ESSENTIAL WORKERS

Resident Physicians

BRIEFING BOOK

BUSINESS UNUSUAL

ADDRESSING ESSENTIAL WORKERS' NEEDS
DURING & AFTER THE COVID-19 PANDEMIC

a Collaboration Between
the Johns Hopkins Berman Institute of Bioethics &
the University of Colorado Boulder MENV

LEAD AUTHOR:
Lauren Berninger, DO

Essential Workers: Resident Physicians

Each summer, teaching hospitals across the country receive an influx of eager new recruits. Following years of medical education, graduates of medical schools in the United States and abroad embark on a new educational journey as *resident physicians*-- sometimes referred to as "house officers" or "house staff." These terms stem from the historical requirements of postgraduate medical training where trainees often resided in the institutions in which they worked (Howell, 2016). Historically speaking, "trainees were expected to totally immerse themselves in the medical world" (Howell, 2016). Since then, unionization, strikes, and greater attention to physician burnout in the medical community have led to regulations on the hours residents can be asked to work and other rules focused on resident well-being. While far from perfect, the conditions and working hours of residents throughout the US have improved dramatically over the past 50 years as programs continue to try to find a balance between the education they owe their workforce and the valuable labor their residents provide the institutions they serve (Howell, 2016).

In March of 2020, when COVID-19 began threatening US healthcare institutions, physicians in Washington, California, New York, New Jersey, and Michigan became increasingly overwhelmed by the developing public health crisis. As a chief resident physician at a hospital in Baltimore, I began to appreciate the tremendous anxiety experienced by residents in my own program as the situation began to unfold. From concerns about lack of personal protective equipment (PPE) to the distorted fear of eventual unlimited work hours to the very real possibility of bringing the virulent pathogen home to other family members, the uncertainty and anxiety among the residents intensified as the healthcare crisis materialized.

Overall, residents at my hospital have been lucky in some ways. Unlike many programs in the hardest hit areas, direct exposure to COVID-19 patients has been minimized, access to PPE has so far been guaranteed and work hour restrictions have been strictly enforced. Those rotating on outpatient services have been sent home for remote learning and serve on "back up call" in the case of coworkers falling ill or a surge in COVID related patient volume.

While not every residency program has been affected by malignant policies or lack of personal protection, COVID-19 has certainly transformed the way we practice and the way we educate our trainees. From the closure of outpatient offices and transition to telemedicine, to the cancellation of elective procedures and redeployment of medicine subspecialists and non-medicine physicians to COVID-19 related care, the novel coronavirus has challenged the American physician workforce in myriad ways. Although every physician has been affected by COVID-19 in some way, physicians in training--residents--may be disproportionately disadvantaged.

WHO ARE RESIDENT PHYSICIANS?

In the 2018-2019 academic year, resident (and fellow) physicians made up 140,391 physicians in the US physician workforce (2018-2019 ACGME Data Resource Book, 2019).

Resident physicians vary in race and ethnicity:

- 42.3% are white (non-hispanic);
- 17.8% are Asian/Pacific Islander;
- 5.3% are Hispanic
- 4.4% are Black (non-hispanic);
- 0.2% are Native American/Alaskan;
- 5.4% identify as "other"; and
- 24.6% identify as "unknown"

(2018-2019 ACGME Data Resource Book, 2019, "ACGME Book").

53.1% of resident physicians are male, 43.8% are female and 3.1% did not report a binary gender selection (ACGME Book, 2019). 21.4% of residents are international medical school graduates. Among the specialties most tasked with caring for COVID-19 patients include residents in Internal Medicine, Emergency Medicine, and Family Medicine. Of these groups, internal medicine makes up the largest percentage of resident physicians (~20%) followed by family medicine at 9.3% (ACGME Book, 2019).

THE VULNERABILITY OF RESIDENT PHYSICIANS

It is probably difficult for many people to think of any physician as a member of a disadvantaged or vulnerable group. Data from 2006 shows that the median family income of matriculating American medical students was approximately $100,000 and 55% came from the "top quintile" of earners ("Diversity of U.S. Medical Students by Parental Income", 2008). Despite this data commenting on the parental affluence of many physicians entering the field, one should remember this does not represent all physicians in training, many of whom come from outside of the United States to train in our healthcare system. One must also consider the enormous debt incurred by American medical students which as of 2017 was a median of $192,000 upon graduation from medical school ("An Exploration of the Recent Decline in the Percentage of ...", 2018). As of 2016, 78% of medical students reported education related debt ("An Exploration of the Recent Decline in the Percentage of ...", 2018). Moreover, the average salary of a resident physician is modest for this amount of debt, and is currently estimated at an average of $61,200, varying widely by geographic location and cost of living (Martin, 2019). It is important to note that with this widespread variability, many residents never reach an annual salary of $60,000 over the course of their training. As one resident put it, for those working at the upper limits of an 80-hour work week, this salary amounts to approximately "$15-20/hour" for their highly skilled labor ("AMA COVID-19 Daily Video Update", 8 April, 2020).

Financial insecurity, however, is not the only way residents in training are vulnerable. Despite considerable changes to the postgraduate medical education system since the 1970s, residents still remain at the mercy of the institutions that employ them (Murphy, 16 April 2020; "AMA COVID-19 Daily Video Update", 2020; "COVID-19 Crisis Exposes Resident Abuse", 2020). Moving on to sub-specialty fellowship programs and/or obtaining a job as a board-certified physician requires successful completion of a residency training program ("AMA COVID-19 Daily Video Update", 2020). As such, many residents "fear retribution" if they speak out against their residency program or their respective healthcare systems ("AMA COVID-19 Daily Video Update", 2020). One Massachusetts ophthalmology chief resident similarly described residents as having a "limited ability to voice concerns and opinions" due to dependence on one's training program to provide them with the education and skills needed to successfully complete their residency (Murphy, 16 April, 2020).

This "lack of agency" as one Los Angeles based ER resident correctly identified ("AMA COVID-19 Daily Video Update", 2020), is not limited to one's perceived inability to speak out against their program or institution. In their qualitative study of moral distress among American medical residents in 2015, Dzeng and colleagues, found a common theme of "perceived powerlessness" among residents due to the "hierarchy" of medical education (Dzeng et al, 2015). While these researchers were particularly examining residents' experiences in the context of end of life care, they commented on the inability of residents to exercise their own personal moral agency under the supervision of attending physicians who felt differently about the right course of action (Dzeng et al, 2015). This is another way in which residents are vulnerable on a more individual level.

HOW COVID-19 HAS CHANGED THIS ESSENTIAL WORK

The Duties of Resident Physicians and Sponsoring Institutions

It is well established that residents fulfill two roles over the course of their residency training. On the one hand, they seek training in their desired specialty; on the other, they provide valuable skilled labor to the institutions they work in (Howell, 2016). At large academic centers, residents have been estimated to make up approximately "40-60%" of "direct" patient care (Greene, 2015). Additionally, they have largely been responsible for caring for the most marginalized groups in the healthcare system (Greene, 2015). Whether hospitals make money off of maintaining graduate medical education programs is unclear, but it is clear that many hospitals are "reliant" on their resident physician workforce (Greene, 2015).

It is the duty of a resident's employing institution to provide the necessary specialty training as per the American Council for Graduate Medical Education (ACGME) guidelines. Each residency program has a set of criteria put forth by the ACGME to maintain the program's accreditation status and uphold a satisfactory learning environment. COVID-19 has changed the way resident physicians practice, and while the ACGME acknowledges this and gives some flexibility to residency programs, it still firmly upholds that regardless of the stage of the pandemic, several highly prioritized standards

for residents must be met, including: (1) compliance with current ACGME duty hour regulations, (2) "adequate resources and training", and (3) "adequate supervision" ("ACGME Reaffirms its Four Ongoing Requirement Priorities During COVID-19 Pandemic", 2020). It appears however, that not all programs have aligned with these ACGME regulations—especially those in areas most affected by the pandemic.

COVID-19 and Working Outside One's Scope of Practice

As residents are redeployed from other specialties outside of internal medicine, family medicine, and emergency medicine (the three residency programs hardest hit by the pandemic), they find themselves in precarious situations. In New York, the state worst stricken by the pandemic, there have been reports of radiology residents placing chest tubes ("COVID-19 Crisis Exposes Resident Abuse", 2020) and psychiatry residents overseeing ventilated patients (Sadfar et al, 2020). At Yale New Haven Hospital in Connecticut, anesthesia residents were reportedly redeployed to work as respiratory therapists (Sadfar et al, 2020). Meanwhile, at USC Keck School of Medicine in California, surgical residents have received dedicated training to fulfill the jobs of critical care nurses during the surge should the need arise (Morgan & Mohan, 2020). The media has also reported residents in other training programs such as ophthalmology and even podiatry being redeployed to aid in the COVID-19 efforts (Sadfar et al, 2020).

The redeployment of physicians outside of the fields such as internal medicine and emergency medicine to help aid in pandemic relief raises issues beyond the discomfort working outside of their field of practice. *Will these physicians be prepared to graduate on time? Will they receive the skills needed from their institutions to practice in their chosen specialties?* In areas less impacted by the pandemic, elective procedures have been cancelled in anticipation of COVID-19 related surges and to minimize healthcare exposure to otherwise healthy patients. Additionally, outpatient practices across the country have largely converted to telemedicine leaving residents in outpatient specialties facing decreased educational opportunities in their field of training. With elective surgeries being postponed and "huge gaps" in their training, ophthalmology residents in Massachusetts are anxious that meeting the requirements for graduation and licensure may not be met (Murphy, 16 April 2020). An Ohio based OBGYN resident reported similar issues in her field with the cancellations of elective gynecological procedures (Salari, 2020). During the time typically spent receiving gynecological surgery training, she reported her time could be spent in the emergency department or intensive care unit helping with the COVID response (Salari, 2020).

Working Above One's Level of Training

Concerns have emerged about residents in the most desperate areas working above their level of training without adequate supervision.Regardless of pandemic stage in any area, ACGME requires that residents be adequately supervised and provided with the educational resources needed to ensure safe patient care. While the experiences of residents throughout the country cannot be

generalized because the pandemic has affected some areas more than others, it has become apparent based on media reports that some residents are having an experience that does not meet these two requirements. For example, first year medical residents in New Jersey reported being tasked with managing high numbers of COVID positive ventilated patients on their own ("COVID-19 Crisis Exposes Resident Abuse", 2020) — a task rarely given to first year residents. Additionally, the anesthesia residents redeployed to work as respiratory therapists reported being given a "zoom session and google document" to learn their new role (Safdar, 2020). Other residents reported feeling "helpless" in their current roles and one described the constant need to "read, read, read" even when overly fatigued to make up for their perceived knowledge deficits in the treatment of COVID patients (Silva, 2020).

The downstream effects of residents working above their level of training could be devastating for resident physicians. As physicians, the fear of making a medical error, regardless of level of training, is a chilling one. Even more unsettling is the aftermath of actually committing a medical error and causing harm to a patient. Some residents on the frontlines have reported feeling "traumatized" (Silva, 2020) while others have reported frequent "nightmares" (Sadfar, 2020). In a profession where burnout is already highly prevalent--approximately 36% of residents across all specialties reporting burnout syndrome (Rodrigues et al, 2018)--working with inadequate training and supervision could lead to even higher levels of burnout in the future.

Social Distancing and Resident Education

In addition to changes in clinical responsibility, scheduled didactic sessions have moved to zoom sessions or other online meeting venues to comply with social distancing regulations (Murphy, 1 April 2020). Many routine practices, such as patient handoffs and multidisciplinary bedside rounding, have proven difficult to facilitate in a social distancing environment. Due to shortages in PPE, some programs have limited bedside rounding and transitioned to video or teleconferencing for team rounding strategies (Jenkins et al, 2020). Additionally, others have recommended limitations on the number of practitioners entering a patient room (Jenkins et al, 2020). Residents in some programs have been prohibited from any direct physical contact with COVID positive patients or persons under investigation (PUIs). Although compliance with social distancing is important, one must consider how decreased patient contact will affect the clinical competency and communication skills of residents as they progress through their training.

ON THE JOB RISKS

This workforce faces COVID-19 infection risks from direct patient care, the inability to completely comply with social distancing measures due to the nature of the work, the frequent use of high touch surfaces (e.g., phones, computers, tablets and door handles) and the harmful effects of physical and emotional fatigue on the body. Of particular concern are residents who may have preexisting health conditions and those who may be pregnant. One resident with an underlying pulmonary condition

described the "moral distress" she experienced when she was forced to make the difficult decision between continuing her typical duties as a resident, which would involve caring for COVID-19 patients, versus opting for a less hazardous position in telemedicine (Tsai, 2020). For residents who are no longer able to carry out their duties due to pregnancy and underlying illness, this raises important questions of whether healthcare systems should continue to pay these workers and maintain their benefits. Fortunately, according to the ACGME, residents are currently prohibited from being furloughed due to COVID-19 related matters ("ACGME Statement on Furloughs", 2020).

HOW CAN WE PROTECT THIS WORKFORCE?

The ACGME, AMA, AHA and other physician organizations have issued position statements recognizing the vulnerability of resident physicians and the duty of healthcare organizations to protect them. I echo these organizations in emphasizing the importance of providing every resident with adequate PPE, training and supervision during the COVID-19 crisis. While it has become obvious that the availability of PPE varies by institution and region, healthcare systems must work with their local governments, commercial suppliers and organizations like the ACGME to find ways to satisfy PPE requirements for all physicians in training. Additionally, hospitals must employ strict policies prohibiting resident physicians from working in hazardous situations without proper protection.

Although PPE is extremely important during the pandemic, measures must be taken by programs to ensure residents are afforded appropriate breaks from PPE and clinical care. While nurses, medical technicians, pharmacists and other healthcare workers are forced to take timed breaks throughout the day, a resident's ability to take a break typically depends on workflow. It is not uncommon for residents to work continuously without taking proper breaks throughout the day. N95 masks which provide protection against airborne pathogens can lead to breakdown of the facial skin after prolonged use. Additionally, the heat and lack of ventilation with the use of masks, face shields, gowns and gloves impose significant discomfort. Potential solutions include staggered shifts, scheduled coverage by teammates during break times, and firm enforcement of breaks by program leadership.

On the outpatient side, with COVID-19 continuing to afflict our communities, residents must receive appropriate training in telemedicine for outpatient appointments and in person visits should be limited to patients with acute issues and those for whom telemedicine would be exceedingly difficult (e.g. the elderly and patients with disabilities). This will limit COVID-19 exposure to residents, patients and other staff members. While telemedicine is not the same as an in person visit, there is valuable education in telemedicine and faculty should continue to provide appropriate supervision and mentoring through telemedicine visits.

Additionally, as resident education changes in the era of COVID-19, it is imperative that residency leaders and graduate medical education departments develop and invest in innovative methods of

educating residents across specialties. With elective procedures and outpatient rotations largely cancelled, educators will need to find creative ways to maintain resident skills and competency in various medical and surgical specialties while aligning with social distancing policies and protecting their workforce from infection.

Although some argue that given the future financial earnings of resident physicians they should not be given hazard pay, the salaries of residents during training is low relative to the amount of educational debt many residents carry. For residents with families who need to arrange child care, pet care, or those whose spouses have been furloughed or dismissed from their jobs entirely, COVID-19 could certainly have a profound impact on their financial well-being. Even though many residents do come from more privileged backgrounds, one cannot assume that even those from well off backgrounds receive continued financial support from their families. More importantly, there are certainly plenty of residents who do not come from financially privileged backgrounds who likely struggle to make ends meet at their baseline. Hazard pay should be a consideration for resident physicians working on the frontlines of the COVID-19 response.

Lastly, COVID-19 is a stressful time for everyone—especially resident physicians. Residency programs should be mindful of this, and provide outlets for residents to voice their concerns, seek mental health expertise, and find creative ways to promote resident wellness. While easier said than done, all residency programs should embrace a just culture model and respond to resident behaviors and concerns in a manner that is both thoughtful and respectful. With appropriate resident engagement and support, residency programs can appropriately monitor and respond to signs and symptoms of resident moral distress and burnout and act accordingly.

References

ACGME Data Resource Book. (n.d.). Retrieved from https://www.acgme.org/About-Us/Publications-and-Resources/Graduate-Medical-Education-Data-Resource-Book

ACGME Reaffirms its Four Ongoing Requirement Priorities during COVID-19 Pandemic. (2020, April 5). Retrieved from https://acgme.org/Newsroom/Newsroom-Details/ArticleID/10188/ACGME-Reaffirms-its-Four-Ongoing-Requirement-Priorities-during-COVID-19-Pandemic

ACGME Statement on Furloughs Resulting from the COVID-19 Pandemic Emergency. (2020, April 9). Retrieved from https://www.acgme.org/Newsroom/Newsroom-Details/ArticleID/10194/ACGME-Statement-on-Furloughs-Resulting-from-the-COVID-19-Pandemic-Emergency

AMA COVID-19 daily video update: How residency programs are adapting to pandemic challenges. (2020, April 8). Retrieved May 16, 2020, from https://www.ama-assn.org/residents-students/residency/ama-covid-19-daily-video-update-how-residency-programs-are-adapting

An Exploration of the Recent Decline in the Percentage of US Medical School Graduates with Education Debt. (2018, September). Retrieved from https://www.aamc.org/system/files/reports/1/september2018anexplorationoftherecentdeclineinthepercentageofu..pdf

COVID-19 Crisis Exposes Resident Abuse. (2020, April 28). Retrieved from https://www.medscape.com/viewarticle/929607.

Diversity of U.S. Medical Students by Parental Income. (2008, January). Retrieved May 16, 2020, from https://www.aamc.org/data-reports/analysis-brief/report/diversity-us-medical-students-parental-income

Dzeng, E., Colaianni, A., Roland, M., Levine, D., Kelly, M. P., Barclay, S., & Smith, T. J. (2015). Moral Distress Amongst American Physician Trainees Regarding Futile Treatments at the End of Life: A Qualitative Study. *Journal of General Internal Medicine*, *31*(1), 93–99. doi: 10.1007/s11606-015-3505-1

Greene, J. (2015, July 19). Hospitals say they subsidize graduate medical education, but cost-benefit unknown. Retrieved from https://www.modernhealthcare.com/article/20150719/NEWS/307199999/hospitals-say-they-subsidize-graduate-medical-education-but-cost-benefit-unknown

Howell, J. D. (2016). A History of Medical Residency. *Reviews in American History*, *44*(1), 126–131. doi: 10.1353/rah.2016.0006

Jenkins, I., Seymann, G., Horman, S., & Bell, J. (2020, April 16). Social distancing comes to the medicine wards. Retrieved from https://www.the-hospitalist.org/hospitalist/article/220794/coronavirus-updates/social-distancing-comes-medicine-wards

Martin, K. L. (2019, July 17). Medscape Residents Salary & Debt Report 2019. Retrieved from https://www.medscape.com/slideshow/2019-residents-salary-debt-report-6011735

Morgan, E., & Mohan, G. (2020, April 3). This is how we're getting extra doctors and nurses to fight coronavirus. Retrieved from https://www.latimes.com/business/story/2020-04-03/coronavirus-doctors-nurses-hospital-staff

Murphy, B. (2020, April 1). Residency in a pandemic: How COVID-19 is affecting trainees. Retrieved from https://www.ama-assn.org/residents-students/residency/residency-pandemic-how-covid-19-affecting-trainees

Murphy, B. (2020, April 16). Residents share fears, views on training disruptions during COVID-19. Retrieved May 16, 2020, from https://www.ama-assn.org/residents-students/resident-student-health/residents-share-fears-views-training-disruptions-during

Rodrigues, H., Cobucci, R., Oliveira, A., Cabral, J. V., Medeiros, L., Gurgel, K., ... Gonçalves, A. K. (2018). Burnout syndrome among medical residents: A systematic review and meta-analysis. *Plos One*, *13*(11). doi: 10.1371/journal.pone.0206840

Safdar, K., Palazzolo, J., Adamy, J., & Ramachandran, S. (2020, April 29). Young Doctors Struggle to Treat Coronavirus Patients: 'We Are Horrified and Scared'. Retrieved from https://www.wsj.com/articles/young-doctors-struggle-to-treat-coronavirus-patients-we-are-horrified-and-scared-11588171553

Salari, S. (2020, March 24). "A terrifying privilege": Residency during the COVID-19 outbreak. Retrieved from https://www.aamc.org/news-insights/terrifying-privilege-residency-during-covid-19-outbreak

Silva, D. (2020, April 16). NYC medical residents treating coronavirus describe 'living a nightmare'. Retrieved from https://www.nbcnews.com/news/us-news/nyc-medical-residents-treating-coronavirus-describe-living-nightmare-n1181386

Tsai, C. (2020, April 28). Personal Risk and Societal Obligation Amidst COVID-19. Retrieved from https://jamanetwork.com/journals/jama/fullarticle/2764319