The COVID-19 Student WorkForce at the Icahn School of Medicine at Mount Sinai: A Model for Rapid Response in Emergency Preparedness

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Abstract

Problem
In accordance with guidelines from the Association of American Medical Colleges, medical schools across the United States suspended clerkships and transitioned preclinical courses online in March 2020 because of the COVID-19 pandemic. Hospitals and health systems faced significant burdens during this time, particularly in New York City.

Approach
Third- and fourth-year medical students at the Icahn School of Medicine at Mount Sinai formed the COVID-19 Student WorkForce to connect students to essential roles in the Mount Sinai Hospital System and support physicians, staff members, researchers, and hospital operations. With the administration’s support, the WorkForce grew to include over 530 medical and graduate students. A methodology was developed for clinical students to receive elective credit for these volunteer activities.

Outcomes
From March 15, 2020, to June 14, 2020, student volunteers recorded 29,602 hours (2,277 hours per week) in 7 different task forces, which operated at 7 different hospitals throughout the health system. Volunteers included students from all years of medical school as well as PhD, master’s, and nursing students. The autonomous structure of the COVID-19 Student WorkForce was unique and contributed to its ability to quickly mobilize students to necessary tasks. The group leaders collaborated with other medical schools in the New York City area, sharing best practices and resources and consulting on a variety of topics.

Next Steps
Going forward, the COVID-19 Student WorkForce will continue to collaborate with student leaders of other institutions and prevent volunteer burnout; transition select initiatives into structured, precepted student roles for clinical education; and maintain a state of readiness in the event of a second surge of COVID-19 infections in the New York City area.

Problem
The first case of COVID-19 in New York state was recorded on March 1, 2020, in Manhattan. Subsequently, cases rapidly multiplied throughout New York City as hospitalizations and intensive care unit admissions rose, placing an unprecedented burden on the city’s health system. On March 15, 2020, clerkships and clinical rotations were canceled through the end of the academic year at the Icahn School of Medicine at Mount Sinai (ISMMS). The next day, the COVID-19 Student WorkForce was formed to support physicians, staff members, researchers, and hospital operations in the Mount Sinai Hospital System (MSHS). The following day, the Association of American Medical Colleges recommended that institutions suspend medical student participation in activities involving direct patient contact and suggested they adopt “innovative approaches” to create novel solutions and foster student engagement.

With combined support from the administrations at MSHS and ISMMS, the COVID-19 Student WorkForce quickly grew to include over 530 medical and graduate students. With New York City as the epicenter of the COVID-19 pandemic in the United States at the time, the goals of our group were to fill unmet needs while supporting students’ education. Here, we detail the conception, structure, and mobilization of the COVID-19 Student WorkForce at ISMMS.

Approach
The ISMMS Student Council Emergency Preparedness Committee was officially created in 2007 after students had mobilized as a labor force in the MSHS during previous emergency events, including the September 11 terrorist attacks in 2001 and the 2003 New York City blackout. The initial COVID-19 pandemic leadership group was formed by third- and fourth-year medical student representatives from this committee (R.R.B. and B.A.) as well as third- and fourth-year current and former representatives from the student council (J.R.B., Z.H.–R., A.Z.A., S.P.), with support from deans in the ISMMS Department of Medical Education (M.S.W., D.M.). Because of strong preexisting relationships between the Department of Medical Education and the Graduate School of Biomedical Sciences at ISMMS, our group quickly incorporated master’s-level and PhD-level graduate students into the team, allowing for seamless interdisciplinary cooperation. Later, bachelor of science in nursing candidates joined as well.

The group was designed to be autonomous and to encourage independence and leadership among students. The WorkForce encompasses 7 separate task forces: pharmacy, administrative services, hospital operations, labs/research, personal

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First published online December 1, 2020
doi: 10.1097/ACM.0000000000003863
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Supplemental digital content for this article is available at http://links.lww.com/ACADMED/B50.
Innovation Report

We created a system where departments throughout the MSHS could submit requests for help with urgent tasks. Task requests are submitted through an online Formstack (Formstack, Fishers, Indiana) form, screened to ensure they meet infection prevention and student safety standards, and approved by a faculty member from the Department of Medical Education (M.S.W.). Approved requests are then sent to the triage leaders (J.R.B. and Z.H.-R.) who direct tasks to the appropriate task force. Task requests include details of the project, descriptions of the work, and the estimated number of volunteers needed. A specific section in the request form asks if the work can be performed remotely so that students who have left the city could still be involved. Tasks are then uploaded onto a Google (Google, Mountain View, California) spreadsheet where student volunteers are able to sign up for roles that suit their availability and skill set. Before onboarding students and connecting them to the primary hospital system contact, task force leaders communicate with that contact to thoroughly understand each position and prepare students for the task. One student volunteer on each task is designated as the task-specific point person (TSPP).

The TSPP is responsible for coordinating the work of other student volunteers on a given task, maintaining shift schedules, organizing day-to-day logistics, and communicating issues to the task force leader. The role of the TSPP was designed to be flexible and dynamic, and rosters, roles, and responsibilities are adjusted as tasks evolve. For example, if a specific task needs more volunteers, the TSPP can request that additional volunteer slots be added to the sign-up spreadsheet. Conversely, if there is a surplus of volunteers, TSPPs are able to communicate this to triage leaders to redistribute volunteer slots.

The support and guidance of the ISMMS administration are crucial to the functioning of our WorkForce. Specifically, we collaborated with the director of student electives to design a COVID-19 Student Emergency Preparedness elective with learning objectives. For students in clinical years, participation in the WorkForce earns them elective credit based on the number of hours volunteered, with 40 hours of volunteering being equivalent to 1 week of elective credit. As preclinical students do not receive elective credit, we encourage them to volunteer by ensuring that they will receive commendations on their Medical Student Performance Evaluation. Graduate students (PhD candidates and master’s students) can receive recognition for service on their transcripts, and a similar accolade is currently being introduced for nursing students.

In addition to providing academic recognition, the Department of Medical Education provides significant logistical support to in-person volunteers, including transportation and meal reimbursements. Almost all other logistics are managed internally by the WorkForce. Our team communicates primarily with each other and the task force leaders through the GroupMe mobile application (Microsoft Corporation, Redmond, Washington). The WorkForce communicates with the student body through a weekly email newsletter, which features individual student accomplishments, highlights new tasks, and provides other logistical updates. In addition, we created a task force website (https://covid19mssm.carrd.co/#) along with pages on social media sites Twitter,

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**Figure 1** Organizational structure of the COVID-19 Student WorkForce at the Icahn School of Medicine at Mount Sinai, March–June 2020. Task force leaders communicate with a task-specific point person (not listed) for each task under their task force. Abbreviations: MSH, Mount Sinai Hospital; MedEd, Department of Medical Education; PPE, personal protective equipment; H+H, New York City Health + Hospitals.
Table 1
Aims of the Task Forces† Within the COVID-19 Student WorkForce, Icahn School of Medicine at Mount Sinai, March-June 2020

<table>
<thead>
<tr>
<th>Task force name</th>
<th>Task force aims</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal protective equipment (PPE)</td>
<td>To contribute to the supply and distribution of PPE throughout the health system, to coordinate PPE-specific community donations, to run mask-fit testing for the health system</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>To assist in the pharmacy with sorting and labeling medications and in distributing medications to hospital wards</td>
</tr>
<tr>
<td>Administrative services</td>
<td>To assist with administrative services throughout the health system</td>
</tr>
<tr>
<td>Hospital operations</td>
<td>To contribute to essential hospital functions and processes</td>
</tr>
<tr>
<td>Lab/Research</td>
<td>To assist in research efforts related to COVID-19</td>
</tr>
<tr>
<td>Telehealth</td>
<td>To connect with patients remotely (e.g., informing patients of test results and their meaning, staffing hotlines, virtual rounding with inpatient teams)</td>
</tr>
<tr>
<td>Morale</td>
<td>To promote morale and wellness among the student body and staff throughout the MSHS</td>
</tr>
</tbody>
</table>

Abbreviation: MSHS, Mount Sinai Hospital System.

†Task force participants included students from all years of medical school, graduate school (master’s and PhD candidates), and nursing school.

Outcomes

After clerkships were suspended at ISMMS, the WorkForce quickly mobilized, sending students to their first tasks 4 days later on March 19. As of June 14, 2020, students in the COVID-19 Student WorkForce had volunteered 29,602 hours in the 7 different task forces (see Supplemental Digital Appendix 2 at http://links.lww.com/ACADMED/B50), averaging 2,277 hours per week with 721 volunteer positions filled in the first 2 months of the program (see Supplemental Digital Appendix 3 at http://links.lww.com/ACADMED/B50). While the majority of volunteers are third-year medical students (see Supplemental Digital Appendix 4 at http://links.lww.com/ACADMED/B50), our interdisciplinary approach includes collaboration with graduate students as well as students at the Phillips School of Nursing at Mount Sinai Beth Israel. As COVID-19 cases rapidly increased across MSHS, so too did the number and variety of WorkForce tasks. Students contributed to tasks at 7 MSHS hospitals. Time was crucial, as the expansion of our group coincided with the pandemic’s surge across the health system. Within the first week, student volunteers dedicated 947 hours (see Figure 2) in preparation for a steep rise in COVID-19 cases. Students have been inserted into a wide range of roles, including managing drug supplies in pharmacies, fielding calls from patients in command centers, using biodesign to engineer new ventilator approaches, and aiding burgeoning COVID-19 research efforts (see Table 1). At one affiliate site, a significant backlog of patients awaiting their COVID-19 test results required over 50 students to assist with delivering those results, which was organized in just a few days.

From an organizational perspective, we developed internal checklists for dealing with task-specific attrition, infection prevention, and mistreatment. These guidelines frame our work within the context of safety and quality improvement. The volunteer weekly submission Google form provides a space for student volunteers to reflect. This opportunity for introspection helps lower the chances of volunteer burnout by highlighting the individual’s influence at a time when many are feeling powerless. One student wrote, “Hearing how thankful patients are for our work and counseling is [rewarding]. Being remote and away from medical school, I’ve realized how much I miss patient care [and this] work is always a nice and refreshing point of my day.”

Outside of MSHS, we are collaborating with student volunteer groups at other medical institutions in New York City and with an affiliate hospital in the NYC Health + Hospitals public system. Our independent group structure allows individual WorkForce leaders to become experts in their tasks and share lived experiences with others. Information sharing helps us understand the overarching situation within New York City and react quickly to be a vital part of a coherent and cohesive response.

Next Steps

As the COVID-19 pandemic progresses in New York City, our WorkForce is one model for effective and nimble emergency preparedness. Operating with an autonomous task force allows us to rapidly increase and redirect student volunteers to the most crucial areas on short notice. Having significant freedom in our daily operations with support from the ISMMS administration is key to our success and growth. Our extensive volunteer base now includes medical students, graduate students, and nursing students, and the WorkForce itself
serves as a platform for interdisciplinary education and near-peer learning.

For first- and second-year medical student volunteers, these are often their first clinical experiences. For all students, volunteering in an organized workforce has built a sense of confidence and feeling of contributing to something greater, which can be both "strategic and therapeutic" to avoid burnout. Participants noted that they have become more reflective, compassionate, and resilient future clinicians (see Supplemental Digital Appendix 1 at http://links.lww.com/ACADMED/B50). Keeping in line with the Association of American Medical Colleges’ recommendation that “medical students not be involved in any direct patient care activities” at the beginning of the COVID-19 outbreak, we have still been able to contribute to patient care and hospital efforts by completing these volunteer activities.

The WorkForce has also contributed to innovations in the medical school, both internally and externally. Students have been virtually incorporated into inpatient teams, have served as virtual scribes, and assisted in reporting test results to patients. These tasks can be integrated into the medical school curriculum in the future. In particular, tasks related to telemedicine can easily be included in core clerkships as adjunct learning experiences, with current volunteer roles providing tangible examples for virtual clinical learning and patient care. In addition, the WorkForce provides a unique platform for students to speak out against health care inequities related to COVID-19 and advocate for the wider New York City community. So far, students have broadened access to care for vulnerable populations by helping patients sign up for MyChart—an online platform that allows patients to communicate with health care providers—and have increased access to personal protective equipment through noncontact deliveries to local residents.

Going forward, we will continue to monitor the needs of the health care system and the broader New York City area throughout the COVID-19 pandemic. While tracking the capacity and needs of the health system remains important, maintaining WorkForce morale and preventing burnout amongst the participants must not be forgotten. The relationships we have formed with our peers at other institutions will allow us to continue to collaborate and share information. As New York City approaches a postsurge reality, we remain vigilant, knowing the situation is ever-evolving. We will also integrate our WorkForce lessons learned into the design and organization of future institutional-wide emergency-preparedness strategies.

This pandemic has highlighted inequalities pervasive in our society, and members of the WorkForce will continue to advocate ways to address these inequalities. Emergency preparedness is dynamic, and lessons we have gained from this experience will continue to build on our capabilities. During this process, we have all been humbled by the dedication and fortitude of our friends and colleagues within the WorkForce. As we advance in our careers, we carry forward the lessons we have learned and an expanded sense of commitment to our patients and society at large. We are confident these lessons will help us continue contributing to the work of frontline providers and lessening the effect of this global pandemic in any way we can.

Acknowledgments: The authors wish to acknowledge and express their gratitude for the combined efforts of the task force leaders: Annie Arrighi-Allison, Frankie Burney, Alexandra Capellini, Ella Cohen, Katie Donovan, Michael Fernando, Chris Ferrer, Phillip Groden, Sidra Ibadi, Shayna LaSala, Harinee Maiyuran, Maddie O’Brien, Chris Park, Stephen Russell, Cindy Saenz, Sahiyasri Thapi, and Amy Woroch; all COVID-19 Student WorkForce volunteers; and Tara Cunningham, EdD, MS, in the Icahn School of Medicine at Mount Sinai Department of Medical Education. All have been colleagues, leaders, friends, and support systems during this time, and the authors want to express their deepest thanks for all their work and contributions.

Funding/Support: None reported.

Other disclosures: None reported.

Ethical approval: Reported as not applicable.

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The patient—feeling woozy—lay awake but with his eyes closed. As the minutes passed, he opened his eyes and strained his neck against the weight of anesthesia to look toward his hand.

“Anyone speak Spanish in here?” the surgeon asked.

The patient became animated and spoke quickly. “No cortar,” he said, meaning, “not cut.” I reassured him, “Sí, no necesitamos cortar. Lo estamos limpiando.” (Yes, we did not need to cut. We are cleaning it.) The surgeon finished and the patient was moved to a recovery room.

I was there to shadow—to see—and indeed, I saw. The physical contrast of the light fingers dancing around the dark, as well as the fault lines where the machine had met his hand, made me think harder and feel more than before about a topic we are taught in medical school—socioeconomic factors. Innocent, light fingers were healing innocent, dark fingers, but socioeconomic factors helped place these fingers in these giving and receiving positions.

Did he choose to be a construction worker? Was it his dream to become one? Perhaps this man, shackled by a language barrier, a lack of higher education, and the hardships of immigration, found that construction work was the most reasonable line of work for him. But in this work, he was constantly exposed to hazards. And unluckily, an occupational mistake almost cost him 3 fingers.

The patient did not have insurance. What went through his head when he bled? Was it, “I don’t have insurance, where do I go? I have no money, so how do I pay? How will I work? How will I feed my family?” What were his questions? What order? What priority?

Imagining myself in his shoes made me feel compassion. But that was not enough. I was wondering when I should have been directly asking him questions to uncover the truth. We have lived different lives; how would I know what questions, in what order and importance, went through his head?

The yearning I felt to interpret meaning in Spanish also highlighted to me how inequalities in care are widened by language barriers. A language barrier translates to a greater risk of misunderstanding and inferior care explanations.

Meditating on the hands, I realized how important it is to ask personal questions regarding patients’ experiences to understand their illnesses, as well as the significance of fluency in their languages. The construction worker might never know how much he taught the medical student who observed his case. As I move forward with my education, patients will surely continue to teach and inspire me.

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References


In Their Shoes

In a blue and white room,
Light fingers unwind
A white cast unveling
Dark, dead skin.

A tanned, stocky, middle-aged Hispanic man lay flat on the operating table in front of me. Last week he had 3 fingers cut off by a machine at his construction job, but the surgeon was able to sew them back onto his hand. This week he went through his head when he bled? What priority?

Usually humble about my Spanish but confident about my next words, I said, “Su dedo anular tiene circulación. Está vivo.” (Your ring finger has circulation. It is alive.)

As the surgeon peeled back the charred and crusty layers of dead skin, he was surprised to see red within. The finger was alive! There would be no need to amputate; they would only clean and cast it.

Light by little,
Layer by layer,
They peeled off death
From flesh and finger.

Afterward, the patient—feeling woozy—lay awake but with his eyes closed. As the minutes passed, he opened his eyes and strained his neck against the weight of anesthesia to look toward his hand.

“Anyone speak Spanish in here?” the surgeon asked.


In a blue and white room,
Light fingers unwind
A white cast unveiling
Dark, dead skin.

Above the cast, the split tomb,
Light fingers dance around
Dark fingers, revealing
Red fingers within.

In Their Shoes

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Teaching and Learning Moments

In Their Shoes

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A white cast unveling
Dark, dead skin.

Above the cast, the split tomb,
Light fingers dance around
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