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FELLOWS-IN-TRAINING & EARLY CAREER SECTION

# COVID-19

## The Isolation That Has Brought Us Together

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In 2020, the rapid spread of the coronavirus disease 2019 (COVID-19) worldwide forced hospitals across the country to start triaging the delivery of medical procedures in efforts to flatten the curve of COVID-19 case growth and its high mortality. By mid-March, a shelter-in-place order was deployed across a 6-county region of Northern California (1), and soon after, statewide (2), extending to regions across the nation. My hospital started postponing all elective cardiovascular procedures while permitting only urgent procedures to treat life-threatening conditions. Days later, professional societies published guidelines recommending similar rationing at scale (3). Having recently finished fellowship, I had just been getting into a routine as a junior faculty. And then COVID-19 came, and my job as an interventional cardiologist changed overnight.

Suddenly, PubMed and UpToDate no longer had the answers. I turned to Twitter (Twitter, San Francisco, California) discussions, where ST-segment elevation myocardial infarction protocols developed by doctors in China started circulating. Upon first glance, they seemed thrombolytic heavy. But only weeks later, after the cases in the United States had swelled to >600,000, with >25,000 deaths (4), we recognized the rationale. Our new hospital ST-segment elevation myocardial infarction policy, which would normally require approval from multiple layers of bureaucracy, now came down to my “expert” opinion. I had to lean on the experience of doctors who did not even speak the same language as

me, who quickly became colleagues through American College of Cardiology webinars (5).

My medical school and residency classes, who had not communicated as a group since our graduations years ago, started e-mail, text, and WhatsApp (Facebook Inc., Menlo Park, California) communications, exchanging hundreds of messages daily to learn from each other in real time. From inside makeshift parking lot tents to the catheterization laboratory, we shared our experiences as young doctors on the frontlines and supported each other through our biggest fears. While our response to COVID-19 required social isolation, in reality, it was bringing us together in unprecedented ways. We worked together to reduce our personal risk, find work-life balance, keep up with education, and innovate to find solutions for this battle that had only just begun.

### A TEAM APPROACH TO REDUCING PERSONAL RISK

Within a 2-week timeframe, our hospital ran out of personal protective equipment (PPE). Without PPE, our previously mandatory instructional session on how to don and doff PPE was cancelled. I watched a YouTube (Google, Menlo Park, California) video of a Chinese nurse teaching donning and doffing to learn how, which only made me realize how woefully ill-equipped we were. Especially since I had been designated the “COVID-19 interventionalist” in an effort to minimize staff exposures, I recognized the substantial risk I would encounter without adequate PPE. I heard reports that Italian cardiologists experienced the highest COVID-19 rates of all doctors, likely due to low PPE use with cardiac patients lacking typical COVID-19 symptoms (6). With fewer procedures, the catheterization laboratory nursing station became a craft studio where nurses used tape to create makeshift PPE for our team—with no idea about efficacy. Twitter feeds like #GetMePPE started. My son’s elementary school

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started a mask donation bin for our hospital, and my grade school friend collected masks from 2019 California wildfire survivors.

My husband, also an interventional cardiologist, and I played out the scenarios of a personal exposure. I argued for a hotel room apart from the family. He argued for a bolted lock on the guest room. We both joked that whoever was quarantined would have it easier than the one left to watch the 3 kids. While everyone at work talked about hospital protocols, we also wanted to know what protocols health care providers were using at home to protect their families. A COVID-19 handbook written by Zhejiang University doctors described that their health care workers lived separate from their families during service and only returned after 2 weeks of quarantine (7). With our young children, that seemed unfeasible. So we decided to change scrubs before leaving the hospital, leave our shoes in the garage, and sneak into the house to shower before any child could hug us, hoping that would be enough.

#### RELYING ON COMMUNITY TO FIND WORK-LIFE BALANCE

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Figuring out how to wage a war in the hospital while managing 3 young children at home has made all previous work-life balance discussions pale in comparison. It quickly became clear that working even partially from home while watching a 2-, 4-, and 6-year-old was going to be impossible. Some of my peers have a stay-at-home spouse, but many were reliant on daycares that closed. The university wellness program e-mailed us about backup childcare, with a website and phone number that did not work. I finally gave up when I found out their primary placements were at in-home daycares—a scenario that did not seem safe given Centers for Disease Control and Prevention orders to not convene in groups of more than 10 (8). We reluctantly called my parents to come stay with us to help watch the kids, and we are eternally grateful for their help. But at close to 80 years old, they risk a 10% chance of death if they contract the virus (9). I worry every day that the very act of me going to work at the hospital puts their lives at risk.

Meanwhile, I have become my children's administrative assistant—scheduling their classroom Zoom (Zoom Video Communications, San Jose, California) calls so they do not conflict with my own. Their initial calls seemed oddly like mine—lots of background noise, with unclear objectives. Though within a short time, we all quickly improved our abilities to telecommunicate, and in strange ways, found ourselves

closer to our colleagues in a personal way, seeing each other's homes and children during videoconferences. I also soon figured out that traditional 8:00 to 5:00 work hours no longer made sense. By restructuring my day, I accomplished more.

#### TRANSFORMING FELLOW EDUCATION

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In efforts to minimize exposures, our hospital determined that fellows—previously the heart of any procedure—were now unnecessary staff who need not be present during procedures with suspected COVID-19 patients. Our cardiology fellowship program director created an extensive jeopardy call system, shifting fellows to core rotations such as critical care unit, with many layers of back-up. All courses, conferences, seminars, grand rounds, and other educational activities moved online. Our first cardiology grand rounds by Zoom was on a non-COVID-19 topic. At first it seemed strange to be talking about anything except the looming battle in front of us, but the speaker introduced it as an hour without the “c word,” which turned out to be a refreshing reminder that a world beyond this would be waiting for us one day. Our second grand rounds online focused on the topic of cardiovascular complications of COVID-19, with the highest attendance in the history of our program, including participants from multiple states across the country dialing in. And while grand rounds is usually reserved for world-renowned experts, this joint session was delivered by fellows and faculty alike—whoever had good information about this novel virus was worthy of the podium.

While it is unspoken, every trainee has recognized that fellow education is suffering. The volume of catheterization laboratory cases has dropped significantly. I recall just a few years ago when my interventional co-fellow and I scrambled to do every percutaneous coronary intervention possible to maximize our training. Our current fellows will not achieve close to the numbers they need, and in the case of procedures, hands-on experience cannot be replaced. Yet it seems unfair to require longer training due to the pandemic. Beyond the catheterization laboratory, volumes of all procedures and imaging are down as well. How will the fellows reach their Core Cardiology Training Statement (COCATS) requirements? How will they concentrate on preparing for American Board of Internal Medicine exams now while also watching their children at home and fighting the burnout of putting their lives at risk every day.

At the same time, we worry for our heroic mentors and teachers, some of whom are older and at higher

risk. But how can we respectfully protect them on the frontlines? While senior faculty usually protect the trainees, we must team together now to ensure the reverse.

## UNITING TO INNOVATE

As the adage goes, “Every crisis represents an opportunity in disguise.” Our hospitals had talked about implementing telehealth for years. In the course of 1 week, all stakeholders came together to convert almost all cardiology visits to telehealth visits. Loosened Health Insurance Portability and Accountability Act (HIPAA) rules enabled the use of alternate modes of patient communication, such as personal phones for medical calls, with benefits now outweighing risks. While our instinct as doctors is to touch our patients, we are finding alternative ways to be close to them.

The National Institutes of Health, Veterans Affairs, American Heart Association, and others have created rapid response research funds for proposals on COVID-19 with the fastest turnaround times in history (10). My colleagues and I mobilized to form a multi-site research team and submit a grant proposal in

<1 week. We will know the results in 2 weeks, with funding possible in 4. In comparison, the last one I submitted took 3 years. Cardiology—a field that prides itself on randomized trials and evidence-based recommendations—now sits on a precipice to study the largest natural history experiment in modern times. The ISCHEMIA (International Study of Comparative Health Effectiveness with Medical and Invasive Approaches) trial (11) showed us what happens when we choose medical management over invasive treatment for stable patients with ischemia. What will happen now that we are choosing medical management for almost everyone?

It is too soon for us to know exactly where this pandemic will take us, or its full impact on our professional lives, patients, and families. But the one thing we have discovered is that isolation will not separate us. Stronger together, we press on.

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