Proposal to the Senate Educational Policy Committee

PROPOSAL TITLE: Creation of a College of Medicine at the University of Illinois at Urbana-Champaign in Partnership with Carle Health System

SPONSOR: Chancellor Phyllis Wise, Office of the Chancellor, 333-6290, pmwise@illinois.edu

UNIVERSITY CONTACT: Provost Ilesanmi Adesida, Office of the Provost, 333-6677, iadesida@illinois.edu

BRIEF DESCRIPTION:
The Chancellor of the University of Illinois at Urbana-Champaign seeks the formal approval of the Senate to establish an independently-accredited College of Medicine at the University of Illinois at Urbana Champaign in partnership with Carle Health System.

Preliminary endorsement of the creation of this college was passed by the Academic Senate on September 22, 2014, with the understanding that a draft business plan outlining a viable financial plan, a general proposed governance plan and a curriculum plan would be shared at a later date. This basic information has now been made available to the public and the entire campus community (see http://strategicplan.illinois.edu/index.html). While this present proposal is based on the draft business plan being specific enough to provide evidence of viability and firm intention, the elaboration of a final detailed business plan can only come once the College has been created. Likewise, according to the University of Illinois Statutes, details of governance of the College must be determined by the faculty of the College through the creation and adoption of the College Bylaws, just as the curriculum of the academic programs must be developed by the College faculty and approved by the campus Senate. The College faculty must be recruited by a founding Dean, who in turn can only be recruited once the College has been formally established.

Therefore, in order to permit the above steps to occur, the present proposal seeks formal Senate approval to establish an independently-accredited College of Medicine at the University of Illinois at Urbana Champaign in partnership with Carle Health System. As outlined in the final section of this document, this initial step of establishing the College will be followed by several successive processes of approval, including approval of the curricula, degree requirements, and final unit budget. The inaugural class will be recruited and admitted only after these and other steps have been successfully completed.

It is important to note that this proposal is submitted in order to allow the University of Illinois at Urbana-Champaign campus to create a University of Illinois at Urbana-Champaign College of Medicine. As stated in the business plan under consideration, the proposed new College in no way requires changes to the scope, size or operations of the UIC College of Medicine.

JUSTIFICATION:

1 EP 15.02, Proposal to Create a College of Medicine at the University of Illinois at Urbana-Champaign in Partnership with Carle Health System – Preliminary Endorsement.

2 In the same way the faculty of new departments normally develop curricula for new programs in consultation with colleagues from other departments, the dean and faculty will be encouraged to broadly consult across all colleges to identify collaborations that have the potential to provide advantages and impact.
There is no U.S. public research university better positioned than the University of Illinois at Urbana-Champaign to leverage the convergence of engineering with medicine and be a leader in the transformation of health care research, education, practice and delivery. The Urbana campus already has the assets, including one of the nation’s top-five engineering schools and the National Center for Supercomputing Applications. All of the top ten medical schools in the country already partner with College of Engineering faculty members at the Urbana campus in joint research projects. Furthermore, while infusing engineering with medicine is a distinctive facet of the proposed College, the College will tremendously benefit by leveraging the expertise and knowledge across the campus (the IHSI letter begins to speak to some of the opportunities – see attachment A) but these are but a few examples. These are by no means exclusive and we are convinced that colleges across the campus will have opportunities to benefit and contribute to the College’s success. In a fundamental way, the reputation of the Urbana campus as a whole will benefit by strengthening its position within the Association of American Universities. The Urbana campus currently has the potential to foster innovative cross-disciplinary medical research collaborations, but this potential is hampered by the lack of an independently-accredited College of Medicine on campus. In addition, the need for cross-disciplinary physician training has been emphasized by the Association of American Medical Colleges and the Howard Hughes Medical Institute who have argued for transformative approaches to the education of future physicians that would better reflect and anticipate emerging technologies. Panelists at the 2012 First IEEE Life Sciences Grand Challenges Conference, held at the National Academy of Sciences, emphasized the need for medical education to adapt to tomorrow’s medicine, including increased attention to the quantitative sciences in physician training. These panels also argued for the need to prepare future physicians by leveraging closer collaborations between medical and engineering schools, and physicians being taught to adopt a systems view of the human body.

The numerous letters of support for this proposed new College of Medicine from leading medical educators, practitioners, and leaders of industry in the medical sphere attest to the transformative value of the creation of a distinct engineering-based College of Medicine (see Attachment A). Of particular importance are letters that emphasize the University of Illinois at Urbana-Champaign’s unique capability to develop this College from the ground up, and the comparative difficulty of trying to “retrofit” an established college to reflect such a vision (Dr. Franklyn Prendergast, Mayo Clinic and Dean G. Richard Olds, School of Medicine, University of California, Riverside).

As the only health system in Illinois that owns its own health plan, and one of the state’s largest providers of clinical care, Carle is a leader in high quality, cost-effective and well-coordinated patient care and is the only fully integrated health system in the state of Illinois. Carle’s unique profile allows improvements across entire systems of care, rather than focusing on one area of healthcare delivery – a capability that has led to Carle being consistently recognized as among the best in the state and the nation. In particular, the application of big data techniques and data analytics across such an integrated health system holds the promise of reducing costs and improving healthcare by tracing healthcare trends and identifying effective prevention and treatment strategies. Carle’s fully integrated health system will position the proposed College at the leading edge in the quest to identify and drive improvements in cost and effectiveness of healthcare, both locally and nationally. As a physician-led and patient-centered organization, Carle can

4 He et al, Grand Challenges in Interfacing Engineering with Life Sciences and Medicine, IEEE Transaction on Biomedical Engineering, Vol. 60.3, 2013.
leverage the proposed medical education model to provide better health outcomes for patients. Carle’s ability to conduct research in partnership with our faculty, as demonstrated by their existing collaborative projects with the University, is significant, and Carle’s leadership team is fully committed to working with us to transform medical education and graduate top-tier medical practitioners. Furthermore, Carle is committed to the excellence of the proposed College. As such, while Carle will be a strong partner, Carle is open to excellent engagements both close and afar that will strengthen the College’s medical education, clinical training and research mission.

UNIVERSITY’S MISSION:

The U.S. healthcare system is undergoing historic changes driven by an aging population with more chronic conditions, an influx of millions of new people into the healthcare system due to the Affordable Care Act, and a severe physician shortage. The convergence of engineering, technology and medicine is expected to lead to discoveries that will result in greater access to better healthcare at lower cost for more people. Studying how to best examine these new medical realities is consistent with our mission to address societal issues through research, education, and engagement. Carle’s mission to serve people through high quality care, medical research and education complements our mission.

In 2012-2013, the university conducted a Visioning Future Excellence (VFE) initiative that involved garnering input from faculty, administrators, staff, and students about the directions our campus should take to ensure continued excellence and viability. Participants identified health and wellness, information and technology, and economic development as three of the main themes the university should focus its investments on in order to meet society’s greatest challenges (http://oc.illinois.edu/visioning).

In another university initiative to identify clusters that would lead to economic development in Urbana-Champaign and in our geographic region, the Business Cluster Development (BCD) consulting group included biomedical and bioengineering as a technology cluster that would enhance economic development (http://go.illinois.edu/technologyclusterdevelopment). BCD’s report, prepared for the Research Park at the University of Illinois at Urbana-Champaign, also stated that the lack of a full-scale medical program prevents us from realizing the potential economic development impact of this cluster. We agree wholeheartedly with BCD’s assessment and believe the proposed College of Medicine would address this shortcoming. The continued excellence and competitiveness of our university among our peers (e.g., Association of American Universities) would be enhanced by the presence of an autonomous medical college that builds on our strength in engineering and computer science and stands to benefit greatly from collaborations and projects with faculty, departments, and colleges across the campus.

BUDGET:

The private consulting firm, Tripp Umbach, submitted a detailed financial model and fund development strategy in the business plan they submitted on October 20, 2014. The financial model and business plan incorporated the input of over sixty individuals (University faculty and administrators, and Carle physicians and leaders), divided into ten working groups and a leadership group. All groups included both University and Carle participants. The plan also leveraged Tripp Umbach’s expertise as well as its

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6 This includes existing research partnerships with Mayo Clinic, OSF Healthcare and an emerging exciting opportunity (MOU signed 01/12/2015) with Massachusetts General Hospital (MGH) centered on student and faculty exchanges and training as well as the development of research collaborations.
access to financial models for current and planned medical schools. The highlights of the financial plan include

- A $100 million contribution from Carle Health System over the first ten budget years;
- An additional on-going annual contribution from Carle of $1.5 million to extend beyond 2025.
- A cumulative budget surplus (including Carle and other funding contributions) that never is in deficit throughout the presented ten year budget, even with the inclusion of a 10% contingency on all expenses;
- No request for new GRF funds from the State for the operations of the College and no request for the diversion of funds from other Colleges;
- Start-up expenses estimated at just over $37.4 million (including the 10% contingency) in the first three years with revenues and funding commitments and revenues estimated at $45 million during that same period;
- A cumulative budget surplus (including funding contributions) of approximately $10 million in the tenth year.
- A 10th year annual operating deficit (expenses minus revenues for that year not including funding contributions) of $0.9 million (although this deficit is the result of including a $3.2 million contingency in the expenses);
- The creation of a $25 million endowment from the $100 million Carle contribution by setting aside funds in years 8 to 10. Draws from that endowment would help address the annual operating deficit beyond year 10. The annual operating budget deficit can be eliminated in later years with draws from this endowment and the increase in tuition revenue resulting from the full ramp-up of students to fifty per class in all years.

STAFFING:

The business plan for the new College of Medicine calls for the following:

- The recruitment of a founding dean, who must be a nationally recognized leader in engineering and science-driven medicine, projected for 2015;
- A core faculty consisting of 23 new faculty members with 20 in the sciences or engineering and 3 physicians;
- An additional estimated 40-50 physicians to be employed by Carle Health System, who will also hold partial appointments with the College (the equivalent of about 10 new FTE clinical faculty members).
- Approximately 75 FTE faculty and staff are expected to support the operations of the College by the tenth year.
- The new College is to draw from approximately 400 physicians representing 70+ specialties currently employed by Carle.
- The new College is to take advantage of the fact that Carle has a physician workforce plan to recruit additional physicians resulting in a net increase of 130 physicians over the next 3 to 5 years.

SUGGESTED TIME LINE and SUBSEQUENT STEPS:

7 By the tenth year, with the slow ramp up from 25 to 50 students per class, 220 students are projected to be in the program. At full capacity, there will be 250 students (5 times 50 students per year).
We will adhere to the consultation and approvals processes mandated by the State, the University, and the campus. These include:

The Urbana campus Senate approves this proposal to establish the College through a recorded vote. **The proposed College will not begin recruiting an inaugural class of students without first successfully completing all remaining steps listed below:**

- The President submits the proposal for the unit together with the advice of the Urbana senate, the Urbana chancellor, and the University Senates Conference\(^8\) for approval by the Board of Trustees and eventual submission for approval to the Illinois Board of Higher Education (IBHE) and the regional accreditor, the Higher Learning Commission (HLC);
- Once the new College of Medicine is created, a founding dean is recruited;
- Initial College faculty members are identified and their appointments recommended for approval at all the appropriate levels;
- New College faculty members are appointed and develop and propose unit Bylaws consistent with the *University Statutes*;
- New College faculty members create and propose curricula and degree requirements, subject to review and approval processes of the campus (including the Senate), and other appropriate approvals, including the IBHE and the HLC;
- The founding dean, in consultation with the College Executive Committee, proposes a unit budget, to be approved by the Office of the Provost in consultation with the Campus Budget Oversight Committee;

The following additional steps must also be carried out before the admission of the charter class of students:

- Completion of Definitive Agreements between the University and the Carle Health System upon approval of the establishment of the College\(^9\);
- Approval by the Board of Trustees of the Definitive Agreements, and,
- Approval by the Liaison Committee on Medical Education (LCME\(^10\)) of the College of Medicine’s submission for preliminary accreditation.

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8 As per a Resolution approved by the Board of Trustees on November 13, 2014, the President is expected to seek advice from both the campus Senate and the USC before forwarding his advice to the Board in March, 2015.
9 The Definitive Agreements will be completed in consultation with appropriate Senate committees.
10 The LCME is the national accrediting organization for schools and colleges of medicine.
ATTACHMENT A. LETTERS OF SUPPORT FOR THE CREATION OF A NEW COLLEGE OF MEDICINE
January 12, 2015

Professor Gay Miller
College of Veterinary Medicine
2001 South Lincoln Avenue
2635 Vet Med Basic Sciences Bldg., M/C 002
Urbana, IL 61802

Dear Professor Miller:

On behalf of the Interdisciplinary Health Sciences Initiative (IHSI) Advisory Committee, we wish to express our enthusiasm for the proposed Engineering-focused College of Medicine.

The IHSI advisory committee includes representatives from units across the campus and is broadly focused on health sciences research, education and service. The committee is appointed by the Vice Chancellor for Research (VCR) to serve the VCR and IHSI Director, Neal Cohen, as well as the Chancellor and Provost, by providing insight to key issues and opportunities in the health sciences. Appointed in January 2012, our committee has gained deep knowledge of the campus health science landscape. After interviews with numerous campus leaders in health-related programs, we feel we have a unique perspective regarding the opportunities for health research and education, as well as the infrastructure and expertise gaps that limit our national visibility as a leader in health sciences research.

Our committee feels it is critical to express our strong support for the College of Medicine during the deliberations of the Faculty Senate. We wish to share the perspectives of our members regarding the critical need for the proposed College of Medicine and some of the challenges we’ve contemplated over the last two years.

We believe that a fully integrated College of Medicine that incorporates an active educational, research, and clinical care program will bring broad benefits to many Colleges and Departments. Some of these include:

- Access to a fully integrated clinical partner will facilitate recruitment of faculty and the ability to offer part-time clinical appointments for clinical education units across the campus including nutrition, psychology, speech and hearing, kinesiology, and social work. It also opens opportunities for existing staff to have teaching, research, or clinical appointments in clinical departments, thereby enhancing hiring of top biomedical and health research faculty across the campus.
- Increased access for student internships and capstone projects related to medical education, healthcare, and clinical research projects. While it is obvious that this would be the case for the College of Engineering, the new medical school also opens doors for projects related to medical education and ethics, healthcare economics and management, law, public health, information science, design and human factors, and numerous other fields of study.
- Expanded ability to partner with research active clinical faculty to pursue collaborative projects related to healthcare for units across the campus. Examples could include nutritional supplements for patients in intensive care, studies related to the role of families in managing chronic health conditions, language barriers and quality of care, studying the economics of healthcare reform on hospitals, patients and the community, strategies for effective
communication of health information, projects related to the arts as therapy, studies on effective delivery of distance care for diverse social, cultural and economic backgrounds. While all these projects are possible now, they tend to be difficult to pursue locally because of the lack of research active clinical providers to bridge the clinical care environment and the research environment of the campus.

- A research-active College of Medicine enhances access to funding opportunities at National Institutes of Health (NIH), Agency for Healthcare Research and Quality (AHRQ), Department of Defense (DOD) and other agencies where an independent College of Medicine is an application requirement. Many of these programs provide research infrastructure, core facilities, research services and educational programs that can be utilized by researchers and students across the campus.

A strong research-active College of Medicine can have a dramatic impact on the Champaign-Urbana community.

- It will expand access to sub-specialty care by improving the intellectual environment for specialist providers thereby enhancing recruitment success.
- By facilitating joint hires, partial appointments, and salaried physicians, even a small medical school can have a dramatic impact on the number and quality of healthcare providers in a community.
- An engineering-focused medical school, especially one oriented toward the advanced diagnostics and imaging expertise of the campus, can lead to the development of Carle and Champaign-Urbana as a healthcare destination and a subsequent increased presence of major health technology companies. Already, the campus and Carle are exploring interactions with Siemens and Burroughs-Wellcome to bring service and research sites to the community.
- Expansion of corporate relationships through the new College of Medicine will enable the evolution of an economic development ecosystem focused on healthcare. This will facilitate development of small companies here in the Champaign-Urbana area. Biomedical technology is already the second largest category of invention disclosures on campus, which provides a strong foundation for future growth.
- The intellectual and economic environment will attract more University and College of Medicine graduates to either remain in or return to our area, furthering our growth and contributing to the vibrancy of our local community.

There is a strong relationship between Carle and the University on which to build a partnership in the new College of Medicine.

- Many Carle clinicians already mentor students in medical education, dietetics, public health, speech, psychology, cancer, and neuroscience research.
- Carle donates space in their Forum Building rent-free to the UIC regional COM.
- Carle provides an annual gift of $1M to the UIC regional COM, which represents 1/6th of their education budget.
- Carle provides significant in-kind support for research and education.
  - Many of their physicians supervise medical students or teach on a voluntary basis or for a very small stipend.
  - Many University researchers are provided with clinical samples and research participant recruiting for little or no charge.
- Over 30 joint research studies are currently active between Carle and the University.

Despite that large level of engagement between Carle and Illinois, a large number of challenges exist that can only be addressed through an independent medical school.
• Physician participation in medical education is currently voluntary; most are not compensated for their educational activities and only three are salaried at the University to teach and pursue research.

• The UIC regional COM at Urbana is organized and funded for the sole purpose of medical education. Clinical and research missions are not integrated into the existing COM model.

• Funds are needed to support recruitment of research-active clinicians. Clinical research space needs to be developed including dedicated hospital beds for research purposes.

• For tenure and promotion, new evaluation mechanisms are needed to ensure that clinical achievements are recognized for physician faculty, and research and education contributions are recognized in Carle’s evaluation process.

The existing medical school model divides the traditional medical school missions among more than three independently managed entities – medical education at UIC, research at Illinois, and clinical care at Carle and other local providers. To fully realize the benefits of a local College of Medicine, incentives, expectations, and investments must align and benefit the partners. The proposed model allows for alignment of benefits and expectations that will grow its value to Carle, our University, and our community.

We trust that our letter provides more insight to the Educational Policy Committee regarding the value of the proposed medical school to the campus and community. Please feel free to reach out to any of us for additional information.

Sincerely,

John W. Erdman Jr., Professor Emeritus, Food Science and Human Nutrition Chair, Interdisciplinary Health Sciences Initiative (IHSI) Advisory Committee

Advisory Committee members:

Milan Bagchi, Department Head, Molecular and Integrative Physiology
Rashid Bashir, Department Head, Bioengineering
Rohit Bhargava, Professor, Bioengineering
Stephen Boppart, Professor, Electrical and Computer Engineering, Bioengineering
Barbara Fiese, Director, Family Resiliency Center
Martha Gillette, Professor, Molecular & Integrative Physiology
Chris Larrison, Associate Professor, Social Work
Edward McAuley, Professor, Kinesiology and Community Health
Brent Roberts, Professor, Psychology
Susan Schantz, Professor, Comparative Biosciences
Stephen Sligar, Director, Molecular and Cellular Biology
Richard Tapping, Professor, Medical Microbiology
Bryan White, Professor, Animal Sciences

Ex Officio: Jennifer Eardley, Associate Vice Chancellor for Research
Ex Officio: Lori Williamson, Associate Vice Chancellor for Institutional Advancement

c: Wise, P.
    Adesida, I.
    Schiffer, P.
    Cohen, N.
September 26, 2014

Phyllis M. Wise
Chancellor, University of Illinois at Urbana-Champaign
Swanlund Administration Building
601 East John Street
Champaign, IL 61820

Dear Chancellor Wise,

I recently learned about the University of Illinois at Urbana-Champaign's considerations for building a College of Medicine on campus. In today's world of evolving healthcare, I believe there has never been a more opportune time for prestigious universities, such as UIUC, to ensure that aspiring medical professionals are taught to adapt and deliver better health outcomes around the world.

The University of Illinois is ideally positioned, with its top-ranked College of Engineering, to become a leader in innovation and problem solving at the intersection of these two fields. Abbott has a long history of collaboration with the University of Illinois in the sciences, engineering and nutrition, including establishing the Center for Nutrition, Learning and Memory within the Beckman Institute. Combining the university's expertise in health sciences and engineering for the College of Medicine would continue to accelerate the research, science and innovation that are already making strides within the health and science industries.

Establishing the first College of Medicine designed from the ground up would be a tremendous opportunity to have in this evolving healthcare industry. As leader in the industry for 125 years, Abbott has both played an integral role and been directly affected by such technology and transformations in the past. We are therefore passionate to speak to the importance of growing this intersected education to drive a healthier society overall.

The healthcare industry today must be transformed to deliver better health outcomes to patients, all at lower costs. Technology-based innovation must be central throughout the healthcare industry to advocate for the discovery of new systems and approaches. The focus on establishing a new, specialized medical care profession would allow for new and rapid advances in technology. Strategic visions such as these for the College of Medicine will bring us closer to reaching the common goals of changing the delivery of healthcare and largely improving health outcomes.

As the head of Abbott Nutrition, I wholeheartedly support the development of this innovative College of Medicine at University of Illinois at Urbana-Champaign. It is an opportunity to combine the University's world-class programs in engineering, computation and genomics together with a strong clinical partner. Doing so, I believe, will position Urbana-Champaign as not only a leader in bioengineering and biomedical enterprises in the region, but as a hub for the future of quantitative medicine.

I look forward to seeing how this project unfolds, and please reach out for any further discussion.

Sincerely,

John Landgraf
September 2, 2014

Phyllis M. Wise
Chancellor, University of Illinois at Urbana-Champaign
Swanlund Administration Building, 601 East John Street
Champaign, IL 61820

Dear Chancellor Wise,

During my wonderful visit to the campus this summer associated with my honorary degree, I met with a group of faculty and yourself to discuss the advantages and challenges of the University establishing a new type of a medical school focused on research and education at the interface of engineering and medicine. As discussed, this medical school would be established in conjunction with the Carle Health Systems and would provide local settings for clinical training as well as contact with physicians, patients, clinical material and medical records for advancing research and technology. There are many aspects to this endeavor that I will not address in this short letter. However, I do want to comment on the importance of the convergence of life sciences and engineering in the future of medicine and medical research. I have written on this subject and led committees addressing aspects of convergence over the past years. These publications and reports are available in a collection at this web site http://www.convergencerevolution.net/. Again, I will not summarize all of the activities at MIT in this area. It is suffice to say that the Institute aspires to a leadership position in convergence as it is critical for the future of medicine and life sciences in general.

Briefly, biomedical sciences at the molecular and gene level have undergone revolutionary changes over the past decades. The primary example of this is the completion of the human genome sequence in 2003, fifty years after the discovery of the structure of DNA. In parallel with this have been revolutionary advances in engineering and technology including information technology, media, nanotechnology, computation and micro-fabrication just to mention a few. Integration of these two most powerful thrusts of science and technology will change medicine, engineering, and science. The economic promise of this marriage is enormous as it is essentially the only means to advance the quality of healthcare at a sustainable cost. Providing the outstanding faculty in engineering at the University with colleagues knowledgeable in medical and clinical research and a commitment to education will create a powerful environment that attracts the best young faculty and retains the best of your senior faculty. Such a program will also attract outstanding students seeding Illinois with entrepreneurs who will lead advances in healthcare. The Health Science and Technology (HST) joint program between MIT and Harvard Medical School currently attracts such students. I do not know of other programs with a similar focus and none with the full integration of medical science and engineering projected in your plans.

I am excited about the benefits of further integrating engineering research and education in medicine at the University and look forward to learning about progress in this endeavor at future meetings of your Strategic Advisory Board.

Sincerely,

Phillip A. Sharp
September 30, 2014

Phyllis M. Wise
Chancellor, University of Illinois at Urbana-Champaign
Swanlund Administration Building, 601 East John Street
Champaign, IL 61820

Dear Chancellor Wise,

Your proposal to establish a new college of medicine at the University of Illinois at Urbana-Champaign is an exciting and most welcome one. As you know, Lilly collaborates with many university medical schools, and we value the insight and innovation that these engagements yield. The novel approach that you are taking – to create a research-intensive college that would leverage the convergence of engineering and technology with the life sciences and health care – is a unique offering and would clearly fulfill an important role in advancing each of these disciplines. Most importantly, such an effort would enable progress toward our common goal of improving the health and the lives of people around the world.

It is no secret that technology-based innovation will play an ever-increasing role in our quest to improve human health in a timely and cost-effective manner. We have witnessed that in our own industry during my nearly four-decade tenure, as new medicines discovered and developed via innovative means have enabled dramatic improvements in the treatment of a wide range of life-threatening and chronic diseases.

As global research and development approaches continue to evolve, we will need new medical schools in which university faculty are increasingly adept at helping student learn to translate their noteworthy discoveries into tools and treatments that help patients. Equally important will be the college’s role in cultivating physicians who are focused on using new and rapid advances in technology to transform the delivery of health care and to improve health outcomes.

At Lilly, we realize that meaningful progress in health care innovation is best achieved through collaborative efforts among government, industry, and academe. A new college of medicine such as the one you are proposing would be a powerful addition to this equation.

I look forward to continuing our discussion about this most promising opportunity.

With best regards,

[Signature]

John C. Cechtefter, Ph.D.
Chairman, President, and Chief Executive Officer
317.276.6997 | jcl@lilly.com

Phyllis M. Wise
Chancellor, University of Illinois at Urbana-Champaign
Swanlund Administration Building, 601 East John Street
Champaign, IL 61820
Chancellor Wise,

I've been on an extended trip to the Middle East for the last few weeks. That and the recent and untimely failure of the touch pad on my computer are the main reason for this last minute letter.

As you're aware I've actually had several discussions on this subject over the past few months. My presentation to the University's Board of Trustees last January was in many ways a prelude although I must assure them that the coincidence of my thinking and thoughts then thinking was just that, coincidence devoid of collusion.

You see I agree wholeheartedly with the premise of creating a new curriculum, one based on principles best summarized by the academic discipline and general ethos of engineering. One can approach a discussion on the merits of such a new paradigm from a historical perspective on how engineering has influenced and is influencing the practice of medicine and perforce therefore needs to be incorporated more fully into medical training at all levels. Medicine needs such a medical school and the likely benefits to the region and the state, and for business development in and around the twins cities of Champaign and Urbana, are substantial. The excitement of the faculty is already almost palpable and the prospects to elevate an already outstanding College of Engineering is unchallengeable.

I would argue that the issue is more important than such an argument would imply: the fundamental principles of engineering are essential for the future development of medicine, as practice, in terms of how to think incisively, of how to practice problem framing and problem solving, of how best to generate and integrate multidimensional, multivariate data for analysis, diagnosis and therapeutic decisions, all personalized to individual patients. What is particularly exciting in such clinical functions, is that one basic mantra of engineers is to find practical (applicable) solutions. To be sure, the latter has long been the objective of the physician but armed with a more refined way of approaching problems engendered by training with engineering principles physicians will become all the more effective.

There is little point in my continuing in this vein. You and your several colleagues have laid out excellently the arguments in favor of the basic proposal. I've read a couple of the missives already sent to you and to President Easter and anything I would add to their narratives would be largely redundant. It's obvious that I support the premise fully and I am unapologetic about my enthusiasm.

I am sure that the more salient issues for the decision makers will be not if but how to proceed particularly about whether there is a need for a brand new entity of whether the current situation can "simply" be re-engineered. The specter of redundancy rather than change is a potent argument especially given the very real and long term fiscal constraints facing the State of Illinois. While justified in principle, however, there is an irrefutable reality that established culture tends to "eat strategy for lunch" and I would argue that medical traditions tend to be particularly entrenched and difficult to change all the more so with regard to medical education. Furthermore, in my view there needs to be de novo curriculum design to insure meaningful correspondence between the pre-clinical and clinical years and new faculty imbued with the right training and attitudes. Trying to retro fit
into an established tradition is simply not tenable in my view if a program is to be realized in less than a couple generations!

Enough said save for a couple of caveats. The potential Achilles heel is clearly the clinical training program. Carle Clinics willingness to commit the requisite substantial resources is condition sine qua non. Realization of the entire program is utterly dependent on the collaboration with Carle and I'm sure they are cognizant of the enormity, and complexity of the task. They too will require a cultural change but one that in my view is not nearly so onerous in principle as the problem alluded to above because they have opportunity to start relatively de novo as far as medical school training is concerned. Carle also has had a long collaborative tradition with faculty of the UJUC College of Engineering.

Second, collaboration with the UIC Medical school must continue and I would hope, expand. Everyone benefits in principle and in fact providing that the program is viewed sensibly as one for the state, not just a locale.

Third, I hope that the unique value of such a school and therefore its value to many actual and potential stakeholders promotes strong, positive new relationships, stymies those who would simply want to compete and trumps any tendency toward proprietary behavior. Proximity among all players is important for maximum benefit to be realized but mere proximity does not in any way preclude longer distance collaborations either within the University of Illinois system or with any academic institution outside of Illinois.

Lastly, I hope that no one raises the specter that this sort of training will threaten teaching the "art of medicine". For me this an annoying and specious argument. The art of medicine implies practicing always within the intersection of knowledge, intuition, compassion and sentience. These are skills baked into any type of training by individual attitudes and caring faculty and unaffected by the expectation of a rigorously scientific approach to clinical practice.

No question, this is a challenge both to convince and persuade and then to implement. Nonetheless, it's exciting no matter what and the value proposition is obvious and substantial. Forgive my prolixity but that's what happens when I get excited.

Warmest regards.

Franklyn Prendergast,

ps. Sent from Holland!
July 22, 2014

Dear Chancellor Wise,

A few months ago I first learned of the bold, visionary and timely plans of the University of Illinois at Urbana-Champaign to establish a new medical school that is centered on the interface of engineering and medicine. This aligns beautifully with the concept of a revolution in medicine based on the convergence of engineering, the physical and life sciences. Indeed the concept has been accelerating over the last decade as fundamental advances in the understanding and treatment of disease have resulted from interfacing these fields. The logic is well founded. In nature there are no boundaries between the principles of engineering, the physical sciences and biology so one would expect the most effective solutions to medical problems to come at their intersection.

There are multiple compelling reasons to establish a medical school that embraces, inculcates and is driven by engineering. This provides a path to the most efficient and practical solutions to some of our most vexing challenges while also taking advantage of growing opportunities. Chronic illness has increased with increasing life spans globally; the world has become more interconnected in health and disease; and the economy has become a long range challenge. Consequently, the healthcare system looks to technological innovation to meet its needs of providing greater access to effective healthcare for more people at lower cost. In my view, these competing goals (i.e., doing more for less) can only be achieved through technological innovation.

Moreover, both the move to precision medicine and the overarching goals of the Affordable Care Act incent strategies that make early and accurate diagnoses, which will also enable immediate and appropriate treatment at the point-of-care. Preventative medicine, home based care and definitive services at the first point of contact with a health care provider are the goals. This too requires more value driven engineering of new diagnostic and therapeutic approaches where a value index has been defined as (Utility / Complexity x Cost). The concept of value driven engineering of medical advances addresses these needs and a new medical school that is engineering driven has the opportunity to lead the nation in changing the medical landscape for the better.

I look forward to discussing this transformative project with you further.

Very best regards,

Roderic I. Pettigrew, Ph.D., M.D.
Director
National Institute of Biomedical Imaging and Bioengineering National Institutes of Health
Building 31, Room 1C14
Bethesda, MD 20892-2281
301-496-8859
301-480-0679 - FAX
rpettigrew@nih.gov
http://www.nibib.nih.gov
September 2, 2014

Chancellor Phyllis Wise
University of Illinois at Urbana-Champaign
Swanlund Administration Building
601 E John Street
Champaign, IL 61820

Dear Phyllis,

Your proposal to establish a College of Medicine that is built “from the ground up” on the strength of your engineering excellence is truly exciting. Solving the challenge of healthcare delivery in the coming years will depend in large part on our ability to infuse the principles of engineering, technology, and big data into all aspects of our medical curriculum. We at Northwestern look forward to collaborating with your faculty as you build out your College of Medicine. I look forward to a closer partnership as your vision of a transformative medical school comes to fruition.

Sincerely,

Morton Schapiro
President and Professor

MOS:ghd
August 14, 2014

Phyllis M. Wise  
Chancellor, University of Illinois at Urbana-Champaign  
900 University Avenue  
Swanlund Administration Building  
601 East John Street  
Champaign, IL 61820

Dear Chancellor Wise,

I appreciate the opportunity to comment on your plan to establish an engineering-driven College of Medicine at the University of Illinois at Urbana-Champaign. I was very excited about this concept when we first spoke earlier this year and I enthusiastically support this concept as you move closer to its creation. I have read the outstanding letters of support from Drs. Pettigrew and Chien, who eloquently make the case for developing further the interface between Engineering and Medicine. I would like to add to this the perspective of why this needs to occur as part of the creation of a new medical school.

As the founding Dean of the University of California’s newest medical school, my colleagues and I have had the rare opportunity to craft not just a new school, but a complete pipeline around our own unique mission. Our charge, distinctive among U.S. medical schools, is to train a diverse group of learners and physicians who will go into short supply specialties and ultimately practice in Inland Southern California. We also have the specific mission to improve the health of the communities we serve, a commitment that requires more focus on prevention, wellness and public health. These are objectives that established medical schools have not adopted very successfully. Having worked at five different medical schools during my career, I have found it extremely difficult to dramatically change the educational processes and cultures of existing faculty and programs.

Change can occasionally be accomplished to some extent by the creation of Institutes, Centers or Programs and through special “tracks,” but in all cases the issues of who gets into medical school, the basic medical curriculum, even the educational environment remains the same. As a result, I firmly believe that the best opportunity to make a dramatic and fundamental change is with a new school where the entire process can be created around an innovative mission, philosophy and curriculum. The University of Illinois at Urbana-Champaign has this opportunity.

This is also an advantageous time to do so. After almost 40 years of no net increase in either medical schools or graduating medical students, our country is now dramatically expanding both. Sadly, the majority of these new medical schools have been built along traditional lines and organizational structures. Fortunately, a few have been created
specifically around new paradigms, new educational objectives and even new teaching platforms. I believe their success will ultimately drive change on a national level. In 1954, Case Western Reserve University introduced a new, and at the time, a radical re-think of who got into medical school, and how medical students were taught. With these novel ideas, they rolled out a completely different integrated, organ-system based educational platform. It took almost a half century, but today most medical schools in the United States have adopted these concepts. We need to have several schools embrace something fundamentally different, and through their successes, witness the modification of other institutions in the future. That is why I am so enthusiastic about this new educational concept for a medical school in Illinois.

I should also comment that having a strong clinical partner in Carle Health, which shares this vision, is very impressive and important. The medical students need to be educated clinically in an environment that supports the mission and is equally committed to this fundamental change. It is also important because this new school will also need to create new and unique graduate medical education programs around this unifying theme. The interface between engineering and clinical practice must continue after graduation from medical school. This can only be done with a dedicated and committed clinical partner.

In summary, I applaud Chancellor Wise’s vision and plan to build a new medical school around the interface of engineering and medicine. The university already has a world class engineering school and now a commitment to build a new and innovative medical school in the same location to bridge these two fields. Not only is this an exciting idea in and of itself, but if it is successful it will change the way other more traditional institutions view this interface and greatly influence the future of medical education.

Sincerely,

G. Richard Olds, M.D., M.A.C.P.
Vice Chancellor, Health Affairs
Dean, School of Medicine
University of California, Riverside
July 23, 2014

Phyllis M. Wise
Chancellor, University of Illinois at Urbana-Champaign
Swanlund Administration Building
601 East John Street
Champaign, IL 61820

Dear Chancellor Wise:

I learned from Dr. Roderic Pettigrew that you are planning to establish an engineering-driven College of Medicine at University of Illinois at Urbana-Champaign. I am greatly impressed by your visionary plan to create such a novel approach to the establishment of a medical school.

Just as the revolution of medicine by the advent of molecular biology in the last century, engineering will be the new driving force for the progress of medical research and education in this century and beyond.

Life science research and medical practice have been mainly qualitative and generally have not paid sufficient attention to the quantitative nature and time-dependent changes in biomedical processes and clinical disorders. The differences in the educational programs and cultures between medicine and engineering have led to their dichotomy with little interactions. In recent years, however, it has been increasingly recognized that the full understanding of biological processes and the effective management of clinical conditions require quantitative approaches and time-variant considerations, which are the hallmarks of engineering, in addition to feedback control and systems approach. Furthermore, engineering enables the development of novel technologies that are important in medical research and clinical practice, such as high-throughput sequencing, the -omics technologies, biomedical imaging, various medical devices such as prosthesis, stenting, heart rhythm control, brain stimulation, remote sensing, and more. Moreover, we need to store and analyze the large amount of data (big data) generated by these technologies, followed by modeling and network reconstruction, in order to elucidate the pathophysiological mechanisms and therapeutical efficacy. These processes require the application of systems engineering. By developing novel approaches for early detection of disease, matching the therapy with patient profile, and improving the cost-effectiveness of clinical treatment, engineering can contribute to the practice of personalized medicine and the reduction of health costs.
Thus, engineering is an essential element in medical research and education, and medicine in the 21st century requires its integration with engineering. At UCSD and several other institutions (e.g., University of Minnesota and University of Pennsylvania) where we have schools of engineering and medicine, we attempt to achieve this goal by establishing an Institute of Engineering in Medicine (IEM). The strong collaboration between the faculty and students of Schools of Medicine and Engineering, as well as the administrative leadership, has contributed to its success. However, much greater success can be achieved by having an engineering-driven medical school from its inception: This will unite engineering and medicine as one in terms of the system, the personnel, the culture, and ways of research, education, and clinical practice. UIUC is particularly well suited for this novel initiative because your outstanding College of Engineering with its highly collaborative faculty is prepared to leverage its strengths to establish a College of Medicine.

In summary, your engineering-driven College of Medicine will undoubtedly set a new paradigm for our Nation and the World to benefit the health and wellbeing of people.

Best regards,

Sincerely yours,

Shu Chien, M.D., Ph.D.
University Professor of Bioengineering and Medicine
Director, Institute of Engineering in Medicine
Members, National Academies of Science, Engineering, and Medicine
National Medal of Science Laureate, 2011
October 2, 2014

Ms. Phyllis Wise
Chancellor, University of Illinois at Urbana-Champaign
Swanlund Administration Building
601 East John Street
Champaign, IL 61820

Dear Chancellor Wise,

I am writing this letter in support of the proposal for the University of Illinois at Urbana-Champaign to establish a College of Medicine. The interface between medicine, technology, big data, and engineering is a particularly productive field of research, and a school focused on training physicians who can function at this interface would be beneficial to the state and beyond.

At the University of Chicago, we have found that collaborations between the medical school, the biological sciences division, the Computation Institute, the Institute for Molecular Engineering, and Argonne and Fermi national laboratories have resulted in innovative outcomes that have improved health care. I anticipate that similar collaborations at the University of Illinois at Urbana-Champaign would likewise benefit medical research and patient care.

I look forward to seeing your plans for a new College of Medicine develop as this project moves ahead.

Yours sincerely,

Robert J. Zimmer
September 22, 2014

Phyllis M. Wise, Ph.D.
Chancellor, University of Illinois at Urbana-Champaign
Swanlund Administrative Building, 601 East John Street
Champaign, IL 61820

Dear Chancellor Wise,

It was during the spring that I first became aware of the idea of a uniquely positioned medical school on the Urbana campus. The concept to bridge the fields of engineering (a global strength of the Urbana Champaign campus), big data (another tremendous asset of the Urbana Champaign campus) and medicine in a new medical school in partnership with Carle and its health system was novel and energizing in many ways.

The undertaking of a new medical school for the Urbana campus is not inconsequential. It has potential effects throughout the University of Illinois campuses, most important, UIUC and its College of Medicine. In addition, mobilizing finances and people to operationalize a new medical school is a substantive set of tasks that could be very disruptive to the ongoing operations of a university as successful as UIUC.

So, is the idea compelling enough to pursue? Yes. The integration of different disciplines into medical curriculum at this moment in time is propitious as we move into a transition period in healthcare and healthcare education. A post-Flexnerian era is upon us that will require a constancy of medical knowledge combined with curricula that incorporate population health management, effective uses of technology, and contributions from an array of traditionally non-medical scientific areas. Successful medical education environments that have made iterative changes over the last decade cannot craft this content anew. It will take a new environment to do so. The validated excellence of the Urbana Champaign campus’ resources lend credibility to this disruptive idea, transposing medical education to include a breadth of sciences so critical for success in the healthcare world of tomorrow.

Nonetheless, it is important to keep a new medical school such as the one proposed grounded in the realities of healthcare today. The partnership with Carle is thus critical and beneficial. As a system, Carle has facilities, resources and people that represent key features of contemporary health systems. Moreover, Carle has a clinical reach to the state of Illinois through its Health Alliance. The resource base and the “clinical test” environment are therefore present to support the launch of a new type of medical school.
The ability to successfully address chronic illness on a daily basis, re-formatting workflows for better, more efficient care, using distance technology for patient interactions, and developing more precise, predictive analytics are real-world problems that lie at the core value proposition of a new medical school at UIUC. While technology and innovation are essential however, they are only part of the solution as we move healthcare in the US to its next level of development. The focus of a novel medical school on the Urbana Champaign campus paradoxically allows the University of Illinois a unique opportunity to celebrate and accelerate its commitment to community and diversity at UIC. These organizational traits and the social responsibility that accompanies them are integral to the identity of the Chicago healthcare campus and the healthcare services provided by the regional campuses in Rockford and Peoria. And in areas where that social responsibility interlinks with the biological foundation of the medical sciences on the UIC campus, the UIC campus has a unique, national positioning that is in no way diminished by the establishment of a new medical school in Urbana.

The challenges of a new professional school ranging from accreditation to resources to tuition to faculty are self-evident and the rewards projected, not guaranteed. Yet, the possibilities for this new medical school are substantial. It can make a positive impact almost immediately through its new focus and its "products", be they students or research findings. The potential to change part of the national medical education environment and bring a new view directed to the overall healthcare landscape in the US is a positive and unique opportunity. And, what better example can you ask of a land grant university in extending its mission as defined in the first Morrill Act in a novel way than by teaching "the mechanic arts" in relation to medicine?

I look forward to seeing the progress of this effort.

Sincerely,

Bryan Neil Becker, MD, MMM, FACP, FNKF
Associate Dean, Clinical Affairs and Vice-President, Clinical Integration
University of Chicago Medicine
5841 S. Maryland Avenue | MC 1000 | O-103
Chicago, IL 60637
August 19, 2014

Chancellor Phyllis M. Wise
University of Illinois at Urbana Champaign
Swanlund Administration Building
601 East John Street
Champaign, IL 61820

Dear Chancellor Wise,

I thoroughly enjoyed the opportunity to discuss your vision for a new medical school at the University of Illinois at Urbana Champaign. For over 100 years the template outlined by Abraham Flexner in his 1910 report served to define the curriculum of American medical schools. Flexner was much impressed by the universities in Europe. He pushed for completion of an undergraduate degree prior to matriculating into medical school. He proposed a curriculum in which the first two years were dedicated to the basic sciences and the third and fourth years were for clinical studies. Many second and third rate medical schools closed as a consequence of his report and many of the schools which adopted his recommendations succeeded dramatically. However, it has become clear over the past decade that the Flexnerian model does not adequately prepare students for 21st century medicine and healthcare.

Several authors have written about creative innovation or creative disruption required by the application of new technology and new educational methodologies in medical education. Your new medical school will contribute significantly to such creativity. It is clear that many of the most important developments in medicine have incurred at the interface of disciplines, of which engineering is one of the most important. The genome project could not have happened without DNA sequencing machines and high performance computing. When one considers prosthetic hips and knees or heart valves, the interaction between physicians and engineers has been essential. Healthcare, itself, has become increasingly focused upon continuous quality improvement, the reduction and or elimination of medical errors, and greater degrees of efficiency, all of which can be instructed by systems engineering. Indeed, I have appointed an industrial engineer as the Chancellor’s Health Fellow in Systems Engineering for the UT System, and we have eleven projects underway applying these techniques to improving healthcare.

I’m currently involved in the creation two new medical schools, one in South Texas and another on The University of Texas at Austin campus. In both cases, a major emphasis will be placed upon interprofessional education and interdisciplinary science.

The University of Texas at Austin has an outstanding School of Engineering, its faculty and leadership is deeply involved in plans for the medical school curriculum at that campus. The curriculum is designed for the students who will complete their preclinical work and clerkships within the first twenty four months of medical school. The third year will then be an opportunity for pursuing dual degrees and interdisciplinary research programs or special educational experiences, with the understanding that some students will progress directly to the fourth year and graduate years in three years.
Your emphasis upon a medical school with a relatively small student body committed to the applications of engineering to medicine is very exciting. It will allow a carefully selected group of students to find the intersections and applications which will improve the delivery of healthcare. With the use of modern technology, including online education, distance learning, flip classrooms and hands on laboratory experiences, these students will be uniquely prepared to impact science and healthcare delivery. I believe that the students should plan to have clinical experiences beyond medical school. Only with some experience in the care and management of patients will they obtain the full benefit of the opportunities created by the marriage of engineering and medicine. But I would also hope that during their residency positions in conjunction with Carle Hospital, there will be opportunities for students to think creatively about the applications of engineering and technology to both the care of patients and the systems in which that care has been delivered.

Congratulations on this great conception. With very best wishes to you and your colleagues for successful creation of this important enterprise.

Sincerely,

Kenneth I. Shine, MD
Special Advisor to the Chancellor,
The University of Texas System
Immediate Past Executive Vice Chancellor of Health Affairs,
The University of Texas System
Past President, Institute of Medicine, National Academy of Sciences
Dean and Provost for Health Sciences Emeritus, UCLA
August 7, 2014

Chancellor Phyllis Wise
Office of the Chancellor
Swanlund Administration Building
MC-304

RE: Creation of a College of Medicine at UIUC

Dear Chancellor Wise,

With this letter I wish to express my enthusiastic support of the proposal to establish a fully autonomous and accredited college of medicine on our campus.

The establishment of a College of Medicine, reinvented through the proven transformational influence of quantitative scientific discovery and engineering innovation, is essential to the sustained excellence and leadership of our top five ranked College of Engineering. For us, the issue is not whether this College of Medicine will happen on our campus. Rather, how soon. The future can’t wait. And, in our College, faithful to our land-grant mission, we measure our success by how we define and enable the future.

In our bold plans and aspirations for advancing humanity — through the contributions of our faculty and our students — to the next plateau of wellness and prosperity, revolutionizing wellness and healthcare is the next major frontier. We have already embarked on this mission through the establishment and aggressive investment in the future of a young Bioengineering Department and through the targeted growth of our faculty — throughout all disciplinary departments in the College — with the engineering expertise and talent needed to claim leadership at the national and global level in this mission.

We have done it before. We know the recipe. An ambitious and bold vision leads to discoveries and breakthroughs that light up the promise of success. This is why John Bardeen was recruited to our Campus in the wake of his groundbreaking discovery of a new way of turning electronic devices on and off. His presence provided the spark for further groundbreaking discoveries in semiconductor electronics, photonics, and their integration into computing and communication systems. Most importantly, it led to the conception and establishment of the curricula to educate, train and inspire the workforce that used these scientific and engineering breakthroughs to transform our lives through new markets, new products, new conveniences, new and higher expectations about the future.

We know that scientific discoveries and technological breakthroughs alone are not enough to change the world. Rather, these discoveries and breakthroughs need to be considered, processed and understood both by those who will turn them into products and services and those who will use them and benefit from them. And this is why our Campus needs this College of Medicine, because the future of medicine and humanity’s improved and more accessible wellness needs to be part of the education and inspiration of all our students.
The College of Engineering stands behind your vision and our Campus' aspiration to lead in the transformation of health care research, education and practice. The time is right. We cannot wait. Let's make it happen.

Sincerely,

Andreas Cangellaris  
Dean and M. E. Van Valkenburg Professor  
in Electrical and Computer Engineering
Dear President Easter,

We, the undersigned, unequivocally support the bold and far reaching plans of Chancellor Wise and Provost Adesida for a new Engineering-based College of Medicine on the UIUC campus. We believe that this new college is a compelling opportunity for our campus to continue its proud tradition of breakthroughs in the service of progress, fulfilling its mission as the pre-eminent Land Grant University. Since medicine, our healthcare systems, and global health are some of the next most important progress frontiers for mankind, our unique strength as the vanguard of disruptive innovation through interdisciplinary research and education compels us to take the lead again in defining and pioneering the future for engineering-based medicine. In doing so, our Campus would likely have a profound impact on the University of Illinois, our community, our state, our nation and the world. In the following, we highlight specific reasons that fuel our enthusiasm and galvanize our support for this ambitious undertaking at the present time.

• The last century’s breakthroughs in electronics, imaging, materials, and computing, have put the convergence of medicine, biology, and engineering on the fast track to conquering the world’s pressing medical and healthcare challenges. Through our internationally-renowned, interdisciplinary research culture and our top-ranked College of Engineering, we enjoy the enviable position of being able to pioneer the technologies and create and teach the knowledge and processes to understand, manage, prevent and cure disease, and to significantly improve our quality of life. With the advances in genomics and low cost sequencing, stem cell engineering, advanced imaging, pervasive and low-cost point-of-care sensors, supercomputing, and other advances – there is no better time to tackle the challenges in health care and medicine through scholarly advances in engineering and technology.

• The democratization of healthcare delivery, both within the U.S. and around the world, and the containment of its rising costs are conflicting challenges. We have faced such a conflict before. Just over sixty years ago, the size of vacuum tube electronics was standing as an insurmountable hurdle to the dream of computing power at our fingertips. Illinois led the world in overcoming this conflict through major contributions to semiconductor electronics and photonics research, computer engineering breakthroughs, and the pioneering of the curricula that educated and inspired the workforce behind today’s miracle of information technology. Our world-renowned interdisciplinary culture, built upon the bedrock of the Beckman Institute, the Institute for
Genomic Biology, the Micro and Nanotechnology Laboratory, the Coordinated Science Laboratory, the Materials Research Laboratory, and the National Center for Supercomputing Applications positions us for success in this bold endeavor.

- The promise of this frontier of engineering-based healthcare depends on the development of a new paradigm in the education and training of the health care providers of tomorrow. Tomorrow's Physicians must be empowered with the scientific knowledge, engineering expertise and quantitative skills they will need for putting to good use the means and engineering sciences available to them to diagnose, treat, prevent and cure disease. A new medical curriculum is the next educational frontier—the nexus of engineering, medicine, and biology, one we can, and should, be the first to develop and deliver. Our claim to fame as the birthplace of the first microelectronics curriculum and the first computer science and engineering curriculum, demands nothing less of us. To bypass this opportunity is tantamount to saying we will step to the sidelines and let others exploit our engineering expertise and innovations to their advantage. For us, this is not an option. We do not follow trends, we set them.

- Leading with a new medical curriculum will help us to further attract to Illinois the diverse student talent that wants to make a difference in the well-being of others. It will help us and the Carle Foundation Hospital – our committed and capable partner in this new endeavor – to attract the bold and daring physicians and medical researchers, engineering scholars and entrepreneurs who want to ride the wave of change in technology-enabled medicine. Their presence here will expedite the growth of the translational research enterprise, thus nucleating an ecosystem that will complement the vibrancy and strength of Chicago’s excellent healthcare and business sector. Moreover, these efforts will drive novel solutions to healthcare, addressing one of the critical problems of the day and help our state towards becoming the “Medical Prairie” of the 21st century.

We have done it before and we can do it again. We are proud to be part of a land grant institution that – faithful to its mission – educates and innovates in the service of progress that touches and influences everyone. We know how to leverage the incredible breadth of our educational fabric to contribute to the new ideas, new opportunities and new technologies that our faculty and our students bring to life.

The time is now to tackle the challenges in health care and medicine with biologically informed engineering and technology, and we are one of the handful of academic institutions in the world that possess the culture, drive, and momentum to lead this new frontier. Our support of the proposed new College of Medicine on the Urbana campus is bolstered by our Campus’ can-do attitude and relies upon the power of our autonomy as a campus to pursue those endeavors that will maintain our preeminence in the twin pursuits of labor and learning. Our preeminence hinges on our ability to lead this next frontier of innovation. Engineering-based medicine is our mandate.

With respects,

*Names of Signatories Below*

cc: Chancellor Phyllis Wise, Provost Ilesanmi Adesida
Names of Signatories

Tamer Basar
Swanlund Endowed Chair and
CAS Professor of Electrical and Computer Engineering

Rashid Bashir
Abel Bliss Professor of Engineering
Head, Department of Bioengineering

Rohit Bhargava
Professor of Bioengineering
Bliss Faculty Scholar

Stephen A. Boppart
Abel Bliss Professor, Department of Electrical and Computer Engineering and Bioengineering
Beckman Institute for Advanced Science and Engineering

David Cahill
Donald Biggar Willett Professor of Engineering
Head, Department of Materials Science and Engineering

Roy Campbell
Sohaib and Sara Abbasi Professor of Computer Science

Andreas C. Cangellaris
Dean, College of Engineering
M.E. Van Valkenburg Professor

Neal J. Cohen
Professor, Department of Psychology, Neuroscience Program, and Beckman Institute
Director, Interdisciplinary Health Sciences Initiative (IHSI) and Center for Nutrition, Learning, and Memory (CNLM)

Brian Cunningham
Professor of Electrical and Computer Engineering and Bioengineering
Interim Director of the Micro and Nanotechnology Laboratory

Evan DeLucia
G. William Arends Professor of Biology
Director, Institute for Sustainability, Energy, and Environment

Lizanne DeStefano
Director, Illinois Science, Technology, Engineering and Mathematics Initiative (I-STEM)
Fox Family Professor of Education and Professor of Educational Psychology

J.G. Eden
Gilmore Family Endowed Professor of Electrical and Computer Engineering
John G. Georgiadis, Ph.D.
Richard W. Kritzer Professor
Mechanical Science and Engineering and Bioengineering

Nigel Goldenfeld
Swanlund Endowed Chair
Center for Advanced Study Professor in Physics

Martha Gillette
Center for Advanced Study Professor
Cell & Developmental Biology Alumni Professor
Professor Cell & Developmental Biology, Molecular & Integrative Physiology, Bioengineering, Neuroscience Program

Taekjip Ha
Gutgsell Professor of Physics
Investigator, Howard Hughes Medical Institute

K. Jimmy Hsia
W. Grafton and Lillian B. Wilkins Professor, Department of Mechanical Science and Engineering and Bioengineering

Wen-Mei W. Hwu
Sanders-AMD Chair
Professor of Electrical and Computer Engineering

Michael Insana
Donald Biggar Willett Professor of Engineering
Professor of Bioengineering

Ravishankar K. Iyer
George and Ann Fisher Distinguished Professor of Engineering
Professor of Electrical and Computer Engineering

John A. Katzenellenbogen
Research Professor of Chemistry
Swanlund Professor of Chemistry, Emeritus

Paul Kenis
Lycan Professor
Head, Chemical and Biomolecular Engineering

Art Kramer
Director of the Beckman Institute
Swanlund Endowed Chair, Professor of Psychology

Zhi-Pei Liang
Franklin W. Woeltge Professor of Electrical and Computer Engineering
Co-chair, integrative Imaging Theme, Beckman Institute

Gay Y. Miller
Professor of Epidemiology and Preventive Medicine
Adjunct Professor of Agricultural and Consumer Economics

Michael S. Moore
Charles R. Walgreen, Jr. Chair
Professor of Law and Philosophy, and Center for Advanced Studies

Rakesh Nagi
Donald Biggar Willett Professor of Engineering
Head, Industrial and Enterprise Systems Engineering

Klara Nahstedt
Acting Director of Coordinated Science Lab
Ralph and Catherine Fisher Professor of Computer Science

William D. O’Brien, Jr.
Director, Bioacoustics Research Laboratory
Professor Emeritus

Gene Robinson
Director, Institute for Genomic Biology
Swanlund Chair of Entomology

John Rogers
Swanlund Endowed Chair
Professor of Materials Science and Engineering

Rob Rutenbar
Abel Bliss Professor of Engineering
Head, Department of Computer Science

Taher Saif
Gutgsell Professor of Mechanical Science and Engineering

William H. Sanders
Donald Biggar Willett Professor of Engineering
Head, Electrical and Computer Engineering

Peter Sauer
W.W. Grainger Chair
Professor of Electrical and Computer Engineering

Jun S. Song
Founder Professor of Bioengineering and Physics
Dale J. Van Harlingen
Donald Biggar Willett Professor of Physics and Engineering
Head, Department of Physics

Tandy Warnow
Founder Professor of Bioengineering and Computer Science

Bryan A. White
Professor and Director, Mayo Clinic/University of Illinois Strategic Alliance for Technology-Based Healthcare

Scott White
Donald Biggar Willett Professor of Engineering
Professor of Aerospace Engineering
December 16, 2014

Chancellor Phyllis Wise  
Swanlund Administration Building  
MC-304

Dear Dr. Wise:

I was briefed last week regarding the plans for the proposed College of Medicine and its academic programs. Based on that briefing, including details of the budget and related discussions, I am pleased to inform you that I am confident that the library materials and services planned for the College of Medicine will create a meaningful basis for the College’s library needs and will ensure successful accreditation.

Building on our current outstanding University Library collections and services, the proposed resources will allow us to create first-class research library services for the College. Those services will also provide the foundation necessary for the University to assess the ongoing needs of what will surely be a unique and leading medical college.

If additional services or materials are required as the program develops, I will be happy to work with the proposed College’s leadership and campus administration to plan around those requirements.

Sincerely,

John P. Wilkin  
Juanita J. and Robert E. Simpson  
Dean of Libraries and University Librarian

c: Normand Paquin  
Thomas Teper
January 22, 2015

Chancellor Phyllis M. Wise, PhD
University of Illinois at Urbana-Champaign
Swanlund Administration Building, MC 304
601 East John Street
Champaign, Ill. 61821

Chancellor Wise:

A college of medicine built from the beginning with the focus on the convergence of engineering and medicine aligns with the mission and strategic goals of Carle Health System. We have long known that there are opportunities to expand and transform medical education to provide even better care to patients in Illinois and beyond.

We believe the proposed medical college is the right approach, at the right time, and that we must move forward together. The college represents a unique opportunity to combine our respective strengths to revolutionize advances in healthcare delivery through the infusion of engineering and technology, while transforming physician education. Through this model, physicians will work even closer with scientists to address real world problems. Together we'll train physicians to approach medicine differently. We’ll build a place from the ground up that challenges the norm, fosters innovation and supports business development taking advances to market which will help more patients. We believe it will ultimately support improved health for people throughout the nation.

That is why I am pleased to share that the Carle Board of Trustees has approved the strategic plan developed in collaboration between Carle and the University of Illinois at Urbana-Champaign. The approval covers the business plan and budget with a financial commitment of more than $100 million and a mutually agreeable governance structure that will allow us to work together to deliver a transformative education for physicians and foster innovation to advance healthcare.

Thus, we are in full support of the proposal you are taking forward for consideration by the University of Illinois at Urbana-Champaign Senate Education Policy Committee entitled, “Creation of a College of Medicine at the University of Illinois at Urbana-Champaign in Partnership with Carle Health System.”

Thank you for your partnership. We look forward to collaborating even more to improve medical education and advance healthcare to benefit patients in Illinois and beyond well into the future.

Sincerely,

James C. Leonard, MD
President and CEO, The Carle Foundation
January 22, 2015

Gay Miller
Chair, Senate Committee on Educational Policy
Office of the Senate
228 English Building
MC-461

Dear Dr. Miller,

With this letter, we, the academic deans, offer our strong support for the proposal to establish a College of Medicine in partnership with Carle Health System here at the University of Illinois at Urbana-Champaign. We are sure that the new college will strengthen all health-related research and education initiatives and activities across the entire campus community.

The proposed college will build on the interdisciplinary traditions of this university and offer all of our faculty, students and staff new opportunities to extend and enrich their scholarship while delivering on our land-grant and public service responsibilities. We are confident that, once established, this college will enhance our collective ability to recruit and retain the best and brightest faculty and students to our colleges and programs. In addition, the translational research enabled by the new college will enhance the economic development of the community, Chicago and the State of Illinois.

We encourage our colleagues in the Academic Senate to approve the proposal for this new College of Medicine at the University of Illinois at Urbana-Champaign.

Sincerely,

Academic Deans
University of Illinois at Urbana-Champaign

[Signature]

Robert Hauser, College of Agricultural, Consumer and Environmental Sciences

[Signature]

Tanya Gallagher, College of Applied Health Sciences
Larry DeBrook, College of Business

Mary Kalantzis, College of Education

Andreas Cangellaris, College of Engineering

Edward Feser, College of Fine and Applied Arts

John Colombo, College of Law

Barbara Wilson, College of Liberal Arts and Sciences

Jan Slater, College of Media

Peter Constable, College of Veterinary Medicine

Sarah Lubienski, Graduate College

Allen Reneer, Graduate School of Library and Information Science

Fritz Drasgow, School of Labor and Employment Relations
Gay Miller  
January 22, 2015  
Page 3

Wynne Korr, School of Social Work

John Wilkin, Dean of Libraries and University Librarian

C: J. Adesida  
   R. Easter  
   P. Wise
January 22, 2015

To: Roy Campbell, Chair
    Senate Executive Committee

From: Michael J. Sandretto, Chair
    Senate Committee on the Budget

Re: Business Plan to Establish a New College of Medicine in Urbana-Champaign

Dear Professor Campbell:

In your letter of October 28, 2014, you asked the Senate Committee on the Budget to review the business plan for the proposed College of Medicine on the Urbana Campus. In November 2014, we thoroughly reviewed the Business Plan for the proposed College of Medicine (CoM) and a more detailed set of financial projections. At the time, while we found the finances of the CoM to be generally sound, we identified a number of concerns. In particular, we felt there was a need for a detailed analysis of the risks involved in the venture, which would identify potential risks, discuss how they can be mitigated and/or managed, and show that the basic financial plan remains essentially sound even under adverse conditions.

In response to these concerns, the CoM project team and Urbana Campus administration produced a detailed Risk Scenario Analysis, which integrated and addressed our concerns. As a result, we believe both the Budget Committee members and members of the Urbana Campus administration have a better understanding of the revenues and costs associated with a medical school, with the risks involved, and the economics and economic environment of both private and public medical schools.

At this point, the Senate Budget Committee believes that the financial plan for the proposed CoM, consisting of the Business Plan as modified by the Risk Scenario Analysis, is sufficiently sound to move forward (under appropriate continued supervision as described below) and that the three particular elements of your charge letter have been satisfied. Namely, the financial plan for the proposed CoM is:

1. Thorough in identifying projected expense items and potential sources of revenue for the proposed new College of Medicine,
2. Consistent with commitments made to (i) not request any new General Revenue Funds be directed to the operation of the new College of Medicine, and (ii) not require the diversion of resources from other colleges, and
3. Provides for reasonable and sufficient revenues and investments to address the expenses that can be anticipated for the College.

We believe that the proposed CoM represents an excellent opportunity for the campus to create an innovative program of teaching and research that will make a positive and significant contribution to the overall mission of the Campus and the University. Understanding that a final budget will be developed by the founding dean of the college and the initial college faculty and that this budget will be subject to
appropriate reviews throughout the process, the Senate Budget Committee endorses the preliminary financial plans for the proposed CoM.

Because the Business Plan makes projections for ten years, there can be no assurance that the College of Medicine will never require a diversion of resources from other colleges or will never request any new General Revenue Funds. However, we believe the risks are small and any shortfalls at the College of Medicine will not be large. In addition, the allocation of tuition revenue from the College of Medicine to Urbana Campus administration and University Administration (UA) will help cover some fixed costs, which will provide a benefit to other colleges at the Urbana Campus.

The Budget Committee expresses its appreciation for the CoM project team’s responsiveness to our concerns. The process was constructive, and we believe that the soundness and thoroughness of the financial plan for the CoM improved significantly as a result.

In general, the Risk Scenario Analysis shows that the basic financial soundness of the CoM, as summarized by the 10-year cumulative surplus/deficit of the College, remains sound even if net tuition is lower than expected, employee benefit costs are shifted to the Campus, fundraising is not as successful as planned, or research grant activity is lower than expected. Even under adverse conditions, including multiple negative shocks, CoM’s basic finances remain sound. This is due largely to the fact that Carle’s contribution to the venture, equal to about a third of projected expenses over the 10 year planning horizon, is contractually locked in and provides a very low risk buffer against shocks to other revenue and expense items.

A more detailed breakdown of our current analysis of the original Business Plan, as amended by Risk Scenario Analysis, follows.

1. The Risk Scenario Analysis adequately addresses our initial concern that the original Business Plan allocated no tuition revenue to either Urbana Campus administration or University Administration (UA). The new analysis does allocate what we believe are appropriate percentages of revenue to those units.

2. The Risk Scenario Analysis makes appropriate adjustments with regard to the use of student activity fees and health insurance fees, which were previously assumed to be fully retained by the College of Medicine.

3. Although we continue to believe that tuition for both resident and non-resident students is high compared with tuition rates at our expected peers, this concern is partially offset by the Risk Scenario Analysis, which shows that CoM’s finances remain basically sound even if 30% of tuition goes uncollected (for fellowships and waivers). However, little is known about the size of the discounts offered by our competitors. Importantly, we also note there is a five percent (5%) expense cushion in the Risk Scenario Analysis further address this concern. There is enough demand for medical school that quantity alone is not a major concern. This mitigates the risk to CoM’s finances, but raises countervailing risk that the quality of the students may not be as high as desired. We believe that the level of tuition and attracting high-quality students at those prices remain significant concerns, and we urge the project team and founding dean to be particularly cognizant of these issues as planning continues.

4. The new Risk Scenario Analysis explicitly considers the possibility that the State of Illinois might transfer some benefit costs to the University and shows that the financial plan remains basically sound in this case. This adequately addresses our previous concern.

5. The Risk Scenario Analysis addresses the prior concern about fundraising, and indicates that a nominal shortfall can be addressed. We also note that Carle has agreed to expend considerable resources on fundraising on the proposed College of Medicine, since it will be a joint College of Medicine with the University of Illinois and Carle.
6. We previously noted that facility costs are minimal because the Business Plan proposes to use existing resources. Although facilities cost will increase if the CoM moves into its own space, this may be addressed through fundraising and we do not consider it to be a significant concern except to note that it will represent additional fundraising beyond what is specified in the current financial plans.

7. The Business Plan does not include costs for liability insurance. The US Food and Drug Administration (FDA) provides some liability protection for clinical trials, but there is still risk that will need to be managed going forward. This risk is easy to manage, and we mention it here merely as a point of information.

8. Carle agreed in a memorandum of understanding to cover half of all operating losses, which significantly reduces risk to the University of Illinois and the Urbana Campus. It is essential that the actual contract (termed ‘Definitive Agreements’) that commits Carle to cover half of operating losses clearly state how revenues and expenses will be allocated between the proposed College of Medicine, Urbana Campus administration, and University Administration (UA).

The Business plan also projected high but speculative benefits to the community. It is difficult to quantify these benefits with any degree of certainty. However, we do believe a College of Medicine at the Urbana Campus, in conjunction with Carle, would develop into a world-class medical school. That would provide significant economic and social benefit to the community. It also would add prestige to the Urbana Campus and address the issue that we are the only one of our peer institutions without a College of Medicine and that this lack is negatively affecting our ability to continue to excel in related disciplines such as bioengineering. In addition, we believe that at the same time it directly contributes to our academic mission. A new College of Medicine would provide significant benefits to the Campus as a whole, including new funding opportunities for many current Urbana Campus departments and faculty members.

In summary, the Senate Budget Committee believes the establishment of a new College of Medicine is an excellent opportunity and we endorse the Business Plan, as modified by the Risk Scenario Analysis.

SENATE COMMITTEE ON THE BUDGET
Michael J. Sandretto, Chair
Yousif Ali
Deming Chen
Sally Jackson
Angela Lyons
Nolan Miller
Shuxin Zhang
Vicky Gress, ex officio
To include with other COM letters in the appendix of EP.15.33.

Gay Miller

Gay Y. Miller, DVM, PhD
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Adjunct Professor, Agricultural and Consumer Economics
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URL:  http://vetmed.illinois.edu/~gymiller/

-----Original Message-----
From: Maher, William J
Sent: Wednesday, January 21, 2015 10:09 PM
To: Miller, Gay Y
Cc: Paquin, Normand; Miller, Frances A
Subject: USSP statement on January 12 EdPOL COM proposal

Gay:

On January 12, Norman Paquin passed on to me the then current version (December 22) of the proposal for the establishment of a UIUC College of Medicine. At that time, he noted that your committee would be holding a meeting and presumably a vote on the proposal on January 26, and he asked for USSP to convene a special meeting so USSP could weigh in on the governance aspects of the proposal.

I noted that because of an action USSP considered at its December 10 meeting and formally affirmed at its January 7 meeting, we did not need to have a special meeting. At those meetings, USSP considered a resolution I had drafted in the event that USSP be later called upon to opine on the matter of UIUC COM and governance.

However, since USSP did have a regularly scheduled meeting today, I again called the text of the resolution to the attention of the USSP and the consensus was that the previously approved resolution was its formal position on the governance aspects of the COM. The text of the resolution is:

"Whereas the nature of governance documents and the history and culture of USSP and the Senate suggest that we can only make a statement of approval of governance provisions after there are rather specific drafts available for our examination and discussion; and

Whereas insofar as the Statutes (Article II, Section 3, b) indicate that unit bylaws are to be established by the unit's faculty, such documents are possible to draft once there is actual progress on establishment of a college, especially one involving a complex cooperative agreement with an external partner; and

Whereas USSP has had very fruitful and collaborative discussions with the COM planners about governance issues; and

Whereas those consultations have resulted in a commitment by the planners to return to USSP with further
documents addressing issues raised to date.

Therefore, be it resolved that USSP is willing to indicate our support of the creation of the UIUC College of Medicine based on the confidence we have in the commitment the COM planners have made to continue to engage the USSP and the Senate in the creation of the necessary governance and policy documents. On this basis, we do not see any current governance barriers to the Senate approving the creation of the college as per Statutes Article VIII, Section 3 c, and we look forward to continued work on governance with the College's planners.”

-------------end of text of the resolution.------------- I also wish to note that USSP took exception to one point in the December 22 text of EP 15.33. That is, the fourth bullet on page 5, reads: "New College faculty members are appointed and develop and propose unit Bylaws consistent with the University Statutes, to be approved by the Office of the Provost;"

Insofar as the Statutes and General Rules provide no limits on the creation of bylaws other than their being established by the faculty and being consistent with the Statutes and specific BOT actions, USSP believes this bullet should end after the word "Statutes."

A phone call I had with Normand last week indicated that the deletion of the unnecessary words in this bullet could be done. With that change, USSP can support the statement.

William J. Maher University Archivist
University of Illinois at Urbana-Champaign
Room 19 Library 1408 W. Gregory
Urbana, IL  61801

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http://www.avast.com
December 22, 2014

Gay Miller, Chair  
Senate Committee on Educational Policy  
Office of the Senate  
228 English Building, MC-461

Dear Professor Miller:

Enclosed is a copy of a proposal from the Chancellor to establish a College of Medicine in Partnership with Carle Health System.

Sincerely,

[Signature]

Kristi A. Kuntz  
Associate Provost

Enclosures

c:  I. Adesida  
    R. Alston  
    N. Paquin  
    P. Wise