

Pivoting Research to COVID-19

High-impact, translational research projects from the basic, clinical, and/or applied sciences are needed to understand the effects of coronavirus disease 2019 (COVID-19) disease caused by the severe acute respiratory syndrome-coronavirus 2 (SARS-CoV-2) virus. In this webinar, the American Neurological Association (ANA) interviewed Dr Shannon Agner, a pediatric neurologist at Washington University in St. Louis, and Dr Chetan Bettgowda, a neurosurgeon at Johns Hopkins University, regarding how they are pivoting their research efforts toward COVID-19. They discussed how they are applying their research expertise in a novel way, first steps and challenges to pivoting, and the role of the neuroscientist in understanding the impact of COVID-19. Leveraging COVID-19–dedicated institutional and financial resources was also discussed. Finally, the disproportionate impact of COVID-19 on individuals of low socioeconomic status and minorities was highlighted as a key research area.

Applying your Knowledge and Skills in a Novel Way

Historically, innovations occur when an individual applies their expertise in one field to a new, unrelated field. COVID-19 is a multifaceted problem that will benefit from a multidisciplinary approach and, thus, represents an ideal opportunity for researchers to apply their knowledge to a new and urgent problem. Dr Agner is using her experience studying effects of the Zika virus on the developing brain to contribute to a group at Washington University that will study neurodevelopmental outcomes in babies born to SARS-CoV-2–infected mothers. Johns Hopkins investigators recently observed that a surge in catecholamines precedes the cytokine release syndrome observed in bacterial infections and that this surge is effectively treated by alpha adrenergic blockade.¹ Given the report of “cytokine storming” in patients with COVID-19,² Dr Bettgowda has launched a clinical trial to investigate the efficacy of the α 1-adrenergic antagonist prazosin as a prophylactic for patients with COVID-19.³

First Steps to Pivoting your Research to COVID-19

When discussing their transition to a new field, both panelists felt that critically appraising their own skill set, reflecting on their clinical/scientific observations, and asking, “How does my expertise apply to COVID-19?” were key steps in

identifying how best to pivot their research. Once they identified an area to pursue, they described a mindset that facilitated pivoting: a willingness to tackle new problems, embracing a steep learning curve, and a commitment to working with others outside of their traditional field. For his upcoming clinical trial, Dr Bettgowda is working closely with the clinical trials unit in his institution’s oncology division to leverage their expertise of the US Food and Drug Administration (FDA) guidelines. Both panelists have noticed an increased openness to collaboration in the research community toward a common goal. Dr Agner is amazed at how responsive busy infectious disease specialists have been to her queries. In the face of new challenges presented by COVID-19, the inclination to safeguard novel research ideas and maintain secrecy have significantly decreased, lowering barriers to collaboration. Team science is further enabled by technologies, such as video conferencing, data sharing, and preprint repositories, as well as by community-driven data processing.

Challenges of Pivoting your Research

Although the panelists find contributing to COVID-19 research efforts fulfilling, unique challenges have emerged. Dr Agner’s research involves specimen collection, and due to the high transmissibility of SARS-CoV-2,⁴ significant effort is directed toward addressing safety risks for patients and researchers during specimen collection. Dr Bettgowda has spent significant time learning about regulatory protocols and working with the FDA to facilitate his clinical trial. Both panelists’ institutions have established special COVID-19–specific institutional review boards and regulatory research boards to lessen the burden on researchers. Other challenges include conducting research while maintaining appropriate social distancing, finding time to coordinate remote meetings, as well as coping with the personal stressors of social distancing, workforce reductions, and financial hardships of family and friends.

The Role of Neuroscientists

Early reports of COVID-19 progression suggest that neurological symptoms may occur in approximately 37% of COVID-positive patients,⁵ highlighting the need for neuroscience-focused COVID-19 research. The Neurocritical Care Society launched an international consortium to catalog the virus’s effect on the nervous system in the acute setting.⁶ Dr Justin McArthur joined the panelists in noting that the

high number of patients being infected and the known increased recovery time for patients suffering neurological deficits will likely lead to a significant need for studying and caring for patients with COVID-19 with neurological sequela.

Unconventional Financial Support for COVID-19 Research

Funding agencies, such as the National Institutes of Health, the National Science Foundation, the Department of Defense, the Biomedical Advanced Research and Development Authority, and private foundations have quickly introduced COVID-19–related funding opportunities. Dr Bettgowda noted his surprise at the increased response from unconventional sources, such as Microsoft, and private and public philanthropic consortiums, such as fastgrants.org. Most medical schools have also begun publishing curated lists of COVID-19–related funding opportunities.

Disproportionate Effect of COVID-19 on Minorities and People from Underserved Communities

African Americans are reported to be three times more likely to be diagnosed with COVID-19 and six times more likely to die from the disease.⁷ It is well documented that individuals of low socioeconomic and/or minority status are underenrolled in clinical research due to mistrust of the biomedical community, poor communication and health literacy, and increased time demands. As COVID-19 research enterprises are developed, engaging these under-represented and over-burdened communities will be a high priority. Increased engagement can be accomplished through focus groups, open discussions that emphasize transparency, and advisory boards. Researchers can leverage established programs, such as the National Institute on Minority Health and Health Disparities (NIMHD) and their recent Notice of Special Interest (NOT-MD-20-019) calling for research on the impact of COVID-19 on minorities and health disparities.

Looking to the Future

We are currently living in a period of significant change that will be a defining moment of our professional lives. We must deeply consider not only whether our research efforts should be redirected toward COVID-19, but how these changes will impact all aspects of our professional life (clinic, research, and education) going forward.

Acknowledgment

This manuscript was edited by the Scientific Editing Service supported by the Institute of Clinical and

Translational Sciences at Washington University (NIH CTSA grant UL1 TR002345).

Jen Hurley helped with production of the Webinar.

Author Contributions


E.L. was responsible for the concept of the webinar, conducted the interview, and drafted the commentary. S.A., C.B., and J.M. participated in the interview and editing process.

Potential Conflicts of Interest

The authors declared no conflict of interest.

The full length version of the webinar can be reached at <https://myana.org/education/ana-webinars> or via the QR code



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Additional supporting information can be found in the online version of this article.

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