

ASSOCIATION OF ACADEMIC HEALTH CENTERS

LEADERSHIP PERSPECTIVES INTERNATIONAL

Academic Health Centers as Innovation Hubs



Introductory Perspective by

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PERSPECTIVE



BY Steven L. Kanter, MD // AAHC President & CEO

Welcome to the inaugural issue of **Leadership Perspectives International**, an important new addition to our

series of publications that aim to stimulate discussion and engage leaders of academic health centers in thoughtful dialogues on global issues and challenges impacting their institutions.

Innovation plays an essential role in academic health centers to accelerate discovery, to find new ways to continually improve patient care, and to advance the effectiveness of educational programs. Thus, it is fitting that this first issue of **Leadership Perspectives International** tackles the issue head on with three outstanding perspectives on *Academic Health Centers as Innovation Hubs*. Academic health center leaders, based in Australia, Canada, and the United States, offer compelling stories of how their institutions are fostering innovation to fuel far-reaching visions for continued growth.

Shitij Kapur of the University of Melbourne highlights several forces that are requiring academic health centers “to take on the central role in fostering medical entrepreneurship and commercialization of medical discoveries.” He notes important successes, including the creation of a “Biomedical Precinct” as his institution has taken on the challenge with others in a “concerted push to ride this entrepreneurship and innovation wave.”

Santa Ono of the University of British Columbia points out that, by virtue of their integrated nature, academic health centers are enabled to become innovation hubs and

develop research breakthroughs on many fronts, including technology transfer and disease control. He describes how affiliations, linkages, and collaborations across traditionally siloed disciplines and fields can lead to new opportunities and new discoveries in all academic health center missions.

Gene Washington of Duke University notes that innovation is essential to the central mission of translating findings generated in basic science laboratories to knowledge that improves the health of individuals, communities, and entire populations. He observes that, while innovations and discoveries clearly benefit external communities, they also “engender many rewards” inside the academic health center. Importantly, he points out the critical need to establish a culture that supports innovation.

Academic health centers are leaders in discovery and must continue to grow as innovation hubs. Tolerance of risk, acceptance of failure, and setting a tone that permeates the fabric of the institution are critical tasks for leaders to ensure that their institutions are positioned to realize the promise of innovation. These values should inform not only an institution’s research agenda, but also its faculty promotion and tenure system, its programs to support academic career progression, and its approach to preparing the next generation of physicians and scientists.



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Innovation at AHSCs: a Journey in Progress

Medical schools have been a fixture of western societies for more than 800 years—and their role in society has constantly evolved. When the University of Bologna was founded in 1200, the education of students was the primary role of a medical school. It wasn't till the late 19th century that scientific research became a central function of leading medical schools. While leading professors were always leading practitioners, it wasn't till the 20th century that the systematic integration of research with clinical care led to the development of what are now called Academic Health Science Centers (AHSCs). The 21st century may require AHSCs to take on a central role in fostering medical entrepreneurship and commercialization of medical discoveries.

Several forces are shaping this agenda. First, healthcare is increasingly big business. The US healthcare economy is bigger than the GDP of UK and Canada put together. Second, advances in molecular biology, genomics, biomedical engineering and ICT, have brought about unprecedented opportunities for new methods and products. Third, large commercial concerns (pharmaceutical companies, medtech manufacturers) have reformed their internal R&D to increasingly “outsource” several elements of this pathway. And finally, governments and university governors are increasingly expecting universities to create and support local innovation ecologies, often with the fond hope that this might be an answer for university finances.

At the University of Melbourne, and amongst its partners, there has been a concerted push to ride this entrepreneurship and innovation wave, especially in light of a \$20B Australian Medical Research Future Fund (MRFF) endowment created to support innovation and implementation in healthcare. The University has chosen to adopt a “precinct” model to engage its partners to enhance this agenda. Its first

manifestation was the formation of [Bio21](#), a shared precinct bringing together elements of the medical faculty with engineering and science, and inviting industrial partners on campus.

The success of Bio21 led to a broader coalition of 40 academic and medical organizations within walking-distance to create the [Melbourne Biomedical Precinct](#)—home to CSL, Australia's largest pharmaceutical company. The Precinct has been buttressed with considerable investments in an innovation and commercialization office with business development expertise; a Masters level course in biomedical enterprise; Dean's Innovation Grants; formation of and the development of a [Melbourne Entrepreneurship Centre](#) to provide academic and accelerator support to the academic community, and [Biocurate](#), a University funded catalyst fund which specifically addresses the ‘valley of death’ barriers that limit the translation and commercialization of early stage academic research.

There have been some notable successes, however the outcomes are changing only gradually. First, our global location puts us at some distance from the major biomedical economies of U.S., Europe, and China. Second, despite support from governments there is limited venture capital that is accessible, and perhaps even lesser business development expertise to spot and guide early ventures. But what is probably harder to change are the expectations and incentives for academics who are caught in the “publish-for-grants” economy. While promotion criteria are beginning to recognize innovation and commercialization achievements, individual academics are often unclear how to make these tradeoffs in their careers.

In Melbourne, and all over the world, innovation, entrepreneurship, and commercialization increasingly are becoming features of AHSCs. How best to achieve this and what it will mean for the individual and their organizations is a journey in progress.

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Santa J. Ono, PhD

President and
Vice-Chancellor
The University of
British Columbia

Academic Health Centers as Innovation Hubs

Through the creation of new companies, products, services, and treatments, academic health centers contribute to improved health outcomes. Likewise, the University of British Columbia (UBC) plays a key role in this process—bringing together research, practice, and patients—and participates wholeheartedly in public debate, culture, and policy.

UBC has research affiliation agreements with health authority research institutes dating back to the early 1990s. Much of this research has been focused on the field of medicine and has been carried out within a patient-focused environment. The university assumes the administration of research funding and research contracts, providing dedicated space within affiliated hospitals for teaching and research in addition to healthcare services. Under the affiliation agreements, UBC also provides technology transfer services, including the costs associated with patenting and licensing of technologies.

Indicative of what academic health centers can do as innovation hubs, UBC has an extensive history of innovation and impacts that have been enabled by the integrated nature of academic health centers. One such example is that of Dr. Julio Montaner's work on HAART (highly active anti-retroviral therapies) and TasP (Treatment as Prevention®) at the BC Centre for Excellence in HIV/AIDS. In the past, an HIV diagnosis brought stigma, suffering, and eventually, death. Today, while stigma remains an issue, individuals with HIV are living longer and healthier lives thanks in large part to Dr. Montaner's ongoing work.

UBC researchers at these research institutes have also facilitated breakthroughs in the understanding of breast cancer by decoding—for the first time in history—the three billion letters in the DNA sequence of a patient's metastatic lobular breast cancer. Dr. Samuel Aparicio, Dr. Marco Marra, and Dr. Sohrab

Shah's work at the BC Cancer Agency allowed them to show how this complex cancer mutates and spreads. In an ongoing collaboration with Vancouver Coastal Health and Vancouver Coastal Health Research Institute, the Djavad Mowafaghian Centre for Brain Health builds on UBC's impressive legacy of brain research and brings together experts in the fields of neuroscience, neurology, psychiatry, and rehabilitation in a hub for training, research, and clinical care.

In the 1990s and 2000s, UBC discoveries and spin-off companies were at the heart of the BC biotechnology sector, and continue to be hugely influential to this day. Currently 40 percent of our commercialization agreements come from UBC research taking place at affiliated hospital sites. A potential treatment for advanced prostate cancer developed by UBC and Vancouver Coastal Health Research Institute scientists at the Prostate Center has been licensed to the pharmaceutical company Roche, marking it as UBC's largest licensing agreement to date. In 2018/19, 47 percent (\$318m) of our research funding was carried out at affiliated institutions, such as BC Children's Hospital and the BC Centre for Disease Control, including more than 800 clinical trials annually.

Internally, UBC Health is an institutional consortium designed to enable more systematic collaboration across health programs at the university. By facilitating closer linkages and collaborations across disciplines and sectors, UBC Health aims to strengthen the university's impact and capacity for excellence in health education and research, and to create the opportunity for improved wellbeing and patient outcomes, accelerated knowledge development and innovation, and greater training effectiveness.

UBC is proud to be on the forefront of health research and innovation. Supporting the evolution of healthcare toward an integrated system focused on individual and community wellbeing is one of our major priorities.

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**A. Eugene
Washington, MD**

Chancellor for Health
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Academic Health Centers as Innovation Hubs

Innovation is essential to success in delivering on one of the central missions of academic health systems—translating across a continuum from basic research through clinical investigation to population health improvement of whole communities. And, academic health systems are uniquely positioned to drive such innovation, given our deep multi-disciplinary talent, prowess in discovery and transition, and integrated approach to research, education, and patient care.

The importance of academic health systems in serving as a nexus for innovation, I believe, is greater today than a decade ago. What has changed, and what makes innovation even more important, is that many other players—such as large pharmaceutical companies—no longer own the full discovery-to-commercialization continuum, resulting in critical gaps in the translation chain. Academic health systems are uniquely suited to fill such gaps.

Innovations in discovery can obviously benefit the communities we serve, whether they are local, regional, or global. But within academic health systems, innovation itself can engender many rewards. At Duke, for example, we created the Duke Institute for Health Innovation to address immediate and emerging clinical needs as we look to create sustainable differentiation and value for our patients and community. The Institute develops, implements, evaluates, and helps us integrate new models of care. While we are intentional about sharing such innovations with other institutions and scaling them, the Institute has inestimable value as a living lab for innovation in our own institution. Providing learners across academic health systems with access to such a living lab strengthens our education mission and enables the development of future generations of leaders and change agents.

In a somewhat similar vein, we also created the Duke Global Health Innovation Center. This Center focuses on studying and supporting grassroots innovators in health globally, and plays what we believe is a pivotal

role in ensuring that there is rapid uptake around the world of innovations that are proven to be effective. While we expect the Center to contribute to the broader innovation ecosystem and benefit public health around the world, it also accrues value to our institution by enhancing Duke's insight, collaborations, and capacity for innovation.

Realizing the enormous promise of academic health systems for innovation requires that we nurture a culture that supports and values innovation. Institutional leaders set the tone for promoting innovation by being open to new ideas and new approaches. That applies not only to research but also to corporate functions such as legal, compliance, procurement, finance and IT. If we are to be leaders in innovation, academic health systems need to adjust tolerance of risk. That, too, starts with institutional leadership. You have to signal that you will accept failures in the pursuit of innovation.

Recognizing the increasing demands on people's time and operational drives for efficiency, another change that is necessary is affording enough time for discovery and innovation. Our Duke Health Scholars program, for example, specifically funds innovation time for faculty, in order to facilitate the exploration of new ideas not necessarily tied to short-term impact.

As data continues to grow in importance as a key resource and driver of innovation, we also need to invest more in the necessary technical infrastructure and policy framework that will support data science innovation and promote the democratization of data. This includes building a platform that supports data, machine learning, and innovation. To that end, for example, we created an innovation acceleration computing platform, where investigators and providers can collaborate with access to sensitive data to advance our strategic priorities focused on quality improvement, as well as research and education.

To drive innovation, I believe we in academic health systems can and should do more. Emphasizing and modeling leadership that supports innovation and developing a related culture and platforms are specific critical steps for our institutions to remain as innovation leaders and, in turn, to excel in providing highest-quality care and improving the health of populations.

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