OBJECTIVES: The number of hospitalized coronavirus disease 2019 patients in March 2020 to April 2020 in our New York City hospital required increased physician staffing, including deployment of pediatricians to adult care. To improve the deployment process, we sought to understand the mindset, preparations for, and experience during deployment of pediatric faculty in our institution.

METHODS: Faculty members of the Department of Pediatrics completed pre- and postsurveys evaluating perspectives, fears, and preparations relevant to deployment. Demographic characteristics of the faculty members were collected. Survey questions included Likert scale, multiple choice, and free-text responses. Descriptive statistics, Fisher’s exact test, and χ² test were used to compare groups. Free-text responses were categorized by topic. Survey responses were shared with leadership in real time and adjustments to the deployment process made.

RESULTS: The predeployment survey was sent to 202 pediatric faculty members, with a 29% (n = 59) completion rate. Of the 36 deployed faculty, 29 (81%) completed all items of the postsurvey. The majority (74%, n = 42) expressed discomfort with care of adults and fear and/or nervousness about deployment (61%, n = 35). Most faculty (88%, n = 52) prepared for deployment and cited local guidelines and published literature as helpful preparation materials (55%, n = 16). Dissemination of details about schedules and role clarification before deployment were areas for improvement.

CONCLUSIONS: Pediatric faculty facing deployment to adult care have concerns about the process of deployment as well as the work itself. Specific information distributed in advance, along with consistent and frequent communication, may help mitigate these fears.
In March 2020, our health system prepared for a surge of hospitalized patients infected with a novel coronavirus (severe acute respiratory syndrome coronavirus 2). Units and spaces were repurposed as coronavirus disease 2019 (COVID-19) ICUs and wards. Pediatric emergency department visits plummeted, elective procedures were canceled, pediatric inpatient census decreased, and outpatient clinics converted to telemedicine visits aside from critical visits; clinics were combined to share resources. Hospital leadership asked the Department of Pediatrics to deploy faculty, whose usual roles were temporarily reduced or eliminated, to attend on adult COVID-19 units, staff adult ICUs, adopt remote work related to COVID-19. Faculty were asked to complete an institutional questionnaire about their skill set and were informed that deployments would begin within 1 to 2 weeks.

We recognized that deployment was a unique challenge for pediatric physicians and that an opportunity existed for iterative improvement of the deployment process. Concerned about fears expressed by colleagues in a faculty meeting, we sought to survey faculty to understand their mindset, preparations for deployment, and experience of deployment. To ensure leaders understood the experience of being on the front line, we planned to analyze and share data in real time. We hoped we would identify areas in which programs or interventions could be rapidly developed and launched to address needs identified in the survey. The length of time for which deployment would be needed was unknown. We planned to use the information gleaned in the surveys for ongoing improvement of the pediatric deployment process.

**METHODS**

**Setting**

Our institution is a 60-bed children’s hospital within an 1140-bed adult hospital. The Department of Pediatrics contains 202 physicians; surgical specialties, emergency medicine, and neurology are in separate departments. Many faculty members are researchers and nonclinical. Deployment logistics and unit assignments were organized by the Department of Medicine and Institute of Critical Care Medicine, and faculty were assigned on the basis of lists provided from primary departments.

Upcoming deployment was announced at a Pediatric Department meeting March 25, and division chiefs were tasked with submitting lists of faculty within days. Methods of constructing these lists and informing faculty of their status on the list varied by chief. Deployment of pediatric faculty began the first week of April. Deployment dates, times, and locations were distributed from the Department of Medicine and Institute of Critical Care Medicine via e-mail, along with links to electronic materials to assist in preparation.

Deployments were staggered, with e-mails sent approximately every 4 to 5 days to successive waves of deployed faculty.

**Instrument Development**

Rapid movement from possible to actual deployment raised concerns about preparation and about individuals’ emotional states. We quickly developed a survey to address these areas, in hopes of understanding current state and developing ideas for improvement over successive waves of deployment. We received permission from the department to distribute to faculty, with the understanding that deidentified survey results would be shared with leadership to permit improved faculty support and preparation.

A 16-question predeployment survey and a 22-item postsurvey were developed and programmed in SurveyMonkey (Supplemental Figures 2 and 3). Questions were used to target areas that are difficult to speak about (fear, anxiety, lack of confidence) and areas in which the authors suspected there might be room for rapid cycle improvement (preparation materials and/or techniques). No preexisting survey was used. Notes taken during faculty meetings, informal discussions with pediatric faculty at risk for deployment, and conversations within the authorship group guided question construction.

Both surveys asked demographic questions. Because of concerns that individuals would fear identification despite survey anonymity, questions on age, sex, and race were omitted. We hypothesized that fears around deployment might relate to past training in care of adults, type of pre–COVID-19 practice setting, status as a parent, and living situation, so we asked questions in these areas. Free-text questions could be skipped by the respondent, if desired. Respondents rated their comfort caring for adults on a Likert scale (very comfortable, somewhat comfortable, neither comfortable nor uncomfortable, somewhat uncomfortable, very uncomfortable), and fear or nervousness about adult care on a separate Likert scale (extremely, moderately, somewhat, a little bit, not at all). Respondents chose fears from a list, which included lack of knowledge of general adult medicine, patients dying, working with unfamiliar people, getting sick, bringing illness home, not having people to ask for help, running out of personal protective equipment (PPE), lack of knowledge about COVID-19, lack of control of the schedule, death, malpractice and/or being sued, working outside of specialty, and other. The presurvey asked respondents about how they were preparing for deployment, and the postsurvey asked what preparation was done and helpful. The postsurvey contained additional questions about deployment notification, location, schedule, and invited feedback about what went well with the deployment process and areas for improvement.

Given the short timeline (4 days) between the survey creation and distribution, formal interviews and focus groups were not conducted. We piloted the questionnaire with 4 physicians before distribution and then edited questions for clarity and modified question order on the basis of feedback.
Survey Distribution

The presurvey was disseminated via e-mail on April 6, 2020, to 202 pediatric faculty. The survey was anonymous and was not linked to an e-mail address or other identifiers; it was closed 1 week later. The postsurvey was distributed via e-mail on April 13, by using blind carbon copy, to a list of deployed pediatric faculty obtained from pediatric departmental administration. Three e-mails were sent during the deployment period as the list of deployed physicians grew. At the end of the deployment process on May 8, 2020, a final reminder e-mail was sent to all department faculty. The survey was closed May 18 (Fig 1). The initial question of the postdeployment survey screened for deployment; if the respondent had not been deployed, they exited the survey. For both surveys, the emailed link could be used once from a device. There was no incentive for participation.

Analysis

Respondent demographic characteristics were reported as frequencies and proportions for the predeployment and postdeployment cohorts. Physicians were categorized as “inpatient” or “outpatient” if they worked exclusively in those settings pre–COVID-19 and “mixed” if they worked in both settings. We compared demographic characteristics between physician groups in the predeployment cohort and the postdeployment cohort using a $\chi^2$ test or Fisher’s exact test, as appropriate. We compared types of fear between respondents on the basis of living situation and physician groups using a $\chi^2$ test or Fisher’s exact test, as appropriate, in the predeployment cohort. Two team members reviewed free-text responses and categorized topics independently; identified topics for each question were reviewed and discussed, and categories refined, until agreement was reached. Topics were not mutually exclusive, and some complex responses addressed >1 topic. Topics were reported by using frequencies and proportions as well as illustrative quotations.

Implementation and Quality Improvement

Within 4 days of the presurvey’s release, preliminary data were shared with leadership of the Departments of Pediatrics and Medicine, as well as with the Dean for Well-Being and Resilience for the School of Medicine. Modifications were made to onboarding materials and timing and nature of deployment notifications and assignments, a twice-weekly support group for deployed pediatric faculty began, and survey results were shared with pediatric faculty in a meeting (Fig 1). This project was approved as quality improvement by the Pediatric Performance Committee of our institution.

RESULTS

General

Of the 202 faculty who received the presurvey link, 59 (29%) responded. At the time of completion, 21 (36%) had been notified of imminent deployment. Thirty-four (94%) of the 36 deployed physicians initiated the postsurvey, and 29 (81%) completed it. Tables 1 and 2 include demographic characteristics for those who completed the pre- and postsurvey.

Presurvey

There were no significant differences between inpatient, outpatient, or mixed physicians in terms of relationship status, adult training experience, or parent status; however, inpatient providers were more likely to live alone ($P = .01$, Table 1). Sixty-one percent ($n = 35$) of respondents described themselves as either “extremely” (23%, $n = 13$) or “moderately afraid or nervous” (39%, $n = 22$) about being called to adult care. Seventy-four percent ($n = 42$) of respondents reported feeling either “very” or “somewhat” uncomfortable with care of adults (Table 3). The most common responses to the question “I am fearful of/ nervous about” were lack of medical knowledge to care for adults, bringing illness home, and personal illness or death.
Respondents who lived with other people were more likely to fear bringing the illness home compared with those who lived alone (78%, n = 40 vs 0%, P < .001).

For all other fears, there was no association found with living situation. Outpatient providers were more likely to be worried about inadequate medical knowledge (P = .02), whereas inpatient providers were more likely to worry about bringing illness home (P = .02).

There was no association found with provider type and other fears. Forty-seven respondents answered the free-text item “My biggest fear is…” Common themes were personal illness or death (36%, n = 17), family illness or death or death (36%, n = 17), family illness or death.

Living situations and training experiences (for those who answered yes) are not mutually exclusive; —, not applicable.

a Not all respondents answered questions about type of practice permitting categorization.

b Comparison of inpatient, mixed, and outpatient.

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a Not all respondents answered questions about type of practice permitting categorization.

b Comparison of inpatient, mixed, and outpatient.
Preparation strategies in advance of deployment included reading literature (54%, n = 32) or institutional guidelines (50%, n = 30) about COVID-19, talking with providers on COVID-19 units (17%, n = 10), reviewing cardiopulmonary resuscitation and life support (17%, n = 10), or online training modules (12%, n = 8). Seven (12%) individuals stated they had done nothing to prepare, citing lack of knowledge about how to prepare, uncertainty about being deployed, lack of time, and fear.

Thirty-one of the 59 respondents answered the prompt, “One thing my leaders could do today to make me feel more prepared for deployment is . . .” Identified topics included:

### TABLE 3 Pediatrician Comfort with Adult Care and Specific Fears about Deployment

<table>
<thead>
<tr>
<th>Baseline comfort with adult care</th>
<th>Predeployment, n (%)</th>
<th>Postdeployment, n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very uncomfortable</td>
<td>20% (35)</td>
<td>5 (17)</td>
</tr>
<tr>
<td>Somewhat uncomfortable</td>
<td>22% (38)</td>
<td>17 (59)</td>
</tr>
<tr>
<td>Neither comfortable nor</td>
<td>10% (17)</td>
<td>3 (10)</td>
</tr>
<tr>
<td>Somewhat comfortable</td>
<td>4% (7)</td>
<td>4 (14)</td>
</tr>
<tr>
<td>Very comfortable</td>
<td>1% (2)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

I am fearful of or nervous about the following:

- Not knowing enough general adult medicine
- Bringing illness home to my family
- Working outside my specialty
- Getting sick myself
- Running out of PPE
- Death, my own
- Patients dying
- Not having control of my schedule
- Not knowing enough about COVID-19
- Not having people to ask for help
- Working with unfamiliar people
- Malpractice or being sued

**TABLE 4** Frequency of Topics Identified from Free-Text Question “My biggest fear is . . .”

<table>
<thead>
<tr>
<th>Topic</th>
<th>Predeployment, n (%), n = 47</th>
<th>Postdeployment, n (%), n = 20</th>
<th>Illustrative Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal illness or death</td>
<td>17 (36)</td>
<td>5 (25)</td>
<td>Respondent A: my own death. Respondent B: not being able to care for my kids if I get sick or die.</td>
</tr>
<tr>
<td>Family illness or death</td>
<td>16 (34)</td>
<td>6 (30)</td>
<td>Respondent C: bringing COVID-19 to my family. Respondent D: Killing my husband with health issues, which put him at high risk.</td>
</tr>
<tr>
<td>Other family concern</td>
<td>5 (11)</td>
<td>3 (15)</td>
<td>Respondent E: that my kids will get too used to me not living at home.</td>
</tr>
<tr>
<td>Medical knowledge</td>
<td>16 (34)</td>
<td>5 (25)</td>
<td>Respondent F: not knowing how to manage adults’ underlying medical conditions.</td>
</tr>
<tr>
<td>Patient harm</td>
<td>10 (21)</td>
<td>6 (30)</td>
<td>Respondent G: harming a patient because I am practicing out of my area of training and expertise.</td>
</tr>
<tr>
<td>Inadequacy</td>
<td>9 (19)</td>
<td>6 (30)</td>
<td>Respondent H: not being able to handle it.</td>
</tr>
</tbody>
</table>
were definition of roles and duties (29%, n = 9), provision of details about the work schedule (23%, n = 7), and medical resources and preparation materials (16%, n = 5).

**Postsurvey**

Thirty-six of the department’s 202 faculty (18%) were deployed; 34 (94%) completed all or part of the postsurvey. The majority (88%, n = 30) had no training in adult medicine beyond medical school (Table 2). Of the 29 respondents who provided information about deployment location, 90% (n = 26) were deployed to direct patient care roles, with 45% (n = 13) sent to medical floors, 31% (n = 9) to ICUs, and 14% (n = 4) assigned alternate patient-facing roles (eg, inpatient pediatrics, palliative care). Of inpatient physician respondents, 64% (n = 7) served in ICUs and 27% (n = 3) served on medical floors. Only 1 mixed physician was deployed to an ICU, whereas 4 (67%) went to medical floors. No outpatient physicians were deployed to ICU care; 3 (43%) served on medical floors. Outpatient physicians were most likely to be deployed in alternate roles (P = .02). Those deployed from ICUs had a median of 6 days (range: 2–40) between notification and actual deployment, whereas those deployed from medical floors had a median of 3 days (range: 1–11).

Twenty-nine people provided information about fears and preparations. After deployment, 66% (n = 19) felt that they were less afraid or nervous of working in adult care, with similar fears to those reported in the presurvey; however, more respondents in the postsurvey reported fear of working with unfamiliar people (Table 3). The most valuable deployment preparation strategies reported were reviewing local documents (55%, n = 16), reading general literature (55%, n = 16) about COVID-19, shadowing (38%, n = 11), and talking with providers working on COVID-19 units (34%, n = 10). The most common themes of the 13 responses to the free-text question, “The one thing I wish I had been told beforehand is . . .” were role definition (38%, n = 5) and instructions for preparation (38%, n = 5). The question, “One thing that went well was . . .” yielded a theme of interdisciplinary teamwork (59% of 22 respondents, n = 13); 1 respondent commented, “The unit worked in collaboration,” and another stated, “It . . . was inspiring. I hope the cross-silo experience and interaction serves as a model for the future.” Scheduling, continuity of patients and teams, role definition, structure of the deployment process, and communication were commonly identified areas of improvement. Respondents desired a “better understanding” of the plan and felt that “knowing the specific details” about the deployment would have helped. One simply wrote, “Communication was poor.”

**DISCUSSION**

At our institution, pediatricians changed their practice to care for hospitalized adults with COVID-19. Unlike other institutions, our faculty did not “surge in place” but deployed into existing adult units. Most deployed physicians spent some or all of their time in an inpatient setting and had little or no previous adult training. Faculty were fearful and nervous about deployment both before and after experiencing it; concrete steps in preparation, communication, and support can be taken to assist pediatricians in caring for adults during a pandemic. Concern about practicing outside one’s expertise drives increased anxiety in health care professionals, and our data reflected this. Extreme discomfort was lower postdeployment; we surmise that deployed faculty were more comfortable with adult care after actual exposure. Institutions with more pediatric faculty with adult training and experience may foster this in to match deployment needs. Understanding competency concerns and addressing them explicitly is important for leaders contemplating an interdisciplinary approach of mixed adult and pediatric teams as the one our institution employed.

The fears of personal illness and death we observed are similar to data reported from Toronto during the severe acute respiratory syndrome outbreak, in which 65% of surveyed hospital employees reported concern about their personal health, and have been reported in pediatric emergency department workers during this pandemic as well as internal medicine hospitalists. Associations between fearing illness or death of family members and living with others have been previously described and have been prevalent in other health care workers during the COVID-19 pandemic. Fears about inadequate PPE both before and after deployment could relate to our extended use and reuse protocols; early messaging about a reliable PPE supply might mitigate this fear. It is possible that PPE concerns contributed to fears of personal illness and death as well as infection of others; little change in fears after deployment could relate to the infectiousness of the virus and the high mortality rate seen in hospitals at the time. Leadership recognition of these fears is important and may help deployed individuals feel supported.

Deployment in our institution was rapid, with little advance notice for many, and multiple respondents reflected that communication and preparation needed improvement. Confusion about roles and scheduling and fears of working with unfamiliar people highlight the importance of consistency in scheduling and team assignments and of frequent communication about logistics. Information about COVID-19–specific institutional practices was seen as helpful and useful; other institutions have described buddy systems and “just in time” adult medicine training modules that merit consideration, as does sharing of resources, such as the 1-page documents on common adult medicine topics developed by the Pediatric Overflow Planning Contingency Response Network. Frontline COVID-19 health care workers are at risk for emotional distress, including symptoms of depression and anxiety, and our data raise concern about this in our faculty. Our health system had resources available for staff and faculty...
during the COVID-19 pandemic, including child care, hotlines, virtual support groups, and mindfulness classes, other institutions have provided similar services in recognition that creating multiple ways to support staff in stressful times is important and contributes to greater resilience. It is unclear the extent to which survey responses may have differed had these resources not been available. Positive descriptions of camaraderie experienced by those deployed indicate the value of creating a culture of teamwork with an “all hands on deck” mentality. Merely doing and sharing the survey results may have created connection between department members at a time when faculty were dispersed, social distancing, and often living apart from their families. Institutions pondering a deployment model akin to ours should plan to provide opportunities for connection for those who are “sent out” of their work location and community.

**Future Steps**

In our institution, recognition of the key role of communication led to a structured plan of regular departmental and hospital meetings and announcements. Partnering with deployment sites to understand details about schedules and workflows, identifying areas of medical knowledge requiring training, and disseminating information to faculty predeployment is essential. This should be done as far in advance of a second deployment as feasible to aid in avoiding ambiguity about roles and responsibilities. Doing so may reduce stress, anxiety, and risk of emotional trauma in those who are deployed. In addition to publicizing and encouraging use of hospital wellness resources, we plan to institute a departmental support group at announcement of a future deployment, rather than waiting until after deployment has begun. Avenues for individuals to process their experiences, manage stress, and explore their feelings can build resilience at an organizational level.

**Limitations**

This was a single-institution study, and the experiences of our faculty may not resemble those of other institutions or of nonpediatric faculty. To maintain anonymity within our department, detailed demographic information was not collected, limiting our ability to detect associations related to sex, race, ethnicity, or age. The presurvey response rate of 29% was low, which we attribute to use of a faculty listserv that contained many individuals who may have felt themselves unlikely to be deployed (eg, nonclinical researchers) and a 7-day time frame in which the survey was open. Thus, the predeployment survey results may not reflect the views of the entire faculty. The postdeployment response rate was 81%, but sample size was small. Individual responses to the pre- and postsurveys were not linked, limiting our ability to make direct comparisons. The timeline for survey development and launch was short, and we were not able to engage in robust pilot testing, focus groups, and other typical survey development processes that might have further improved the survey tools.

**CONCLUSIONS**

Pediatric faculty facing deployment to adult care have fears and concerns about the process of deployment as well as the work itself. Detailed information distributed in advance along with consistent and frequent communication and acknowledgment of the emotional strain of the work may help mitigate these fears. However, many fears stem from the discomfort of working outside of one’s expertise and may not be modifiable. The lessons learned from the data gathered during this intense professional and personal experience can inform future deployment models.

**Acknowledgment**

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**REFERENCES**


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