Remarks by Provost Lloyd B. Minor
Johns Hopkins University School of Medicine
Department of Medicine Medical Grand Rounds
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Introduction by Myron L. Weisfeldt, M.D., William Osler Professor of Medicine and Chair,
Department of Medicine

Good morning. It’s a pleasure to be here, and I would like to thank Mike for the opportunity to speak with you this morning about how I believe we can move academic medicine forward: from medicine to health.
But first things first. I have no relevant financial relationships with commercial interests.
I’d like to begin my talk this morning by sharing some well-known facts about the high costs and comparatively poor performance of the American health care system.

Next I’ll focus on how we can reform the delivery of medical care by working together—across silos, across disciplines, across professions, and across Johns Hopkins.

I’d like to end by talking about how factors like the social determinants of health mean that it is no longer enough for us to be accountable for the care of individual patients, but that we must see ourselves as accountable for the health of our larger society. I’ll also share some of the ways that we can do this, such as focusing on prevention and helping to shape public policy.
In 2009 total health expenditures in the United States reached $2.5 trillion. This translates to over $8,000 per person or 17.6% of our national GDP—the largest share of our overall economy.

As you can see, health care costs in the United States are escalating rapidly, increasing at an average of 2.5 percentage points faster than the economy as a whole.

Compared to the 30 industrialized countries that form the Organization for Economic Cooperation and Development, or OECD, real per capita spending on health care in the United States is more than double the median.

When you multiply 300 million Americans by the $4,000 more per person we spend above the OECD median, the difference is $1.2 trillion—big money in anyone’s world. This is more than our trade deficit and twice the budget of the U.S. Department of Defense.
But for all our spending, we’re not getting our money’s worth. It is true that the United States has some of the best hospitals in the world and that American patients have earlier access to cutting-edge drugs and treatments and generally shorter waiting times to see physicians.

But overall the performance of our health system is poor when compared with other OECD nations.

Mortality amenable to health care is a concept developed by health policy experts to describe premature deaths that should not occur in the presence of effective and timely care. It is a measure of health system performance. A study published in September of this year by the Commonwealth Fund found that the United States still ranks last among 16 high-income, industrialized nations when it comes to mortality amenable to health care.

While other nations lowered their preventable death rates an average of 31% between 1997–98 and 2006–07, the U.S. lowered its rate of preventable deaths by only 20%. At the end of the decade, the preventable mortality rate in the United States was almost twice that in France.
The American health care system is expensive and low-performing, but by working together we can improve outcomes and lower costs. I’d like to start by talking about what we can do to reform the delivery of medical care by working together across specialties, disciplines, professions, and across the university.
The American health care system is primarily designed to treat acute conditions such as heart attack or stroke. Yet treating people with chronic conditions such as hypertension, diabetes, or asthma accounts for 85% of all health care expenditures.

For the one-fourth of Americans with multiple chronic conditions, the health care system is particularly inadequate. These individuals account for more than two-thirds of all health spending, and for every additional chronic disease, spending for that individual increases by about $2,000 annually. Meanwhile, the quality of care decreases as that individual becomes more likely to have unnecessary hospitalizations and adverse drug events and to receive duplicative tests and conflicting medical advice.

For the patient with diabetes or congestive heart failure or asthma, Johns Hopkins has some of the world experts. But what about the patient with diabetes and congestive heart failure and asthma?

We still operate in silos with little coordination of care. Health care has become so complex that solutions no longer fit into discrete buckets but must be broadly based and integrated. Dr. Donald Berwick, the embattled administrator of the Centers for Medicare and Medicaid Services, explained the problem of fragmented, siloed care this way: If we connected the engine of a Ferrari, the brakes of a Porsche, the suspension of a BMW, and the body of a Volvo, “what we get, of course, is nothing close to a great car; we get a pile of very expensive junk.”

According to a survey by the Commonwealth Fund, nearly 30% of American primary care physicians do not feel well prepared to treat patients with multiple chronic conditions. An important question is whether medical students and residents are among the 70% who feel well prepared or the 30% who do not.
By coordinating care, we can improve care and lower cost. As you can see, almost all of Medicare spending is on people with multiple chronic conditions, and nearly 70% of Medicare spending is for people with five or more chronic conditions.

Recent debates in Washington have put a new focus on the unsustainable growth in Medicare expenditures. But reform of the system must begin by addressing our outdated delivery system for people with multiple chronic conditions. These reforms must move our health system away from providing care on a disease-by-disease basis to providing coordinated care that accounts for all the ways in which one disease might affect another.
One of the ways that we here at Johns Hopkins are working together to coordinate care for people with multiple chronic conditions is through the Guided Care program. Guided Care was designed by Chad Boult and colleagues at the Bloomberg School of Public Health. Many faculty in the Department of Medicine are involved in the program led by Bruce Leff and colleagues.

Guided Care is a medical home delivery model for older adults with multiple chronic diseases. The program uses an interdisciplinary approach to coordinate care through specially trained Guided Care nurses. Working in partnership with several primary care physicians, a Guided Care nurse coordinates the efforts of all health care providers, monitors conditions monthly, and smoothes transitions between sites of care.

A Johns Hopkins study showed that Guided Care improves the quality of care and, in well-managed health care systems, even reduces visits to the emergency room and admissions to hospitals and skilled nursing facilities.
Another area where we can work together to reform the delivery of care is through clinical service lines, which are multidisciplinary and organize patient care around specific diseases, interventions, or populations—like a cancer center or a heart institute.

Through clinical service lines, we could get all physicians and nurses working collectively to treat patients instead of each one doing his or her own thing. The focus is on improving outputs instead of inputs. Modern health care has become so complicated that treating disease is often outside the purview of any one specialist or discipline.

Clinical service lines have been shown to improve outcomes through coordinated care and lower cost achieved by economies of skill and scale. In oncology, multidisciplinary care has become accepted as the optimal mechanism for delivering care.

A study of multidisciplinary breast cancer clinics found that they significantly decreased the time between diagnosis and the initiation of treatment while also increasing patient satisfaction. A study of a multidisciplinary clinic for the management of high-grade glioma demonstrated an increase in median survival from 12 to 19 months.

Now, clinical service lines have not always made inroads because we as physicians have long prized our autonomy and independence. But we can no longer be concerned only about our particular area of expertise. We must ask ourselves the larger question of whether we collectively are improving health.
One example here at Johns Hopkins of a successful clinical service line is the Pancreatic Cancer Multidisciplinary Center, which offers a single-day comprehensive evaluation of patients with pancreatic carcinoma. Established in 2006, the clinic is conducted on a weekly basis and involves mostly new, but also routine follow-up, patient consultations.

The tumor board includes at least one specialist from pathology, radiology, radiation oncology, medical oncology, and surgical oncology. These specialists work together to develop consensus recommendations.

The Pancreatic Cancer Multidisciplinary Clinic has grown into a model of its kind with the successful integration of patient care and research.
According to a study in *Annals of Surgical Oncology* (2008), the Pancreatic Cancer Multidisciplinary Clinic resulted in changed therapeutic recommendations for 24% of patients and a doubling of enrollment in the National Familial Pancreas Tumor Registry increased from 49% to 78%.

Patient volume nearly doubled.

According to a study in *Annals of Surgical Oncology*, the Pancreatic Cancer Multidisciplinary Clinic resulted in changed therapeutic recommendations for 24% of patients and a doubling of enrollment in the National Familial Pancreas Tumor Registry over the previous year.

Meanwhile, patient volume at the multidisciplinary clinic nearly doubled.
Clinical service lines respond to a changing national landscape where risk is being shifted from insurance companies to patients and providers through new payment models, such as bundled payment and capitation.

The current payment system is predominantly based on fee-for-service reimbursement, which pays for encounters rather than outcomes and rewards volume rather than value.

But even if controlling cost were not an issue, clinical service lines offer the opportunity to reduce the fragmentation of care and improve patient outcomes. People want seamless medical care.
We must also work together across professions to promote patient safety. Only a decade ago, many of us thought our systems of delivering care were safe. But once we recognized the reality and decided to tackle this problem, we have made a tremendous difference and have become leaders in patient safety. This example inspires us to take on other issues that may seem far removed from what we see as part of our responsibilities and missions as health care providers.

The work of Peter Pronovost has shown us that a safe health care delivery system requires us to work together across professions and as teams. Sometimes the simplest solutions can be the hardest to achieve. In Michigan hospitals, however, his checklist decreased the rate of central-line infections by 66% and decreased the rate of ventilator-associated pneumonia by 70%.

The recent establishment of the Armstrong Institute for Patient Safety and Quality marks another step forward in Johns Hopkins’ efforts to reduce preventable harm and improve clinical outcomes. The Armstrong Institute will collaborate with the schools of medicine, public health, nursing, engineering, and arts and sciences to further research and training initiatives.
Finally, we must work together across Johns Hopkins University and the Health System to realize the promise of individualized health. I believe this is our next great challenge and opportunity to have an impact and be a world leader.

Individualized health uses information about an individual’s genetic makeup to tailor strategies for the detection, treatment, or prevention of disease. Currently family history is often our best individualized medicine. We have long known that no two patients experience the same disease in the same way. Only now are we getting to the point where we can tailor health decisions to each individual.

This ability to tailor prevention and treatment is being made possible by the twin revolutions in information technology and genomic science. The cost to sequence a complete human genome was about $100 million 10 years ago. Today it is about $10,000 and is expected to cost less than $1,000 within the next five years.

Individualized health is transforming the practice of medicine and holds out great promise for increasing the quality of health care and decreasing the burden of disease.
Johns Hopkins’ strengths put us in a unique position to lead the individualized health revolution. The Provost’s Office is playing a key role in this initiative, which will harness the enormous range of expertise from across Johns Hopkins Health System and Johns Hopkins University, including the schools of medicine, public health, nursing, engineering, arts and sciences, and the Applied Physics Lab.

Through the Individualized Health Initiative, we will:

- Tailor treatment and prevention strategies based on population studies
- Incorporate genomic and clinical trial information into the medical record through Epic, the centralized EMR system being implemented across Johns Hopkins Medicine

From information science and ethics to systems engineering and population health, this initiative will bring together disciplines and experts from across the institution to capitalize on the promise of individualized health.

Through the Individualized Health Initiative, we will be able to tailor treatment and prevention strategies based on population studies. Because of the substantial investment in Epic, the centralized electronic medical record system that will eventually be implemented across Johns Hopkins Medicine, we will be able to incorporate genomic information and information on clinical trials into a patient’s medical record.
So far we’ve talked about what we can do to reform the delivery of medical care, but now I’d like to ask us to take a step back and think more broadly about our mission. Because today I’d like to start a conversation about how we can begin to transition from an academic medical center to an academic health center.
From the blue baby operation to CPR and the defibrillator, Johns Hopkins has been a leader in cardiovascular care.

- Mortality rate from heart disease fell by 50% between 1980 and 2000.
- Half of this decline was due to medical or surgical interventions.

<table>
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<tr>
<th>% Total Decline</th>
<th>Type of Medical/Surgical Treatment</th>
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<tr>
<td>21.9%</td>
<td>Category I: Aspirin, heparin, warfarin, anti-hypertensives, β-blockers, diuretics</td>
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<tr>
<td>13.2%</td>
<td>Category II: Statins, ACE Inhibitors, IIb/IIa antagonists, thrombolytics</td>
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<tr>
<td>11.5%</td>
<td>Category II: Angioplasty/stents, CABG, CPR, cardiac rehabilitation</td>
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<tr>
<td><strong>46.6%</strong></td>
<td>Deaths Prevented or Postponed</td>
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From the blue baby operation to CPR and the defibrillator, Johns Hopkins has been a leader in cardiovascular care. Medical and surgical interventions have resulted in many lives extended and saved.

According to a study in the *New England Journal of Medicine*, the mortality rate from heart disease fell by 50% between 1980 and 2000. Half of this decline was due to medical or surgical interventions, such as better drug treatment for patients who had already suffered heart attacks, improvements in initial treatment of heart attack, and better treatment of heart failure.

What this tells us is that progress in medical treatment has had a significant impact on health and longevity. But what this also tells us is that for all this progress, half of the decline in mortality from heart disease was due to a decline in risk factors such as the rates of smoking and high blood pressure and cholesterol levels, tempered by increases in body-mass index.
So for all the progress in medical treatment and all the money we as a nation are spending on medical care, the U.S. still has poor outcomes on broad measures of health, like infant mortality. Compared to the OECD, the United States ranks near the bottom in infant mortality.

These statistics are primarily related to a whole series of socioeconomic factors.
We rank near the bottom in terms of life expectancy as well.

Health outcomes are more than a measure of the progress and quality of medical care. There is only so much the medical care system can do when people do not follow instructions or live in violent neighborhoods. It is also not their fault in most cases but the result of the socioeconomic environment in which they live.
Health outcomes, as we all know, are the result of more than just the delivery of medical care but rather are the result of a complex number of factors.

It is absolutely important to have the best medical care possible. However, it is widely accepted in the medical literature that social factors are a greater determinant of ill health than medical care itself. In fact, many studies have found that health care spending directed at disease intervention addresses only about one-fifth of the determinants of health.

For too long we have conflated the health of our nation with the amount and quality of the medical care we provide. The RAND Corporation estimated that 30% of medical care is unnecessary and some potentially harmful.
The World Health Organization defines the social determinants of health as the conditions in which we are born, live, and work. By considering factors like education, income, employment, housing, and social supports, we would acknowledge that independent of health care, life expectancy would still be higher in Bethesda than in Baltimore, higher in Maryland than in Mississippi, and higher in the United States than in Uganda.

I believe we must begin to see these social determinants of health as being within the scope of our roles as physicians.

Even Abraham Flexner, whose 1910 report advocated a new system for medical education that focused squarely on pathophysiology, understood the importance of social factors. In the report, he wrote, “Directly or indirectly, disease has been found to depend largely on unpropitious environment. A bad water supply, defective drainage, impure food, unfavorable occupational surroundings...” Physicians have the duty “to promote social conditions that conduce to physical well-being.”
Health disparities by race and ethnicity are increasingly getting the attention they deserve. Faculty like Lisa Cooper who work on cardiovascular disease are highlighting these issues. But even with this work, few physicians realize the significant disparities that exist by level of education, income, and employment status.

The mortality rate for chronic conditions like coronary disease and diabetes-related conditions is nearly four times greater for individuals who did not graduate from high school than it is for individuals who have at least some college education.
Low-income individuals are more than twice as likely as those with higher income to smoke if they are adults or to be overweight or obese if they are children.

All this translates into the need for more medical care, higher costs, and worse outcomes.
Academic medical centers have long played, and currently play, a valuable and unique role in the American health care system as the experts in acute intervention. Here at Johns Hopkins we were the birthplace of many medical specialties, including neurosurgery, urology, endocrinology, pediatrics, and emergency medicine. And we provide a lot of specialized, costly services such as burn, transplant, and trauma care. If you are really sick, there is nowhere you’d rather be than right here at the Johns Hopkins Institutions.

Academic medical centers are uniquely situated to provide complex care on a daily basis to very sick patients, the type of patients that a community hospital might encounter only a handful of times per year. For these patients, the academic medical model has served extraordinarily well—providing specialized treatment for specialized problems.

Like many of you, my own career reflects that emphasis and focus. I came to Johns Hopkins in 1993 intent upon building a basic, translational, and clinical research and care program devoted to inner ear disorders. Along the way I described a syndrome of vertigo and hearing loss due to a dehiscence, or opening, of the bone covering the superior semicircular canal. And I collaborated with so many wonderful people that made all of these advances possible. There truly is no better place on earth to build this type of a career than right here at Johns Hopkins.

We are renowned, we are applauded, and I think we are all justifiably proud of the wonderful work that occurs here. As I look around this room I see so many people who reflect this dedication and this impact. And yet for some time now, we’ve all known that something is not right. There is an underlying problem—a disconnect—that separates the truly inspirational work we do for individual patients from the basic goal that drives all our efforts, which is the improvement of human health.

We need to ask why this is. Even more importantly, we need to figure out what can be done about it, and in particular, what we—as acknowledged leaders in medicine—can be and should be doing.
I’d like to end today by sharing some of the ways in which we can broaden our mission from medicine to health.

First, I’d like to invite you to join the conversation by attending the Provost’s Conference on the Social Determinants of Health on May 8–9 next year.

With this conference we will bring together experts from around the university and health system to raise awareness about the impact of the social determinants of health and offer new insights and recommendations for reducing health inequities.

We are delighted that the keynote address will be delivered by Amartya Sen, a winner of the 1998 Nobel Prize in Economics for his contributions to welfare economics. Professor Sen was also a member of the WHO Commission on Social Determinants of Health.
Next, we must work to expand access to health care coverage in the United States. Nationally, the Affordable Care Act signed into law in March 2010 made significant progress. As a result, the CBO has estimated that 32 million uninsured will get health coverage once the law is fully implemented in 2019. That leaves an estimated 23 million without coverage, one-third of whom will be undocumented workers and their families.

In sum, about 95% of legal nonelderly residents will have insurance coverage in 2021, compared with an estimated 83% currently. It is interesting to note that even with the new health care reform provisions in place, Mexico will be the only other industrialized country without universal coverage.

The law expands coverage to these 32 million people by expanding Medicaid to individuals with incomes up to 133% of the federal poverty level—roughly $14,000 for an individual and $30,000 for a family of four. For those individuals and families that are not covered by employer-provided insurance and have incomes just above the Medicaid threshold, the law provides premium and cost-sharing subsidies on a sliding scale.

Locally, we at Johns Hopkins are expanding access to health care coverage through The Access Partnership (TAP). This program was launched in 2009 and provides specialty-care access to low-income uninsured or underinsured in seven zip codes surrounding Johns Hopkins Hospital and Johns Hopkins Bayview Medical Center.
As this graph suggests, we have a problem filling positions in primary care by graduates of U.S. medical schools. From 1997 to 2007, the total number of primary care positions that were filled declined by 25% and the number filled by U.S. medical school graduating seniors dropped by one-half. Currently, nearly one in five Americans lacks adequate access to primary care due to a shortage of primary care physicians in their communities.

Through the vision of Dr. Weisfeldt and colleagues, the Department of Medicine is focusing on primary care through its innovative Med-Peds Urban Health Residency Program. Established in July 2010, this program was the first of its kind in the United States and is training physician leaders who will be change agents for practice and policy in urban primary care.

The program focuses on the social determinants of health and includes rotations in substance abuse care, mental illness, prison medicine, and urban violence. Of course the program is certainly not sacrificing excellence. For four available slots, the program received 175 applicants. Last July the program expanded with four residents in a new three-year track in internal medicine.
One of the most significant ways that we can become more accountable for health is by promoting disease prevention. In academic medicine we excel at providing acute care for very sick people but do not always see ourselves responsible for reducing the number of very sick people.

Chronic conditions, which are responsible for 66% of health care spending in the United States and are the leading cause of death worldwide, are often preventable. Closely linked to risk factors such as unhealthy diet, lack of exercise, and smoking, chronic disease is largely a preventable epidemic of our own making. Cigarette smoking alone is the cause of nearly half a million deaths in the United States every year.

In the U.S. only half of adults receive recommended screening and preventive services, such as immunizations, cancer screenings, and blood pressure and cholesterol tests. We must take the time to talk with each individual patient about prevention and healthy lifestyles.

But on a broader level we in the School of Medicine should do more to partner with the Johns Hopkins Bloomberg School of Public Health. The school was founded by William Welch, the first dean of the Johns Hopkins School of Medicine. Sometimes I think we forget that the world’s oldest, largest, and best school of public health is just across the street.
As we all know, the American health care system is broken. I believe that this is our problem. If we do not change it ourselves, rest assured that others will do it for us. And rest assured the outcomes will be considerably less desirable than if we lead the change ourselves.

The challenges of this new era are great, and although at Johns Hopkins we have started to address them head-on, we know there will be no quick solutions, no easy fixes.

In our individual careers and collective contributions to Johns Hopkins and to American medicine, we have each contributed to the many successes of the current system. We are each driven by a noble mission and are rightfully proud of what we’ve contributed.

How do we preserve what is great about this system that fosters medical discovery through a close relationship between research and clinical practice and yet respond to the clear need to broaden the scope of our mission? How do we expand and modify our definition of individual and collective success so that we can take on problems previously considered outside the scope of academic medicine?

Today I hope we will start a conversation about how we can begin to see ourselves as accountable not just for care but accountable for health because ultimately the answers and the solutions will come from our collective wisdom and experience.
Society is starting to ask more from us, and we should be asking more from ourselves as well. As the beneficiaries of substantial public investment, academic medical centers have a particular responsibility to meet the needs of society.

It’s time to see our responsibilities as being broader than disease, broader than our specialty, broader than what most of us have traditionally thought of as our role as physicians, and yes, even broader than each individual patient. The relationship with each patient is a sacred relationship, a sacred trust. But for too long we have construed our responsibility in a very narrow way, forgetting that an individual patient is not well served by being part of a fundamentally broken system that costs more and offers everyone, even that individual patient, less.

I believe that we at academic health centers must see ourselves as being accountable not just for care but accountable for health.

A primary mission of academic health centers should be to improve the health of our communities and of the larger society.

This is not something we can do individually as faculty members. Rather, we must work together as the Department of Medicine, the Johns Hopkins School of Medicine, the Johns Hopkins Health System, and the Johns Hopkins University.
It is an exciting time to be in medicine because great challenges bring with them great opportunities and a promise of a better tomorrow.

The modern academic medical center was created early in the last century in the years following the famous muckraking report by a previously obscure educator from Louisville, Kentucky, Abraham Flexner.

The Flexner report transformed the medical profession’s reform efforts into a broad social movement. As medicine left behind a pre-scientific folk era and embraced the “Hopkins Model” of rigorous scientific and hands-on training, individual patient care was transformed.

The Flexner report led to a broad reform movement in America. One hundred years later, we are ready for a new wave of reform.

Like the first revolution, may this one come from within the medical profession itself. We do not need an outsider to tell us that we need to change.

We are past the point of looking on from the sidelines with indifference. It’s time for a culture change.

Let us all join together in transforming academic medical centers to academic health centers. Where we go others will follow.