

## Celebrating the physician-scientist

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I am greatly honored to have served as an officer of the ASCI for the past three years. Today, I want to celebrate the physician-scientist with you, and share some thoughts about our responsibilities to young investigators and our role in the future of biomedicine. I will also remind you that many of us started with an aspiration to become healers, and I surmise that the principle of healing can be applied to a variety of situations beyond the clinic. Through this principle I hope that members of the ASCI will rise to the occasion and help make the ASCI what it should be for the future.

First, I want to thank members of the ASCI council for their dedication, and the guidance from the JCI editors and past ASCI presidents. I wish to emphasize a historical fact that my mentor and colleague, Ed Benz, noted over a decade ago when he was ASCI president. I can assure you that the fact remains true to this day. And that fact is, no ASCI president had been documented to suffer from exhaustion serving the society. It has been a delight for me to work with John Hawley, executive director of the ASCI, who has made this responsibility a true pleasure. I have learned that it is of utmost importance for ASCI presidents to always nod in agreement with the JCI editor, Andy Marks, who is the true economic driver of the ASCI. On a serious note, I want to acknowledge on behalf of the Society the tremendous work that the University of Michigan editorial group has done to establish an on-line JCI that has been lucrative and to effectively reorganize the ASCI administration. Both of these activities were under the leadership of David Ginsburg, past ASCI president, and Stephen Weiss, past JCI editor, with careful management by Karen Kosht.

I want to share with you that the duties of the ASCI president, in addition

to presiding over the Mid-Winter Council Meeting to select new members, include the obligatory study of ASCI history, which is a fascinating piece available on the ASCI website. This obligatory study intensifies immediately before the annual spring meeting, and it provides a great source of information for the preparation of the presidential address. I am humbled by the rich history of this society, which was founded by a small group of luminaries, many of whom had trained at my home institution. The mission of the ASCI remains as clear today as when the ASCI was established in 1909: that is, the recognition of significant investigative work by those who are also trained as clinicians. The origin of the ASCI stemmed from the need for a forum for young “men” (a.k.a. “Young Turks”) to meet and discuss their work, since AAP membership criteria excluded these Young Turks. I quote from the work of Ellen Brainard about ASCI history with specific reference to members of the AAP then:

*Were they, perhaps, too distinguished? This is a view expressed by some Society members in accounting for the ‘revolt’ by the Young Turks. The Association, they contend, had become a ‘very conservative and somewhat dull society, unaware of the tremendous advances being made in medicine.’ Its members were somewhat ‘set in their ways’— eminent men without a doubt —, but ‘not very scientific.’ The new society was formed as a ‘protest’ against these distinguished ‘stiff shirts.’ It consisted of ‘rebels and roughnecks’ who wanted a meeting wherein they could ‘get up and report real experimental results, not case histories.’*

Note that this was a hand-me-down account dated back in 1934. I can attest that I have never found our current AAP president, Mike Welsh, to be a stiff shirt, much to the contrary.

Today the ASCI along with the AAP still leads in the celebration of the contributions of physician-scientists to the healing art at its annual meeting. I am pleased that this year we again are celebrating with great enthusiasm the contributions of many young men and women physicians to the biomedical sciences. In this celebration, we recognize the roots of the ASCI in the use of the natural sciences to further our understanding of physiologic and patho-physiologic conditions. However, we also recognize that medicine and its science have changed over the decades, in particular, the sciences that permit us to evaluate the healing art itself, which plays an extraordinary role in modern medicine. A vision to recognize excellence in the full spectrum of investigative medicine should be embraced as long as vigor and quality are the two guiding posts that lead us.

The training of young physician-scientists has also been a recent focus of the ASCI. We have celebrated our younger colleagues through travel awards that have brought new life to this meeting over the past several years. With changes in societal and economic pressures, changes in family issues as we discussed this past Friday, and changes in emerging, complex technologies, the completion of the training of a physician-scientist appears longer. This prolongation of the training period may be reflected in the current finding that NIH R01 type grants are less frequently awarded to those age 35 and younger as compared to historical controls. We must encourage our younger colleagues and ensure them that life as a physician-scientist is truly an honor and joy that almost no other profession could match. When mentoring residents and fellows, I always emphasize the fact that it is a great challenge to find another profession in which there is complete flexibility to care for the ill and to run back to the laboratory to get a “fix” of data, contribute intellectually to the biomedical sciences, and see that some of the data complete the roadmap and make a difference in the clinic. Despite the relative downward trend in the number of NIH

grant applications by MDs, clinically trained investigators are critically important for our passage to the future of biomedicine. Some of us have participated in the dialogue that led to the implementation of the NIH tuition debt burden relief for clinician-scientists. In addition to these financial relief mechanisms, it is our duty at our home institutions to ensure the recognition of the importance of physician-scientists.

The key element which appears to limit the professional enjoyment of a young physician-scientist is time. Time is perhaps the most precious commodity, which is chipped away by committee time and other institutional responsibilities. While clinical responsibilities are key to some of us, the burden on developing young investigators could be devastating for their career development. For those of us who are more senior, we are responsible for providing the leadership to identify mechanisms that may alleviate the time demand on our younger faculty members. This tension continues to be palpable, and we need some creative solutions to heal this ulceration of time. Notwithstanding these concerns, the scholarly activities of young physician-scientists are readily noticeable at institutions such as my own, since we remind ourselves constantly of our core missions.

The role of the physician-scientist is ever so important that we all have the unique responsibility of making sure that the best and brightest are encouraged, mentored, and supported so that they can make significant investigative contributions to our healing art, the art of medicine. The art of medicine to this day still has more questions than there are answers. On daily ward rounds, there are still vast numbers of questions that are amenable to careful studies with new tools. The challenge for physician-scientists is to ensure that there is a tangible connection between the afflicted, seemingly frightful patient and the scientific rigor that could lead to the alleviation of that fear. The tools for biomedical sciences have developed tremendous capabilities to answer complex questions that will need the insight of healers. It is our responsibility to provide the leadership that will take the vast amounts of new basic biomedical

information to answer clinical questions that have vexed many of our predecessors.

As biomedical research veers toward big science from its humble origins in small science, we must be cognizant of how to evaluate research performed necessarily by teams of investigators. Now that the NIH budget has reached its planned doubling, the future trend is likely to be the development of more centers of excellence, requiring, more than ever, interdisciplinary approaches to human diseases. The completion of a draft of the human genome and the genomes of other organisms is unprecedented and highlights not only the availability of tremendous research information resources but the specific needs for interdisciplinary approaches. In our own work to map out the transcriptional program and target the gene network of the c-Myc oncogenic transcription factor, it has become quite apparent that colleagues with bioinformatics expertise are critical along with our molecular biological approaches to decipher these intriguing genetic programs.

Young investigative clinicians with great clinical phenotyping capabilities and patient materials are now challenging our system on the mechanism by which they can identify polymorphic genetic markers that may be associated with certain clinical phenotypes. The major challenge for investigative medicine, in particular with regard to the genetic basis of diseases, is to create mechanisms to encourage physicians to identify connections between phenotypes and the genetic makeup of patient populations.

Technologies that emerged over the last decade, such as high throughput gene expression profiling, high speed genotyping, and large scale proteomics, should not be available to just a few; rather, these tools should be made generally available to investigative physicians. How do we embrace the future with larger science with our well-grounded tradition in hypothesis-driven, small science? What is the role of the physician-scientist in this new world? How would the ASCI recognize the contributions of future physician-scientists in these large interdisciplinary efforts? Although I don't have clear answers to these questions, they are not

meant to be rhetorical but rather as an admonition of what is to come.

The complexity of current biomedical sciences, in particular regarding the relationships between the public and private sectors, necessarily increases if we are to witness combined resources brought to bear on altering the practice of medicine. The issues of integrity and honor in science and of conflict of interest have come to the fore for many academic medical centers. The inherent tension between intellectual property protection and the desire to see the greatest impact of biomedical information for the public good has also made the current research environment challenging. We, as ASCI members and members of the biomedical community at large, are responsible for fostering research integrity through mentoring. It is notable that this key element is enshrined in the by-laws of this Society:

*Active Membership. Any physician ... who ... has accomplished meritorious original, creative, and independent investigations in the clinical or allied sciences of medicine and enjoys an unimpeachable moral standing in the medical profession may be elected to membership.*

Issues of integrity and conflict of interest are best guided by a professional code of conduct which is recognized in addition to scientific achievements for induction into this prestigious society. So, to the new inductees, I salute you and welcome you to the society.

In closing, I wish to remind all of us of the power of healing. Be it in the laboratory, at the caged side, bedside or computerside, we, as physicians, all have the ability to heal. Discoveries driven by self-interest would be significantly dignified by an inherent desire to heal through new findings as a public service. Outside of the clinical arena, where healing is the focus, we all can provide creative solutions that are able to heal interpersonal difficulties or administrative challenges. In all of our professional and personal challenges, if healing is an inherent goal, solutions often emerge easily and with great clarity.

I thank you all for this great opportunity and honor.