

The Medical Commencement Archive

Volume 2, 2015



Dr. Barry S. Coller, MD

Northwestern University Feinberg School of Medicine
Commencement Address

*The Compassionate Physician Discoverer:
Professional Serenity in an Age of Disruptive Innovation*

Barry S. Coller, M.D. is an accomplished physician and a leader in hematological research. Dr. Coller received his B.A. degree, magna cum laude, from Columbia College in 1966, and his M.D. from New York University School of Medicine in 1970. He completed his residency in internal medicine at Bellevue Hospital and advanced training in hematology and clinical pathology at the National Institutes of Health. He is currently the David Rockefeller Professor of Medicine, the Head of Laboratory of Blood and Vascular Biology, Physician-in-Chief of The Rockefeller University Hospital, and Vice President for Medical Affairs at The Rockefeller University. He also serves as the founding Director of the Rockefeller University Center for Clinical and Translational Science. Dr. Coller's research interests have focused on hemostasis and thrombosis, in particular platelet physiology. He helped develop abciximab which, to date, has treated over five million patients.

Today we interrupt our daily work and join together to celebrate your achievements. Each of you has demonstrated a superhuman capacity for delayed gratification and made many sacrifices to prepare yourself for this day, which marks the beginning of your professional career in the healing arts. And your reward is the ability to apply your unique intellectual gifts and humane insights to prevent and alleviate suffering from illness. You should feel very good indeed, about your choice, your calling, and yourself.



This is also a time to give thanks to all your loved ones, those who could be here and those who could not. They also made sacrifices to help you achieve this goal in your lives. Those who are closest to you and share your daily life know how difficult some days have been for you. Their encouragement, understanding, and belief in the importance of what you are doing, have served as a vital refuge. For many of your parents and grandparents this day symbolizes the fulfillment of their hopes and dreams for you – and vows they made to you when you were still in their arms.

This is also a time for you to reflect on the great legacies of the Feinberg School of Medicine at Northwestern University, and to thank the extraordinary faculty of physicians and scientists who have taught you about the wonders of the human body and the majesty of the human spirit.

Medicine stands atop the twin pillars of science and humanism. The expert physician has a comprehensive and deep scientific understanding of the causes of illness and the rational basis of disease prevention and therapy; the compassionate physician applies that knowledge with sensitivity to the unique needs and circumstances of a single complex individual.

I propose that medical humanism has five core elements. First is the preciousness of each human life. Some religions view human life as sacred because humans are created in God's image. The 18th century Enlightenment philosopher, Immanuel Kant concluded that the exercise of pure reason, even without religious faith, leads to understanding the absolute value of every human life – the categorical imperative. This principle is the bedrock of Western civilization, so much so that we tend to take it for granted. It is especially important, therefore, to publicly affirm this value today, as we painfully witness brazen acts of unthinkable human cruelty.

The second core value of medical humanism is respecting and protecting patients' dignity, especially when illness or other circumstances makes them vulnerable and powerless. Saving a human life, no matter how brilliantly or heroically, does not meet the test of medical human-

ism unless it is coupled with demonstrating respect for the patient's privacy and modesty.

The third core value of humanism is the celebration of human diversity. We are enriched by exchanging ideas with those who have had different life experiences, and as a result, have different perspectives, talents, and interests. In addition to the cultural benefits of human diversity, however, there are compelling biologic reasons to celebrate diversity. Compared to virtually all other species, humans are genetically very homogeneous, with DNA variations occurring in fewer than one out of a thousand nucleotides. This lack of genetic diversity represents a serious vulnerability, especially in light of the threat of pandemic infections. It is ironic that in

history some have dreamed of a racially pure society in which all would presumably have perfect genes. Rather than a master race, it would be a dreadfully boring biologic sitting duck, obsessed with preventing its own extinction.

The fourth core value of medical humanism is a sympathetic appreciation of the complexity of the modern human condition – how difficult it is for anyone to meet all of society's idealized expectations regarding both individual behavior and interpersonal behavior – and how history and circumstances have conspired to make it especially

difficult for some to meet these standards.

And the fifth is a commitment to social justice, universal access to medical care, and global responsibility. Un-prevented and untreated illness anywhere in the world, including our own country, is a tragedy that demands our attention and resources. And as we learn over and over again, illness in the most remote parts of the world will be at our doorstep with the arrival of the next airplane on our shores.

The glory of medicine is achieved when medical humanism is blended with the power of science. Modern science joined medicine only about 170 years ago, at about the same time as the beginning of this great medical school. Every 4-5 years thereafter, medical science has added 1 year of life expectancy for the populations in the most medically advanced countries, increasing it

“I challenge you to bring the tools of empirical science to areas where it has not been fully deployed, including bioethics, medical education, and behavior modification.”

for women from 45 to 85 years. Contrast that with the 200,000 prescientific years our species was on earth before the scientific era, during which time it took about 10,000 years to increase life expectancy by one year! That is why I appeal to each of you to be a medical discoverer, by which I mean applying the scientific method to address a health need. And that does not mean just mixing chemicals in a test tube since our health needs span across the broad spectrum of medicine, from basic science, clinical investigation, assessment of novel therapies, epidemiology, health policy, community dissemination, health disparities, and back again. And I challenge you to bring the tools of empirical science to areas where it has not been fully deployed, including bioethics, medical education, and behavior modification. During my career, astute physician discoverers identified many new illnesses, including *Legionella pneumoniae*, *C. difficile*, Ebola, *H. pylori*, Lyme disease, AIDS, and West Nile virus. So when you shortly take the physicians oath, I hope that you will consider silently adding the following, “That I will advance the science of medicine by experimentation and/or by making careful observations about my patients and I will rapidly disseminate that knowledge to my colleagues so that all patients may benefit.”

You live in an age of ever faster technologic change, much of which meets the criterion of disruptive innovation, wherein new technology does not simply improve on previous technology, but forces radical transformation. Moore’s law of the doubling in computer chip power and speed roughly every two years has defied all predictions of its limits and just reached its 50th anniversary, without an end in sight. Incremental changes in the music business that I have witnessed included the progression from 78 rpm records to 45 rpm and then the 33 1/3 LP records, followed by 8 track tapes, cassettes, and CDs. Disruptive innovation, however, is when there is no record, tape, cassette, or CD, just a server in the cloud from which streams the music of one’s choice from a nearly infinite range of options. In medicine, technologic disruptive innovation is also ramping up. Dr. Eric Topol wrote in his latest book that “hospitals, as we know them today, will eventually be extinct.” In his review of

the book, Dr. Sandeep Jauhar wrote, “instead the hospital bed of the future will be in your home, with biosensors monitoring vital signs, smartphones analyzing and transmitting data, smart pillboxes monitoring treatment adherence, and even a smart floor to monitor your gait. By powering virtual physician visits, smartphones will obviate the need for patients to go to doctors’ offices.”

So how does one retain professional serenity in the face of increasingly rapid disruptive innovation, whether it was the introduction of CT scanner, which overnight made virtually valueless the radiologist’s lifetime of learn-

ing to interpret cerebral angiograms to diagnose brain tumors; the introduction of next generation DNA sequencing, which overnight made virtually valueless scientists hard won skills in preparing and interpreting very long DNA sequencing gels; or the introduction of electronic health records, which overnight made virtually valueless physicians’ hard learned ability to write longhand?

I offer two thoughts.

1. Embrace technology that advances both medical science and medical humanism. Your generation’s technology has empowered everyone to participate in life’s conversation and so it can give voice to crucial patient-reported outcomes that empower a true partnership between your patient and you. Apps that make it easy for your patient to send you an emoticon each morning so that you can know whether your new therapy is working are terrific innovations, as are asthma bronchodilator inhalers equipped with GPS and self-reporting mechanisms when activated so that you know if your patient is suffering an attack, and by combining data from many patients, which parts of the city have air pollutants that are triggering symptoms.

2. Cling to the oath you are about to take, because even when the pace of technologic change is dizzying and the technology itself seductive, it remains the fullest expression of physicians’ humanism, that is, their recognition that they are united with every one of their patients through their common humanity--sharing the same hopes, the same fears--and ultimately the same fate. Today you receive your MD degree from this great school,

**“...you enter the
medical profession
when you openly and
freely *profess* the oath to
place your patient’s inter-
ests above your own
and to adhere to a high
standard of ethical
conduct.”**

which traces its origins back 156 years, and next year many of you will receive your license to practice medicine from the State of Illinois, which is 197 years old. But you enter the medical profession when you openly and freely *profess* the oath to place your patient's interests above your own and to adhere to a high standard of ethical conduct. That oath has its roots in antiquity, almost 2,500 years ago, reflecting society's recognition that it needs to ensure that the privileges it grants those in the healing arts are truly used to benefit humanity.

Twenty years ago, Elie Wiesel told the graduating class of Mount Sinai School of Medicine that "no one is as defenseless, as disarmed, as a person in pain and devoured by anguish. He or she will study every line in your face, every word on your lips. At that moment, you personify either hope or despair." He went on to say that "no one is as grateful as the patient who discovers a ray of hope in the eyes of his or her physician." So beyond your words, think hard about what your eyes are conveying to your patients. Art, literature, poetry, theater, and cinema help you keep the patient's perspective before your eyes, but nothing is as good as really listening to your own patients, sympathetically hearing their life story, and learning what they have to teach you. And nothing is as rewarding.

And so, as you begin your careers today, I encourage you to go forward with confidence and self-assurance, knowing that you have received a superb education from many of the greatest physicians and scientists of our age, and from a dedicated and caring institution that serves the people of one of the world's great cities. You are truly well prepared for your task. You will succeed.