2,058 patients (61%) completed both the inpatient and follow-up interview and were included in this study. The mean patient age was 60 years old, 1,155 (56%) were female, 1,511 (73%) were African American, and 420 (20%) were White Table 1. Patients admitted during the COVID-19 timeframe were slightly younger (57 vs 60 years old, $p < 0.01$), more likely to have private insurance (25% vs 21%, $p < 0.01$), and more likely to have a longer hospital length of stay ($p < 0.01$) than patients admitted during the pre-COVID-19 timeframe. There were no differences in the CCI between patients admitted either during the pre-COVID-19 or COVID-19 timeframe ($p = 0.97$) Table 1.

Table 1. Demographic Characteristics of Patient Responders.

	Pre-COVID (1/1/19–2/28/20)	COVID (3/1/20–7/27/21)	*p*-value*
Total *n*	1626	432	
Age, mean ± SD	60.0 ± 17.5	56.6 ± 17.5	<0.01
Female, *n* (%)	908 (56)	247 (57)	0.62
Race, *n* (%)			0.18
White	334 (21)	86 (20)	
Black or African American	1201 (74)	310 (72)	
Other	61 (4)	22 (5)	
Unknown/ refused	30 (2)	14 (3)	
Ethnicity, *n* (%)			0.78
Hispanic or Latino	127 (5)	28 (5)	
Not Hispanic or Latino	2450 (95)	508 (95)	
Insurance, *n* (%)			<0.01
Private	342 (21)	113 (25)	
Medicare	812 (50)	185 (43)	
Medicaid	441 (27)	131 (30)	
Other	31 (2)	3 (1)	
Length of stay (days), *n* (%)			<0.01
1	227 (14)	35 (8)	
2–3	302 (19)	66 (15)	
3–5	433 (27)	136 (31)	
5–7	244 (15)	65 (15)	
≥7	419 (26)	130 (30)	
Charlson Comorbidity Index, *n* (%)			0.97
0	494 (30)	127 (29)	
1–2	684 (42)	187 (43)	
3–4	299 (18)	79 (18)	
5+	148 (9)	39 (9)	

*T-test for continuous variables, Chi-square test for categorical variables. Patient demographic and clinical data obtained from the University of Chicago Medical Center (UCMC) administrative data mart which includes data on all hospitalized patients at UCMC.

Provider Most Involved in Care Before and After COVID-19

When comparing patient perceptions of who was most involved in their care, there were statistically significant differences between patients in the pre-COVID-19 and COVID-19 groups. Patients reported an increase in attending physicians (29% to 34%) and nurses (30% to 35%) as most involved in their care from pre-COVID-19 to COVID-19, and decreases in resident/intern (8.1% to 6.5%), medical student (1.7% to 1.4%), "other" (17% to 13%) or "don't know" (14% to 11%) as most involved in their care ($p = 0.04$) Figure 1.

Patient Trust in Their Physician Before and After COVID

Among patients who were admitted pre-COVID-19, 83% "always trust" their doctor, 13% "sometimes trust" their doctor, and 4% have "no trust" in their doctor. Among those admitted in the COVID-19 timeframe, 80% "always trust" their doctor, 17% "sometimes trust" their doctor, and 4% have "no trust" in their doctor. These differences were not statistically significant ($p = 0.09$).

Provider Most Involved in Care and Patient Trust in Their Physician

There were statistically significant differences in whom patients perceived as most involved in their care and their level of trust in their physician. Of the patients who selected the attending physician as most involved in their care, 85% reported that they "always trust" their physician, whereas patients who selected the resident/intern, medical student, or nurse as most involved in their care were relatively less likely to "always trust" their physician (resident/intern, 71%; medical student, 68%; nurse, 79%, $P < 0.01$). Of patients who reported they did not know who was most involved in their care, 78% answered that they "always trust" their physician. Patients who reported "other" as most involved in their care had the highest trust of all, with

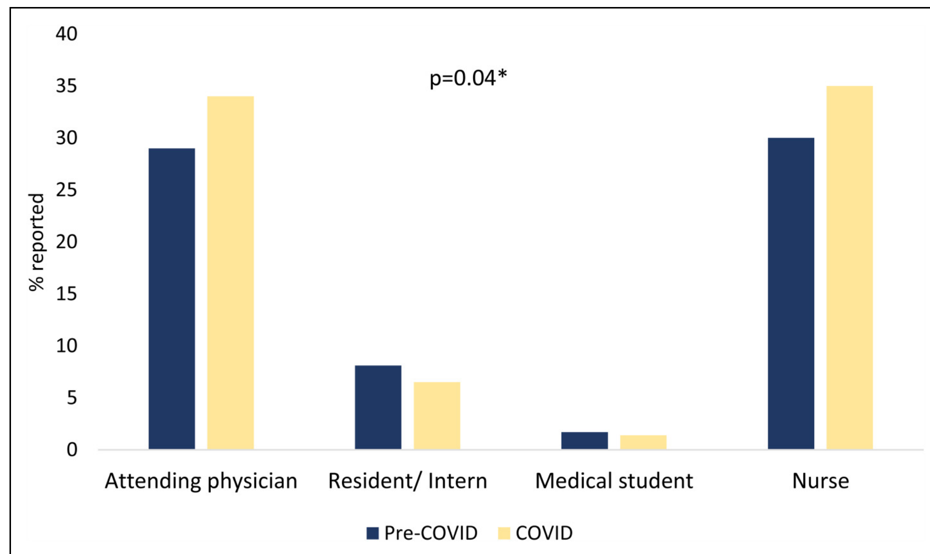

Figure 1. Patient-reported clinician most involved in care. More patients report attending physicians and nurses as most involved in their care after the onset of COVID. Less report residents/interns and medical students as most involved in their care. **Chi-square test.*

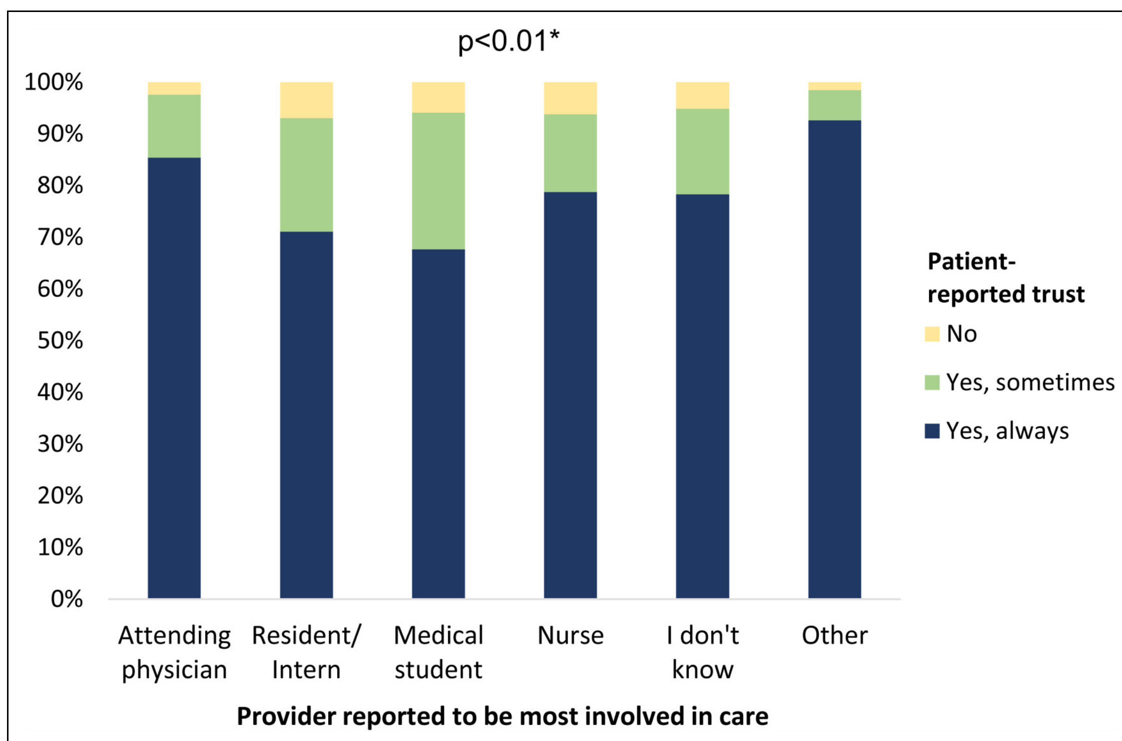

Figure 2. Patient trust and reported primary hospital caregiver. Patients who indicated attending physicians as most involved in their care were most likely to "always trust" their doctor. **Chi-square test.*

93% reporting they "always trust" their physician ($p < 0.01$) Figure 2.

Association Between Provider Most Involved in Care and Patient Trust in Their Physician

In the regression model, patients were less likely to trust their doctor if providers other than the attending physician were most involved in their care. Compared to patients reporting the attending physician as most involved in their care, patients reporting the resident (OR = 0.42, $p < 0.01$), medical student (OR = 0.39, $p = 0.02$), nurse (OR = 0.66, $p < 0.01$), or "I don't know" (OR = 0.58, $p < 0.01$) as most involved in their care were all less likely to "always trust" than either "sometimes trust" or have "no trust" in their physician. Interestingly, patients reporting "other" (OR = 2.21,

$p < 0.01$) as most involved in their care were more likely to "always trust" than either "sometimes trust" or have "no trust" in their physician Figure 3. Although patients admitted during the COVID-19 timeframe had reduced odds of "always trust" in their physician compared to "sometimes trust" or "no trust," this effect was not statistically significant (OR = 0.83, $p = 0.20$). Odds ratio for all variables in the model are reported in Supplemental Table 1.

Discussion

Disruptions in routine clinical care during COVID-19 were associated with changes in whom patients identified as most responsible for their inpatient care, and whom patients identified as most responsible for their care was associated with their level of trust in their doctor. Attending physicians and nurses saw increases in patients reporting them as most involved in their care after COVID-19-related hospital changes, while the number of patients reporting residents/interns and medical students as most involved in their care decreased. These changes are not surprising given the concern for the nosocomial spread of COVID-19, resulting in many hospitals limiting in-person team rounding along with the number of people and overall visits into patient rooms.[10–12] As a result, clinicians were likely only entering patient rooms out of necessity during the first few months of the pandemic. Because attending physicians have overall responsibility for patient care and their physical presence is required for inpatient billing, attending physicians are the most likely to be entering patient rooms daily.[12] Similarly, the increase in patients reporting nurses as most involved in their care can be attributed to nurses being critical and very proximal to direct care processes.[17] It is unclear why in our data the "Other" category was associated with the highest odds of trust, but this may be the result of imprecise estimates in this group since only a small percentage of patients chose this response, and the confidence interval around the estimated odds are wide. Another possibility to explain this finding is that these patients could be those cared for on a co-managed service, in which they would have a longstanding relationship with another attending physician also caring for them in addition to their primary care provider on the general medicine teaching service.

The association between the provider perceived as most involved in care and patients' trust in the provider taking care of them is not surprising. Feelings of uncertainty and fear during hospitalization are normal, and these feelings were likely exacerbated by and greater after the onset of the COVID-19 pandemic.[18] Medical students and residents who would typically spend the most time with patients establishing a strong doctor-patient relationship were no longer able to do so and instead had very limited patient interactions.[19] Attending physicians have the most experience both clinically and in identifying patients' psychosocial needs.[20] This experience likely aided in easing patients' fears during hospitalization, and coupled with an increase in time spent in direct patient care relative to other clinicians, would understandably translate into greater levels of patient trust.

These findings have significant implications for trainees, including residents and medical students. While previous studies have demonstrated an increase in attending physician involvement in direct patient care over time relative to other clinicians,[14,15] our study suggests that this trend accelerated during COVID-19. This shift in responsibility for care may be reducing opportunities trainees have to develop skills for establishing patient trust. Learning in medical school and residency happens experientially, and fewer patient interactions or direct care opportunities for trainees may affect more than just clinical skills and knowledge. It can also impact the development of interpersonal skills and emotional intelligence necessary for productive and trusting doctor-patient relationships. This is important not just for medical trainees, but for the good and safety of patients as well.[4,5] A trusting patient-clinician relationship creates opportunities to provide health education and address medical misinformation, especially in populations with low health literacy or that lack access to education.[21–23] The COVID-19 pandemic has made clear that trust is essential in patients' willingness to seek and accept appropriate medical care. Additionally, lack of trust is a barrier to healthcare use and hence to optimal health.[24] It is therefore especially important to consider how to improve trust among populations that are historically underrepresented in research studies and underserved in medicine. Teaching medical institutions must consider these effects on patient trust and experiential learning when making changes to inpatient teaching structures.

There are several limitations to this study. As a single-institution study, the results may not be generalizable. Our study population largely identified as African American, providing important data from a group often underrepresented in research, but as a result the findings may not be generalizable to populations with different distributions of races and social/environmental contexts that can influence the perception of physician trust.[26] The study design may also result in recall bias, where patients' perceptions differ from who actually cared for them. Furthermore, study recruitment during the pandemic was initially done virtually, increasing the difficulty of recruiting patients and limiting the sample size. Moreover, the admission date used to demarcate the pre-COVID-19 and COVID-19 timeframes is not absolute, as operational changes and recognition of the significance of the pandemic varied during the early days of the pandemic. Lastly, patients' trust in their physician may be affected by variables not captured as part of this study.

Conclusion

Patients' overall trust in inpatient physicians remained high despite large changes in hospital team operations during the pandemic.[8] During the pandemic, there was a significant shift toward attending physicians being recognized by

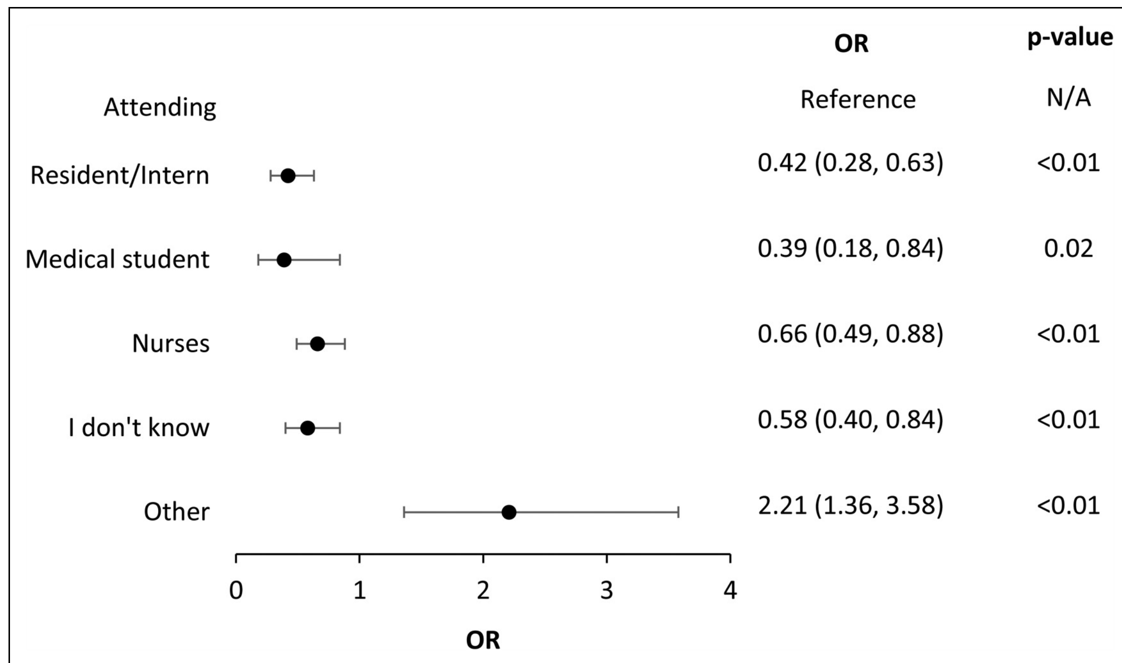

Figure 3. Association between patient's trust in their physician and who cared for them (n = 1853). Model is an ordinal logistic regression controlling for age, gender, race, insurance status, length of stay, Charlson Comorbidity Index, and COVID timeframe. The dependent variable is patient-reported trust in their physician, which is a three-level variable: 1) Yes, Always, 2) Yes, Sometimes, 3) No. The primary independent variable of interest was whom patients perceived as most involved in their care: 1) Attending Physician, 2) Resident/ Intern, 3) Medical Student, 4) Nurse, 5) I don't know, and 6) Other. The odds ratios are for a patient choosing "Yes, Always" for trust, versus choosing the combined categories of "Yes, Sometimes" and "No", given that all of the other variables in the model are held constant. The odds for other independent variables were not statistically significant but are reported in Supplemental Table 1. Compared to those who reported attending physicians as most involved in their care, patients reporting residents/interns, medical students, and nurses had significant reductions in their level of trust in their inpatient clinician. Model controls for age, gender, race, insurance status, length of stay, Charlson Comorbidity Index, and COVID timeframe.

patients as most involved in their care and fewer trainees recognized. This finding has ramifications for medical education and trainees, given the importance of direct patient care to learning. With the direct association between physician presence and patient trust, it is crucial that medical trainees have sufficient visibility with patients and involvement in patient care. Future work should focus on understanding how to improve patient trust in medical trainees as well as how to ensure medical trainee visibility with patients during and after the pandemic while maintaining safe practices.

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Ethics Statements

1. Ethical approval to report this case was obtained from IRB16-1131.
2. All procedures in this study were conducted in accordance with the IRB16-1131 approved protocols.
3. Written informed consent was obtained from the patient(s) for their anonymized information to be published in this article.

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Supplemental Material

Supplemental material for this article is available online.

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