AAHCI

Alliance of Academic Health Centers International

LEADERSHIP PERSPECTIVES

Special Issue

Governance Models for Academic Health Care Centers

2025 // ISSUE 1

AAMC

AAHCI is a wholly owned subsidiary of the AAMC

Introduction

Nicole Bender, MD, PhD

Head, Clinical Evolutionary Medicine Group, Institute of Evolutionary Medicine, University of Zurich

AAHCI European Office Manager

Wolfgang Brück, MD

CEO, University Medical Center Göttingen

Dean, Medical Faculty, University of Göttingen

Frank Rühli, MD, PhD

Dean, Faculty of Medicine, University of Zurich

AAHCI European Office Ambassador

Luciano Saso, PhD

Professor, Faculty of Pharmacy and Medicine, Sapienza University of Rome

Academic guest at the Institute of Evolutionary Medicine, University of Zurich

AAHCI European Office Ambassador

The University Medical Center Göttingen hosted the 2024 AAHCI European Regional Meeting on Sept. 9 and 10 in Göttingen, Germany. Under the theme, Governance Models for Academic Health Care Centers, an AAHCI network of leaders came together to explore aspects of academic health centers, including governance for efficient and effective health care, health professions education, and research innovation and technological transfer. Interactive panel discussions included models for governance in research, teaching, and health care; collaborations and partnerships; and innovation, research, and technological advancement.

Panel discussions were complimented by keynote talks showcasing best cases and ongoing debates around governance models at academic health centers in Europe. These discussions included one on governance models of medical schools and health centers in German-speaking countries, led by **Prof. Wolfgang Brück, CEO of University Medical Center Göttingen and Dean of the Medical Faculty at University of Göttingen**, and **Prof. Frank Rühli, Dean of the Faculty of Medicine at University of Zurich,** as well as another discussion, Heart Patch: From Preclinical Development to Patient Application - Pitfalls and Challenges, by **Prof. Wolfram-Hubertus Zimmermann, Director of the Institute of Pharmacology and Toxicology at University Medical Center Göttingen**. The conference concluded with an interactive workshop on strengthening the European network and its collaboration.

In this special issue of *Leadership Perspectives*, several participants reprise their annual meeting contributions. All contributions emphasize the importance of local and international collaboration to successfully face different kinds of challenges in academic medicine governance. Open communication, close cooperation, as well as the integration of modern technology are central to the suggested solutions. The most pressing highlighted topics included transitioning to modern medical education, the need

for close collaboration among different stakeholders, and developments around novel technologies and data sciences.

Session Highlights

Prof. Harald H.H.W. Schmidt, Chairman of the Department of Pharmacology and Personalized Medicine at Maastricht University, outlined current major problems in **translating novel biomedical findings into effective patient care**. For instance, only a small fraction of all tested biochemical compounds reaches the level of a commercial drug. Furthermore, Schmidt challenges our current health care system, highlighting fundamental inefficiencies and proposing a paradigm shift toward a strongly predictive, precision-based curative and preventive medicine; the recent development of big data, applied bioinformatics, genetics, multiomics, and exposome science in medicine allows the health care system to go in this direction. This shift would also demand novel job profiles in health care and would need to be initiated by academic medical center (AMC) leaders and stakeholders.

Prof. Beatrice Beck Schimmer, Vice President of Medicine Zurich, and her colleagues highlighted the **crucial role of AMCs in bridging patient care, education, and research**. These centers face substantial governance challenges due to both internal and external factors. Although there is no single definition of an AMC, they typically involve partnerships between hospitals and medical schools or universities, focusing on advancing health care through integrated teaching, research, and clinical care. Effective AMC governance, therefore, requires strategic leadership that balances clinical, educational, and research missions. Modern governance models emphasize collaboration across these areas, with leadership teams drawn from all sectors to create a unified, future-oriented approach. Trends suggest increasing functional integration between academic and clinical components, though with separate governing bodies. This cooperative model is expected to foster innovation and enhance resilience in tackling complex health care issues. Ultimately, the key to overcoming governance challenges lies in strong leadership that can manage organizational complexities to ensure the ongoing success and development of AMCs.

A similar view was presented on the **establishment of an effective model for governance in research, teaching, and health care in Germany** by **Prof. Irmtraut Gürkan, Former Deputy Chairwoman of the Executive Board at University Hospital Heidelberg and Supervisory Board Member at University Medical Center Göttingen, Charité Berlin**. German university hospitals also face a complex balancing act between academia, patient care, and economic challenges; however, while there's broad agreement that these hospitals should translate research into patient care and provide high-level services, the governance models in Germany differ. Most university hospitals operate under a cooperation model, with medical faculties linked to independent hospitals, while a few use an integration

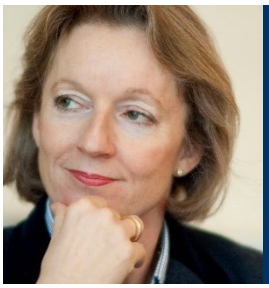
model whereby both bodies are part of the same entity. The key to success, however, lies not in the model but in strong alignment and communication between the university and hospital boards. University hospitals also play a vital role in shaping the health care system, as demonstrated during the coronavirus pandemic, during which they coordinated care across regions in Germany. Strong local and regional collaborations, like those seen in Heidelberg, enhance their ability to focus on high-performance medicine while supporting lower-level hospitals. Ultimately, successful partnerships depend on mutual benefit and tailored strategies, rather than standardized approaches.

To give insight from outside Europe, **Prof. Wilbur Lam, Associate Dean of Innovation at Emory University School of Medicine and Vice Provost for Entrepreneurship at Emory University in Atlanta, Georgia, United States**, reported his experience at Emory University about **entrepreneurship and commercialization as the final stage of clinical translation**. Similar to those in Europe, U.S. AMCs are central to medical innovation, traditionally focused on scientific discovery, education, and patient care; however, in today's rapidly evolving U.S. health care environment, these institutions must integrate entrepreneurial principles and the commercialization of biomedical inventions to maintain their impact and sustainability. Entrepreneurship within AMCs accelerates the translation of research into clinical practice, driving innovations that directly improve patient outcomes. This includes developing new medical technologies, therapies, and care delivery models, as well as addressing operational challenges like rising costs and fragmented care. Entrepreneurship also plays a crucial role in the financial stability of U.S. AMCs by generating new revenue streams and creating opportunities for commercialization. This shift requires a cultural change within AMCs, encouraging creative problem-solving, risk-taking, and the development of supportive infrastructure, such as technology transfer offices and venture funds.

Specifically, to successfully incorporate entrepreneurship, AMCs need to foster an environment that supports collaboration, training, and cross-functional partnerships. This includes integrating entrepreneurship programs across departments, cultivating a culture that values both academic excellence and innovation, and recruiting experienced entrepreneurs to guide commercialization efforts. Furthermore, to address funding challenges, AMCs must develop internal mechanisms like seed grants and venture capital funds to support early-stage innovations. At institutions like Emory University, these strategies are being implemented into education programs for faculty, trainees, and staff, coordination is being implemented across departments, and entrepreneurial goals are being integrated into academic promotion and tenure systems. By embracing entrepreneurship, AMCs can enhance their core missions and play a leading role in shaping the future of health care and driving meaningful societal impact.

Conclusion

In summary, discussions at this AAHCI European regional meeting outlined the most pressing current problems in academic medicine and in the health system in general. The consensus of the conference and of the present contributions is that only with strong partnerships within and among academic health centers, and with the courage to evolve current approaches in research and translation to clinical practice, will it be possible to find answers to ongoing challenges and to be prepared for the future.



Irmtraut Gürkan

Former Deputy Chairwoman of the Executive Board, University Hospital Heidelberg

Member of the Supervisory Board, University Medical Center Göttingen, Charité Berlin, Germany

Hospitals Working Together: Establishing an Effective Model for Governance in Research, Teaching, and Health Care in Germany

German university hospitals are currently caught in an extreme field of tension that exists among academia, the missions of the universities, the requirements of patient care (e.g., high-performance medicine), and economic challenges. There is a broad consensus that, in addition to teaching and research, university hospitals are to translate research results into patient care as early as possible and are responsible for providing supramaximal care.

In Germany, most university hospitals are run in the so-called cooperation model. This means that the medical faculties remain part of the universities and work closely with the university hospitals, which are legally independent institutions of the respective federal states. A few university medical facilities are run under the integration model wherein they are a single legal entity and have a joint management and organizational structure. Both models have advantages and disadvantages, which I would like to discuss further in my statements.

DIFFERENT GOVERNANCE MODELS IN UNIVERSITY HOSPITALS

In my opinion, it is not important whether the university hospitals are run in an integration or cooperation model; the crucial factor is the alignment of mission with strong communication between the university hospital board of directors and the medical faculty board. Both sides should agree on strategies and priorities in health care and research. This is my personal experience after 40 years of responsibility in the university hospitals in Frankfurt and Heidelberg. As a member of the supervisory board of the Charitè Berlin and the University Medical Center Göttingen, I can of course see that the integration model is more positive in terms of handling and resource management. In the cooperation model, two different budgets are allocated to clinics, which — and this is very important to me — are well allocated by mutual decision according to the set priorities for research, teaching, and patient care. In summary, there are more advantages than disadvantages in the integration model.

UNIVERSITY HOSPITALS IN THE GERMAN HEALTH CARE SYSTEM

As a university hospital, we not only work within the system, serving high-end medicine, but we also work *on* the system; that is, we want to be the driver for innovative structures in the health care sector, setting standards. University hospitals have essential coordinating roles in coping with epidemics, as they impressively demonstrated during the coronavirus pandemic. During this time, they formed regional clusters that included hospitals of different care levels, and each cluster decided which hospital would treat a patient, depending on their disease status; for example,

seriously ill patients requiring intensive care (e.g., extracorporeal membrane oxygenation therapy) were treated in university hospitals, while standard care hospitals took on less serious cases.

STRONG COOPERATIONS IN GERMAN HEALTH CARE

University hospitals must network very closely, locally and regionally, with other hospitals, including those at lower levels of care and in the outpatient sector. Concerning the implementation of cooperations, my experience in the university hospital of Heidelberg was very positive. We created close partnerships with 48 hospitals via telemedicine, and 11 departments in the cooperating hospitals were managed by medical directors from the University Hospital Heidelberg. In total, more than 70 doctors worked in cooperating hospitals. This strategy enabled the University Hospital Heidelberg to concentrate on practicing high-end medicine while the cooperating hospitals serviced at full capacity with basic care. We used Johns Hopkins Hospital in Baltimore, Maryland, United States, as the model for our cooperating strategy.

The success of a collaboration is not dependent on the size of the hospital or partner; regional and organizational situations, however, must be considered. There is no universal standard for evaluating the strength of a given partner. Collaborations are only successful if all participants are benefiting from the relationship.

> "... the crucial factor is the alignment of mission with strong communication between the university hospital board of directors and the medical faculty board. Both sides should agree on strategies and priorities in health care and research."

Harald H.H.W. Schmidt

Chairman of the Dept. of Pharmacology and Personalized Medicine; Institute for Mental Health and Neuroscience; Faculty of Health, Medicine and Life Sciences; Maastricht University

Coordinator of the Horizon Europe drug repurposing data platform REPO4EU, the Netherlands

An Uncomfortable Truth: Why Our Current Biomedical Research Paradigm Fails to Improve Human Health

Despite unprecedented investments in biomedical research and a continuous flow of scientific publications, the translation of this knowledge into tangible patient benefit remains abysmal. This opinion paper challenges the effectiveness of our current concept of biomedical research — from cell to animal to patient benefit — and, on a larger scale, our "sick care" system, highlighting fundamental inefficiencies and proposing a paradigm shift toward truly predictive, precision-based, curative, and ideally preventive medicine with entirely new job profiles.

THE PERSISTENT ILLUSION OF PROGRESS IN MEDICINE

Since the early 20th century, global mortality rates have lessened significantly.[1] Yet, a deeper analysis reveals a disquieting truth: most of this progress is attributable to public health interventions; i.e., the prevention or treatment of infectious diseases (e.g., improved hygiene, vaccination, antibiotics), not biomedical innovation. While we celebrate new drugs and technologies, their real-world impact on population-level health outcomes remains limited.

OUR 'SICK CARE' SYSTEM: A MISNOMER FOR HEALTH CARE

The modern health care system remains reactive, focusing primarily on treating symptoms and diseases once they manifest. Despite the promise of the "millennium predictive medicine" vision heralded around the year 2000, our approach has largely remained anchored in 19th- and 20th-century paradigms, classified by symptoms and organs.

A 2015 review of the top-selling drugs in the early 21st century underscored this limitation. Medications like Abilify (for schizophrenia), Humira (for arthritis), and Crestor (for cholesterol) dominated prescriptions, yet most of these drugs suffered from poor precision. Their effectiveness, measured by the "number needed to treat," remains disappointingly high.[1] Many patients receive therapies that do not benefit them, illustrating the bluntness of our therapeutic tools.[2]

EROOM'S LAW: INNOVATION IS SLOWING, NOT ACCELERATING

The so-called "Eroom's Law" — the inverse of Moore's Law — shows that the number of new drugs approved per $1 billion spent on R&D is steadily declining.[3] Although basic research has surged, its translation into clinical practice has not followed suit. A striking example is provided by the Ioannidis group,[4] who found that out of 25,190 "promising" basic science articles, only 27 were tested in randomized clinical trials, and even fewer reached the clinic. Ultimately, only one was applied.

This inefficiency is compounded by the inherent complexities of clinical research. Globally, noncommercial trials represent 60%-70% of all trials,[2] but this proportion varies significantly by country; for example, in Germany, noncommercial trials account for only 16%.[3] Additionally, a mere 11% of all noncommercial clinical studies worldwide are published, highlighting a troubling systemic failure.[5] Finally, two thirds of Phase III trials that initially claim an "improvement over standard of care" fail to replicate these results when tested in real-world patient populations (Figure 1).[6]

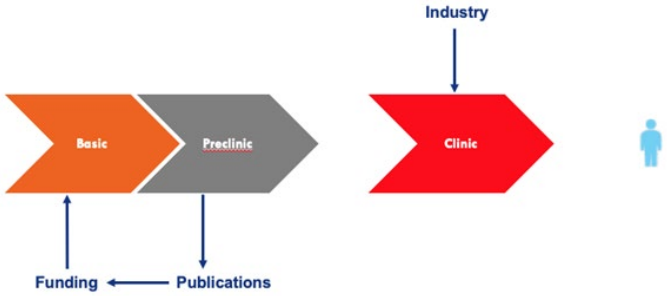


Figure 1. Biomedical research in practice. Not only is over half of all biomedical research not reproducible, but this research is captured in a self-sufficient "hamster wheel" of publishing then acquiring funding to publish more; there is hardly any translation into clinical practice or patient benefit, and no career parameter rewards the latter. Only 11% of all noncommercial clinical trials are published, and two thirds of all Phase III trials claiming "improvement over standard of care" fail to reproduce this outcome when it is reexamined with real-world patients.

LOOKING TOWARD A NEW PARADIGM: THE DISEASOME AND SYSTEMS MEDICINE

The 21st century has seen a digital transformation in medicine; however, this often amounts to little more than digitizing old practices. Except for infectious and some rare diseases, we hardly understand any disease. We continue to classify diseases by symptoms and organs, despite increasing awareness of causal molecular pathology.

The future of medicine must move beyond symptom-based and organ-based classification. The diseasome, a network-based model of disease,[7] offers a glimpse of what such a future could look like. This framework embraces the interconnectedness of human pathologies and enables a shift toward system level, organ-agnostic understanding (Figure 2). Coupled with big data, applied bioinformatics, genetics, multiomics, and exposome science, we now have the tools to embrace precision medicine in its true sense — not as a buzzword, but as a comprehensive, proactive strategy grounded in prediction and personalization.[8-10]

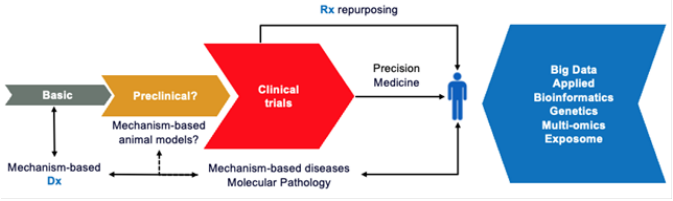


Figure 2. A paradigm shift on how to conduct and intensify biomedical research. Patient-relevant research needs to focus on unmet medical needs, genetic evidence of causal genes, mechanistic instead of organ- or symptom-based disease definitions, and clinical research. Wet-lab research needs to focus on precision and low-cost diagnosis, and animal research will be dramatically reduced to only those cases where a direct mechanistic connection to a human disease mechanism is evidenced and a direct clinical trial is not possible or, because of high potential side effects, is not yet ethical. Publications and research funding should no longer appear as key performance indicators.

BIOMEDICAL RESEARCH MUST FOCUS ON HUMAN BENEFIT

The sobering truth is that most biomedical research fails to benefit patients. To correct this, we must abandon obsolete paradigms and embrace a systems biology approach informed by real-world complexity and entirely different key performance indicators, no longer feeding the highly profitable publishing industry. This change cannot be implemented by individual researchers, let alone early-career scientists, but it has to be understood and defended by those in leadership positions, deans of medical faculties, and directors of funding institutions. Public money must serve the patients, not the journals. Only then can we begin to realize the original promise of 21st-century medicine that was to not just treat disease, but to predict and prevent it; i.e., the end of medicine as we know it in exchange for a future of improved health.[11]

"The future of medicine must move beyond symptom-based and organ-based classification. The diseasome, a network-based model of disease offers a glimpse of what such a future could look like. This framework embraces the interconnectedness of human pathologies and enables a shift toward system level, organ-agnostic understanding."

Notes

1. Armstrong GL, Conn LA, Pinner RW. Trends in infectious disease mortality in the United States during the 20th century. *JAMA*. 1999;281(1):61-66. doi:10.1001/jama.281.1.61

2. Schork N. Personalized medicine: time for one-person trials. *Nature*. 2015;520:609-611. doi:10.1038/520609a

3. Scannell JW, Blanckley A, Boldon H, Warrington B. Diagnosing the decline in pharmaceutical R&D efficiency. *Nat Rev Drug Discov*. 2012;11(3):191-200. doi:10.1038/nrd3681

4. Contopoulos-Ioannidis DG, Ntzani E, Ioannidis JP. Translation of highly promising basic science research into clinical applications. *Am J Med*. 2003;114(6):477-484. doi:10.1016/s0002-9343(03)00013-5

5. Goldacre B, DeVito NJ, Heneghan C, et al. Compliance with requirement to report results on the EU Clinical Trials Register: cohort study and web resource. *BMJ*. 2018;362:k3218. doi:10.1136/bmj.k3218

6. Wieseler B, McGauran N, Kaiser T. New drugs: where did we go wrong and what can we do better? *BMJ*. 2019;366:l4340. doi:10.1136/bmj.l4340

7. Goh KI, Cusick ME, Valle D, Childs B, Vidal M, Barabási AL. The human disease network. *Proc Natl Acad Sci U S A*. 2007;104(21):8685-8690. doi:10.1073/pnas.0701361104

8. Nogales C, Mamdouh ZM, List M, Kiel C, Casas AI, Schmidt HHHW. Network pharmacology: curing causal mechanisms instead of treating symptoms. *Trends Pharmacol Sci*. 2022;43(2):136-150. doi:10.1016/j.tips.2021.11.004

9. Elbatreek MH, Sadegh S, Anastasi E, et al. NOX5-induced uncoupling of endothelial NO synthase is a causal mechanism and theragnostic target of an age-related hypertension endotype. *PLoS Biol*. 2020;18(11):e3000885. doi:10.1371/journal.pbio.3000885

10. Sedding D, Schmidt TM, Bähre H, et al. Nutritional L-citrulline and tetrahydrobiopterin in peripheral artery disease: a phase II randomized trial (CIPER study). *JACC Adv*. 2025;4(3):101590. doi:10.1016/j.jacadv.2025.101590

11. Schmidt HHHW. *The End of Medicine as We Know it - and Why Your Health Has a Future*. Springer Nature; 2022.

Wilbur Lam

Associate Dean of Innovation, Emory University School of Medicine

Vice Provost for Entrepreneurship, Emory University in Atlanta, Georgia, United States

Entrepreneurship and Commercialization: The Final Stage of Clinical Translation in the Real World

Academic Medical Centers (AMCs), the cornerstones of medical advancement, are traditionally envisioned as sanctuaries of scientific inquiry, dedicated to the pursuit of knowledge and the provision of compassionate care; however, the contemporary health care landscape, characterized by rapid technological evolution, escalating costs, and the pressing need for transformative solutions, demands a paradigm shift. In this dynamic landscape, the integration of entrepreneurial principles and commercialization of biomedical inventions are not merely advantageous, but fundamentally essential for AMCs to sustain their missions and achieve lasting impact. As such, entrepreneurship within these institutions acts as a powerful catalytic engine, driving innovation, accelerating the translation of research into clinical practice, and ultimately, revolutionizing patient outcomes. Ultimately, entrepreneurship and commercialization of biomedical solutions are the final stage of clinical translation. In today's political climate, in which science and academia are under threat, this concept is even more important for the public to understand and see how society directly benefits from biomedical research.

At the heart of an AMC's mission lies the generation of groundbreaking research. Yet, the chasm between scientific discovery and its practical application remains a significant hurdle. Entrepreneurship serves as the crucial bridge, transforming promising research into tangible solutions that benefit patients and society. AMCs are replete with cutting-edge laboratories and brilliant researchers, but without a structured entrepreneurial ecosystem, these innovations often languish in academic journals, failing to reach their full potential. Entrepreneurial initiatives, such as robust technology transfer offices, specialized incubators, and venture funds, provide the necessary infrastructure and expertise to navigate the complex commercialization process. These initiatives facilitate the identification of commercially viable ideas, secure intellectual property protection through patents and licensing agreements, develop prototypes, and navigate the intricate regulatory pathways required for market entry. By cultivating a culture of innovation and providing resources for commercialization, AMCs can ensure that their research translates into life-saving therapies, diagnostic tools, and medical devices.

"AMCs are replete with cutting-edge laboratories and brilliant researchers, but without a structured entrepreneurial ecosystem, these innovations often languish in academic journals, failing to reach their full potential."

Beyond technological advancements, entrepreneurship plays a pivotal role in reshaping health care delivery. The traditional model, often characterized by fragmented care, reactive treatments, and limited patient engagement, is increasingly challenged by the need for more efficient, personalized, and preventative approaches. Entrepreneurial ventures can address these challenges by developing novel care delivery models, leveraging digital technologies, and implementing data-driven solutions. For instance, AMCs can establish telehealth platforms to expand access to care for medically underserved populations, deploy remote patient monitoring systems to detect and manage chronic conditions, or utilize artificial intelligence to personalize treatment plans and predict patient outcomes. These innovations not only improve patient outcomes and enhance the quality of care, but also optimize resource utilization and promote the sustainability of health care systems. The development of new care pathways, the implementation of value-based care models, and the creation of patient-centered digital health solutions are all examples of how entrepreneurial thinking can transform health care delivery.

Furthermore, in an environment facing increasing financial pressures, AMCs must find innovative ways to generate financial margin, manage costs effectively, and diversify funding sources. Entrepreneurial ventures, such as developing new medical devices, offering specialized consulting services, establishing spin-off companies, and creating educational programs, can create new revenue streams and reduce reliance on traditional funding models. Moreover, entrepreneurial thinking encourages faculty and staff to identify inefficiencies, streamline processes, and optimize resource allocation. This mindset is crucial for ensuring the long-term financial stability and operational efficiency of AMCs. By fostering a culture of continuous improvement and innovation, AMCs can adapt to the ever-changing health care landscape and maintain their competitive edge.

Moreover, entrepreneurship plays a vital role in recruiting and retaining faculty. The brightest clinicians, researchers, and clinician-scientists are often drawn to environments that foster creativity, innovation, and impact. By cultivating an entrepreneurial culture, AMCs can attract and retain talented faculty, researchers, clinicians, and even administrative leaders who are passionate about translating their ideas into tangible solutions. This influx of talent not only strengthens the research and clinical capabilities of the institution, but also fosters a dynamic and intellectually stimulating environment. Furthermore, a culture that encourages entrepreneurship, the opportunity to participate in the commercialization of their research, lead spin-off companies, and develop novel care delivery models can be a powerful motivator for faculty.

Integrating entrepreneurship into AMCs is not without its challenges, however. The traditional academic culture, often characterized by a focus on basic research, peer-reviewed publications, and grant funding, may not always align with entrepreneurial pursuits within an academic institution. Concerns about conflicts of interest, intellectual property ownership, and the potential for commercialization to overshadow academic pursuits, especially in the context of promotion and tenure can also create barriers. To address these challenges, AMCs must develop clear policies and guidelines that promote ethical entrepreneurship and ensure that academic values are upheld. This includes establishing robust conflict-of-interest management systems, providing comprehensive training and mentorship in entrepreneurship, and creating a culture that values both academic excellence and entrepreneurial innovation.

In addition, AMCs must foster a collaborative ecosystem that brings together researchers,

clinicians, entrepreneurs, investors, and industry partners. This requires breaking down silos between departments and disciplines, creating cross-functional teams, and establishing partnerships with venture capital firms, pharmaceutical companies, medical device manufacturers, and other stakeholders. By fostering collaboration and knowledge sharing, AMCs can accelerate the translation of research into practice, facilitate the development of innovative solutions, and create a vibrant, innovative ecosystem. The development of dedicated innovation hubs, entrepreneurial workshops and seminars, and networking opportunities can help to foster collaboration and promote the exchange of ideas.

The creation of an entrepreneurial culture within AMCs also requires a shift in mindset. Faculty and staff must be encouraged to think creatively, embrace risk-taking, and view challenges as opportunities for innovation. This requires providing training in entrepreneurship and commercialization skills, such as intellectual property, regulatory strategy, business acumen, marketing, and financial management, and creating a supportive environment that encourages experimentation and learning from failure.

At our own AMC, the Woodruff Health Sciences Center, we are addressing these issues. The center comprises three schools for medicine, nursing, and public health, a primate research center, a cancer institute, four research and educational units, and the most comprehensive health care system in the state of Georgia, all of which are part of Emory University. We are addressing previously mentioned challenges in the following ways:

1. EDUCATION IN ENTREPRENEURSHIP AND COMMERCIALIZATION MUST BE GEARED TOWARD ALL LEVELS

We ensure that our education programs are designed for learners of all ages and stages, ranging from undergraduate, medical, and graduate students (i.e., MA and PhD) to postdoctoral trainees (i.e., PhD and MD), faculty, and even staff. Indeed, the education of faculty in entrepreneurship is exceedingly important, as they have significant expertise in their own fields but have likely not been exposed to concepts of commercialization. Importantly, trainee education is also key to ensuring a pipeline of ideas and future "bioentrepreneurs." Finally, we have found that AMC and university staff, because of their domain expertise and exposure to specific clinical and biomedical problems, often generate innovative solutions that are impactful and scalable.

2. ENTREPRENEURSHIP EFFORTS SHOULD BE COORDINATED ACROSS THE AMC

Like many AMCs across the globe, ours at Emory is vast with about $8 billion of operating expenditures annually, about 35,000 employees (including 4,000 primary faculty and 2,000 affiliated faculty), and 6,000 students and trainees. As such, a certain amount of "siloing" occurs, as is in the case in any large institution. We have noticed that different sections and departments of our AMC have all developed entrepreneurship programs in answer to their constituents' and stakeholders requests. Accordingly, the best practice we have developed is encouraging these different groups to be, at the very least, aware of these programs and even integrate them, so the groups can coordinate and even synergize. Indeed, this provides an economy of scale, especially in the setting of limited resources.

3. THE AMC CULTURE MUST BE CONDUCIVE FOR ENTREPRENEURSHIP

The commonly used adage in the business world, "Culture eats strategy for breakfast," also rings true in AMCs, especially given how idiosyncratic each

center's culture may be. For an AMC to be successful in the biomedical entrepreneurship and commercialization space, the leadership must stand behind it, and its policies must reflect that; that is, junior faculty and trainees must feel supported in pursuing entrepreneurial activities, and institutional policies on tenure, promotion, and recognitions or awards should clearly reflect and encourage a pro-entrepreneurship culture. Moreover, the AMC leadership should hold social events, workshops, and lecture series around biomedical entrepreneurship as an overall positive signal to their community.

4. BONA FIDE, EXPERIENCED ENTREPRENEURS ARE THE NEEDED INGREDIENT FOR SUCCESS

While AMCs comprise brilliant researchers and clinicians who are key opinion leaders in their respective fields, a missing ingredient for success are the entrepreneurs who have successfully run biomedical startups; this experience is sorely lacking among most faculty and clinicians at AMCs. The number of engaged "bioentrepreneurs" varies geographically, and certain areas, such as the Bay Area of California (e.g., San Francisco, Silicon Valley), Boston, and New York City, for example, are clear leaders in entrepreneurial activity in the U.S. Accordingly, AMCs geographically located in regions with smaller entrepreneur communities must develop their own cultures and programs that incentivize entrepreneurs to collaborate with them.

At Emory, we are increasing entrepreneur engagement with our technology transfer offices, as well as integrating them more effectively into our overall academic culture. The university is even piloting a program to "embed" entrepreneurs into our clinical spaces.

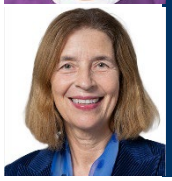
5. FUNDING IS NEVER NOT AN ISSUE

As with any AMC initiative, financial resources are always needed; moreover, as previously stated, geographical regions with high proportions of bioentrepreneurs also tend to have a significant number of investment firms interested in biomedical technologies, therapies, and solutions in those communities. Investors are vital for a robust bioentrepreneurship and for the successful release of a center's intellectual property and startup companies. Again, if an AMC's geographical region lacks a large and engaged investor community, the center must create programs that either incentivize investors or de-risk intellectual property to increase the likelihood of continuing investment. The development of internal funding mechanisms, for example, such as seed grants for commercialization and innovation awards, can also help de-risk the AMC's biomedical technologies and solutions. At Emory, not only have we created those programs, but we have developed our own "venture capital-like" funds within the university that specifically invest in our intellectual property related to drug development or medical devices and technologies.

In conclusion, entrepreneurship is an indispensable component of the modern AMC if the institution desires to solve a biomedical problem at scale and in the real world. It serves as a powerful catalytic engine, driving innovation, accelerating the translation of research into clinical practice, improving patient outcomes, and ensuring the long-term sustainability of these institutions. Emory University continues to follow the previously stated principles to drive innovation at its AMC. By embracing entrepreneurial principles, AMCs can not only enhance their research, clinical, and educational missions, but they can also play a leading role in shaping the future of health care to improve the human condition.

Suzana Atanasoski

Head of Strategic Projects University Medicine Zurich, Research and Teaching



Beatrice Beck Schimmer

Vice President Medicine, University of Zurich, Switzerland

Future Perspectives on Collaborations in Governance Models

GOVERNANCE CHALLENGES IN ACADEMIC MEDICAL CENTERS

There is no universal or European definition of academic medical centers (AMCs); however, these institutions share common characteristics. Hospitals work in close collaboration with faculties and medical schools, typically associated with universities. Their core functions encompass patient care, research, as well as education and teaching. Many AMCs are either government-owned or operated as nonprofit organizations, often under political influence, which can impact their autonomy. Despite these similarities, there are significant differences among them, as their organizational structures, nature of collaboration, and legal frameworks vary widely. The primary factor that differentiates these institutions is the formal level of integration between the hospital and the medical school.

The *internal* challenges to governance present significant hurdles, particularly the difficulty in steering and rebalancing the three core missions, compounded by financial conflicts. Culturally, there is a notable clash between medical or clinical priorities and academic ones. This is exacerbated by a lack of strategic focus, an inability to adapt effectively to change, and an overall deficiency in entrepreneurial spirit. Financially, the organization struggles with conflicts arising from the competing demands of its three missions, which further strain its governance capabilities. Leadership challenges also play a critical role, as there is a pressing need to enhance leadership skills to address these issues effectively and steer the organization toward sustainable growth and balance.

The *external* challenges to governance are heavily centered on financial sustainability and human resources, both of which are under considerable strain. Demographic changes, such as an aging population and increasingly diverse patient needs, are placing growing demands on the system. These shifts necessitate adaptability and innovation to meet evolving expectations. Financial sustainability is another critical issue, driven by the need for substantial capital investment, declining reimbursement rates, and the high costs associated with advanced technologies. These factors create a challenging economic landscape that requires careful planning and strategic prioritization. Human resources further compound the governance challenges, as workforce shortages and a lack of highly skilled personnel can hinder the organization's ability to deliver quality services and keep pace with increasing demands. Together, these external pressures require coordinated efforts to ensure long-term resilience and effective governance.

Different models of governance exist, each coming with their own strengths and weaknesses, as no organizational structure is without its challenges. To navigate these complexities effectively, it is advisable to form a leadership team that includes representatives from clinical, research, and education areas. A leader who places the academic mission at the forefront can successfully expand a comprehensive clinical delivery system while ensuring that both research and teaching efforts continue to receive the necessary support. This

balanced approach helps align diverse priorities and fosters a cohesive, forward-looking governance model.

THE UNIVERSITY MEDICINE ZURICH AS A MODEL OF COORDINATION

The six institutions of the University Medicine Zurich (UMZH) — the University of Zurich, ETH Zurich, University Hospital Zurich, Balgrist University Hospital, University Children's Hospital Zurich, and the Psychiatric University Hospital Zurich — secure and strengthen the advantages of Zurich as a hub for medical research, operating under the leadership of the University of Zurich. Its efforts are focused on the effective coordination of key areas, including research and teaching, health care services, medical infrastructure, and specialized medical platforms. Through this integrated approach, the UMZH fosters innovation, collaboration, and excellence in the field of medical research and education. Research and teaching activities, coordinated and performed by the faculty of medicine in the university hospitals, are financed through the budget of the University of Zurich, which is allocated to each of the four hospitals.

CONSIDER FOR THE FUTURE: FUNCTIONALLY INTEGRATING SEPARATE GOVERNING BODIES

The results of a questionnaire, which included input from 26 experts across 11 countries — Cyprus, Czechia, Denmark, Germany, Israel, Italy, Latvia, the Netherlands, Norway, Poland, and Spain — highlight key trends in AMC governance. Eight out of 11 respondents believed that their governance structures would support greater functional integration, even while maintaining separate governing bodies and legal entities for the academic and clinical components. Additionally, the growing demand for interdisciplinary solutions is expected to drive further integration and collaboration with other faculties, fostering a more cohesive and innovative approach to addressing complex challenges.

Common decision-making processes focus on several key areas essential to effective governance and collaboration. In terms of academic roles, decisions include the hiring process for professorships, the development of research strategies, and crafting recruitment strategies to identify the right structures and attract top talent. Integration and onboarding processes are also crucial for ensuring seamless transitions and alignment with institutional goals. Financial decisions are another critical aspect, emphasizing the need for full transparency in budget allocation for research and education within the university and faculty. Joint financial controlling mechanisms are implemented to ensure accountability and efficient resource management.[1,2]

CONSIDER FOR THE FUTURE: STRUCTURE VERSUS LEADERS

Leadership plays a pivotal role in navigating governance challenges, as talented and effective individuals can often overcome the limitations of an imperfect governance structure. The most capable leaders succeed in a wide range of environments, regardless of organizational complexities, but a clear governance structure remains essential, as it not only facilitates the effective repopulation of key roles, but also ensures the continuity of guiding principles, operational priorities, and organizational culture over time. Even for the most skilled leaders, balancing the demands of clinical practice with the responsibilities of health system governance presents significant challenges. Striking this balance requires strategic vision, adaptability, and the ability to align diverse priorities.

CONCLUSIONS

Despite differing definitions of AMCs worldwide, including hospitals and medical faculties or medical schools, several governance models are possible to implement. Based on our experience at the UMZH, we consider a governance model with various partner institutions, each with its own legal form, to be most effective. Functional integration of the clinical, research, and teaching areas that defines common decision-making processes is of utmost importance to develop an overall strategy for the medical hub. Ideally, a clear budget separation between clinical and academic activities should be pursued by financing academic aspects, such as research and teaching at the university hospital(s) through the university or medical faculty.

"Leadership plays a pivotal role in navigating governance challenges, as talented and effective individuals can often overcome the limitations of an imperfect governance structure. The most capable leaders succeed in a wide range of environments, regardless of organizational complexities."

Notes

1. Cardinaal E, Dubas-Jakóbczyk K, Behmane D, et al. Governance of academic medical centres in changing healthcare systems: An international comparison. *Health Policy*. 2022;126(7):613-618. doi:10.1016/j.healthpol.2022.04.011
2. Pellegrini VD Jr, Guzick DS, Wilson DE, Evarts CM. Governance of academic health centers and systems: a conceptual framework for analysis. *Acad Med*. 2019;94(1):12-16. doi:10.1097/ACM.0000000000002407