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The Surge: COVID-19’s Impact on a New Radiology Nurse

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**Abstract**

This short communication show how the Covid–19 pandemic affected the everyday life of a radiology nurse through the eyes of a new radiology nurse.

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Introduction

On January 21, 2020, the Centers for Disease Control (CDC) confirmed the first US SARS-CoV-2 case (Centers for Disease Control and Prevention, 2021). Ten days later, the US Secretary of Health and Human Services, Alex Azar, declared the SARS-CoV-2 virus a public health emergency, and new travel policies were introduced (Azar, 2020). These developments heralded the start of one of the most challenging years on a global scale. A new invisible enemy was about to task the global health system unlike anything else in our recent history. The World Health Organization (WHO) officially named the disease that was causing the 2019 novel coronavirus outbreak: COVID-19, an abbreviation of coronavirus disease 2019 (Centers for Disease Control and Prevention, 2021). COVID-19 was declared a global pandemic by the WHO on March 11, 2020 (Centers for Disease Control and Prevention, 2021). To date, more than 263 million people have been infected with COVID-19 worldwide, and there have been more than 5 million deaths (World Health Organization, n.d.).

Is that you “rona”?

I had just transitioned to the radiology department after many years in the intensive care unit (ICU) when the pandemic started. The new role was a combined radiology procedural and recovery nurse position. Early in the pandemic, there was a lot of uncertainty as the world came to grips with the new crisis of COVID-19. Conscientious social distancing was accompanied by strict hand-washing. As more information emerged, the levels of precautions increased, and new measures were put in place to combat the spread of COVID19. Reports from Italy revealed a dire situation. Italy had become a global COVID-19 hotspot, and on February 23, 2020, the government issued Decree-Law No. 6 (Council of Ministers, 2020). This emergency law instituted urgent measures to contain and manage the epidemiological emergency caused by COVID-19 (Council of Ministers, 2020). To contain the spread of this virus, countries around the world enacted strict travel restrictions, and international travel slowed to a halt.

Although coronaviruses were discovered in the 1960s, the term “coronavirus” had not seen widespread use. The Middle East Respiratory Syndrome (MERS) of 2002 and the severe acute respiratory syndrome (SARS) of 2012 were examples of syndromes that were both caused by coronaviruses (Centers for Disease Control and Prevention, 2020). As the news cycle unfolded, the seriousness of COVID-19 and the term “coronavirus” became common knowledge. Humor takes the sting out of the grim and helps us cope with difficult times, and so nicknames for COVID-19 began to appear. Terms such as “the 19,” “rona,” and simply “corona” cropped up and were adopted into informal conversations.

Living with COVID-19

It was now apparent that COVID-19 was here for a long duration, and there were predictions that cases would surge beyond the current hospital bed availability. At the hospital where I work, plans were implemented to increase capacity to 300% or greater if needed (Washington, 2020). All available spaces were evaluated for conversion to a patient care space, both internal and external to our facility. Specialized COVID intensive care units (ICU) were created throughout the country to care for this unique patient population. The radiology department was reviewed by infection control to ensure that staff could safely care for COVID-19 patients. Negative pressure high-efficiency particulate absorbing (HEPA) filtering machines were installed, and protocols were adopted to care for this patient population. Reeducation on strict PPE donning and...
doffing protocols for staff protection were completed. In addition, instructional materials dotted the walls to complement the in-person training sessions.

Entry to the hospital was restricted, with daily symptom screening started for both employees and visitors. All were encouraged to stay away if any symptoms of an early COVID infection were present. Eventually, our hospitals adopted the use of a self-screening mobile application for employees.

**PPE shortage**

As we came to terms with the reality of COVID-19, there was another crisis brewing: the personal protective equipment (PPE) shortage. Increased global demand for PPE, coupled with high utilization and depletion of emergency reserves, was the recipe for a perfect storm. In an effort to mitigate this shortage, all nonessential surgeries and procedures were halted by Ohio’s medical director, Dr. Amy Acton. As a result, our outpatient volumes drastically dropped. With this reduction, our hospital leadership began strategizing on how to redistribute staff to critical need areas. I fully expected to be reassigned back to the ICU. Our area did not experience the expected surge, and these plans did not have to be activated (Washington, 2020).

There were also changes in patient care protocols for our COVID-19 positive patients. In order to prevent cross-contamination, movement in and out of the procedure room with a COVID-19 patient was strictly restricted. Only one physician, one nurse, and one radiologic technologist were allowed to be in the room. There was a backup nurse who remained outside the room and would fetch needed supplies. Transition zones were built outside our procedure rooms, and the clean nurse would place requested supplies in this zone for the clean nurse. This served not only to minimize the number of people exposed to the COVID-19 positive patient but also helped to preserve PPE since it minimized unnecessary donning and doffing. Figure 1 is a picture of me in full gear for a COVID-19 case.

**Mask innovation: we were all in this together**

For combatting the PPE shortage, homemade masks became prevalent. At first, they were simple washable cloth masks. Volunteer organizations, as well as some enterprising businesses, capitalized on this need. Mask designs evolved with the needs of the pandemic, and started including pockets for the insertion of medical-grade filters. The copper-infused fabric was also used to make antimicrobial masks, which were provided by the hospital (Cupron, Inc, 2017). Figure 2 below shows a sample of the masks that were used during the pandemic.

At the height of the PPE shortage, the FDA gave emergency use authorization (EUA) for technology to decontaminate PPE (Pfleger, 2020). Each decontamination unit had the ability to decontaminate 80,000 pieces of PPE, and they were shipped throughout the country (Pfleger, 2020). This resulted in tremendous cost-saving and ensured protection for healthcare workers.

**Mental health**

One aspect of the pandemic that is under active analysis is the mental health of health care workers (HCWs). At the very start of...
the pandemic, I experienced a lot of internal turmoil. There was a lot that was yet unknown about COVID-19 - risk factors, trans-
mission, virulence, when the vaccine would be approved, and
whether it would be effective. Driving home every day, I struggled
with whether I would infect my family and friends. At a time when
humanity needed each other the most, I canceled plans to get
together with my friends. By virtue of being a healthcare worker,
I had a heightened exposure risk compared to the general popu-
lation. Diagnostic testing for COVID-19 was still in its infancy, and
there was uncertainty about accuracy.

To help mitigate this concern, many employers offered free ac-
ccommodation for employees who wished to stay away from their
families. I never took advantage of this provision and opted to go
home, but I minimized physical contact with my family. While at
work, I took all precautionary measures, but there was always the
concern of unknown exposure. This concern was eased with the
introduction of mandatory COVID-19 screening for all patients
coming into the hospital. There was also the challenge of hearing of
coworkers being diagnosed with COVID-19. I was concerned for
their safety and well-being. At that time, mandatory quarantine
after known exposure to COVID-19 was 2 weeks, and this resulted
in unpredictable staffing patterns.

All this uncertainty resulted in a lot of stress. The leadership of
our hospital created relaxation areas offering massage chairs, im-
mune boosting fresh juices, essential oils, and calming music. Many
colleagues and I made good use of this provision. We also spent
time discussing the latest news, as well as how we were coping with
the stress. We shared our fears amongst ourselves, but we also
laughed and strived to restore normalcy. There were supply
shortages of essential goods, and this was exacerbated by the fact
that we were at work all day and could not go out to shop.

Debrief

More than a year later, COVID-19 is still present. Some of the
restrictions have been lifted. At the time of this writing, there is 70% adoption of the vaccine among clinical staff across the country (Reses et al., 2021). Normal operations have largely resumed at most hospitals, but in most jurisdictions, masking is still required within hospitals. It very likely that masking within hospitals will remain for the foreseeable future. We continue to grow, learn, and evolve even as the COVID-19 virus mutates. With increased un-
derstanding of the virus, normalcy is returning to daily life.

Many sites exist for information on COVID-19 and its impacts. Table 1 lists sites I have found useful in my practice.

### Table 1

| Name                                             | Link                                                                 |
|--------------------------------------------------|----------------------------------------------------------------------|
| Centers for Disease Control (CDC)                | https://www.cdc.gov/coronavirus-2019-ncov/index.html                 |
| World Health Organization (WHO)                  | https://www.who.int/emergencies/diseases/novel-coronavirus-2019       |
| American Nurses Association (ANA)                | https://www.nursingworld.org/practice-policy/work-environment/health-safety/disaster-preparedness/coronavirus/ |
| Society of Interventional Radiology (SIR)       | https://www.sirweb.org/practice-resources/covid-19-resources/        |

### Conclusion

Reflecting on the past year, COVID-19 has made me a better nurse and shaped an interestingly cohesive workspace from our shared journey with the novel virus. Where will this end? Will we ever get control of COVID-19? That is uncertain. The truth is COVID-19 has changed all of us in one way or another.

### References

Azar, A.M. (2020) Determination that a public health emergency exists. phe.gov. Retrieved from https://www.phe.gov/emergency/news/healthactions/phe/Pages/2019-nCoV.aspx. Accessed November 21, 2021.

Centers for Disease Control and Prevention. (2020). Human Coronavirus Types. Retrieved from https://www.cdc.gov/coronavirus/types.html. Accessed February 11, 2022.

Centers for Disease Control and Prevention. (2021) CDC Museum Covid-19 Timeline. Centers for Disease Control and Prevention. Retrieved from https://www.cdc.gov/museum/timeline/covid19.html. Accessed November 21, 2021.

Council of Ministers. (2020) Decree-law 23 February 2020, n. 6 urgent measures regarding containment and emergency management of the epidemiological emergency from covid-19. | UNEP Law and Environment Assistance Platform. Retrieved from https://leap.unep.org/countries/it/national-legislation/decree-law-23-february-2020-n-6-urgent-measures-regarding. Accessed November 21, 2021.

Cupron, Inc. (2017) Copper based antimicrobial technology. Cupron. Retrieved from https://cupron.com/. Accessed November 21, 2021.

Pfleger, P. (2020) Technology to clean and reuse PPE is being deployed to Hotspot Hospitals. NPR. Retrieved from https://www.npr.org/2020/03/30/823803831/technology-to-clean-and-reuse-ppe-is-being-deployed-to-hotspot-hospitals. Accessed November 21, 2021.

Reses, H.E., Jones, E.S., Richardson, D.B., Cate, K.M., Walker, D.W., & Shapiro, C.N. (2021). COVID-19 vaccination coverage among hospital-based healthcare personnel reported through the Department of Health and Human Services Unified Hospital Data Surveillance System, United States, January 20, 2021–September 15, 2021. American Journal of Infection Control, 49(12), 1554-1557.

Washington, J. (2020) What is Northeast Ohio’s hospital capacity? Cleveland Clinic coronavirus surge space was never used, now being dismantled. Cleveland. Retrieved from https://www.cleveland.com/coronavirus/2020/07/what-is-northeast-ohios-hospital-capacity-cleveland-clinic-coronavirus-surge-space-was-never-used-now-being-dismantled.html. Accessed November 21, 2021.

World Health Organization WHO Coronavirus COVID-19 Dashboard. Retrieved from https://covid19.who.int/. Accessed December 4, 2021.