



THE AMERICAN ORTHOPAEDIC ASSOCIATION®
Leading the profession since 1887

AOA Critical Issues in Education

To “Heed the Call” Amidst the COVID-19 Pandemic

Perspectives From 4 Incoming Orthopaedic Surgery Interns

Andrew W. Kuhn, MD, Francesca R. Coxe, MD, Kyle N. Kunze, MD, and David N. Bernstein, MD, MBA, MA

Investigation performed at Washington University, St. Louis, Missouri

Abstract: As incoming orthopaedic surgery interns, we enter the workforce amidst a global pandemic—a pivotal moment in history. We do not know what the landscape will look like later this summer, but it will most likely be different for each of us and from those of our predecessors. Regardless whether COVID-19 will still be rampant or under better control, we know that we can start our internship and orthopaedic residency embracing a set of principles to “heed the call” no matter the circumstance.

Unprecedented Times

In December 2019, a series of patients presented with clinical features similar to those of a viral pneumonia after a shared history of exposure to the Huanan Seafood Wholesale Market in Wuhan, China¹. The virus was characterized as a new, highly contagious coronavirus (2019-nCov), better known now as “Coronavirus Disease 2019 (COVID-19).” The World Health Organization received further details about COVID-19 at the end of January 2020 and considered it a “public health emergency of international concern.”² By March 11, 2020, it was declared a “global pandemic.”³ As of the end of April 2020, there are nearly 1 million COVID-19 cases (983,457 confirmed) and 50,492 deaths reported in the United States alone⁴.

Medical centers across the country have had to implement new guidelines/protocols and allocate limited resources to appropriately respond to the influx of COVID-19 patients requiring emergency, inpatient, and/or intensive

care. At the same time, medical schools have had to adjust their curricula. In late March, the Association of American Medical Colleges recommended that medical students be temporarily withheld from participating in clinical rotations to conserve personal protective equipment and reduce the risk of asymptomatic spread⁵. Since then, many medical schools have adapted by creating new opportunities to keep students involved and learning^{6,7}, albeit virtually and from a distance.

Even in Times of “Celebration”

The fourth year of medical school is long-awaited for many. After intensive months of subinternships and traveling across the country for residency interviews, the final stretch promises to be a time of celebration. Every Spring in mid-March on “Match Day” graduating medical students find out where they will be continuing their training. A couple months shortly thereafter, they graduate as doctors. Both Match Day

Disclosure: The **Disclosure of Potential Conflicts of Interest** forms are provided with the online version of the article (<http://links.lww.com/JBJSOA/A182>).

Copyright © 2020 The Authors. Published by The Journal of Bone and Joint Surgery, Incorporated. All rights reserved. This is an open-access article distributed under the terms of the [Creative Commons Attribution-Non Commercial-No Derivatives License 4.0](https://creativecommons.org/licenses/by-nc-nd/4.0/) (CCBY-NC-ND), where it is permissible to download and share the work, provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

and graduation are events typically celebrated among family, friends, classmates, faculty, and mentors—all of whom have supported, challenged, and shaped these new physicians. However, this year, amidst the COVID-19 pandemic, Match Day ceremonies were cancelled. The 4 of us (A.W.K., F.R.C., K.N.K., and D.N.B.), all of whom are graduating from 4 different institutions, found out where we will be headed to start our orthopaedic surgical training not on stage or among our colleagues, but by email—isolated from those who have helped us get there. Similarly, there will be no hooding or receiving of diplomas at a graduation ceremony this year. In fact, some institutions have even rushed to graduate their senior medical students early to mobilize them to potentially join the COVID-19 workforce (D.N.B. and F.R.C.).

We remind ourselves that even during these times of “celebration,” our journey is not about us, rather it remains about patients and the health of the population. Although we should take time to reflect on our medical school careers, in its essence, Match Day and graduation ceremonies are just 2 more of the many steps necessary to reach our goal of becoming practicing orthopaedic surgeons.

Uncertainty and “Foreign Territory”

The landscape of orthopaedic care has changed considerably during this pandemic as well. Many ambulatory/elective orthopaedic procedures have been temporarily halted^{8,9}, and orthopaedic trauma surgeons are still trying to figure out the best and safest ways to treat patients with traumatic injuries during this period of time¹⁰. In certain metropolitan areas hit hardest, such as New York City, orthopaedic residents and attending surgeons have been redeployed “into the trenches” (i.e., the emergency department or intensive care unit) to help take care of COVID-19 patients.¹¹

As incoming orthopaedic interns, we enter the workforce at a pivotal moment in history. Although we do not know what the landscape will look like come later this summer, it will most likely be different for each of us and from those of our predecessors. Two of the 4 authors (F.R.C. and K.N.K.) are headed to the “epicenter” of COVID-19 (New York City). The other 2 authors (A.W.K. and D.N.B.) will be starting their residencies in other large metropolitan areas (St. Louis and Boston). We are fortunate, as are many of our fellow incoming orthopaedic interns, that our training programs have been in regular contact with us since Match Day. They have been very transparent about what changes have been made, and how they are currently functioning on a day-to-day basis in response to the pandemic. However, our expectations for the start of our intern year are relatively unknown, given the unpredictable nature of COVID-19. State, city, and hospital regulations and recommendations are unique and constantly changing. Our incoming orthopaedic intern colleagues in cities such as New York City may still need to be “redeployed,” whereas others in more rural or less affected areas could return to “normalcy” sooner. However, at this point in time, future expectations would merely be speculative.

The thought of being “redeployed” to assist with the pandemic and help take care of COVID-19 patients may be unsettling for some, if not many, incoming orthopaedic in-

terns. The Match process for securing an orthopaedic surgery residency position is perceived as being increasingly more competitive each year, which has, in turn, caused many to prioritize orthopaedic surgery from very start of medical school¹²⁻¹⁴. Unlike most other general specialties, during our fourth year, we spend 2 to 3 months of elective time on dedicated “away orthopaedic rotations” and then take 1 to 2 months off after to go on an average of 16 to 17 interviews to successfully secure a residency position^{15,16}. Many medical school curricula no longer require acting internships (AIs) in general medicine or general surgery; thus, students can tailor their AIs and education more toward their own interests, such as orthopaedics. As Dr. Joseph D. Zuckerman has pointed out in a published response to the residency application “arms race,” “students are already specializing too early. Instead of going to medical school to become physician first and an orthopaedic surgeon second, many seem to bypass the physician part.”¹⁴ Our classmates graduating and going into specialties such as emergency medicine, internal medicine, general surgery, or pediatrics have likely had additional exposure to fields such as pulmonology, medical intensive care, and infectious diseases during their elective time. In addition, if “redeployed” they will acquire knowledge and skills that are *directly* transferable to their future careers (e.g., routine use of ventilators). Although it may be difficult to see how being “redeployed” into “foreign territory” will translate to our future orthopaedic careers, we must remember that we are interns and physicians first, there will undoubtedly be greater lessons and things to learn beyond that of just medical knowledge, and as Dr. William N. Levine has written, “it is our calling to help people...and now (we) have the opportunity to do just that.”¹¹

To “Heed the Call”

Regardless of whether COVID-19 will still be rampant or dwindling and under control, we know that we can start our internship and orthopaedic residency embracing the following principles to “heed the call,” no matter the circumstance:

- 1) Adapt and serve any way we can
Whether we are called to be “redeployed” to help assist in the care of COVID-19 patients or remain on standard orthopaedic/intern services—we will adapt and work hard, serve in any way we can, make the most of each situation, and do what is asked of us, no matter the task.
- 2) Seek guidance from our junior and senior residents, attending surgeons, and colleagues
Most of us will be entering a new hospital and healthcare system for the first time this summer. Although many of us are self-starters and were taught to take the initiative, we will look—even more so—to those with both experience and expertise to help guide and provide a model for us to emulate and learn from.¹¹
- 3) Strive to learn, grow, and acquire skills in any situation
Growth comes from being placed in challenging and new situations. This is true for internship and residency training in general but also during times of uncertainty, such as those we currently face. What we learn and how we develop over

the coming months will be valuable to us personally and for the rest of our future careers.

4) Be grateful for this unique opportunity

A pandemic is a remarkably infrequent and rare event. We are grateful for the opportunity to be able to join the physician community amidst great need and during these times.

Summary and Conclusions

Despite graduating medical school and entering the workforce during a significant time of uncertainty, we are nonetheless privileged and excited to be joining the orthopaedic community. As physicians, newly minted by the COVID-19 pandemic, we will attempt to “heed the call,” whether in “foreign territory” or not. Although we acknowledge that this letter only represents the perspective of 4 incoming orthopaedic surgery interns, interactions with our colleagues over the past year through the Match process has led us to believe that they too will strive to “heed the call” and hit the ground running, wherever and whatever that may look like. We hope that by “heeding the call” during the current global pandemic, we will experience additional growth that will further mold us into resilient orthopedic surgeons capable of keeping an open mind and adapting to unforeseen circumstances. In 5 years, at the end of our residency training, we will have new perspectives on how the beginning and subsequent years of our training were affected by the COVID-19 pan-

demic—and how it will have shaped us. As such, the 4 incoming orthopaedic intern authors will commit to documenting and compiling those experiences and perspectives so that one day we can reflect back on them. ■

Andrew W. Kuhn, MD¹

Francesca R. Coxe, MD²

Kyle N. Kunze, MD²

David N. Bernstein, MD, MBA, MA³

¹Incoming Intern, Department of Orthopaedic Surgery, Washington University School of Medicine, St. Louis, Missouri

²Incoming Intern, Department of Orthopaedic Surgery, Hospital for Special Surgery, Weill Cornell Medical College, New York, New York

³Incoming Intern, Department of Orthopaedic Surgery, Harvard Combined Orthopaedic Residency Program, Harvard Medical School, Boston, Massachusetts

E-mail address for A.W. Kuhn: andrew.warren.kuhn@gmail.com

ORCID iD for A.W. Kuhn: [0000-0003-1836-7575](https://orcid.org/0000-0003-1836-7575)

ORCID iD for F.R. Coxe: [0000-0002-6785-3847](https://orcid.org/0000-0002-6785-3847)

ORCID iD for K.N. Kunze: [0000-0002-0363-3482](https://orcid.org/0000-0002-0363-3482)

ORCID iD for D.N. Bernstein: [0000-0002-1784-3288](https://orcid.org/0000-0002-1784-3288)

References

- Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, Zhang L, Fan G, Xu J, Gu X, Cheng Z, Yu T, Xia J, Wei Y, Wu W, Xie X, Yin W, Li H, Liu M, Xiao Y, Gao H, Guo L, Xie J, Wang G, Jiang R, Gao Z, Jin Q, Wang J, Cao B. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020;395(10223):497-506.
- Patel A, Jernigan DB; 2019-nCoV CDC Response Team. Initial public health response and interim clinical guidance for the 2019 novel coronavirus outbreak - United States, December 31, 2019-February 4, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69(5):140-6.
- World Health Organization. WHO Director-General's Opening Remarks at the Media Briefing on COVID-19-11 March, 2020. 2020. Available at: <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19-11-march-2020>. Accessed April 15, 2020.
- World Health Organization. Coronavirus Disease 2019 (COVID-19) Situation Report. 2020. Report No: 100.
- Association of American Medical Colleges. Important Guidance for Medical Students on Clinical Rotations during the Coronavirus (COVID-19) Outbreak. 2020.
- Miller DG, Pierson L, Doernberg S. The Role of medical students during the COVID-19 pandemic. *Ann Intern Med*. 2020 [epub ahead of print].
- Soled D, Goel S, Barry D, Erfani P, Joseph N, Kochis M, Uppal N, Velasquez D, Vora K, Scott KW. Medical student mobilization during a crisis: lessons from a COVID-19 medical student response team. *Acad Med*. 2020 [epub ahead of print].
- Sarac NJ, Sarac BA, Schoenbrunner AR, Janis JE, Harrison RK, Phieffer LS, Quatman CE, Ly TV. A Review of state guidelines for elective orthopaedic procedures during the COVID-19 outbreak. *J Bone Joint Surg Am*. 2020 [epub ahead of print].
- DePhillipo NN, Larson CM, O'Neill OR, LaPrade RF. Guidelines for ambulatory surgery centers for the care of surgically necessary/time-sensitive orthopaedic cases during the COVID-19 pandemic. *J Bone Joint Surg Am*. 2020 [epub ahead of print].
- Rodrigues-Pinto R, Sousa R, Oliveira A. Preparing to perform trauma and orthopaedic surgery on patients with COVID-19. *J Bone Joint Surg Am*. 2020 [epub ahead of print].
- Sarpong NO, Forrester LA, Levine WN. What's important: redeployment of the orthopaedic surgeon during the COVID-19 pandemic: perspectives from the trenches. *J Bone Joint Surg Am*. 2020 [epub ahead of print].
- Trikha R, Keswani A, Ishmael CR, Greig D, Kelley BV, Bernthal NM. Current trends in orthopaedic surgery residency applications and Match Rates. *J Bone Joint Surg Am*. 2020;102(6):e24.
- Association of American Medical Colleges (AAMC). Table A1. Continuity of Specialty Preference on the Matriculating Student Questionnaire and the 2019 Graduation Questionnaire. Washington, DC: AAMC; 2019.
- Bernstein J. Not the last word: ending the residency application arms race-starting with the USMLE. *Clin Orthop Relat Res*. 2016;474(12):2571-6.
- Chen AF, Secrist ES, Scannell BP, Patt JC. Matching in orthopaedic surgery. *J Am Acad Orthop Surg*. 2020;28(4):135-44.
- Li NY, Gruppuso PA, Kalagara S, Eitorai AEM, DePasse JM, Daniels AH. Critical assessment of the contemporary orthopaedic surgery residency application process. *J Bone Joint Surg Am*. 2019;101(21):e114.