Novel Graduate Medical Education in the Era of a Novel Virus

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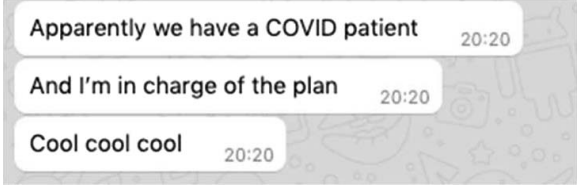
We are the current Stanford internal medicine chief residents. As the largest internal medicine training site in Santa Clara County, California, we encountered the novel coronavirus (COVID-19) earlier than many of our peer institutions, and we would like to share our candid reflections on the experience, chief-to-chief messages and all.

In February 2020, we were naively approaching the last quarter of our chief resident year, looking forward to a triumphant final lap with recruitment season and scores of morning reports behind us. By March, however, we could no longer ignore the whisperings of a novel virus on the other side of the world. These soon amplified into an unmistakable crescendo in the form of a page from a night float resident to our chief residents' account: "Hey, what's the plan for the COVID positive patient?"

Plan? There was no plan. Our initial reaction comprised a mixture of shock, disbelief, and fear: How was this up to us?

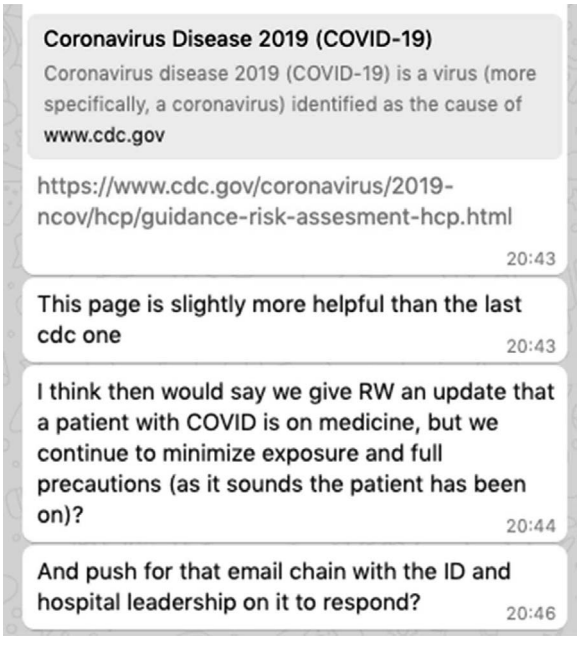


One of us had already contracted H1N1 influenza from a patient this academic year; another had an infant at home; 2 were married to other physicians, one of whom was a current pulmonary and critical care fellow. Suffice to say, we were primed to take this outbreak seriously. Ultimately, our response fell into 3 main phases—establishing facts and systems, refocusing on core program values, and breathing and planning for the long term—a natural history of illness of sorts.

Phase 1: Establishing Facts and Systems

In the earliest days of the COVID-19 pandemic, the key challenge we faced was that of overload: countless questions, a constant stream of evolving information from our hospital and the media, and plenty of accompanying confusion and fear.

We had worked all year to solidify our residents' trust and to ensure they turned to us for support. And turn to us they did—success! However, the skills we had polished over the preceding 8 months—leading morning reports, counseling residents struggling with difficult rotations—translated incompletely to addressing COVID-19-related concerns. Without data or precedent, every question felt impossible to resolve—from the medical (the state of evidence for potential therapies) to the more practical (where to stay if one's roommate might be positive for COVID-19, whether we could require a resident to shave his beard to fit an N95 mask, or how to have a hand sanitizer dispenser installed in a team room).



We were dismayed to realize that our superiors were mere mortals, also unable to readily provide answers. The leadership hierarchy, previously hazy and mostly theoretical from our vantage, emerged into sharp detail—we were part of a chain that stretched from our residents to us and then on to

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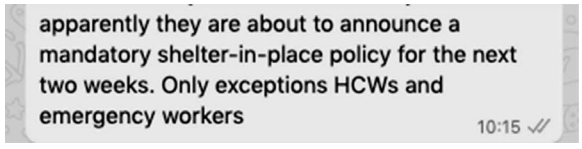
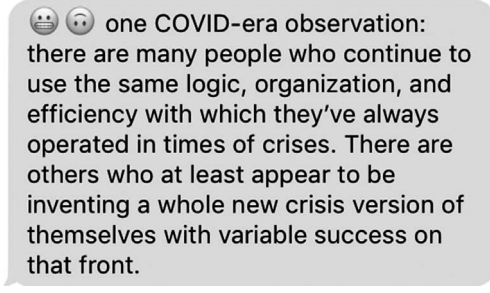
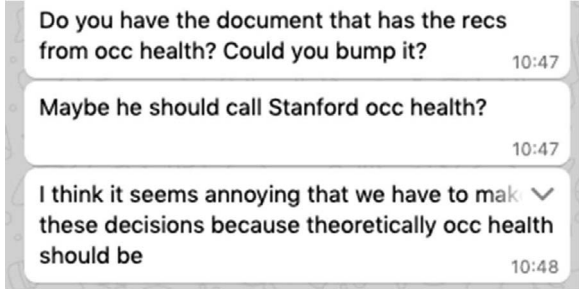
program directors, division and departmental leaders, and hospital top brass. It was disorienting that many of the questions sent up this flagpole could not be answered at any level—especially as events unfolded so quickly that a policy appearing overly conservative one day seemed unquestionable the next.



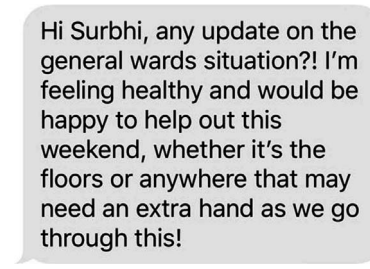
Equally human in its diversity was the range of crisis responses we observed among these individuals:



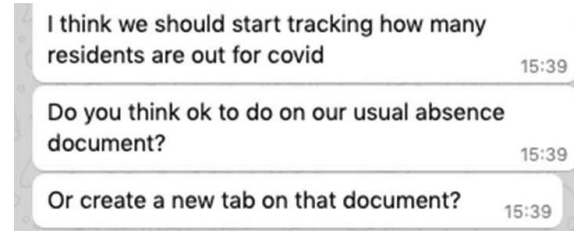
As we attempted to wade through the firehose of data, we struggled to balance perpetual availability with the need to take time for ourselves. Stepping away from our phones or inboxes for more than 15 minutes left us feeling irrevocably behind for the day. The stress became especially acute as an increasing number of symptomatic residents needed guidance: Should they be tested? Could they be tested? How long would it take to get a result? With the initial scarcity of test kits and a related backlog in results, more and more residents required significant time away from the wards while their COVID-19 tests processed. We developed visions of cascading sick call; we coached our residents through agonizing days of waiting for test results while making equally wrenching calls to their colleagues to request assistance covering necessary shifts.



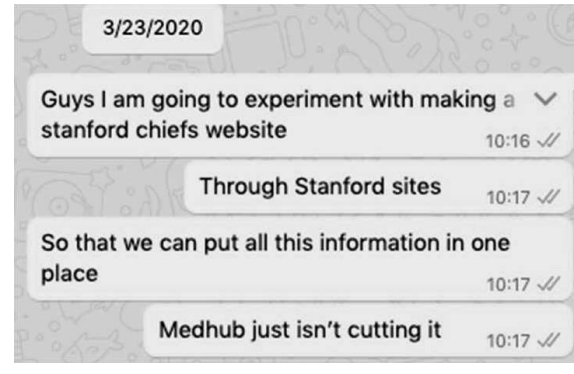
Some residents coped by volunteering to take on even more responsibilities, while others were paralyzed over their own health risks or those of their families.



Meanwhile, we resented the time we spent simply trying to keep up with the data flow; administration was always a part of our chief resident experience, but now it felt like the entirety.



We channeled our frustration into organization, developing more efficient systems to obtain and disseminate key information. We contacted high-level individuals across the hospital and university—flattening hierarchies accompanied flattening curves—and found allies in our chief wellness officer and head of occupational health. We increased the frequency of our all-program evening meetings from monthly to weekly to better connect with our residents and distribute relevant news. The agenda for these meetings was always the same: "COVID." And after searching our inboxes for the same information to circulate to residents time and time again, we taught ourselves how to build a website to serve as a repository for COVID-19-related information. The website has since become a resource for the broader Stanford community, an unintended victory as we gained new skills.



Phase 2: Refocusing on Core Program Values

When it became clear that social distancing would be in place for weeks to months, prioritizing our core

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values of education, scholarly activity, and wellness while maintaining preparedness for surges in patient volume emerged as our next challenge. We understood that the educational sessions comprising the bulk of our work as chief residents would need to move online—and with them, our noon conference lectures, resident research symposium, and celebrations like resident retreat and graduation.

Initially, we prioritized asynchronous learning to best fit the scheduling needs of both the chiefs and residents and developed email-based clinical vignettes to be discussed within teams. However, residents gave feedback at our weekly program-wide meetings that these did not have the same impact as our usual case-based, interactive morning reports. So, like so many of our colleagues, we took a collective deep breath and transitioned morning report conferences to Zoom.

While learning to teach effectively in this format has remained a time-consuming challenge, we discovered a number of unexpected delights of virtual learning. Our sessions are less formal: residents participate in the discussion verbally and continuously through the chat box, our faculty go by their first names, and we have a new window straight into our residents' homes, complete with toddlers whose vocabulary now includes "hyponatremia" and "ketoacidosis." Teams physically in the hospital participate together with their attendings, allowing for ongoing parallel discussions that ultimately enrich their learning. We can also highlight relevant journal articles in real time, which occurred recently when a resident shared a review article describing treponemal and RPR testing mid-report to settle a debate around how to interpret test results for a patient with newly diagnosed neurosyphilis. The opportunity for inventiveness and skill-building has proven an important upside to these changes.

With regard to scholarly activity, we recognized our fundamental task as protecting residents' designated quality improvement and research time under these different and difficult circumstances. With our resident research committee and administrative staff, our program pulled off a fully online resident research symposium. This, too, produced unexpected benefits: instead of presenting a poster to only a handful of peers and judges, our resident researchers were able to discuss their work with a larger group of academic faculty all at once, and we collectively gained a better understanding of our residents' research.

Our third goal in this stage was to preserve our support for resident wellness in this digital era. We considered how to best regain a sense of community, while recognizing the unusual nature of this ongoing situation and what types of concrete programming we could implement to achieve this. We were filled with pride when the resident wellness committee took this charge and planned Zoom cooking sessions, workouts, and game nights for the group, with chief residents playing the role of cheerleader and occasional guest host.

Phase 3: Breathing and Planning for the Longer Term

As we write, June draws swiftly near, and we have pivoted once again to a last challenge as chief residents: orchestrating a successful handoff to our successors. Appreciating that taking over amid a once-in-a-generation pandemic would require more support than usual, we threw our energy into writing a new (47-page!) guide for future chiefs and holding a series of transition meetings. Even more so than our prior career transitions, this has allowed for introspection.

At the beginning of our chief year, we were often asked how we envisioned our "legacy" as chief residents: What mark would we leave on the program? At the time, this felt like an impossible question to answer. We could not have known then that this legacy would fall into our laps. We hope we will be remembered as not only the COVID-19 chiefs, but also as a cohort that faced a great series of challenges with vulnerability, creativity, and intentionality.

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