ASSOCIATION OF ACADEMIC HEALTH CENTERS

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Post-COVID Opportunities and Challenges in Healthcare: Free Movement of Scientists Across Borders

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2021 // ISSUE 1
aahcdc.org

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PERSPECTIVE

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COVID-19 clearly knows no borders. In early 2020, even as nation after nation refused entry to travelers in a belated attempt to slow its spread, we witnessed, almost in real-time, an incontrovertible ravage that did not distinguish across time zones, national boundaries, or political beliefs.

As with all crises of this proportion, we are still reeling from the devastating effects. At the same time, we have gained new insights into the tremendous value of global collaboration and the need to develop better approaches to international partnerships. In addressing *Post-COVID Opportunities and Challenges in Healthcare: Free Movement of Scientists Across Borders*, Professors Jane Gunn (Australia), Hans van Leeuwen (Netherlands), and Jorge Valdez (Mexico) are strikingly consistent in their views. Each of these commentaries reflect broader observations and insights worthy of our contemplation as leaders in academic health centers.

Drs. Gunn, van Leeuwen, and Valdez chronicle clinical and research teams rallying across international borders to an extent not seen before in our lifetimes. Constructs of time and physical presence dissolved as the sprint to outpace the virus's spread accelerated, forcing research convergence and the immediate sharing of information, and breaking the long-standing norm of withholding data until it can be formally presented in scientific talks and publications. Of course, this approach has had its downsides, evidenced by the confusion caused among the general public as information about the virus was released on an "as we go" basis rather than only after it had been fully vetted.

Obviously, nationalism, questions about ownership of intellectual property, and other barriers to global interactions remain. Nevertheless, the COVID-19 pandemic catalyzed an unparalleled, unified, instant global response, and we should not let the opportunity pass to learn from this experience and formulate a better approach to international research collaborations.

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By rapidly sharing genomic sequence data, tirelessly testing an extraordinary number of patient samples, applying data science to provide meaningful analytics, and sharing early clinical observations, our colleagues recalibrated to this new pace, reaching to one another across the globe. To do so effectively, research, clinical care, and teaching partners had to adapt to the use of technologies that were often already available yet underutilized; in other cases, they had to be procured and then adapted to minimize even further critical delays.

While international borders and traditional transdisciplinary barriers were surmounted through these efforts, other hurdles were laid even more bare than before. Longstanding inequities in healthcare, payment models, and access to care are starker than ever. However successful our research, education, and clinical collaborations will be, if we fall short on these larger societal health challenges we will fail. Miserably.

Two key points stand out in these commentaries:

- *Social interaction is key to the success of the scientific enterprise and essential if we are to achieve research convergence. To maximize this interaction, a new balance of transdisciplinary in-person and remote exchange will become the norm as we embrace the use of new technologies.*
- *Scientists and clinicians have shown that they can surmount a global healthcare crisis with agility and shared purpose, but research and healthcare must go hand-in-hand with economic policy, societal challenges, and equal access to healthcare writ large if we are to effectively address preparedness, prevention, and treatment of chronic and cataclysmic health threats.*

Academic health centers must continue to lead by example, offering top-notch teaching, training, patient care, and research. We must seek, retain, and value individual, team, and institutional partnerships, whether in local communities or across the globe. Individually and collectively, we serve a critical role in advancing and instilling these core principles.

Jane Gunn, MBBS, PhD, FAHMS, FRACGP, DRANZCOG

Dean, Faculty of Medicine Dentistry & Health Sciences

Chair of Primary Care Research

University of Melbourne

COVID-19 has had a significant impact on our capacity at the University of Melbourne to contribute to science across international borders. As one example, Australia's borders have been closed since early in the pandemic, which has curtailed the ability of new international students to join us here. That population contributes inestimably to our intellectual and social environment; the interruption in the flow of students has created a profound loss over the last year. While many of our international students have been able to continue their studies online, they have not been able to benefit from being physically part of our community in Melbourne.

All of our learners have suffered due to restrictions on access to our physical campus during the pandemic that greatly reduced opportunities for practical, clinical work. Another loss for us has been the inability for our students to travel away for placements, internships, and lab exchanges—experiences that we know can be transformational for young scientists.

On the other hand, the pandemic has shown us the power of cross-border scientific exchange. The Doherty Institute was the first to grow the SARS-Cov-2 virus outside of China and share it with public health laboratories nationally and the World Health Organization. Scientific exchange has also benefited from using virtual platforms. Online conferencing, while lacking some of the benefits of in-person meetings, has nonetheless proven effective in enabling our people to participate in robust discussions with colleagues in the U.S. or Europe, for example, or perhaps to collaborate virtually with a research group in India. I am sure that such means of exchange will continue to have an important place in our work after the pandemic ends.

Going forward, I think one of our challenges will be to harness best use of virtual networking across international borders. How can we maximize the fact that we can be so connected so easily? Are we teasing out the optimal value from that modality? I expect we will continue to see ongoing improvements in the online platforms that we use.

The pandemic has also opened our thinking to new ways of working across time zones and different places. For example, some of our employees have been forced to work remotely from different countries during the pandemic because they could not get back to Australia or their home country. That forced us to identify strategies for teams to collaborate effectively, even if team members are widely scattered geographically. We have had multiple discussions about this locally, about what constitutes the right balance in that regard. That process has tested our commonly held assumptions about how we view the location of work and how teams come together; it has opened our thinking to new, more flexible ways for science to be done across borders. I think that, in the future, we will continue to see people working and collaborating in quite different ways across the 24-hour time zone spectrum. I anticipate that we will see development of new innovative models for accomplishing that kind of work.

I would also note that the pandemic has shown how scientists can collaborate broadly across borders for the greater good of society. The development of vaccines, for example, was truly an international accomplishment, with considerable sharing between scientists who, in other contexts, might have been more competitors than collaborators. The pandemic has really underscored the importance of the collection of real-time healthcare data, the power of data visualization, data sharing, and predictive modelling to inform decision-making. Social media has enabled the free flow of ideas, open interaction, and the sharing of new knowledge across borders. The scope and scale of the problems society is likely to face in the future argue strongly that we need to continue—and expand—the kind of cross-border cooperation that has been much in evidence in the fight against COVID-19. Academic health centers are ideally positioned to be leaders in fomenting and organizing that kind of necessary scientific exchange.

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Jorge Valdez, MD, PhD
Dean, School of Medicine and Health Sciences
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The pandemic was, of course, disruptive—certainly in the number of people who were directly affected by the virus, but also in the ways in which it forced us to find new ways to deliver healthcare, educate students, and conduct research. At the same time, however, the disruption we experienced also proved to be highly instructive.

As one example, at the start of the pandemic we dedicated one of our hospitals entirely to the treatment of COVID-19. That helped us considerably in terms of efficacy and efficiency as well as in learning about the virus and how to treat the disease. In the course of that work, we learned important lessons about what processes worked best. We also learned how to be more flexible in that work and to adapt more quickly. Moreover, we learned how to be more effective in the sharing of important, relevant knowledge in a timely manner. In those ways, the pandemic had some positive effects, even while we were dealing with significant challenges on a daily basis.

As with other institutions, we quickly became reliant on technology to sustain our work when face-to-face interactions became impossible. Technology became essential in helping us advance patient care, teaching and learning, and research. We quickly learned how to used digital technology to teach students in a virtual learning environment. We learned that online courses, webinars, and roundtables could indeed be effective for the sharing of knowledge. Even before the pandemic ends, we have already incorporated such tools in our regular way of working. Holding more meetings online, for example, is already part of our normal practice in research and education. We continue to learn more about how to improve the dynamics of those meetings and how to follow-up on meetings through effective teamwork.

One of the most significant developments for us during the pandemic was that we became more deeply engaged in collaborative activities with colleagues around the world. We became involved in global efforts to test vaccines. We started to regularly share information about the virus—including best practices for how to mitigate its effects—with colleagues all over the world. This was a huge moment, the regular sharing of knowledge virtually with colleagues in many different countries, which I believe constitutes another positive impact of the pandemic. My hope is that these global efforts in collaboration will continue long after the pandemic ends.

Broader, more robust global collaboration fits well with two of our initiatives. Our **Global Classroom** links courses from Tecnológico de Monterrey with those from partner universities around the world, using digital tools to connect students in collaborative activities that promote learning in a multicultural environment. We have also revitalized the concept of the **Open Lecture** as a virtual space where people can share knowledge, findings, and even conduct experiments online.

The pandemic underscored how we can effectively use technology to advance global collaboration. I think the challenge now is to expand and inculcate those kinds of opportunities. The biggest risk, I believe, would be reverting back to our old, outdated and more provincial ways of working.

Academic health centers are uniquely poised to connect the dots through global information-sharing in ways that can lead to better patient care, education, and research at all our institutions. Building on lessons learned during the pandemic, the time is right for us to now further develop our international networks and hone our skills for global collaboration. Our innate capacities for exploration and experimentation will be invaluable in that regard. Building on those skills, we need now to shine as a beacon for others, showing the way toward robust and rewarding global collaboration.

Hans van Leeuwen, PhD

Dean and Deputy Chair of the Executive Board

Erasmus University Medical Center

At Erasmus MC, we are developing an ambitious program that we call "convergence," which refers to our work to link expertise and methodologies from different fields of science and technology to jointly address society's most intractable challenges. To support that goal, we announced plans in 2020 to build a new campus at Erasmus MC to house and support collaborative innovation and education by the Erasmus University Medical Center, Erasmus University Rotterdam, and the Delft University of Technology. In practice, we seek to bring together experts in a wide range of fields, including medicine, engineering, and the social and economic sciences, in collaborative work to find smart solutions to hard problems.

The value of the concept of convergence has been amply demonstrated during the COVID-19 pandemic. The pandemic exemplifies a grand societal challenge that cannot be solved through an approach that is limited to a life sciences healthcare perspective. While the pandemic started with such a focus—and the process of caring for patients while also sequencing the virus in order to find an antidote—it quickly escalated beyond that framework. The lockdown that ensued showed that the pandemic was also a matter of economic impact. Further, the effects of the pandemic were social and cultural. Those are realities that can best be understood from the perspectives of economics and the social sciences.

The pandemic also showed us how important social interaction is to the scientific enterprise. As one example, we have been unable this year to host visits from colleagues who work with us as part of an international network on medical excellence. We have learned that we can interact online, but in-person meetings are richer and enable unexpected (unguided by an agenda) exchange of ideas. The reopening of national borders after the pandemic will facilitate idea sharing in our network as well as the development of new networks. Such interactions are a fundamental part of convergence.

The pandemic also highlighted a fundamental challenge we have today in the economics of healthcare. In most countries, payment for healthcare is based on when you repair something, or when you treat people, but it's rarely based on prevention. The pandemic highlighted the importance of focusing on both aspects: treatment and prevention. I believe that if we truly want to improve and innovate in healthcare, we are going to have to fundamentally rethink our payment model. We are going to have to move beyond payments focused on repairing and restoring patient health when something goes wrong to a much more concerted focus on preventing things from going wrong in the first place.

In a similar vein, the pandemic is not just about treating patients for the current emergency but it is also about preparedness and prevention of future pandemics. How can we prevent the next pandemic? How can we protect ourselves against infectious diseases in the future? How can we create a safer society overall?

We cannot meet the challenges of those questions by looking at them solely through the lens of the life sciences and healthcare. Answering society's most difficult questions, like those that have been highlighted during the pandemic, will require the application of a convergence of areas of expertise. We need technology. We need engineers, architects, economists, data scientists. We need the social sciences.

Realizing the power of convergence will require a rethinking of our healthcare system. The different disciplines will need to learn how to talk with one another. Funding streams will need to be realigned so that they fund cross-disciplinary work. We will need to develop the capacity to look beyond treatment to prevention—and to learn ways of thinking that will help us better prepare for future crises. We will need to learn how to improve and innovate healthcare from the perspective of social and economic equality. Convergence can help us meet these significant challenges.

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