PERSPECTIVE

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This issue presents three perspectives on the role of the Chief Academic Officer (CAO) (or its equivalent) as a member of the academic health center senior leadership team. In visits, meetings, and informal conversations, I have learned that the CAO is an evolving position and is often at the forefront of education and faculty development. The position can serve to align various academic components in a coherent manner while enhancing interprofessional engagement. A group of about 20 CAOs held their first organizational meeting at AAHC's Annual Meeting in Boston last October. Discussions included the changing role of technology and its implications for the classroom, as well as the development of new education models. I look forward to their subsequent activities and recommendations.

Dele Davies, MD, senior vice chancellor for academic affairs at the University of Nebraska Medical Center, focuses on the transformative influence of technology on pedagogy. He notes that technology now serves as the common denominator in many training initiatives and presents important challenges not only regarding its impact on faculty and student interaction, but also with regard to its management.

At the University of Arkansas for Medical Sciences, Stephanie Gardner, EdD, interim chancellor and senior vice chancellor for academic affairs and provost, describes the changes that took place when the posts of vice chancellor for academic affairs and provost were combined. This new role serves not only an important convening function, but also helps to align the institution's fiscal, human, and physical resources.

Louise Veselicky, DDS, MDS, MEd, associate vice president for academic affairs at the Robert C. Byrd Health Sciences Center of West Virginia University, makes a strong case for the importance of the CAO. She notes that the role has many facets, including creating an optimal learning environment and ensuring that rules and guidelines for promotion and tenure are in sync with the changing times—all while keeping abreast of critical advances.

The challenges academic health centers face revolve to a large extent around their ability to respond to the changes being wrought by the fourth industrial revolution's "technologic convergence" that is impacting every aspect of the traditional missions of education, research, and patient care. It is entirely appropriate—and necessary—in this challenging environment that academic health centers consider new and/or reformulated leadership positions to keep pace with both changes and opportunities, of which the CAO is a good example. The authors do a fine job of illustrating this effort, and I would urge readers to consider how well their institutions are keeping up with needed changes in academic administration.

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LEADERSHIP PERSPECTIVES

The Changing Roles and Challenges of Chief Academic Officers

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One of the most significant challenges facing chief academic officers (CAOs) is the rapidly expanding role of technology and its pervasive impact on much of what a CAO does. Given the ubiquity of technology in healthcare practice today, it is incumbent on us to educate our students and faculty to use technology effectively.

Technology is having a transformative impact on pedagogy and healthcare delivery. By some estimates, a third of healthcare is, or will soon be, automated. For their part, learners today come to us as digital natives, with definitive expectations about how technology will factor in their education. Furthermore, the explosive technology-driven growth in knowledge means that we can no longer focus training primarily on fact memorization. In light of these unprecedented changes, it is our role to ensure that trainees know how to effectively use technology to get information, distill which sources are credible, and critically analyze and utilize it in real time.

These trends raise key training questions and challenges for the future. How can we best integrate the use of simulations and artificial intelligence to enhance learning and facilitate excellent patient care and outcomes? How can technology be mobilized to help learners work effectively in interprofessional teams, be critical thinkers, and become competent providers? Importantly, how can we best show our students how to master technology without letting it control them?

Virtually every academic health center is wrestling with these questions, and likely addressing them differently. At UNMC, we actively support our teachers and learners to continuously innovate. For example, we have supported on-demand learning in the form of short, interactive e-learning modules that provide key lessons and concepts that students can access in real time around the clock. We are also promoting active learning through use of mobile devices, interactive small groups, and flipped classrooms. We are experimenting with the use of artificial intelligence tools, such as IBM Watson, and implementing large-scale virtual and augmented reality experiences to improve learning.

In many of our training initiatives, effective use of technology to enhance competency is the common denominator. A central challenge for leaders in academic health centers is to ensure that students learn how to use technology not as an end to itself, but as a tool to solve problems and expand their own capacity to deliver care.

> “...it is our role to ensure that trainees know how to effectively use technology to get information...and critically analyze and utilize it in real time.”

Stephanie F. Gardner, PharmD, EdD // *Interim Chancellor and Senior Vice Chancellor for Academic Affairs and Provost*
University of Arkansas for Medical Sciences

From an administrative standpoint, the CAO role at UAMS changed about three and a half years ago when the role of the vice chancellor for academic affairs was changed to be that of a vice chancellor for academic affairs and provost. One of the key reasons for that change was to provide more support to all the colleges via the provost's role.

That reordering of the organizational chart speaks to some of the transformational changes that have recently impacted academic health centers. As budgetary issues have become increasingly difficult for us as a state supported institution, it is critical that the vice chancellor's role have specific responsibility for resources associated with the academic enterprise. Our perspective is that it is critical to have a top leader with oversight responsibility for ensuring, for example, that we have the right resources in place to facilitate faculty recruitment, faculty development, support for academic programs, and overall institutional support for meeting accreditation requirements. That role also helps ensure that we have strong library and residence halls facilities. Further, we have added some cross-institutional initiatives, such as advancing interprofessional education, which benefits from centralization via a provost's office.

This relatively new role serves an important convening function and enables collaboration in the advancement of key institutional goals. Faculty affairs is a good example. Each of our colleges had its own faculty affairs support, but by pooling resources under the direction of a provost's office, we can provide better services to all the colleges. We also centralized our continuing professional development offices and recently became the first organization in Arkansas that has been jointly accredited to offer medicine, nursing, and pharmacy continuing education through a single, unified application process, fee structure, and set of accreditation standards. Collaboration has also benefited the cross-institutional office we created for interprofessional education and for managing our requirement that every graduate have interprofessional experience.

From a leadership perspective, these efforts are part of an overarching strategic initiative to better align our fiscal resources, human resources, and physical resources in ways that enable UAMS to thrive. Some of these efforts are in their relative infancy, and going forward we expect their evolution will continue to progress. While they bring value today, we expect that as these initiatives mature they will impute even greater value in positioning us to work effectively in the face of today's rapid pace of change.

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Louise T. Veselicky, DDS, MDS, MEd // *Associate Vice President for Academic Affairs, Robert C. Byrd Health Sciences Center*
West Virginia University

The position of chief academic officer (CAO) has become an essential element of an academic health center. Working across many aspects of an evolving landscape, CAOs must address a wide variety of challenges.

One factor is the evolving nature of faculty roles. Today's faculty member might be on a tenure track, research track, teaching track, clinical track—or some combination thereof, with implications for the promotion and tenure process. The Provost and I must be vigilant to ensure that the rules, regulations, and guidelines for promotion and tenure evolve to fully serve a transforming workplace. We work hard to create and sustain an environment where people feel fulfilled and respected for their contributions.

CAOs have the responsibility to determine how students can best learn in this changing environment allowing them to develop the competencies needed for successful practice. One direct implication is in the way we train our faculty—many of whom come from classic educational backgrounds—to embrace new technologies, new pedagogies, and an evolving curriculum. Our challenge is to empower and develop teachers to inspire students, to be role models and mentors, and to change the world for the good.

We have to stay abreast of all critical advances. In the classroom, in patient-care clinics, and in research, technology is a game-changer. Pedagogy is also changing—one example is the evolution away from lectures to more interactive learning. In our libraries, the card catalogue and Index Medicus have given way to Google searches. Ready access to information, to say nothing of the exploding pace of knowledge development, has significant implications for how the curriculum in academic health centers must evolve.

At the same time, academic health centers must also evolve the way we prepare our students. Going forward, we will need to do more to ensure that students across academic health centers are trained to be critical team members in delivering an interprofessional approach to care, including health and wellness. Our graduates will have to be data-competent and well versed in the social determinants of health. Our students must leave us with a knowledge base that serves them for both population-based and personalized medicine and a strong foundation upon which to build a career in a health profession. In short, we must rise to meet the need for quality educators and leaders who are prepared for all the challenges of health science education today.

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