

# Medical Students' Perspectives on Opportunities to Engage in the Clinical Care of COVID-19 Patients during the Pandemic

Sarah E. Stumbar, MD, MPH<sup>1</sup>; Nana Aisha Garba, MD, PhD<sup>1</sup>; Suzanne Minor, MD<sup>1</sup>; Rebecca Toonkel, MD<sup>2</sup>; Rodolfo Bonnin, PhD<sup>3</sup>; and Vivian Obeso, MD<sup>2</sup>

**Objectives:** Recent disease modeling suggests that pandemics are likely to increase in frequency and severity. As such, medical educators must learn from their experiences with coronavirus disease 2019 (COVID-19) to develop systematic strategies for ensuring that medical students receive hands-on training in the management of emerging diseases. Here, we outline the process by which the Florida International University Herbert Wertheim College of Medicine developed and updated guidelines for student participation in the care of patients with COVID-19 and report on students' experiences.

**Methods:** During the 2020–2021 academic year, Florida International University Herbert Wertheim College of Medicine students were not permitted to care for patients with COVID-19; however, academic year 2021–2022 guidelines did permit fourth-year students on subinternships or Emergency Medicine rotations to voluntarily care for patients with COVID-19. At the end of the 2021–2022 academic year, students completed an anonymous survey about their experience caring for patients with COVID-19. Likert-type and multiple-choice questions were analyzed using descriptive statistics and the short-answer responses were analyzed qualitatively.

**Results:** One hundred two students (84%) responded to the survey. Sixty-four percent of respondents opted to provide care for patients with COVID-19. Most students (63%) cared for patients with COVID-19 during their required Emergency Medicine Selective. Twenty-eight percent of students wished they had more COVID-19 patient care opportunities, and 29% did not feel prepared to care for patients with COVID-19 on their first day of residency.

**Conclusions:** Many graduating students felt unprepared to care for patients with COVID-19 during residency and many wished they had had more opportunities to care for patients with COVID-19 during medical school. Curricular policies must evolve to allow students to gain competency in the care of patients with COVID-19 so that they are prepared for day one of residency.

**Key Words:** clinical education, COVID-19, personal protective equipment, undergraduate medical education

Epidemiologic and disease modeling research suggests that global pandemics such as coronavirus disease 2019 (COVID-19) are likely to increase in both frequency and severity.<sup>1</sup> As such, medical educators should reflect on lessons learned during the COVID-19 pandemic to develop strategies to ensure not only that medical students are able to continue their clinical education during future pandemics but also that they receive appropriate training in the management of emerging diseases so that they are prepared to care for these patients on the first day of residency. Here, we present the process by which our institution developed and progressively modified guidelines governing the involvement of medical students in the care of patients with COVID-19 and data on students' experiences.

In March 2020, as the COVID-19 pandemic began in the United States, the Association of American Medical Colleges (AAMC) initially recommended that medical students not participate in direct in-person patient contact because of concerns about their safety and a lack of personal protective equipment

From the <sup>1</sup>Department of Humanities, Health, and Society, the, <sup>2</sup>Department of Translational Medicine, and the <sup>3</sup>Office of Medical Education, Herbert Wertheim College of Medicine, Florida International University, Miami.

Correspondence to Dr Sarah E. Stumbar, Herbert Wertheim College of Medicine, Florida International University, 1200 SW 8th St, AHC2-485, Miami, FL 33199. E-mail: sstumbar@fiu.edu. To purchase a single copy of this article, visit [sma.org/smj](http://sma.org/smj). To purchase larger reprint quantities, please contact [reprintsolutions@wolterskluwer.com](mailto:reprintsolutions@wolterskluwer.com).

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The authors did not report any financial relationships or conflicts of interest.

Accepted December 11, 2022.

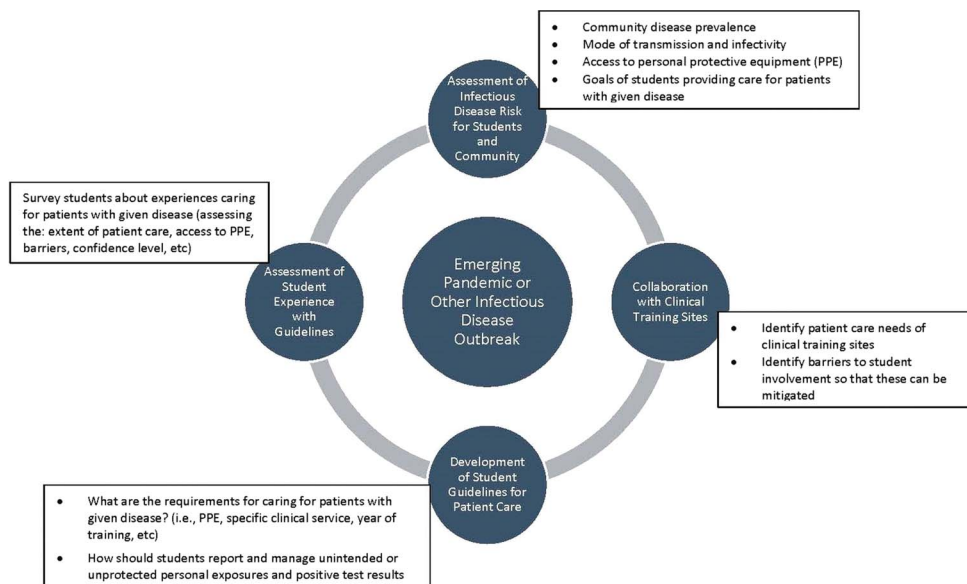
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DOI: 10.14423/SMJ.0000000000001557

## Key Points

- Our institution has gradually increased medical students' involvement in the care of coronavirus disease 2019 (COVID-19) patients.
- Most surveyed fourth-year students opted to care for patients with COVID-19 when given the opportunity.
- Twenty-nine percent of students reported not feeling prepared to examine COVID-19 patients.
- Curricular policies must prepare students to care for COVID-19 patients on day 1 of residency.



**Fig.** Process for developing guidelines for students' clinical care during emerging pandemics or other infectious disease outbreaks. PPE, personal protective equipment.

(PPE).<sup>2,3</sup> These recommendations led to major changes in the delivery of medical education, with particularly marked effects on clinical rotations. At the Florida International University Herbert Wertheim College of Medicine (FIU HWCOC), which has a distributed, community-based clinical education model, in-person rotations were suspended from March 2020 until their gradual resumption in July 2020.

As the pandemic rapidly evolved, the AAMC recommendation was updated in August 2020 and stated that medical students participating in direct patient care should be able to do so in an environment that mitigates the risk of COVID-19 transmission in the community, to patients, and to themselves.<sup>4</sup> For the 2020–2021 academic year, because of continued concerns about access to PPE, the lack of a vaccine or effective treatments, and the policies of our clinical affiliates, FIU HWCOC did not permit students to see patients with known or suspected COVID-19.

At the start of the 2021–2022 academic year, FIU HWCOC sought to update its COVID-19 patient care guidelines. At that time, it had become clear that COVID-19 was transitioning toward endemicity in our communities. In addition, faculty believed strongly that our students would need to be able to care for patients with COVID-19 on the first day of residency. Hence, for the 2021–2022 academic year, the FIU HWCOC guidelines were updated to allow fourth-year students on subinternships and Emergency Medicine rotations to voluntarily care for patients with COVID-19, assuming adequate PPE and supportive clinical affiliate policies. The general approach to updating the FIU HWCOC COVID-19 clinical care guidelines is summarized in the Figure. In addition, Table 1 presents the application of these guidelines during the previous 2 years.

In an effort to further update our policies for the 2022–2023 academic year and because data on student experiences caring for

patients with COVID-19 were limited, we surveyed the graduating FIU HWCOC class of 2022 students regarding their care for patients with COVID-19.<sup>5,6</sup>

## Methods

We developed and administered an anonymous, computer-based Qualtrics (Provo, UT) survey consisting of multiple-choice, Likert-type, and short-answer questions about their experiences during the 2021–2022 academic year. The survey questions (Supplemental Digital Content Appendix, <http://links.lww.com/SMJ/A328>) were developed by FIU HWCOC's seven clerkship directors, with feedback from curriculum administration and a critical review by the director of assessment, who leads medical student and curricular assessments for the college. The survey, along with three subsequent reminders, was e-mailed to all of the students in the class of 2022 via their class listserv in February 2022.

Data from Likert-type and multiple-choice questions were analyzed using descriptive statistics. Two independent coders identified themes in the short-answer questions and quantified the frequency of themes for each question through an iterative process. The project was determined as nonhuman subjects research by the FIU Health Sciences Review Board.

## Results

Of 118 students, 102 students (86%) responded to the survey. Table 2 shows that the majority (64%) of students reported that they opted to provide direct care to patients with COVID-19 during their rotations, 24% declined to participate in care, and 13% indicated that they were never offered the opportunity. Table 2 also shows the identified themes related to students' reasons for declining to provide care to patients with COVID-19.

**Table 1. Application of process for developing guidelines for students' clinical care during emerging pandemics or other infectious disease outbreaks, adapted to the COVID-19 pandemic**

### 1. Assessment of infectious disease risk for students and community

- March 2020: Transmission/infectivity largely unknown, incidence increasing, very limited access to PPE, unclear whether COVID-19 will be a long-term disease threat
- July 2020: Transmission/infectivity better understood, incidence increasing, improving PPE access, unclear whether COVID-19 will be a long-term disease threat
- May 2021: Incidence stable, consistent PPE access, students need COVID-19 clinical training
- May 2022: Incidence stable, consistent PPE access, students need COVID-19 clinical training

### 2. Collaboration with clinical training sites

- March 2020: Health systems overwhelmed and unable to accommodate students
- July 2020: Health systems overwhelmed but able to slowly reintegrate students, PPE access is a limitation
- May 2021: Health systems stabilized and expanding clinical rotations, many want students to care for patients with COVID-19
- May 2022: Health systems stabilized and expanding clinical rotations, most want students to care for patients with COVID-19

### 3. Development of student guidelines for patient care

- March 2020: Students not permitted to participate in direct patient care activities of any type
- July 2020: Students permitted in the clinical setting, advised to avoid providing care to patients with known or suspected COVID-19
- May 2021: 4th-year students on subinternships and Emergency Medicine rotations permitted to voluntarily provide direct care to COVID-19 patients, 3rd-year students not permitted to provide care to patients with COVID-19
- May 2022: All 3rd- and 4th-year students permitted to provide direct care to patients with COVID-19

### 4. Assessment of student experience with guidelines

- March 2020: Students in virtual coursework, no direct patient contact
- July 2020: Students return to clinical setting with limited patient care opportunities because of prevalence of COVID-19
- May 2021: 4th-year students have not had the opportunity to provide care to patients with COVID-19 before both graduation and residency
- May 2022: Survey shows most 4th-year students opted to care for patients with COVID-19, but still lack skills and confidence regarding COVID-19 clinical care

*COVID-19, coronavirus disease 2019; PPE, personal protective equipment.*

A majority (63%) of students who provided care to COVID-19 patients did so during the required 4-week Emergency Medicine Selective, 37% did so during "other electives," 26% did so during the Internal Medicine subinternship, and 14% did so during the General Surgery subinternship. Few students cared for patients with COVID-19 on other subinternships (Table 3). Twenty-eight percent of students indicated that they would have liked to have been offered more opportunities to care for patients with COVID-19, 49% were neutral, and 22% did not desire additional opportunities (Table 4).

Seventy-seven students (79%) did not have concerns regarding access to PPE, whereas 20 students (21%) did. Short-answer questions revealed common themes related to these concerns; 12

students had difficulty accessing PPE at their clinical sites, four reported issues with poorly fitting PPE, two had concerns about poor quality of PPE, and two were uncomfortable reusing PPE while caring for patients with COVID-19.

Fifty-three percent of students reported feeling prepared to care for patients with COVID-19 on their first day of residency, 19% were neutral, and 29% did not feel prepared (Table 4).

## Discussion

Although most of our fourth-year students were offered the opportunity to provide care to patients with COVID-19, 13% were not. Students who were not offered the opportunity may have rotated at affiliates not permitting students to provide care to patients with COVID-19 or may have had individual preceptors who did not feel comfortable allowing them to do so. This demonstrates the importance of working with clinical affiliates and individual preceptors to ensure alignment between our educational objectives and how clinical teaching faculty perceive and implement them.

Thirty-six percent of responding students did not care for patients with COVID-19 during medical school, thereby suggesting that interns may need increased training and direct supervision when managing COVID-19 at the start of residency. Students who opted not to provide care to patients with COVID-19 primarily did not feel comfortable doing so because of concerns related to infection risk and its potential implication for their completion of graduation requirements. This heightened level of concern is supported by other studies.<sup>7,8</sup> Although our curriculum included

**Table 2. Fourth-year medical students' involvement in care of patients with COVID-19**

	Count	%
<b>Response</b>		
Was offered opportunities to care for patients with COVID-19 and accepted	65	63.7
Was offered opportunities to care for patients with COVID-19 but declined	24	23.5
Was not offered any opportunities to care for patients with COVID-19	13	12.8
Total	102	100
<b>Students' reasons for declining the offer to care for patients with COVID-19</b>		
Afraid of contracting COVID-19	7	35
Afraid of contracting COVID-19 and being ultimately unable to complete rotations in time for graduation	5	25
Live with high-risk family members who have comorbidities and do not want to get them sick	5	25
Do not feel adequately prepared to care for patients with COVID-19	1	5
In first trimester of pregnancy	1	5
Did not feel it is part of a typical 4th-year curriculum	1	5
Total	20	100

*COVID-19, coronavirus disease 2019.*

**Table 3. Rotations during which 4th-year medical students provided direct care to patients with COVID-19**

On which of the following 4th-year rotations did you provide care to patients with COVID-19?	Count <sup>a</sup>	%
General Surgery subinternship	9	14
Internal Medicine subinternship	17	26
Obstetrics-Gynecology subinternship	3	5
Family Medicine subinternship	2	3
Pediatric Medicine subinternship	4	6
Emergency Medicine Selective	41	63
Other elective	21	32

COVID-19, coronavirus disease 2019.

<sup>a</sup>N = 65; students could select more than 1 answer.

multiple virtual course options, many of which were “front loaded” during the pandemic, students may not have fully understood their role in facilitating on-time graduation. Given the limited postvaccination data at the time, students also may have been concerned that COVID-19 may still cause serious illness despite vaccination.

Although N95 masks were made available directly from the medical school to students caring for patients with COVID-19, some students may have been concerned about the availability of properly fitted masks at clinical sites. In developing clinical care guidelines for medical students during emerging disease outbreaks, collaborating with clinical affiliates to identify available resources and how academic institutions may be able to supplement them is vital.

Of the students who cared for patients with COVID-19, most did so on their Emergency Medicine Selective. Given the high burden of disease in the emergency department, this is not surprising. Many students also provided care to patients with COVID-19 on elective rotations, which was not permitted by our school’s 2021–2022 academic year policy. Students may have chosen not to follow the policy or they may have seen patients who were initially COVID-19<sup>-</sup> or pending results but later tested positive. This highlights challenges in enforcing policies that attempt to limit students’ direct exposure to patients with COVID-19 and supports training all students in universal infection control precautions and donning and doffing PPE. This also suggests that additional training regarding the proper use of PPE is likely needed at the start of residency training.

Twenty-nine percent of students did not feel prepared to examine patients with COVID-19 on their first day of residency. This may correspond to the 28% of students who wished they had been given more opportunities to care for patients with COVID-19 during medical school and suggests a need for evolving curricular policies that support students in obtaining the clinical experiences needed to feel comfortable providing care for patients with COVID-19.

One important limitation of our evaluation is that we did not assess medical knowledge related to COVID-19 or the quality of the clinical experiences provided. The impact of COVID-19 vaccination

status and previous personal COVID-19 infection on the decision to care for patients with COVID-19 also would have been valuable to examine. The collection of demographic information also may have enabled a more complex understanding of factors affecting the decision to provide care for patients with COVID-19. In addition, we were unable to establish why 13% of the students were not provided opportunities to care for patients with COVID-19. Finally, because of the evolving nature of the pandemic and the need to make quick decisions, we were not able to validate our survey instrument; as emerging diseases become more frequent, future iterations of this project may include validating a survey instrument to assess student experiences.

As a new infectious disease transitions to endemic status, PPE becomes widely available, and vaccination is widespread, ongoing assessments of student risk must occur, and policies should be updated to assume students’ care of patients with the given disease. As such, and with the results of this study in mind, our 2022–2023 COVID-19 clinical care guidelines were updated to allow both third- and fourth-year students to care for patients with COVID-19 on any rotation, assuming supportive clinical affiliate policies and access to PPE. Caring for this patient population is no longer voluntary and students are encouraged to talk to the Office of Medical Education about any concerns. It is our hope that this change in our COVID-19 clinical care guidelines will mean that students are more prepared to care for this patient population after graduation, on the first day of residency.

In summary, we described the process by which our institution increased the clinical involvement of medical students caring for patients with COVID-19, based on available resources, evolution of the pandemic, needs of the community and clinical sites, and reported student experiences. As our familiarity with new infectious agents evolves, so must our strategies and comfort level with providing students with direct patient care opportunities so that they are best prepared to provide care to all patients.

**Table 4. Fourth-year medical students’ perceptions of their opportunities and preparation to participate in the care of patients with COVID-19**

	Count	%
I wish I had been provided more opportunities to participate in the care of patients with COVID-19 during medical school		
Strongly agree or agree	28	29
Neither agree nor disagree	48	49
Strongly disagree or disagree	21	22
Total	97	100
I feel prepared to care for patients with COVID-19 on the first day of residency		
Strongly agree or agree	49	52
Neither agree nor disagree	18	19
Strongly disagree or disagree	27	29
Total	94	100

COVID-19, coronavirus disease 2019.

## Acknowledgments

We acknowledge, with appreciation, the flexibility and fortitude with which the Florida International University Herbert Wertheim College of Medicine class of 2022 students faced the disruptions and changes to their clinical rotations that were caused by the COVID-19 pandemic and the faculty who oversaw their training.

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