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Health care in America:
A right or a privilege?

John Tooker, MD, MBA, MACP; introduction by Richard L. Byyny, MD, FACP

Dr. Tooker (AΩA, University of Colorado, 1970) served as Chief Executive Officer and Executive Vice President of the American College of Physicians from 2002 – 2010. In that capacity he was involved in developing the policy framework of the Affordable Care Act. He is a member of the AΩA Board of Directors.

Introduction
by Richard L. Byyny, MD

Every gun that is made, every warship launched, every rocket fired, signifies in the final sense a theft from those who hunger and are not fed, those who are cold and are not clothed.

—President Dwight D. Eisenhower

Those who are sick and cannot get care could be added to the above statement by Pres. Eisenhower. Thirty-two of the 33 developed countries in the world have universal health care. These countries have concluded that health care for all is a moral right. The one developed country in the world that has not resolved that health care is a fundamental human right is the United States of America.

The evolution of the U.S. health care system emphasizes individual responsibility, free choice, and pluralism. This results in a system where health care is a privilege paid for by the individual through employer health insurance; by government socialized insurance (Medicare and Medicaid); by the military; through Congressional insurance (for members of Congress only); through the Veterans Administration; or by Indian Health Service.

In the U.S. health care system—a capitalist system—health care is considered an economic good where patients are analogous to commodities, and services are provided based primarily on an individual’s purchasing power. In many instances, health care services are rationed based on ability to pay and individual responsibility. However, illness and injury are not subject to market decision-making as are other commodities.

In the late 19th century and early 20th century medical care in the U.S. was primitive. Public health needed to be improved through provision of services, immunization, clean water, and awareness. Preventive medicine—home remedies—was more about public health than individual patients, and was considered more effective than care by the doctor. While doctors could diagnose some illnesses, there were primarily mystical treatments with potions that did nothing, or could cause further harm.

Health care was inexpensive, with the average American spending about $5 per year on health care. Physician payment was often a bartering system of reciprocal exchange of goods or services, or direct financial payment. Hospitals were largely places to die, or be isolated from others, with some surgeries performed using rudimentary anesthesia. Most medical care, births, and surgeries were performed in the home.

Health insurance evolved during the industrial development, that followed the Civil War. Most industrial jobs were dangerous and associated with job-related injuries that often resulted in life-long disabilities. In some industries, more than 10 percent of workers were injured, or killed, on the job. Many companies employed doctors and nurses, and provided on-site clinics and infirmaries with care provided, and paid for, by the company. Businesses had a stake in the health and well-being of their employees. Unions gradually became influential, resulting in factory workers and others being provided industrial sickness funds for accidents and illness.

In 1910, Montgomery Ward developed the first multi-employee health insurance policy to cover work related disability. There was a movement toward compulsory sickness coverage, but businesses thought it was too expensive and viewed it as the equivalent of a pay raise for employees. Doctors were concerned that health insurers would control payment and practice.

During the depressions of 1914 and 1929, people who were out of work didn’t have access to health care (no job, no company care), and because they were out of work they couldn’t afford to pay the local doctor through bartering or with cash. Hospitals were being built, but had few patients as they could not pay for care. To help their local hospital survive, a group of teachers in Dallas developed a plan to prepay premiums to Baylor Hospital in exchange for hospital care when sick or injured—thus, the origin of Blue Cross.

This new payment system evolved for employees at myriad companies to be covered at multiple hospitals, and in 1939, prepayment plans were created for physicians, which evolved into Blue Shield. Later, Kaiser Construction
Co. was one of the first to deduct voluntary premiums from employee paychecks to pay for insurance for care by a Kaiser company doctor for illness and work related injuries.

Then came World War II, and in 1942, Congress passed the Stabilization Act to limit wage increases during the war, limit inflation that could adversely affect the military, and increase development of the domestic infrastructure. Employers responded by offering health insurance rather than raises in salary to help recruit workers. They organized health insurance coverage thereby creating third-party payors.

Employer-based health insurance became pervasive. After WWII, since it was beneficial for workers and their families, and covered medical and surgical care, pharmaceuticals, medical devices, and other services through insurance plans, the national fee-for-service health care system was established. At the same time, most of the countries involved in WWII were developing nationalized health care as the standard of care for their people.

In the U.S., there were still many people who were not covered by employer health insurance, including those working in low-paying jobs without benefits, part-time employees, the elderly/seniors, and the unemployed. After a long-debated political process, Medicare for the aged, and Medicaid for the poor, were established in 1965. Both programs are administered jointly by federal and state governments. Today, about one-third of the population is covered by Medicare and/or Medicaid—a number that has remained relatively consistent since the inception of the programs.

The concept of a Health Maintenance Organization was promoted by the HMO Act of 1973 with federal loans to insurers and large employers to help control costs. HMOs managed health care costs by establishing physician gatekeepers, limiting doctor networks, and implementing review and prior approval requirements. HMOs were able to temporarily control costs, but patients and doctors were unhappy with the tight control of care and management decisions, including denial of care.

Over the last four decades, health care costs have continued their meteoric rise. Today, health care spending in the U.S. is 17.8 percent of the Gross Domestic Product, which is at least 50 percent more than 13 other developed countries. Annual cost per person at $9,990 is considerably higher than in those 13 developed countries, and outcomes for the expenditure are not great. Life expectancy in the U.S. is 78.8 years compared to 81.2 years in the other developed countries, and infant mortality in the U.S. is 6.1 deaths per 1,000 live births, compared to 3.5 deaths per 1,000 live births. In the U.S., 68 percent of those age 65 years and older have two or more chronic conditions compared to less than 50 percent in the other developed countries.

Medical advances have developed exponentially over the last several decades with new diagnostics, procedures, pharmaceuticals, medical devices, and more intensive hospital care coming to market every day. With each new advancement so too has come the escalation of the cost of health care in America. As a result of the rising costs of care, coupled with recent recessions, employers have frequently limited, or eliminated, health insurance benefits.

The goal of providing health care for all will persist given that illness, disease, injuries, and social and public health
issues continue to adversely impact the health and quality of life of so many people.

We cannot continue on our current path. We must determine whether in America health care is a right or a privilege. We can, and must, do better.

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**The Affordable Care Act: Repeal and replace?**
by John Tooker, MD, MBA, MACP

The ACA, also known as Obamacare, has been controversial since it was passed by the 111th Congress and subsequently signed into law by President Barack Obama March 23, 2010.

The Republican Congressional leadership vowed to “repeal and replace” the ACA, even before the bill was signed by the President. Repeal and replace was the dominant Republican campaign theme through the 2010 and 2014 interim elections, and the 2012 and 2016 general elections. Fresh from their 2016 House, Senate, and White House victories, the Republican majority scheduled a vote March 24, to make good on their seven-year promise to repeal and replace the ACA. Falling short of the necessary 216 votes, the March vote was cancelled, and the legislation withdrawn.

**The origins of the ACA**

The 2008 general election swept the Democrats into Congress, gaining control of the White House and the 111th Congress, which took office January 3, 2009. With majorities in the Senate (59/41), and House of Representatives (257/178), and a Democrat in the White House, the Democrats had political power and were prepared to exercise it.

Senate Democrats needed one more Democrat to have a 60-vote filibuster-proof majority. Their wish was realized when on April 28, 2009, Pennsylvania Senator Arlen Specter changed his party affiliation to Democrat. While bipartisan support was desirable for enduring political support of major legislation, it was not necessary to pass new laws.

The American Recovery and Reinvestment Act of 2009 (H.R. 1 ARRA), a $787 billion economic stimulus based on proposals of the newly-elected President, passed March 17, 2009. Not a single House Republican supported ARRA, foretelling there would be no bipartisan cooperation on future legislation. The Children's Health Insurance Program Reauthorization Act of 2009 (H.R. 2 CHIPRA) was passed with limited bipartisan support on February 9, 2009.

With their first two policy priorities adopted, the Administration and Congress turned to health care reform, mindful of the unsuccessful health care reform attempts of the Clinton administration—and other presidents—and the need to move quickly. With the mid-term elections
The importance of the ACA was evidenced by the intense lobbying of many special interest groups for, and against, the legislation; 5,300 lobbyists were hired by 1,750 interested parties who spent more than $1.1 billion lobbying the bill.6

On June 6, 2009, the President took his plan public in his weekly radio address, stating that reforming health care was a top policy priority of his administration, and that he would be asking Congress to develop new health care policy focusing on rising costs, the uninsured, and improving health care quality. And, he wanted the overhaul of the $2.5 trillion U.S. health care system finished by October, a tight timetable for such a complex agenda.

With the June 2009 unemployment rate at 9.5 percent (more than twice the unemployment rate in 2007), and 16.2 percent of Americans without health insurance, health care spending was of paramount importance to the national economy.3

“Ultimately, as happened with the economic recovery act, health care reform will become President Obama’s plan,” Peter Orszag, head of the Office of Management and Budget and the administration’s lead spokesman on health care reform, told the New York Times.4

Early in the Senate Finance Committee policy discussions, Sen. Baucus, and the ranking Republican on the Senate Finance Committee Senator Chuck Grassley (R-IA), expressed optimism that they were close to a bipartisan deal. ‘I share the confidence that we’re going to get it done because the people of this country expect us to get it done,” Grassley said in a New York Times/CNBC interview.4

However, Senate Republicans complained about the cost and scope of the emerging proposal as the Finance Committee legislation came into focus. Senate Democratic Majority Leader Harry Reid (D-NV) pushed to have a bill in time to meet the President’s October timeline. Among the major policy differences between Democrats and Republicans were the requirements that everyone carry health insurance (the individual mandate); employers contribute to the cost of their employees’ insurance (the employer mandate); government subsidies for those unable to afford coverage; a public plan to compete with private plans; and overall cost and scope. Sen. Grassley said, “Our caucus is very, very much against a public option. It’s kind of a litmus test.”5

Sen. Baucus and Sen. Grassley convened a working group, the “Gang of Six,” to discuss reform recommendations from both parties. These bipartisan group discussions lasted throughout the summer of 2009, but fell apart in September when Senate Republican Leader Mitch McConnell (R-KY) signaled that the Republicans would not participate in a health reform bill brought to the Senate floor. A similar decision was made by the House Republicans.

In July 2009, Speaker of the House Nancy Pelosi (D-CA) and a group of Democrats from three House committees released the House health care reform plan, H.R. 3962, the Affordable Care Act for America. The House passed H.R. 3962 November 9, 2009 by a vote of 220/215, a thin political majority vote. Only one Republican voted for the bill, and 39 Democrats voted against it.

On the Senate side, Sen. Kennedy, the “Lion of the Senate,” and a leading supporter of health care reform, died in August from a brain tumor, putting the Senate Democrats’ 60-seat majority at risk. Paul Kirk was appointed interim senator from Massachusetts, providing the 60th vote to maintain the Democrats’ filibuster-proof majority. That vote would be needed December 24, 2009, when all 60 Democrats voted to end a Republican filibuster and pass the Senate’s version of the health care reform bill, America’s Healthy Future Act.

On March 21, 2010, the Senate version of the health care plan was passed by the House in a 219-212 vote—all Republicans and 34 Democrats voted against the plan.

When signed into law by the President on March 23, 2010, the bill had become the Patient Protection and Affordable Care Act (PPACA), later shortened to ACA.
ACA policy and regulation

A comprehensive bill, the PPACA is about 900 pages long, contains 10 sections (Titles) detailing expanding access to health care (insurance reform) for all Americans; improving the quality of health and health care; expanding the role of public programs (particularly Medicaid); expanded resources for chronic disease and public health; increasing and improving the health care work force; and outcomes research for diagnosis, treatment, and care delivery. In addition, it contained critical policy initiatives such as guaranteed insurance issue regardless of preexisting conditions; parents’ ability to keep children on their health insurance until age 26; and a robust minimum benefits package, including mental health and maternity care, that insurers are required to offer in their plans. The ACA provides a variety of mechanisms to expand insurance coverage, including Medicaid expansion—finding and enrolling people eligible for Medicaid—and tax credits for those who are working but need premium support to purchase insurance.7

Under the federal rule-making process, the ACA legislation was translated into more than 20,000 pages of regulations.8

More than 30 million Americans now have health insurance, or better insurance, under the provisions of the ACA.

The individual mandate

One of the most contentious policies of the ACA is the individual mandate, which deserves special mention. The individual mandate is a requirement that most Americans obtain and maintain health insurance or pay a tax penalty. The intent of the mandate is to reduce the costs of uncompensated care and adverse selection, meaning patients in poor health paying much higher, and often unaffordable, insurance premiums and out-of-pocket costs.

Originally a policy idea attributed to the Heritage Foundation (1989), the individual mandate was a key component of the 2006 Massachusetts legislation, An Act Providing Access to Affordable, Quality, Accountable Health Care, aka Romneycare.

Pres. Obama and the 11th Congress borrowed heavily from the policy initiatives of the Massachusetts health care reform bill in constructing the ACA. They were advised by Jonathan Gruber, a Massachusetts Institute of Technology economist, who was instrumental in the design of the Massachusetts Commonwealth reform bill.9

Repeal and/or replace?

The ACA was under assault even before it became law in 2010. On the day before Pres. Obama was to sign the bill into law, Sen. McConnell convened a group of senior Republicans to develop a marketing slogan to oppose it. The slogan, suggested by Josh Holmes, a communications director for Sen. McConnell, was “Repeal and Replace.”1

Not cooperating with the Democrats during the ACA legislative process, the political strategy developed by Sen. McConnell, turned out to be a sound, though somewhat cynical, political strategy.10 In the 2010 mid-term elections, the House Republicans gained 63 seats giving them control of the House, and six Senate seats, leaving the Democrats with a thin Senate majority and removing their filibuster-proof majority. In 2012, Pres. Obama’s second term saw the Senate change hands as the Republicans gained nine seats in the 2014 mid-term election. The House remained in Republican control from 2012 through the 2016 general election.

In the last two years of Pres. Obama’s second term, only his veto—which he exercised multiple times—prevented the opposition from repealing parts of the ACA.

A new Administration

With Donald J. Trump winning the White House November 8, 2016, and the Republicans winning both the House and the Senate, the Republicans are now poised to repeal, and perhaps replace, the ACA. Then-candidate Trump’s website said, “On day one of the Trump Administration, we will ask Congress to immediately deliver a full repeal of Obamacare,”11 and Senate Majority Leader McConnell vowed to dismantle Obamacare on “day one” of the 115th Congress. That said, campaign rhetoric is hard to translate into legislative reality.

The Senate repeal process must follow special voting rules—House and Senate voting rules differ. The House can pass legislation with a simple majority vote—218 votes in a 435-member chamber if all members are present. In the Senate, most legislation requires 60 votes—a filibuster-proof majority. Since the Senate Republican majority is 52/48, they do not have a filibuster-proof majority. However, there is an exceptional Senate budgetary voting process, reconciliation, that allows passage of Senate legislation with a simple majority if the bill concerns federal spending or taxation. Therefore, policies in the ACA that deal with spending or taxation can be passed in the Senate through reconciliation, but policy that does not deal with spending or taxation, such as guaranteed insurance issue for pre-existing conditions, cannot be repealed through reconciliation, and would require a filibuster-proof majority.

Former Speaker John Boehner (R-OH) warned that
the Republicans would not be able to repeal and replace Obamacare, but felt that it could be fixed.

Pres. Trump has been grappling with the complexities of the changing American health care system, and in a meeting with Governors in February stated, “Nobody knew health care could be so complicated.”

The legislative process to attempt to repeal (partially through reconciliation) the ACA began March 6, when the House released its bill, The American Health Care Act Act (H.R. 1628). The two House committees of jurisdiction—Ways and Means, and Energy and Commerce—voted along party lines on March 9 to move the bill out of committee. The House Budget Committee approved the bill March 16, and the floor vote on The American Health Care Act was scheduled for Friday, March 24.

When it became apparent that there would not be 216 members to vote in favor of the bill, the House went into recess and the bill was withdrawn after Speaker Paul Ryan (R-WI) spoke to the President. Even with a substantial Republican majority in the House, the Speaker was unable to get the necessary votes because The Tuesday Group (an informal caucus of about 50 moderate members of the House), was concerned about the adverse effect repeal would have on constituents in their districts. Also, members of the Freedom Caucus (conservative and libertarian House members), felt the bill did not go far enough in repealing and replacing the ACA.

On May 4, sufficient amendments were added to the AHCA to bring the bill to the House floor. The bill was brought quickly to the floor by the Speaker, without a Congressional Budget Office (CBO) score to determine the economic impact, or the impact on the health care of millions of Americans and constituents of the members of Congress.

The bill passed 217–213, with 20 Republicans joining all 193 Democrats in voting against it.

The legislation as passed by the House would replace the income- and cost-based subsidies for insurance in the ACA with an age-based tax credit beginning in 2020. It would end the expansion of Medicaid in 2020, and would repeal taxes for wealthier people with investment income, medical device manufacturers, health insurers, and others. It would allow states to obtain waivers to exempt insurers from the ACA-mandated essential health benefits, and the prohibition on charging higher premiums to those with preexisting conditions, but would provide $8 billion over five years to help people with medical conditions whose insurance premiums rose after a state received a waiver. It also created a $15 billion federal program to help cover the costs of high medical claims. Based on the CBO score for the March 24 version of the AHCA, 24 million Americans would lose health care insurance coverage over the next 10 years.

What's next for health care in America?

The ACA will remain the law of the land for now, but its future remains uncertain. The House AHCA bill, called TrumpCare, will now go to the Senate where Sen. McConnell will guide the legislation through the Senate, mindful of the Byrd Rule (after Sen. Richard Byrd (D-WV)), which governs legislation passed under the special budget rules Republicans are using to pass the health care legislation. To meet the Byrd Rule requirements, legislation must primarily address the deficit; therefore only provisions with a budgetary impact can be included in the reconciliation legislative process.

Sen. Charles Schumer (D-NY), the Senate Minority Leader, has offered to work with the Republican majority to improve the ACA, but only if they drop repeal and replace.

The Senate Republicans have formed a “working group” charged with developing a Senate version of the AHCA. The group is composed of 13 members from the Senate political and geographic spectrum. Key members of the working group are the Senate HELP Committee Chair Lamar Alexander (R-TN), Senate Finance Committee Chair Orrin Hatch (R-UT), and Budget Committee Chair Mike Enzi (R-WY) who are overseeing compliance with the Byrd Rule under the reconciliation rules. Any legislation adopted by the Senate must be approved by, or reconciled with, the House of Representatives.

Sen. Susan Collins (R-ME), a critic of the House bill, during a May 7 appearance on ABC’s “This Week” said, “The House bill is not going to come before us. The Senate is starting from scratch. We’re going to draft our own bill. And I’m convinced that we’re going to take the time to do it right. Speaker Ryan today said that he hoped that the Senate would improve the House bill. I think we will do so and that we will come up with a whole new fresh approach...”

Clearly, there are several items in the current law that need to be improved. Insurance markets need to be strengthened with more competition in selected areas of the country so premiums can come down. Unfortunately, the current approach to reducing insurance premiums focuses on reducing benefits for the consumer, but does not address lowering the overall cost of care. The U.S. has, by far, the most expensive care in the world without commensurate improvements in health care quality or life expectancy.
People covered under the ACA with preexisting conditions, the poor, and older people below the Medicare eligibility level are legitimately worried. Taking away benefits patients already have is particularly threatening to them, and politically difficult to do.

Major medical organizations such as the American Medical Association, the American College of Physicians, the American Hospital Association, and AARP, among others, strongly oppose the Congressional repeal and replace efforts now under way.

The Administration can, and should, take the lead in improving the exchanges. Medicare and Medicaid are now linchpin health care programs for the elderly and poor, and need to remain steadfast components of America’s health care system.

As a country, we should put the interests of our people first. In recent polls, the majority of the public supports the ACA. And, among those who don’t favor it, the majority want to fix it rather than repeal it.¹⁸

We need to learn from other countries around the world that have found a way to make health care a right for all. It won’t be easy. It will require leadership, civility, judgment, and courage to negotiate, to compromise, and to put America’s health care interests first.

References


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I take a seat across from an upper teen who sleeps
Waiting to see the eye doctor.
An empty seat separates him from a woman who is reading,
A cane resting on the seat beside her.

That the teen is asleep is not remarkable,
But when a nurse calls his name
He rises, eyes fixed straight ahead,
His hand outstretched.

The woman places the walking stick in his hand and takes his elbow.
Undaunted, he pulls away, turns toward the voice,
Says "Talk to me," and taps his way following the voice,
His mother a few feet behind bracing for a misstep.

I sense that today he will be seen by an eye doctor,
Whom, very likely, he will never see,
But of whom he will have boundless questions.

Douglas H. Forsyth, MD

Dr. Forsyth (ADA, Tulane University, 1960) is a retired internist and cardiologist.
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Illustration by Laura Aitken.
Primum non nocere: 
Daniel Patrick Moynihan and the defense of academic medicine

Joseph J. Fins, MD, MACP; Joan M. Leiman, PhD; and Herbert Pardes, MD

Dr. Fins (AoA, Weill Cornell Medical College, 2011, Faculty) is the E. William Davis, Jr., MD, Professor of Medical Ethics; Chief of the Division of Medical Ethics; Professor of Medicine; Professor of Medicine in Psychiatry; Professor of Medical Ethics in Neurology; and Professor of Health Care Policy and Research at Weill Medical College of Cornell University. He is also the Director of Medical Ethics at New York-Presbyterian Weill Cornell Medical Center; Solomon Center Distinguished Scholar in Medicine, Bioethics and the Law at Yale Law School; and a member of The Pharos Editorial Board.
Dr. Leiman is a Fellow at the New York-Presbyterian Health Policy Center.
Dr. Pardes (AoA, State University of New York, Downstate Medical Center, 1960) is Executive Vice Chairman, and former President and CEO of New York-Presbyterian Hospital.

Now, as in the past, the future of academic medicine hinges on the outcome of our nation’s debate over health care reform. As this perennial saga in American life repeats itself in a new political reality, it is useful to turn to history for guidance. More than two decades ago, during the debate over the Health Security Act, then-President Bill Clinton’s health care plan, the late Senator Daniel Patrick Moynihan (D-NY) became increasingly concerned that health care reform could threaten academic medical centers.

Moynihan was a staunch defender of academic medicine. His wife, Elizabeth Moynihan, inveterate campaign manager and confidant, wrote: 

[medical education was one of the issues that Pat was most interested in. He was deeply concerned with poverty in America & always worked on issues connected to that. He also felt that the most important duty of a Senator was to choose the best men/women as Federal judges. These were the 3 issues he cared most about…]

Although Moynihan was not alone in his advocacy for academic medicine, it became one of his key legislative priorities. While other leaders, like Senator Ted Kennedy (D-MA) focused more on universal access to care, Moynihan’s focus increasingly became the fate of academic medicine.

Adam Clymer of The New York Times observed that Moynihan, “… carped on television about their [Clintons’] health plan, quickly fixing on the role of teaching hospitals as the biggest issue in health care.”

Moynihan’s advocacy is portrayed throughout his role as Chair of the Senate Finance Committee during the legislative scramble of 1994. Leaving no doubt about his allegiances, the Senator invoked the Hippocratic Aphorism, “first do no harm” in the original Latin—primum non nocere—when considering the effect of reform on America’s medical schools and teaching hospitals.

Michael Barone of U.S. News & World Report recalls Moynihan insisting, “It would be a ‘sin against the Holy Ghost’…to allow these institutions to wither, a crime akin to the burning of the library of Alexandria.”

While others sought to curtail the costs associated with teaching, learning, and discovery, Moynihan pondered the demise of these essential institutions.

If, as Moynihan once observed, “No argument ever gets
settled in one generation...,” then his views on the centrality of academic medicine remain relevant during the ongoing debate about the Affordable Care Act, and health care reform more generally, a discussion which has paid scant attention to the place of academic medical centers amidst massive structural reforms.

As we face a new round of health care reform prompted by new political realities, Moynihan’s concerns about achieving robust consensus for vast undertakings like health care reform also bear recalling. Writing for POLITICO in late 2013, Todd Purdum recalled, “Twenty years ago, when he was trying to persuade Bill and Hillary Clinton that universal health care was a politically unrealistic goal, the late-Sen. Daniel Patrick Moynihan repeated one insistent warning: Sweeping, historic laws don’t pass barely. ‘They pass 70 to 30,’ he said, ‘or they fail.’”

Moynihan’s political philosophy

Moynihan had strong views on how America should go about reforming its social institutions, views that were honed over a lifetime spent cycling between public service and the university system. Frequently dismissed as a maverick and contrarian, Moynihan’s legacy is now undergoing re-evaluation. Time is proving him to have been astute, and correct in a number of his more controversial pronouncements.

Blue collar worker, social scientist, professor, and politician, Moynihan served as an advisor to both Democratic and Republican presidents. After working for Governor Averill Harriman of New York, he joined the Kennedy Administration and helped develop community mental health centers while he was overseeing the Bureau of Labor Statistics in the Department of Labor. During the Johnson Administration, he wrote about poverty and the African-American family. Although tragically prescient and widely misunderstood, “The Moynihan Report,” as it became known, led to his exile from government and welcome refuge in academe, first at Wesleyan then Harvard. Even though he was a life-long Democrat, Moynihan returned to government as President Nixon’s Domestic Policy Advisor. He later served as Ambassador to India and the United Nations during the Nixon and Ford Administrations. He won a seat in the Senate in 1976, and upon his retirement in 2000, he was succeeded by Hillary Rodham Clinton.

Moynihan’s approach to public policy was both analytic and pragmatic. He began his public career with a social scientist’s faith in the ability of experts to design reform on the basis of data, but came to appreciate the inherent difficulties of implementing reform. An avowed liberal, he thought government should be proactive in addressing poverty and inequality, although he shared the conservative’s reservations about government’s ability to undertake complicated interventions that attempt to change complex social systems, points he made in the “Professionalization of Reform” in the inaugural issue of The Public Interest in 1965.

He sought bipartisan consensus with fellow senators such as Bob Dole (R-KS), with whom he collaborated on Social Security reform. When Dole retired, he spoke of the need for more Democrats like Moynihan who could make deals with Republicans.

Moynihan’s willingness to compromise with Republicans often made him suspect on the left, especially during the debate over the Clinton Plan. Some even viewed him as a neo-conservative, a label Moynihan vehemently disputed. The headline for an article in The New York Times Book Review, written by James Traub, captured the challenge of placing a label on the Senator from New York, “Daniel Patrick Moynihan, Liberal? Conservative? Or Just Pat?”

He was guided by his understanding of political philosophy, sociology, and experience in government. Purdum observed, “The organizing political principle of his public
life has been a restless skepticism of Utopian ideals.” Of his political leanings Moynihan said:

Nothing I want to give a name to…I am not a Socialist and I’m not a Libertarian. I was never a Stalinist and I was never a Trotskyite. I guess if I had to say—and I don’t have to say, but you asked—it’s an avoidance of ideology. 

Leery of unintended consequences from well-intended policy, Moynihan advocated incremental changes that respected the inherent strengths of existing social institutions—civic and religious organizations, ethnic associations, and educational groups. Political scientist Greg Weiner described these establishments as “intermediary institutions.”

Weiner, the author of “American Burke: The Uncommon Liberalism of Daniel Patrick Moynihan,” speaks of the centrality of intermediary institutions in Moynihan’s political philosophy. He characterizes intermediary institutions as societal entities that bridge the roles and responsibilities of the individual and the state, and span the gulf between the political left and right, helping to achieve consensus when there is political contention. In Moynihan’s view, these institutions served as an important buffer between citizens and the state, and were critical to the good functioning of a democratic society.

It could be argued that later in life, Moynihan might have viewed academic medical centers as intermediary institutions situated between the government’s funding of health care and research, and patient care. When he perceived that academic medical centers might be endangered by health care reform, he became their advocate and sought to protect them.

Moynihan and the Health Security Act

Moynihan recalled, “My particular interest in this subject [academic medicine] began in 1994 when the Finance Committee took up the President’s Health Security Act.” To help prepare him, Moynihan asked Dr. Paul A. Marks (AΩA, Columbia University, 1948), then-President of Memorial Sloan-Kettering Cancer Center, to arrange a seminar for him on health care policy. Marks obliged bringing together a distinguished group of deans for a Manhattan meeting, including Herbert Pardes, MD.

One of the “seminarians” (the Senator’s term) told Moynihan that the University of Minnesota might have to close its medical school. Moynihan was shocked and offended by the possibility of such a horrid occurrence, and realized that Minnesota might be a leading indicator for the rest of academic medicine. On the Senate floor Moynihan said, “In an instant I realized I heard something new. Minnesota is a place where they open medical schools, not close them.”

Despite what the Clinton Administration was saying about their support for academic medicine, Moynihan remained apprehensive. The Administration had voiced concern for academic medicine both at a meeting of the Association of Academic Medical Centers (AAMC), and

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Ted Kennedy and Daniel Patrick Moynihan at the 1979 International Summer Special Olympics.

Photo by Ron Galella/WireImage
before Congress. Mrs. Clinton testified before the Senate Labor and Human Resources Committee in September 1993, telling the committee, “We want to preserve and strengthen the high quality of medical care that is a trademark of our nation—our unrivaled doctors, nurses, hospitals, and sophisticated technology.”

However, market forces unleashed by the potential of health care reform were being disruptive, and potentially a threat, to academic medicine, whether or not this was the Clinton Plan’s intent. Moynihan explained, “The answer was that Minnesota, being Minnesota, was a leading state in the growth of competitive health care markets, in which competing managed care organizations try to deliver services at lower costs. In this environment, HMOs and the like do not send patients to teaching hospitals, absent which you can not have a medical school.”

Concerned about what he learned from Marks and the other meeting participants, Moynihan decided to have the Senate Finance Committee hold hearings on the topic. On April 14, 1994, as the debate over the Clinton Plan was in full swing, Moynihan devoted a full day of Finance Committee hearings to “Academic Health Centers Under Health Care Reform.” Without equivocation he asserted, “It is important that health reform legislation assure the continued viability of our nation’s academic health centers.”

As chairman, he started with a preamble in defense of academic medicine, comparing the history of medicine with great moments in the history of scientific discovery. Where others saw the Clinton Plan as an insurance topic, Moynihan saw it as the promise of medical progress, and pledged his solemn obligation “to do no harm:”

From the first, one of the more evident and salient facts of our hearings has been the manifest fact that American medicine is in a heroic age of discovery...what physics was to the beginning of the Century, medicine is at this point. Where the physics was done almost exclusively in Europe the medical discoveries are taking place here. They are taking place in our academic health centers and in our pharmaceutical industry, as well. Whatever we do, we are under a solemn obligation to do no harm to, indeed to facilitate these centers...I think all of us...have all been dealing here with more than an insurance subject. It comes out of discovery. We are in a great age of discovery.

Moynihan said he had “become convinced that special provisions would have to be made for medical schools, teaching hospitals, and medical research.” He ensured that the chairman’s mark—the first version of the bill produced by the Senate Finance Committee—would include a “Graduate Medical Education and Academic Health Center Trust Fund,” with an 80 percent increase in funding for academic medicine, on a stable and long-term basis. The Trust Fund was supported on a bipartisan basis by the Committee, passing 12 – 8, and withstood an amendment designed to kill it with a 7 – 13 vote.

The physician work force and academic freedom

During the debate over the Clinton Plan, Moynihan worried that the contraction of specialty medicine training could impede scientific advancement by placing limits on the work force. He viewed medical specialty mix as key to scientific discovery, and perceived the Clinton Plan’s
The health care proposal by the Clinton administration envisioned a huge change in the medical profession. The number of physicians entering the profession was to be reduced by a quarter. The ratio of specialists to general practitioners was to be more or less reversed. It seems to me that a case could be made for such changes; a case could be made against them. In no way is it an issue that should be banned from public scrutiny or debate. However, it is my contention that the administration for all practical purposes kept this proposal SECRET.\textsuperscript{22}

In 1998, writing in \textit{Academic Medicine}, Moynihan asserted, "Working in secret, an abomination where science is concerned and no less an offense to democratic governance."\textsuperscript{23}

As a former academic, Moynihan took offense at the threat the proposed work force caps posed to academic freedom and university governance. If proper specialty mix were essential to discovery, and if discovery was central to the work of the university, the government caps on specialty training would have undue influence on the academy’s work and freedom of inquiry. Moynihan added, "... I would have nothing to do with it for the simple reason that it was quite unacceptable to tell a university what it could teach or not teach ..."\textsuperscript{22}

In his memoir, \textit{Miles to Go}, Moynihan quotes a piece in \textit{JAMA} by Dr. Richard Cooper about the proportion of primary care to specialty-trained physicians and their effect on progress, “The driving force behind much of specialty medicine is science, and the specialty workforce is technology based.”\textsuperscript{24} Moynihan agreed, “Good subject, not the least in this heroic age of medical science. The problem was that the Clinton task force did not want to debate the issue; they desired, rather, to decree the outcome, and to enact it surreptitiously as a mode of cost control.”\textsuperscript{21}

Lawrence O’Donnell, Moynihan’s Chief of Staff on the Senate Finance Committee—now of MSNBC—explained how the task force’s efforts betrayed deeper values in efforts to micromanage the physician work force:

...But here’s a final sort of point here about the health care reform exercise and how a tight policy focus will allow something to get misguided. When you look at many other countries, and you see that they control their supply of physicians, and they control their supply of specialists, you become jealous about it. You say, I wish we could do that. I wish we could have more general practitioners, and I wish we could have fewer cardiologists. I wish we could have more of this because wow that looks great. Their mix looks great and ours looks inefficient. And so the Clinton bill wrote into it limitations on all these things, including...
limitations on specialists. And so, America could then become the country in which you could grow up to be anything you want, except a cardiologist….At that point, you are now tampering with American mythology….It is actually saying this is no longer the country where you can grow up to be anything you want to be.²⁵

In recounting this policy misadventure, Moynihan quotes from a 13-point dissent signed by 13 members of Working Group 12, one of the secret task forces set up to design the Clinton Plan:

To end on a philosophical note, when the proposal to cap training slots was presented to the presidents of the major US universities last weekend, they were incredulous that the US government would advance as sound social policy a proposal to limit access to one of the three learned professions with its millennial history of achieving social good. They further recognized that in America open access to careers in these professions has been a traditional path for immigrant social mobility.²¹

To leave no doubt about his allegiances, Moynihan quoted from a letter from physician-scholar Dr. Walter Reich:

There’s also something profoundly anti-intellectual, even medieval, about the effort to abolish medical specialization. Knowledge, in the case of modern medicine, can result in large expenses. Get rid of that knowledge, some argue, and you can get rid of those expenses. In fact, this approach is so illogical and strange that characterizing it as medieval does a profound disservice to what was….Attempting to dismantle the edifice of specialization seems akin, somehow, to the deliberate torching of the great library in Alexandria. This is enlightened social policy?²¹

Moynihan’s friend, economist William J. Baumol observed, “the notion of rationing what fields you could teach in graduate school was self-destructive.”²⁶

Aftermath, in Trust

By late summer 1994, it was clear that the Clinton Plan was going to fail. The political actors were going through the motions, satisfying constituencies, protecting a flank, or auditioning for a new role. Moynihan was no exception.

On September 14, 1994, he spoke to posterity and history, drawing lessons from a legislative failure. On the floor of the Senate, Moynihan asked whether what had begun as a means to broaden access had become simply a strategy for deficit reduction, “The answers to these questions are important, affecting the health care received by 36 million Medicare beneficiaries.”³

He then turned to the fate of academic medical centers, “The mainstream proposal makes no mention of academic health centers and graduate medical centers. As such, it appears to be a worse-case scenario for academic health centers and teaching hospitals.”³

Moynihan worried how the mainstream proposal would affect the poor and elderly who would find themselves without Medicaid and/or Medicare, as well as those who would no longer qualify for subsidies to buy insurance. Central to his concerns were academic medical centers providing care to these vulnerable populations. Moynihan stood his ground, and, again, invoked the Hippocratic Aphorism, “For health care reform legislation I have had one clear guideline in mind at every stage of our deliberations: the first principle of the Hippocratic Oath ‘primum non nocere’—first do no harm.”³

Once the possibility of health care reform had died, Moynihan began thinking forward, intent on remembering the needs of academic medical centers. In October 1996, he told the Duke Chronicle of his continuing commitment to academic medicine, “We must not allow competition to bring a premature end to a great age of medical discovery, largely made possible by America’s exceptionally well-trained health professionals, and superior medical schools and teaching hospitals.”²⁷

He introduced the Medical Education Trust Fund Act of 1996 to provide funds to academic medical centers. He cited the precarious status of teaching hospitals and medical schools, and urged his fellow members to sustain “these national treasures,” and called for “explicit and dedicated funding.”²⁸

The argument was for a public trust for a public good, made necessary by the loss of funds due to the Budget Act of 1995, and the budget resolution for 1997. The legislation was structured to generate educational support from the private sector and government programs. Four billion dollars would come from a 1.5 percent increase in health insurance premiums, $9 billion from Medicare, and $4 billion from Medicaid. Moynihan’s floor remarks were notable for a senator who once commented, “In this Senate, you do your work in committees, not on the floor.”⁴

…these national treasures…the very best in the world…[are] in a precarious financial situation as market forces reshape the health care system in the United States.²⁹
His remedy was a dedicated trust to “ensure that the United States continues to lead the world in the quality of its health care system.” He also asked, “the Medicare Payment Advisory Commission to study the question and provide options in the Second Annual Plan to Balance the Budget.”

The bill did not pass, and Moynihan reintroduced the Medical Trust Fund of 1997 on January 21, 1997 on the floor of the Senate, providing annual payments of $17 billion over five years to academic centers, both medical colleges and hospitals, “...to assist medical schools in maintaining and developing quality educational programs in an increasingly competitive health care system.”

This provision also did not pass. Relief for academic medical centers became ever more important because of cuts imposed by the budget reconciliation. Moynihan had the support of Representative Bill Archer (R-TX), Chair of the House Ways and Means Committee. They both received the American Association of Medical College’s Public Service Excellence Award.

More than pork

Moynihan’s advocacy for academic medicine met with skepticism, if not outright cynicism, by many including the press. They saw it as nothing more than deference to an influential political constituency. When the bill came out of Moynihan’s committee with the provision establishing the Graduate Medical Education Trust Fund, a reporter with The New York Times wrote:

He is often accused of disdaining pork, but he is larding his bill with $40 billion in extra help for the crown jewels of New York’s and the nation’s medical establishment —academic medical centers—and revising the Federal matching formula for Medicaid to help New York in a way that would hurt so many other states it has virtually no chance of passing. Whatever the substantive effect of the draft, the political effect was to make Mr. Moynihan, more than ever, the man to see.

Another article charged that he and the New York academic medical centers were responsible for the defeat of the Clinton Plan, stating that the leadership of New York’s elite hospitals had “persuaded legislators like Senator Daniel Patrick Moynihan to revoke their support of the Clinton Plan.”

Moynihan responded:

I have to tell you this is libel. The presidents made no such attempt, I made no such revocation. As you know, Todd Purdum never called any of us...The point to assert, with insistence, is that at no time did the heads of “New York's elite medical centers” seek to persuade me to “revoke” my support for the Clinton plan. This is a terrible charge to have on record in a lead story of The New York Times that I must tell you I am confounded....

Purdum described Moynihan’s work on behalf of academic medical centers as an “enigma” because it would alienate voters in his upcoming election, and be “guaranteed to anger that most vociferous of constituencies, the elderly,” making his advocacy more than a simple political calculation.

On the commodification of medicine

Moynihan the politician was also Moynihan the social scientist and political thinker. His views on protecting the mission of academic medical centers were part of his overall political philosophy—a blend of liberalism and conservatism; idealism and practicality honed through years of public service as a participant and a student of American efforts to address its social problems.

Moynihan was concerned that medicine would be reduced to a commodity. When asked by Susan Dentzer, of PBS, about his intent to provide resources to academic medical centers when it was not clear that all the market efficiencies had been realized, Moynihan responded analytically, defending the institutions and practices he had come to admire:

Well, we don't know, but we dare not take the risk of being wrong. And these are, after all, universities. These are teachers. These are people that give their lives to research. They are healers. This is not NASDAQ. These are people who devote their lives to the science of helping human beings who need their help. And the results are so extraordinary.

In a 1998 essay entitled, “On the Commodification of Medicine,” Moynihan addressed the fundamental question of how to fund medicine as a public good that could support a great age of discovery. In his view, there had been too much of an emphasis on payment schemes, and not enough on the goals of medicine.

He identified an Aristotelian telos, health and discovery, as goals of medicine that transcended the market place noting, “health insurance is important, but health is more important. It comes out of discovery, and we are in a great
age of discovery.”

MoyNIhan’s concerns about commodification began with the testimony of Monsignor Charles Fahey of Fordham University before the Senate Finance Committee in 1994, “We want to alert the committee that the not-for-profit mission in health care is being seriously threatened by the increasing commercial environment in which we find ourselves operating; a real commodification of health care if you will.”

Msgr. Fahey suggests that Moynihan might have come to see health care’s public good “even as a ministry broadly speaking.”

MoyNIhan lamented, “There was a time, surely, when the advent of a new ‘wonder drug’ would have been approached in terms of health care. Now it becomes an affair of share price.”

He cited the fate of New England Medical Center which “began as a charity supported by Paul Revere that sent doctors out to the poor. It evolved into the New England Medical Center at Tufts University, a research powerhouse...the biggest health maintenance organization in Boston threatens to starve New England Medical by refusing to pay for its patients to go there...”

Conclusion

Although Moynihan was frustrated in his effort to secure a trust fund for medical education, his arguments remain important and timely. Like perhaps no other senator, he was looking ahead, appreciating that medicine was a public trust upon which each of us depends, and which each of us should sustain.

In 1999 on the Senate floor, Moynihan noted, “Medical education is one of America’s most precious public resources. Within our increasingly competitive health care system, it is rapidly becoming a public good—that is, a good from which everyone benefits, but for which no one is willing to pay.”

His words remain relevant today as federal funding for biomedical research is regularly decreasing. According to the Federation of American Societies for Experimental Biology, from 2003 to 2015, the National Institutes of Health lost 22 percent of its capacity to fund research.

Moynihan sought to sustain medicine as a public good for generations:

…the services provided by this Nation’s teaching hospitals and medical schools—ground breaking research, highly skilled medical care and the training of tomorrow’s physicians—are vitally important and must be protected in this time of intense economic competition in healthcare...a public good, medical education should be supported by dedicated, long-term Federal funding.

Even as his Senate career drew to an end, Moynihan persevered in his advocacy. Join by Senators Arlen Specter (D-PA), Bill Frist (R-TN, AΩΑ, Vanderbilt University, 1989, Faculty), and Kennedy, Moynihan held a briefing session with hospital leaders June 22, 2000. He recounted the history of how cuts made in the Balanced Budget Act of 1997 were greater than expected, and how he and Senator William Roth (R-DE), along with Representative Charles Rangel (D-NY) in the House, had forestalled some of the deeper cuts in indirect medical education payments. He told the group that a more enduring solution was needed.

The New York Senator’s valedictory might have occurred on March 1, 2000, when the AAMC and Columbia University held a forum in the Caucus Room of the Russell Senate Building. It was a luncheon, presided over by Pardes in his new role as President and CEO of New York-Presbyterian Hospital.

Moynihan was finishing his term and spoke of the work left undone. Part farewell, part admonition, Moynihan reminded his audience what they all knew—soon he would leave the Senate and they would have to carry on:

As you know, after this year, I will not be there fighting in the last hours of a legislative session to preserve funding for Graduate Medical Education. The vehicle to preserve that funding, I would maintain, remains the all-payer bill that I first introduced in June 1996. Ladies and gentlemen, it is time for you to redouble your efforts and demonstrate your support to preserve funding. Funding for Graduate Medical Education is most certainly worth fighting for.

Not all of Moynihan’s arguments were widely accepted during his time in office. On reflecting on Moynihan’s counsel, then-Senator Hillary Clinton wrote her predecessor, “If I had listened to you about health care in 1994, I would be far better off today—but more importantly—so would the nation’s health care system.”

He may have misunderstood primary care’s threat to specialty medicine, but most of his arguments remain highly cogent and relevant.

American academic medical centers are far from perfect institutions, but they have evolved as an integrated, successful model of education, research, and patient care that has led the world in medical progress. As we continue to work through another round of health care reform, and
seek to improve the efficiency, quality, and effectiveness of our health care system, we would do well to keep in mind Moynihan's reminder that a first principle and an obligation of social policy should be — _primum non nocere_ — first do no harm.

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This paper is dedicated to the memory of Herman E. Fins.

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The future of medicine as a public good has never appeared brighter. Affordable sequencing and interpretation of individual human genomes can now yield insight into diseases that should enable prevention as well as precise intervention. Digital technologies, robotics, and algorithmic approaches to evidence-based medicine will make individualized health care more accessible and effective. At the same time, the future of the medical profession has never been so difficult to predict.

The genomic revolution and its implications for medical practice
by William B. Neaves, PhD

Dr. Neaves (AOA, University of Texas Southwestern Medical Center at Dallas, 1990, Faculty) is President Emeritus of the Stowers Institute for Medical Research in Kansas City, Missouri. He is a 1991 Fellow of the American Association for the Advancement of Science, and a 2011 Fellow of the American Academy of the Arts and Sciences. He also serves on the Board of Directors of Cerner Corporation, a company that develops information technology solutions and services for health care worldwide.

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The genomic revolution unfolds, clinically actionable data will multiply exponentially. How can physicians adapt? Democratization of medical knowledge available through the Internet is empowering patients to take charge of their health care. What value do physicians continue to add? Medical expertise will someday reside in digital surrogates on smartphones. Will people still need doctors?

A challenge to the traditional doctor-patient relationship is reflected in genome-based medicine. Early last decade, at the beginning of the Genome Era, the biomedical community referred to the dream of basing diagnosis and therapy on a patient’s sequenced genome as personalized medicine. Later, many began dubbing it individualized medicine, and in 2015, then-President Obama popularized it, calling it precision medicine. Now it is called accurized medicine.

Will doctors in the 21st century practice precision medicine so that patients do not perceive it as impersonalized medicine? Can doctors do it better than the digital surrogates that threaten to replace them?

The antecedents of the genomic revolution remind us where we’ve been, and the first applications of genomic medicine show where we’re going.

Where we’ve been
For more than a century, medicine has benefited from precision enabled by knowledge of an individual patient’s genes. Nobel Laureate Karl Landsteiner introduced the concept of precision medicine a century ago when he classified patients into four blood antigen phenotypes that result from a diploid combination of three different alleles.
(a, b, and o) at a single gene locus. Landsteiner’s success in making blood transfusions safe pointed the way to gene-based medicine, but further progress was slow.

Not until late in the 20th century did knowing what alleles are present at a gene locus enable physicians to avoid pharmaceutical drugs that can produce devastating effects. The drug 6-mercaptopurine helped most children with acute lymphocytic leukemia, but killed a small number of patients. Studies revealed that approximately 0.3 percent of children have a mutated gene for thiopurine methyltransferase; they cannot metabolize 6-mercaptopurine and will likely die if given it. Today, children with acute lymphocytic leukemia are routinely genotyped to determine if they should not receive the drug.

Similar pharmacogenetic success stories include screening patients for mutations in the RYR1 calcium-channel gene to avoid anesthetic-induced malignant hyperthermia, and detecting high risk CYP2B6 genotypes that could compromise an HIV patient’s metabolism of efavirenz, a commonly used reverse-transcriptase inhibitor.

In the last decade of the 20th century, physicians began using genes to determine who would benefit from taking a specific drug—not just who should avoid it. It has long been known that κ-opioid analgesics achieve only limited pain relief in most people. Men do not benefit from the drug, and only some women experience effective analgesia. The melanocortin-1 receptor mediates κ-opioid analgesia, and research has shown that only women with two mutated alleles at the receptor gene locus experience robust analgesia when treated with the drug. Hence, genotyping the melanocortin-1 receptor identifies those women for whom κ-opioid drugs such as pentazocine will provide adequate pain relief.

The drug gefitinib inhibits elevated tyrosine kinase activity associated with specific mutations of an epidermal-growth-factor receptor gene. Approximately 10 percent of patients with non-small-cell lung cancer carry one or more of these specific mutations, and they benefit dramatically from gefitinib, but for the remaining 90 percent gefitinib does nothing. Patients with this type of lung cancer are routinely genotyped to determine if gefitinib will successfully treat their disease.

Gene-based medicine changed how we think about diseases. If the diagnosis of disease is the first step to effective therapy, physicians increasingly think more in terms of causes than symptoms. For almost a century after Rudolph Virchow described a patient with “white blood” in 1845, leukemia was thought to be a single disease. During the 20th century, leukemia was classified according to the course of the disease (acute or chronic), and the type of cell giving rise to the malignancy (lymphocytic or myelogenous). Leukemia is now known to result from a multitude of pathogenic mechanisms, many involving chromosomal translocations and gene fusions.

Chronic myelogenous leukemia results from a chromosomal translocation that disrupts the normal DNA
sequence of the gene for the growth-promoting enzyme tyrosine kinase. The constitutively expressed, and overly active, enzyme causes cancerous proliferation of the affected cells. The drug imatinib binds to the active site of the altered tyrosine kinase and blocks its ability to promote abnormal cellular growth. Although imatinib can also bind to normal tyrosine kinase found in white blood cells lacking the chromosomal translocation, it does no apparent harm to healthy cells, and avoids the devastating side effects associated with non-specific chemotherapeutic agents traditionally administered to cancer patients. Imatinib has achieved the holy grail of the pharmaceutical industry by knocking out cancer cells while leaving healthy cells alone. Even though it resulted from a narrow focus on only two gene loci, it exemplifies the kind of precision expected to come from whole-genome sequencing.

The examples of genotyping allow for a radical departure from the one-size-fits-all pharmacology of the 20th century.

Where we’re going

Gene-based medicine at the end of the 20th century relied on genotyping individual loci or small sets of loci known to be associated with a disease, so-called candidate genes. Compared to sequencing whole genomes, focusing on candidate genes had many disadvantages by excluding other genetic loci from consideration, and causing unexamined loci of potential clinical relevance to be missed. It ignored portions of a gene that may be biologically significant, i.e., promoters and untranslated regions. As knowledge of the number of potentially relevant genes increased, genotyping candidate genes became as costly as whole-genome sequencing.

Sequencing a whole human genome for the first time occurred in 2001, the year Victor McKusick MD (AΩA, Johns Hopkins University, 1946) predicted that “comprehensive DNA sequencing of the genome” would exert an influence on medicine “fully as great as was that of Andreas Vesalius’ ‘de corporis humani Fabrica’” published in 1543.

Assembling and interpreting the sequence data required another two years. It was a triumph of intellect and technology that will forever stand as a major landmark of biomedicine, comparable to Gregor Mendel’s discovering the gene in the mid-19th century, and Watson’s and Crick’s revealing the molecular structure of DNA in the mid-20th century.

The feasibility of sequencing whole genomes inspired visions of a new era in medicine when diagnosis and therapy could rely on discerning all the genes, alleles, and mutations in an individual patient. But whole-genome sequencing of individual patients was still a distant dream, primarily because the expense of sequencing individual genomes made it economically impractical.

In 2008, the cost declined to the point that the utility of whole-genome sequencing in individual patients could be explored. The Genome Center at Washington University compared a leukemia patient’s genome with her cancer’s genome and found 10 mutations that may have caused her cancer, or promoted its progression. Eight of these mutations had never before been linked to her type of cancer, and they became potential targets for developing new therapies. This landmark demonstration ushered in a new, more productive era of genome-based medicine that will revolutionize how medicine is practiced.

Only at the end of the first decade of the 21st century were patients finally treated on the basis of sequencing their whole genomes. At a cost of $100,000 each in 2009, the Baylor College of Medicine Genome Center sequenced the genomes of 14-year-old fraternal twins suffering from dopa-responsive dystonia. The twins were being treated with L-dopa, but tremors, awkwardness, and spasms
persisted. Whole-genome sequencing identified mutations that decreased a cofactor required for the synthesis of serotonin in addition to dopamine. By supplementing L-dopa therapy with a serotonin precursor significant clinical improvements were documented in both twins.

The work of the Baylor team with the Beery twins was the first peer-reviewed report of direct alteration in clinical management based on whole-genome sequencing of individual patients. When the paper appeared in June 2011, the cost of sequencing a patient’s genome had decreased to $10,000. As the cost subsequently fell into the $1,000 range, whole-genome sequencing became an increasingly affordable way to seek clinically actionable information.

In September 2014, Stephen Kingsmore’s team at Children’s Mercy Hospital (CMC) in Kansas City reported the first cost-effective use of whole-genome sequencing in treating individual patients. They had sequenced the genomes of 44 infants in the neonatal intensive care unit at CMC. Using a rapid sequencing process that is completed, analyzed, and interpreted within 24 hours, they diagnosed the illness in 28 of the 44 cases.

Kingsmore’s team was able to recommend treatment changes in 14 cases. They found a mutation linked to an overactive immune response that was injuring an infant’s liver and spleen. The genome-based diagnosis resulted in treatment with immunosuppressive drugs, and the baby was able to go home in good health.

In October 2014, Kingsmore’s team launched a large-scale clinical trial to sequence whole genomes of many hundreds of sick infants. The project at CMC was the first of four newborn-sequencing studies to receive FDA approval, and it is funded by a multimillion-dollar grant from the National Institutes of Health. By the end of 2014, Kingsmore could sequence whole genomes at a cost of less than $700 each, using the latest Illumina technology.

Early in 2015, positive results were reported in a phase I clinical trial of a new therapy for metastatic melanoma based on whole-genome sequencing of patients and their tumors. Sequencing a patient’s normal genome, and tumor genome, is the first step in determining if the cancer cells harbor actionable mutations that provide opportunities for targeted therapy. Comparison of matched genomes from a patient’s normal, and cancerous, cells facilitates identifying driver mutations for therapeutic targeting.

Many clinics still sequence only the DNA from a patient’s tumor cells without also sequencing DNA taken from a patient’s normal cells. Omitting comparison of genomes from a patient’s tumor and normal tissue makes it difficult to judge which mutations should be targeted for therapy.
Also in 2015, a team in the United Kingdom reported comparison of whole-genome sequences from subpopulations of cancer cells in individual tumors. They found that most cells in a tumor carried the same mutations driving early cancerous growth, but subpopulations of cells carried additional mutations that could compromise the efficacy of therapy. This raised the possibility of using stratified therapy to target both the widely shared driver mutations, and those found only in smaller subpopulations of tumor cells.

How many genomes must a genome-sequencer sequence to treat a patient precisely? Fortunately, the cost of genome sequencing continues to fall.

**Implications for medical practice**

With whole-genome sequencing on the verge of becoming as ubiquitous as the routine clinical chemistry profile, physicians face exponential increases in the mass of medically relevant new information patients will expect them to master. Physicians already confront a challenge similar to that experienced by priests during the Reformation, and the emergence of genomic medicine will only exacerbate the problem.

Before the Reformation, the church and its priests monopolized religious knowledge. Producing a single copy of the Bible required a year’s effort by a scribe with goose quill and vellum sheets. Only ordained priests had custody of hand-copied Bibles, and laypeople depended on priests to reveal the contents. Priests enjoyed a position of power and prestige.

In the second half of the 15th century, Gutenberg invented the moveable-type printing press, and used it to mass-produce Bibles, an act that triggered many unintended and unimagined consequences. One was the Reformation, which shook the foundations of the church, and changed forever the relationship between laypeople and priests.

By the end of the 16th century, ordinary people could afford a printed Bible, and those who were literate could read it for themselves. The information monopoly of the priesthood disappeared, and the profession had to find new ways to add value to the lives of parishioners. In post-Reformation Europe, it became much harder for priests to know more than laypeople.

Fast-forward half a millennium, and consider the parallel between priests during the Reformation and doctors today. Formerly ignorant patients are empowered by digital technology that gives them access to the latest medical information. Now, it is smartphones rather than the printing press, but the threat to professional hegemony is the same. For physicians in the 21st century, the challenge will be to know at least as much about diagnostics and therapeutics as their digitally facile patients.

At the very least, a physician must ferret out all that is known about the patient’s condition, bring it together at the crucial moment, and reach an informed conclusion about what is best for the patient. The massive amount of clinical data for each patient in the emerging age of genomic medicine already far exceeds the capacity of human memory. First and foremost, a physician must become adept in using the best tools information technology has to offer.

The platform of this tool kit is a mental prosthesis. We depend on mental prostheses to acquire, organize, and understand the meaning of data. The essential mental prosthesis is a portable device connected to an interactive network, and equipped with software that exercises logic in locating, assembling, and interpreting information specific to a physician’s professional requirements.

Last decade, the physician’s mental prosthesis was a
The genomic revolution

wireless laptop linked to searchable databases. Inevitably, the size of the device diminished and portability improved. Popular options now include digital tablets and smartphones.

A few doctors who are early-adopters already use optical head-mounted displays. Eventually, a physician’s wearable technology may be surgically implanted and invisible to the patient—an integrated extension of the practitioner’s intellect and senses.

How will such mental prostheses change medical education and clinical practice? Will unaided memory maintain the significance it now does? What about correlative thinking?

Software in digital devices already retrieves, organizes, and interprets relevant information as the patient encounters unfold. Computer screen warnings flash if the doctor attempts to prescribe an unconventional therapy.

Where will these trends lead? Might medicine be practiced by robots? Already, robots are replacing certified nursing assistants in elder care. Robots are proving to be good listeners whose undivided attention comforts dementia patients.\(^{15}\)

Could individual patients rely on a medical app in their smartphones? In his 2015 book about patient empowerment in the 21st century, Eric Topol, MD, (AΩA, University of Rochester School of Medicine and Dentistry, 1979) envisioned a new era of medicine “powered by unplugged digitization, with the smartphone as the hub,” and he devoted a chapter to “My (Smartphone) Doctor.”\(^ {16}\)

Could Dr. Siri be your personal physician? The feature would use a natural language interface and digital biomonitors to record symptoms and vital signs. It would interrogate the individual’s electronic medical records, including the patient’s sequenced genome. It would retrieve relevant clinical information from Web databases and the Cloud. It would determine the most probable diagnosis. It would answer questions, make recommendations, and prescribe therapy. Dr. Siri would return personalized responses unique to the individual.

The business world is ready to help people serve as their own physicians. Early in 2015, Nature published a story about the high level of commercial interest in selling diagnostic tests to consumers—i.e., patients—and eventually, direct marketing of therapies based on whole-genome sequencing.\(^ {17}\) A company in California, 23andMe, has sold sequence analysis and SNP genotyping to the public since the last decade. In February 2015, it became the first company to receive FDA approval for a genetic test marketed directly to consumers, not physicians—a test for mutations that cause a rare disease called Bloom syndrome.\(^ {18}\)

IBM and Memorial Sloan Kettering announced a collaboration in 2013 to use IBM’s trademarked “cognitive computing technology,” known as Watson, to assemble information about individual patients, correlate it with published research and outcomes in similar patients, and list treatment options with the highest probability of success.\(^ {19}\) Watson’s data mining capability enables it to stay abreast of the latest medical advances reported in scientific journals and medical meetings. Because Watson relies on cognitive computing, it continually learns from its operations, and improves the relevance of suggested treatment...
options for individual patients.

Memorial Sloan Kettering, a partner in Watson’s development, says, “The tool is designed to help oncologists anywhere make the best treatment decisions for their individual patients.” Watson for Oncology is a companion of the Watson Health Cloud, and IBM says of the latter, “It will empower individuals to understand more about themselves. And, it will help doctors, researchers, and insurers make better, faster, and more cost-effective decisions.” IBM envisions a much larger universe of Watson clients— a universe that includes people who have cancer, people who think they might have cancer, and people who fear they might get cancer.

The intersection of genomics and digital technology bodes well for the health of individuals, but it has stimulated commercial and personal interests that threaten to marginalize physicians.

Doctors in the 21st century cannot practice medicine without digital devices and software powerful enough to make genomics actionable for their patients, who have devices that provide access to the same information in a highly personalized way.

**References**


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The first is short-term.

She knew when he came to visit
that it would be a short-term thing.
He was, as always, already gone from her.
But for nine nights, they slept together anyway,
whispering an early language for love, sowing seeds
before he slipped away to another goddess.

Mnemosyne, daughter of planets, she lived herself a titan,
and
  rather than be bereft,
  she bore into the world the future of all great women.
Muses, and she, hopeful, the mother of forgetting.
But her daughters, feckless,
gave away their talents
for a song, less—
  a limerick, a lie
  the sly smiles of men who lusted for infamy
  but had no heart for the work
(clearly their father’s daughters).
When she grew tired, she took up residence on the river;
waterfront property, choosing to ignore unsavory neighbors,
who charged guests an eye and a soul
for use of their paddleboat.
Gradually, she settled into retirement,
  rote, selective
learning to rest comfortably among tall pines and under the
  shade of mountains,
to hold, gently, the world’s reminiscence.

The second is long-term.

There are many types of dying;
our grandfather had chosen one, long-term, and set about it
diligently.
It started with his feet, our father says.
Bad arches, army training, bunions—gradually, it all gave way,
the bones straying from one another
  splayed
  undeterred by desperate ligaments.
An inevitable collapse, making space
for the descent of the tibia, until his limbs were unrecognizable.
With his arches so went his mind,
and we looked to our own halluces, and cringed.
Age is another war.
He asks us where we live, whose daughters we are.
He’s forgotten his sons’ names
and how he met our grandmother.
Sixty years of marriage.
And when we discovered it was heritable
we were unsure where to direct our feelings,
just then aware of all the things we didn’t know,
and hadn’t bothered with.
Shaken of our permanence, we wondered—what do we ask
a man who has forgotten?
People’s lives are secrets, not because they keep them
but because we forget to ask.
You know, the thing about getting old (he says)
is that my feet hurt all the time.

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A Victorian

The pioneering career of Dr. Lucy A. Gaynor

By Amy L. Whalen, MD; Mary E. Groll, MD, MS; Ronald H. Sims
New Woman
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Mr. Sims is a retired Special Collections Librarian at Galter Health Sciences Library, and Faculty in the Center for Bioethics and Humanities at Northwestern University’s Feinberg School of Medicine.

Is not this the fast that I have chosen: to loose the bonds of wickedness, to undo the heavy bands of the yoke, and to let the oppressed go free, and that ye break every yoke?

—Isaiah 58:6 (ASV)

Dr. Lucy A. Gaynor Memorial Document

Eleanor Roosevelt, Gloria Steinem, and Nobel Prize winner Malala Yousefzai are familiar examples of feminists who have inspired generations of women through their advocacy for the social, political, economic, and legal rights of women to be equal to those of men. However, the New Woman concept of the late 19th century was one of the first women’s movements forged by American women working and serving abroad.

A New Woman was one who desired far more than the submissive role of Victorian domesticity. A New Woman was a decisive, independent, career-minded self-advocate who used her newfound freedom and education to ignite societal change. For many women during the Victorian era, missionary work provided an exciting opportunity to become this sort of empowered woman—one who pursued her career while righting social injustices.

Many Western health care workers became advocates for disenfranchised groups through mission work. The
feminization of mission work in the late 1880s resulted in successful female-led missionary boards that provided a robust support base for female field workers overseas. Missionary work offered financial and emotional support for women, as well as a place to apply their education. Due to the lack of opportunity in their home countries, women missionaries abroad quickly became a powerful addition to the work force.

In China, the culture dictated that men and women be separate, creating a tremendous need for female physicians, which led to the creation of training programs for female missionary medical doctors.

**Lucy Alice Gaynor**

Lucy Alice Gaynor was born in 1861 in Ballygarry, Ireland, to Jane Julia Salter and Henry Alfred Gaynor. During her first year of life, she emigrated with her mother to the United States, with her father and brothers following later.

In the summer of 1870, Lucy and her parents were visiting her brothers in Philadelphia when Henry contracted cholera and died. Although early epidemiological studies of the waterborne transmission of cholera by Dr. John Snow were accepted as published in the British journal *Lancet* in 1866, public health literacy regarding cholera was lacking in the United States.

Following Henry’s death, Jane settled the family in Chicago’s ninth ward on the south side of the city, and opened a furniture store to support her family. Jane asked Lucy to forego her formal secondary education to assist in the family store, but Lucy refused.

Lucy earned the money needed for her education, and in 1891 graduated, with honors, from the Woman’s Medical College of Chicago, securing an internship at the Chicago Ear and Eye Infirmary. Following her internship and post-graduate work in Philadelphia, Dr. Gaynor was offered an opportunity to work in a private practice, but chose instead to apply to the Quaker Friends Board for a missionary post in China.
In September 1892, Gaynor sailed for Nanking, China, becoming the city’s first female physician. She worked there for the next 20 years, interrupted only by a four year furlough to care for her ailing mother in the United States.¹

The binding of feet

Although the practice of enduring mutilation and perpetrating violence in the name of beauty has been found in almost every culture, historians believe that foot binding began in China in the 12th century, and continued until it was outlawed there in the first half of the 20th century.⁴ While there was notable resistance in small pockets of Chinese provinces, the extinction of this practice took years of opposition from multiple groups, including Western missionaries such as Gaynor.

Gaynor sent written and photographic correspondence to the Woman’s Medical College in Chicago regarding her advocacy to unbind the feet of Chinese women and girls. She offered a two-pronged effort of medical therapy and education.

Although the destruction of the foot by the binding process sometimes left the foot in a condition impossible to change, Gaynor tirelessly pursued medical correction and was in some instances able to mitigate the deformities thereby allowing girls to walk and stand comfortably. The Quaker Missionary Board reinforced Gaynor’s efforts and insisted on natural and liberated feet for attendance in their schools, unless a physician deemed correction hopeless.⁵

Taking on other causes

In 1902, during an epidemic in Nanking when all of the city’s male physicians were away, Gaynor initiated a public health campaign to eliminate cholera. Dr. William E. Macklin, a physician from the Christian Mission outside of the city, came to assist her. They placed placards showing the cause, prevention, and cure of cholera. With the help of other missionaries, the physicians also distributed medication via chapels and dispensaries to 50,000 people.¹⁶

In 1903, Gaynor was notified of her mother’s ailing health and returned to Chicago. During this four-year period, she served as an executive on the Women’s Board of Foreign Missions of the Methodist Episcopal Church, supporting field workers.

After her mother’s death in 1907, Gaynor returned to China where she was approached by several young Chinese women asking to be trained in medical work. Her response was enthusiastic and brisk, establishing the Nurses’ Training School in Nanking in 1908. The original school was adjacent to the hospital in a building donated by the Friends Mission, where Gaynor assumed full responsibility for the student nurses’ training.

Gaynor financially mobilized other missionary boards to support the school, and with immense support, on October 5, 1908, it was renamed the Union Nurses’ Training School.⁷ Six missions contributed financially to the running of the school, including donations for annual scholarships in the amount of $30 of gold to cover the cost of a year of training.

Later, Dr. Gaynor asked the six mission boards to annually pledge $100 each for five years to support Frances Harris, a nurse who was hired in Autumn 1910 to train the students.³⁸

Although many in China viewed foreigners with great suspicion, the trust the community had for Gaynor was profound. She was summoned to the home of Viceroy Duang Fang whose daughter was critically ill. Through Gaynor’s care, the child recovered which bolstered the trust of the local Chinese people. The Viceroy paid Gaynor with valuable silks which she sold, using the money to fund the school.

During the Chinese Revolution in late 1911, Gaynor and some of her nurses were trapped in Shanghai due to an uprising against the Manchus, the ruling ethnic minority. After providing aid in Shanghai, Gaynor was asked by the Red Cross to open a new hospital there. She quickly accomplished this with the help of her assistant Dr. Jiang and two unnamed “Bible women” from the Methodist Church.¹

Gaynor re-entered Nanking December 6, 1911, following its siege, and found Manchu refugees living there. They
were ill, and lacked adequate food or shelter. She cared for the sick and dying, and with the help of the Chinese guild of cloth merchants organized the delivery of a multitude of resources. Daily, she carried supplies from her hospital to a dispensary in the section of Nanking where the refugees lived, dubbed “Manchu City.” Toward the end of March, the funding for aid to Manchu City was almost exhausted so Gaynor devised a plan to optimize what was left. Beginning April 1, those capable of work were to be paid a daily wage for their contribution to the upkeep of Manchu City, which they would use to obtain food, thereby preserving the limited resources for the sick.

The conditions in Nanking and Manchu City were crowded, and unsanitary. Gaynor related to friends that she had concerns about exposure to typhus from contact with vermin at the dispensary. Just five days later, she began to have fevers, and succumbed to typhus on April 23, 1912.

Shortly after her death, the Board of Managers of the Union Nurses’ Training School created the Dr. Lucy A. Gaynor Memorial Fund, to benefit a new school building.

A New Woman

Gaynor was a heroic New Woman. She was an advocate for patients, girls, and women in 19th century China. She used her training to care for the sick, and ignited the spark of women’s independence through education of Chinese girls and women—all in a time when she didn’t have the right to vote in her home country.

Gaynor’s work in China was accomplished almost exclusively with the help of other women. Her mentorship of women and girls contributed to their own advancement, and perpetuated change for subsequent generations.

Her dedication to the timeless principles of advocacy for self and others engenders her as a mentor for all physicians.
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The Remarkable Life of Erwin Schrödinger’s What Is Life?” in the Autumn 2015 issue of The Pharos uses, “the infamous Hapsburg lip, faithfully preserved throughout the long dynasty,” as an example of genetic fidelity.

This genetic fidelity—mandibular hyperplasia, known as prognathism or osseous Class III malocclusion—is commonly referred to as the Hapsburg jaw. The Hapsburg’s lower lips were large, as were their tongues, but their lower jaws (mandible) were exceptionally hypertrophied, jutting out from under their upper jaws (maxilla).

Many human diseases, deformities and disabilities come in three sizes—small, medium and large. Disharmony of size or shape between the upper and lower jaws in any dimension—height, width, or length—can create serious functional problems that interfere with mastication, and cause esthetic issues.

The ideal small may be only a few millimeters of discrepancy between the jaws and the intermeshing of the teeth, basically an issue obvious only to an orthodontist. Medium differences between the jaws may be more cosmetically obvious and may compromise an individual’s ability to functionally masticate food. Large denotes asymmetry or disharmony, and seriously affects speech and swallowing.

For the ancient Greeks, beauty was synonymous with symmetry—Plato wrote of golden proportions—but very few humans have ever met the ideal of perfect facial harmony.
Perfect is in the eye of the beholder, Helen in the eyes of Paris, or golden Aphrodite.

The 16th century Hapsburg dynasty of Spain, Austria, and the Holy Roman Empire suffered a familial disorder of the large variety—lower jaws protruding far in front of smaller upper jaws. This deformity is apparent in paintings of generations of Hapsburgs, especially the Titian portraits of Philip II of Spain, and Charles V, Holy Roman Emperor.

The Hapsburgs’ jaws may or may not have been a social issue, having great impact on the history of the Spanish Empire. However, it is said that contemporaries found Philip II “difficult to understand...often unintelligible.” And, it is documented that Charles V’s “Hapsburg blood was apparent in his hanging jaw and gaping look.”

**The anguish of the disfigurement**

Disfigurement, be it genetic, traumatic, or caused by ablative cancer surgery, can create heavy personal and social burdens. Lucy Grealy, the author and poet who suffered a childhood jaw tumor described her anguish:

My pleasure at the sight of the children didn't last long, however. I knew what was coming...they’d notice me. Half my jaw missing, which gave my face a strange triangular shape, accentuated by the fact that I was unable to keep my mouth completely closed.

Grealy’s emotional suffering was devastating and incomprehensible. Her friend, Ann Patchett tells the story of Grealy’s decline into depression, alcohol, drugs and death in the book “Truth and Beauty:”

We could see her face clearly. It was always changing. It was always changing, swollen after a surgery or sinking in on itself after a surgery had failed. One year she walked with a cane and someone told me it was because they had taken a chunk of her hip to grind up a graft into her jaw.

In the best of all worlds, talent, education, and health should lead to social and economic success, and a reasonable measure of happiness. However, numerous studies have revealed that facial appearance influences self-image as well as other’s perceptions, thus affecting nearly every aspect of life, from job promotion to finding a mate.
Surgical advancements

The first successful surgical attempt to correct growth abnormalities of the mandible was by Thomas Houlihan, a mid-19th century American surgeon who removed bone segments bilaterally, and wired the patient's upper and lower teeth together to stabilize the healing bone. The surgery was done with crude anesthesia, and no antibiotics.

A series of innovative surgeons improved on Houlihan's procedure throughout the decades, until the 1960s when Professor Hugo Obwegeser of Zurich perfected techniques that could alter the size, shape, and position of both jaws simultaneously without bone removal or surgical scars on the face.

Later, the use of small orthopedic titanium plates and screws obviated the need to wire the mouth shut postoperatively, a major technological leap in the evolution of successful reconstructive jaw surgery.

The regeneration of Billy

“Billy” was 19 years old, a high school dropout, and a recidivistic car thief incarcerated by the Connecticut criminal justice system. He came from a dysfunctional family described by the prison psychologist as uncaring and unwitting. His mandible was huge, even larger than a Hapsburg’s. He had lost all of his teeth due to neglect and poverty.

Billy’s jaw was so large that functional dentures could not be fabricated. His hyperplastic-prognathic jaw was not that of pituitary gigantism, non-pituitary gigantism (Soto’s syndrome), or any of the numerous other syndromic conditions associated with jaw abnormalities, and he was not a Hapsburg.

Years of social ostracism and cruel jokes had produced an angry, isolated, sullen, introverted young man who was so taciturn that he bordered on mute. The psychologist suggested that “fixing” Billy’s face might create some self-esteem, and perhaps open new vistas for him. Billy expressed interest in being able to “chew some meat and maybe not have the girls turn away.”

I realized that Billy’s anger and rebellion may be just a cri de cœur that he couldn’t articulate.

The surgery went well, and form and function were restored. Early in his post-operative period, Billy’s personality completely changed, and he became energized, almost loquacious, interacting with and pursuing every young nurse who walked by his room. He often left his room to read magazines in the hospital library. I was asked if a guard should be placed outside his room, or if he should be placed in shackles, but he wasn’t going to escape, not this new Billy. He no longer was displaying rebellious behavior problems.

When he returned to the penitentiary the prison dentist created dentures for him, allowing Billy to have standard meals rather than pureed prison fare.

During subsequent visits to the hospital clinic Billy was cooperative, in good humor, and eager to finish his sentence in the penitentiary. He was considering completing high school or applying to an auto mechanic training program, and “maybe buy a car!” he joked.

What became of Billy? Perhaps on a straight path on his journey through life, a steady job, the serene joy of love and a family, the satisfaction of food? I’ll never know. I can only hope. But I know for sure, he was healthier, had improved self-esteem, and was rid of his large jaw.

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2017 Moser Award winner

Pan Am Professor

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“Are you old enough to know better than to take that kind of risk?” I thought a moment. Quite the contrary, I said, I am old enough that I can afford to take that kind of risk.

—Dr. Richard T. Johnson

Affectionately dubbed the Pan Am Professor, Dr. Richard T. Johnson’s (ΩA, University of Colorado, 1955) personal and professional travels sent him to all corners of the globe, causing some colleagues to believe that he spent as much time in the air (Pan American Airways) as he did in his office. His sharp wit and relaxed demeanor belied a mind of intense acuity, and his kind, approachable manner ensured that he would never be short of mentees.

Born in 1931—two years after the discovery of penicillin—Johnson’s life spanned a revolutionary period of scientific advances and medical discoveries, and he was often at the epicenter of many of the innovative medical breakthroughs in neurovirology over his six-decade career. He reveled in medicine’s progress, and throughout his life, heartily applied himself to the challenges of the field.

Known to many as the Father of Neurovirology, Johnson’s career was highlighted by multiple prestigious positions, including serving as the director of the Johns Hopkins Department of Neurology, president of the American Neurological Association, and editor of Annals of Neurology. Internationally, he was the founder of the National Neuroscience Institute in Singapore, the inaugural recipient of the Pioneer in Neurovirology Award from the International Society of Neurovirology, and an Honorary Fellow of the Royal College of Physicians. He had more than 300 peer-reviewed articles, edited 16 books, and authored “Viral Infections of the Nervous System,” a first of its kind text published in 1982. He was a member of the editorial boards of 22 journals, including Science, Archives in Neurology, and Annals of Neurology.
The early years (1956–1962)

He asked why I did not do research in the Army—possibly in virology. I laughed. I had never done any research, and there was no field that I knew less well than virology.

—Richard T. Johnson

After earning his medical degree from the University of Colorado, Johnson began an internship at Stanford University Hospital in 1956, earning $25 per month. His goal at the time was to remain in the San Francisco Bay Area practicing internal medicine after his residency ended. However, a pending draft notice and a chance conversation during a party at his chief resident’s house set his career and life on an unplanned, but ultimately immeasurably rewarding, path.

Upon completion of his residency, Johnson joined the Walter Reed Army Institute of Research as a clinical pathologist, and was quickly promoted to Assistant Chief of the Department of Virus Diseases. Despite “knowing nothing” about the methodology of research or virology, Johnson became passionate about both, and while at Walter Reed began studying nervous system encephalitides by herpes simplex, enteroviruses, and arthropod-borne viruses.

Following his time at Walter Reed, Johnson moved to Massachusetts General Hospital where he completed a residency in neurology, and a clinical fellowship in neuropathology at Harvard Medical School under the training of Dr. Raymond Adams (AΩA, Duke University School of Medicine, 1967). He was a teaching fellow at the Medical School of Kings College, University of Durham & Royal Victoria Infirmary at Newcastle-Upon-Tyne, England, for one year.

Arboviruses in Australia and the USSR (1962–64)

Risk is relative, and moderate risks not only fend off boredom but can open great opportunity.

—Richard T. Johnson

Johnson served in the U.S. Public Health Service beginning in 1962, and embarked on the first of many international projects and assignments as an Honorary Fellow in the Department of Microbiology at the John Curtin School of Medical Research (Australian National University) in Canberra, Australia. He had developed a niche expertise in neurovirology and slow virus infections.

As is often the case in successful careers, his expertise was established at a critical time in the field, preparing him for the multiple opportunities that arose. The concept of slow virus infections was just becoming popular, and because of his expertise in neurology, neuropathology, and virology, his participation in this emerging field was sought by fellow practitioners around the world.

While in his second year at Canberra, a team of Russian physicians claimed to have reproduced Amyotrophic Lateral Sclerosis (ALS, or Lou Gehrig’s disease) in monkeys “by administering extracts from the spinal cord of persons who have died of the disease.” They claimed, the “virus-like agent discovered has been passaged twice in monkeys without consequent attenuation.”

Johnson’s unique qualifications and experience in virology, neuropathology, and neurology landed him a position on an elite team of physicians chosen by the U.S. Public Health Service to visit the laboratories of the Russian scientists as part of a U. S. S. R. –U. S. cultural exchange program. Thus, during the height of the Cold War, Johnson flew to Moscow as a member of the Delegation on Latent Infection, Chronic Intoxications, and Genetic Influences of the Nervous System of Man and Animals.

Johnson recalled arriving in Moscow:

At the American Embassy, outside the office handling upcoming cultural exchanges, there was a small marquee. The top billing listed Marlene Dietrich, the second the Harlem Globetrotters, and there we were, the third listed rudely abbreviated as “The Slow Virologists.” Someone had misunderstood or mistranslated our research of slow viruses.

The slow virus thought to produce ALS in the monkeys was never replicated, however, the delegation spent time in the USSR collaborating with Russian physicians and scientists. Unfortunately, due to the geopolitical climate, and tensions between the two super-powers that amplified with Lyndon Johnson’s Operation Rolling Thunder in Vietnam, further scientific collaborations between the United States and the USSR were not feasible at the time.
Prion disease in Papua New Guinea (1964)

I knew they must be members of the Fore tribe, one of the last stone-aged peoples of the world, a tribe I had heard Carleton Gajdusek speak of often, a tribe known for its sorcery, warfare and cannibalism.

—Richard T. Johnson

Toward the end of his tenure in Australia, Johnson was asked by his mentor Frank Fenner, chair of the Papua New Guinea Research Council, to go to Papua New Guinea to examine people suffering from Kuru—a degenerative neurological disorder that had been described by Carleton Gajdusek and Vincent Zigas several years earlier. At the time, only one other neurologist (Richard Hornabrook, MD, from New Zealand) had examined these patients.

Johnson was asked to join Hornabrook, and support his clinical findings in the documentation of this unusual disease. This made Johnson only the second neurologist in the world to examine a patient with Kuru, a disease subsequently found to be associated with tribal cannibalistic practices.

Returning to the United States, Johnson continued to be involved in the research of Kuru along with Gajdusek, the recipient of the 1976 Nobel Prize in Physiology or Medicine.

When the first chimpanzee inoculated with brain
Pan Am Professor

extracts from a Kuru victim developed clinical signs of the disease, Johnson helped examine the chimpanzee and compare it with the afflicted humans he saw in Papua New Guinea. At the time, no one knew that these original descriptions and subsequent scientific discoveries, were the starting point for an entirely new type of infectious agent called prions—the cause for more well-known diseases such as Bovine Spongiform Encephalopathy (Mad Cow Disease).

Johns Hopkins University

In 1964, Johnson became a member of the faculty at Case Western Reserve, where he worked until 1969.

A search committee in Baltimore, led by Dr. Vernon B. Mountcastle, Jr. (AΩA, Johns Hopkins University, 1942) was recruiting the first director of the new Johns Hopkins Department of Neurology. Dr. Guy Mead McKhann (AΩA, Yale University School of Medicine, 1954) recalls that Dr. Mountcastle had “narrowed the field down to Dick Johnson and me. It was Vernon’s idea to get us both, so we both arrived at Johns Hopkins and spent the rest of our careers here. I took over running the department, and Dick built up the research side.”

Johnson was appointed the Dwight D. Eisenhower Professor of Neurology at Johns Hopkins University, a position he held for the remainder of his career.

Johnson’s training in both neurology and virology uniquely qualified him to develop a specialty division combining both fields, thus inventing the nascent field of neurovirology. He also started the Johns Hopkins Multiple Sclerosis Center, became Director of the Department of Neurology, and established close ties to the Bloomberg School of Public Health.

As an astute clinician, he received many patient referrals, both nationally and internationally. Johnson was particularly sought after by patients with undiagnosed, unusual nervous system infections. Patients would often fly to Baltimore from obscure regions of the world to see him. His patients stayed with him year after year, and it was not unusual to find some who had followed him for 30 years, or more.

Having trained in neurology prior to the advent of imaging and accessible laboratory testing under some of neurology’s greatest modern day clinicians, Johnson never failed to insist on the importance of the clinical neurologic exam and incorporate the art of the exam into his differential diagnoses. Trainees in his clinics were given the straight-forward advice:

When you first greet the patient, shake their hand, see how they stand up, interact with you, and walk to the patient room, already half your exam is done.

Measles in Peru (1971)

In 1971, after my first two years as a faculty member in Baltimore, I was invited to spend a three-month clinical teaching assignment in Lima. I accepted enthusiastically.

—Richard T. Johnson

In the early 1970s, Peru was caught in a cycle of incapacitating annual measles outbreaks. The disease was so prevalent that one of the main hospitals in Lima reserved an entire pediatric ward from January to March to accommodate the large number of patients affected by the virus.

Recognizing that the high birth rate, lack of effective vaccines, seasonal variation, and annual migration patterns offered an unusual chance to study the disease, Johnson jumped at the opportunity to conduct research at the Universidad Peruana Cayetano Heredia in Lima, Peru. Having developed measles assays in his laboratory at Johns Hopkins, his team was able to study the outbreaks in Peru, helping patients as well as establishing collaborations and friendships between Peruvian and American scientists. Much of the research from this work became, and still is, applicable to current measles outbreaks in the United States due to anti-vaccine choices among some communities.

Johnson’s three-month clinical teaching opportunity resulted in a decade-long collaborative anti-measles venture funded by the National Institutes of Health. From this collaboration, several scientific papers were published, including two in the New England Journal of Medicine.

In recognition of his work on controlling measles, Johnson received a Comendador Medal by the President of Peru, the Charcot Prize from the International Federation of Multiple Sclerosis Societies, and an Honorary Professorship in the Peruvian University.

The HIV epidemic

On June 5, 1981, the U.S. Centers for Disease Control and Prevention published a seminal report of Pneumocystis Carinii Pneumonia in five otherwise healthy men. Six months later, 270 cases had been reported.

In Baltimore, Johnson’s laboratory was focused on viral infections of the central nervous system. As described by
Dr. Janice Clements who spent years under Johnson’s tutelage, “His research was novel and had a major influence on academic medicine, and the treatment of virus infections of the brain. One of the first patients with HIV was diagnosed by Dr. Johnson because the disease had caused neurological disease.”

In 1991, Johnson was named by the Governor of Maryland to lead a panel on HIV, and was named a consultant on the NIH AIDS Executive Committee, allowing him to be at the incipience of research focused on the HIV epidemic.

His knowledge and mentoring skills enabled a new generation of scientists, including Clements, and Director of the Johns Hopkins Department of Neurology Dr. Justin C. McArthur (AΩA, Johns Hopkins University, 1994, Faculty), to continue to make important discoveries in the field.

**Japanese encephalitis in Thailand (1984)**

During an annual epidemic of Japanese encephalitis, I set up a field study lab at a general hospital in the small highland town of Ching Rai, near the northernmost border of Thailand.

—Richard T. Johnson

Richard T. Johnson receiving honorary degree at University of Colorado Health Sciences Center commencement, 1993.
The Alan Mason Chesney Medical Archives
In 1984, at the request of Dr. Philip Russell (AΩA, University of Rochester School of Medicine and Dentistry, 1958) at the Walter Reed Army Institute of Research, Johnson moved with his family to Thailand to conduct research on Japanese encephalitis. His focus was on the cytochemistry of the virus in affected humans and monkeys. As a visiting scientist at the Armed Forces Research Institute of Medical Sciences, and a visiting professor at Mahidol University in Bangkok, his six months in Thailand resulted in multiple publications on the inflammatory cells and immunocytochemical characteristics of Japanese encephalitis.  

Though not directly related to his medical practice, he enjoyed talking about other important life skills learned during his time in Thailand, like avoiding the cobras from the nearby farm while wading through floodwaters around his home.

The final years

[T]here are only three jobs I have had in my life that I truly loved—driving a night cab, working as a Park Ranger, and being a doctor.

—Richard T. Johnson

For decades, Johnson cautioned that the arrival of new neurotropic viruses was, in fact, not new at all. Over the span of his career he observed the emergence of many so-called new viruses, including West Nile Virus, HIV, and Ebola, as well as several undiagnosed ones like the "mysterious diseases of Mongolia and the Arctic tundra," that he learned about while in Russia. The last few months of his life coincided with the emergence of the Zika virus into the Western Hemisphere.

Johnson died November 22, 2015, at the age of 84. His presence, stories, guidance, and unwavering encouragement to colleagues, students, and mentees are sorely missed by those who knew and worked with him. He founded the field of neurovirology, traveled to Cuba, Iran, and Russia to establish friendly collaborations during the Cold War, and as an unofficial medical ambassador for the United States, represented the best our country has to offer the world.

While his accomplishments speak for themselves, Johnson’s often self-deprecating humor, quiet kindness to others, and empathy to young apprehensive trainees and patients made him genuinely special. Whether examining people in the United States, Thailand, Peru, Cuba, Papua New Guinea, Singapore, Iran, or Russia he always extended respect and consideration. It is primarily for these reasons that Richard T. Johnson, MD, enriched the world, and by passing these principles down to his literally hundreds of mentees, he continues to enrich the world today.

References:


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Pan Am Professor
Dr. Prokesch (AΩA, University of Texas Southwestern School of Medicine at Dallas, 2014, Fellow) is Assistant Professor of Infectious Diseases in the Department of Internal Medicine at the University of Texas Southwestern Medical Center in Dallas.

We smiled at each other, knowing that we had met before, in a different context. The first time I walked past him in the electronics store I could not place him. It was the first time that I had seen him in more than two years, and the only time I had ever seen him outside of the hospital, and in street clothes. Almost exactly two years prior, he was lying in a hospital bed as my patient.

He had been admitted with fevers, hematuria, and confusion following prostate surgery. I vividly remember reading the words that scrolled across my pager in December of my final year of my internal medicine residency. It came from the resident who was covering for the night, “I am admitting Dr. Joseph to your service.”

An admission for a urinary tract infection in a male with fever and altered mental status following a prostate procedure was a regular occurrence at the Veterans Affairs hospital where I was doing a rotation. However, Dr. Joseph was not a regular patient. He was one of my idols.

The first time I met Dr. Joseph, nearly seven years before, was during my first clinical month as a medical student. Almost immediately, I strove to emulate him. While I was a fledgling doctor, he was already an emeritus professor spending countless hours at the bedside teaching students and residents physical exam skills.

I still remember watching with awe as he asked patients questions leading to responses that ultimately explained their medical conditions. Like the time when the patient with anemia and basophilic stippling on his peripheral blood smear emphatically answered “yes” when asked if he made and drank his own moonshine.

Dr. Joseph knew what to ask, how to ask it, and what to look for when talking to and examining a patient. Every patient’s story was important, and every observation was critical to understanding disease processes. He taught me to diagnose aortic stenosis by feeling the pulse; chronic
liver disease by examining the coloring pattern of fingernails; and certain lung diseases by intently watching breathing patterns when walking into the patient’s room.

How was I qualified to be his doctor?

Dr. Joseph embodied the characteristics of what it truly means to be a physician. Although he is a tall man, he would always sit, or lean over, when at the bedside so his patients felt at ease. In his deep southern drawl, he spoke with them as equals, treating every patient with the utmost respect and dignity.
To this day, I never state or document that a patient denies or admits to anything, as he taught me that patients are merely telling their stories, not being cross examined on a witness stand. He reinforced my desire to be a physician and proved that asking the right questions and having the skills to perform a precise bedside examination often led to the diagnosis more efficiently and accurately than expensive tests or procedures.

He truly practiced the art of medicine.

In my young eyes, he was superhuman. Watching him interact with patients was magical. Dr. Joseph could understand a patient’s plight by mere observation and discussion. Every patient was interesting. Every patient was a puzzle waiting to be solved. He knew exactly what inquiry was needed to gather every piece of information necessary to make a diagnosis and determine a treatment plan.

From the first encounter that I had with him as a medical student, Dr. Joseph became my hero.

I could not sleep the night he was admitted to the hospital, and I was assigned as his doctor. What if my clinical skills—the ones he had spent hours trying to impart—failed me? What if something horrible happened to him?

The following morning, I discovered that Dr. Joseph did indeed have a urinary tract infection. Moreover, he was confused. While he knew exactly who I was—calling my name in his quintessential southern accent—he could not correctly state the year.

He made me think of many former patients who I thought may have been confused, but for whom I had no baseline reference. However, for Dr. Joseph, I had a baseline reference. He not only always knew the year, but he knew the latest medical breakthroughs, and could recite details from current articles in medical journals. He was one of the smartest men I had ever met, yet in his hospital gown, he became a mere mortal.

Sitting there in the bed, he was vulnerable and fragile. While I am always cognizant that every patient is someone’s friend, someone’s parent, and someone’s child, it was not until that moment that I realized that every patient is someone’s hero.

As he ingrained in me when I was a student, each patient has a story. My job as a physician was to help this patient recall his story, trust me with his story, and put his story in the context of the exam and supplemental data to determine a diagnosis and a plan. Then, perhaps most important, I would guide him through his hospital journey.

It was my turn to be the one asking the right questions and using my clinical skills and intuition. It was my turn to sit with him, examine him, talk to this family, and learn more about the mortal side of a man who was always superhuman.

I met his daughters, and heard stories of his grandchildren. I talked at length with his primary care physician, who was also one of my mentors in medical school. I learned about his food preferences, including the fact that he did not particularly enjoy the low sodium hospital diet that I initially ordered for him.

I was honored that he trusted me to care for him, stand by him during his journey as a patient, and allow me a glimpse into his life outside of the hospital.

While his urinary tract infection quickly responded to antibiotic therapy, Dr. Joseph’s hospitalization was complicated by the development of a deep venous thrombus and recurrent hematuria, ultimately requiring readmission. Although Dr. Joseph was readmitted to my service, he never once felt that I failed him, and immediately requested that my service care for him on his second admission.

He ultimately improved and was discharged home only to return to the hospital a third time within a matter of weeks—not as a patient, but as a professor, clinician, artist, and hero.

Caring for Dr. Joseph was one of the defining experiences of my residency. I gained more confidence in my clinical abilities due to his trust and faith in me as his doctor. I saw him not only as a master clinician and teacher, but as a husband, father, and colleague.

Though I thought it was impossible to love, respect, and admire my idol even more, my love, respect, and admiration for this wonderful man grew exponentially when he became my patient.

After more than 40 years of being a doctor and teacher, Dr. Joseph recently retired. That day in the electronics store, he told me matter-of-factly, “I quit.” Quitting, however, is not possible for Dr. Joseph. His passion for the art of medicine, and all the wisdom and compassion that he imparted on thousands of students, residents, and patients will continue to shape the lives of future physicians, and their patients for years to come.

Throughout my career, many of my patients have become my heroes. Only one of my heroes, however, has ever become my patient.

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Any film lover will tell you that one of life’s wonderful little pleasures is to discover a neglected movie gem that has, for whatever reason, been consigned to the dustbin of Hollywood history. As I was scouring through old movies in search of an early depiction of racism to screen in my Medicine and Media class, I stumbled across No Way Out (1950), directed by Joseph L. Mankiewicz, and showcasing Sidney Poitier’s first feature film role.

It was clearly a banner period for Mankiewicz, who, that same year, won Oscars for both directing and writing All About Eve. This now-classic backstage drama, winning six Academy Awards including Best Picture, overshadowed Mankiewicz’s gritty medical story starring Poitier, Richard Widmark, Linda Darnell, and Stephen McNally.

No Way Out (not to be confused with the 1987 Kevin Costner/Gene Hackman movie with the same name) opens with Dr. Luther Brooks (Poitier) being congratulated for passing his state licensing exam by his mentor, Dr. Dan Wharton (McNally), who assigns Brooks to his first rotation on the hospital’s prison ward.

When two wounded brothers, Ray (Widmark) and Johnny (Dick Paxton) Biddle, arrive on stretchers after a botched robbery attempt, Brooks decides that, besides being shot in the leg, Johnny is suffering from a brain tumor and performs a spinal tap to verify his diagnosis. Johnny dies during the...
procedure, witnessed only by Brooks and Ray, and the latter blames Brooks for killing his brother, vowing revenge on him and his entire African-American community.

Brooks desperately needs an autopsy to verify his medical decision, but after Ray refuses to allow his brother to be "cut up like a log," Brooks and Wharton turn to Johnny's ex-wife, Edie (Darnell), to gain permission for the procedure.

Ray cajoles Edie into delivering a message to his friends in Beaver Canal, a lower-class, almost exclusively white section of town to arm themselves for a raid, as they have in the past. The black citizens get advance warning of the plans and attack the whites as they are preparing their weapons for the assault.

After the autopsy proves Brooks' diagnosis correct, Johnny escapes custody and lures Brooks to Wharton's house where he intends to kill him. But, finally choosing a side, Edie rushes to Wharton's house and saves Brooks.

In the film's last scene, Johnny lies on the floor suffering from his wound, only to be treated by the man he just tried to murder, who declares that he "can't kill a man just 'cause he hates me."

This hasty plot summary hardly does justice to the varied currents flowing through this movie. There are numerous side issues other than the bigotry, including how the African-American doctor has to get all As to prove himself worthy, but is still unsure of his skills; how the CEO of the county hospital must rely on public funds and capricious politicians for the institution to survive; how hard Brooks has worked to get to this point in his life—shining shoes, washing dishes, and emptying garbage; how difficult it is for Edie to rise above her socioeconomic class upbringing; how racial tensions and rage always simmer just below the surface of American life; and, how charges of reverse discrimination motivate Ray and his community's racial hatred, "Who ever loved me?" Ray screams at Edie as he holds her and Brooks hostage, "to them, I'm just garbage!

But, race is the 400-pound elephant stomping its feet in the center of the room. Ray and others hurl nasty epithets at Brooks, including repeated use of the N-word, and pile racist cliche upon bigoted stereotype onto his weary shoulders. Even hearing those words in 2017 feels like a sharp slap across the face.

In the movie, Brooks, despite his usual calm demeanor, finally reaches his breaking point. When attending to the white men injured in the fighting, a mother of one man yells at him to "Keep your black hands off my boy," and spits in his face. Brooks wipes off the spittle dripping down his cheek, removes his stethoscope, walks out of the hospital, and heads down the empty dark street. Not even the supportive Wharton, who earlier declared he was "pro good doctor, black, white or polka dot," doesn't have an appropriate response to this dramatic declaration of hatred. He can only watch Brooks leave, and return to the men in his care.

No Way Out contains many pleasures, including seeing a young Poitier take command of the screen; admiring a master director's use of film noir techniques; appreciating the acting, yet being repelled by Widmark's seething hatred; and wondering why Darnell was not better used by Hollywood. Even its secondary characters, such as Brooks' extended family (including the first film appearance of Ossie Davis), Wharton's wise housekeeper and cook Gladys (Amanda Randolph), and Harry Ballaver's stellar performance as the deaf and dumb George Biddle, are memorable.

There is a belief in the physician's altruistic calling, absent in more modern films, or as Gladys tells Edie, "Doctors ain't like other people, and they shouldn't expect to live like them." But it is Mankiewicz's daring portrayal of America's volatile racial divide—a theme that rings true today—that makes No Way Out a film that deserves to be seen, and not relegated to the status of a forgotten gem.

By the way, my students loved it and the film generated a thought-provoking discussion.

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Letters to the Editor

A flawed attribution on the origins of “The slavery hypertension hypothesis”

In his award-winning essay, “The slavery hypertension hypothesis: A flawed explanation for its prevalence in African-Americans” (The Pharos, Autumn 2016, pp. 27–30), author James Comotto opens his discussion with the incorrect statement that I and a Minnesota colleague “first proposed” the slavery hypothesis in 1983.1 A careful reading of the first article in his reference list would have revealed that we neither documented, argued, nor “proposed” this hypothesis. Rather, we simply mentioned it, labeled it “broadly speculative,” and returned to it only decades later in invited commentary.2

An effective review of the literature would have identified Clarence Grim as first to seriously propose and elaborate on the hypothesis, and that he attributed the original idea to the speculations of pioneers in the neurohormonal regulation of blood pressure.3

Sound history requires scholarly search and reading of the literature, and most importantly, direct contact with primary sources. For example, I am easy to find, as is Clarence Grim.

Comotto’s basis for taking up this provocative slavery hypothesis appears to be what he cites as the topic’s prominence “in the media” and “in medical textbooks.” Without documentation of these media and textbook accounts to illustrate his point, the essay simply sets up a “straw man,” though admittedly an appealing and topical one.

The “different hypothesis” of his own that Comotto submits—that is, “The enforced immobility of slaves chained below deck during voyages would have placed them at considerable risk of deep vein thrombosis”—while interesting, is undocumented and questionably relevant. If he and experienced others find neither the history of the Middle Passage from Africa nor the genetics of hypertension relevant to today’s African-American vulnerability, would not speculation on thromboembolism become a

The George Washington Masonic Memorial, Washington, DC

This monument was patterned after the ancient Pharos of Egypt.

R.F. Gillum, MD
AΩA, Northwestern University, 1969
Silver Spring, Maryland
This prize-winning essay is a good start on Comotto’s superb mission to question theories and use history wisely. I wish him well and trust that he will learn as much from his mistakes as from his successes.

Henry Blackburn, MD
AΩA, Tulane University, 1948
Minneapolis, MN

References

Shakespearean syphilis
Gregory Rutecki’s article, “Shakespearean syphilis: An aggressive disease in evolution” (The Pharos, Autumn 2016, pp. 40–48) was very informative. He asked the important question, “Is syphilis a disease of the New World?” Recent excavations in Austria give the answer.

ARCHEOLOGY (March/April 2016) reported the results of excavations in the cathedral square of St. Polten, near Vienna. Multiple skeletons were discovered and securely dated to the early 15th century well before Columbus’ journeys. Osteologists have identified some with Hutchinson’s teeth, a marker of congenital syphilis. Columbus apparently brought back a more virulent strain, but not a new disease.

Cynthia Burdge MD
AΩA, Rutgers New Jersey Medical School, 1985
Kailua, Hawaii 96734

Information Overload
I hope all physicians will assess their own “Information Overload,” (“Information and cognitive overload: How much is too much?” The Pharos, Autumn 2016, pp. 2–7). I agree that living a more goal-directed life is a key step in controlling this distraction. In his book, “The Magic of Goals,” Ronald Reynolds states that “goals drive us...to become intolerant of those who waste time—either their own or ours.”

However, as alluded to in the article, modern technologies make it difficult to stay focused on our goals. Physicians should also critically assess their use of mobile devices. The cover illustration reminds me that “An apple a day keeps the doctor away.” Away from more worthy activities, that is.

Satyan Shah, MD
AΩA, Rutgers Robert Wood Johnson Medical School, 2002
Albuquerque, New Mexico
Reviews and reflections

David A Bennahum, MD, and Jack Coulehan, MD, Book Review Editors

Pursuing Equity in Medicine: One Woman’s Journey
Catherine DeAngelis, MD, MPH (AΩA, Johns Hopkins University, 1990, Faculty)
CreateSpace Independent Publishing Platform, July 15, 2016, 330 pages
Reviewed by Jack Coulehan, MD (AΩA, University of Pittsburgh, 1969)

I meet with a group of first-year medical students every couple of weeks as part of a course on the human experience of illness and doctoring. If you include me, the group consists of six women and six men. Among the women, two are married, one has two children, and another is about to deliver her first child. Like the men, the women’s backgrounds are varied—athletic trainer, Wall Street analyst, actor, and Peace Corps volunteer. Overall, 64 of 132 students in our school’s Class of 2020 are women.

How different from the fall of 1965 when I entered medical school! At that time, medicine was still considered a male profession. Sure, there were already a small number of female physicians, but every young woman who aspired to become a doctor carried an extra burden, one not shared by her male colleagues. Why do you want to become a physician? Why not be a nurse? What about your family?

In my graduating class of 135, there were only nine women. Nonetheless, each of them played a vital role in our dedicated, rambunctious, and tight-knit “family,” and none more so than Catherine DeAngelis—class president, director of the annual musical spoof, and chief cheerleader for every single one of us. And now, 50 years later, the author of Pursuing Equity in Medicine: One Woman’s Journey.

In this engaging memoir, DeAngelis describes a personal journey that began in a poor, but loving, Italian family in the northeastern Pennsylvania coal country. It was a journey that carried her to a position of leadership in American medicine—an eminent pediatrician, activist, medical educator, Vice Dean at Johns Hopkins, and for more than 11 years, Editor-in-Chief of the Journal of the American Medical Association (JAMA).

A unifying theme of DeAngelis’ memoir, and her entire career, is the pursuit of equity, or fairness, in her profession. While she has worked in many ways to achieve equity for students, residents, and patients, overcoming traditional barriers to women in the medical profession has been a major focus of her professional life. DeAngelis has played no small part in the changes that make my varied group of students now possible.

Three features of Pursuing Equity in Medicine make it an especially fascinating read.

First is the author’s voice. DeAngelis speaks to the
reader in an informal, down-to-earth manner with a touch of wry humor. Whether she is describing her confrontation as a medical student with a faculty member who disparaged female students, or her surprise at being asked to become Editor-in-Chief of *JAMA*, she tells the story without frills or affectation.

The author’s personality shines through on every page: disciplined, determined, principled, generous, and—this is quite striking—full of gratitude to the Great Comedian (as she likes to think of the divine) for all her opportunities and accomplishments.

The second important feature is the consistent focus on the pursuit of equity. For DeAngelis, this began in medical school when as a third-year student she walked out of an ambulatory care clinic where patients had to sit for hours because there was no appointment system. She refused to return until patients were treated more respectfully. Because she stuck to her guns, she was sent to Nicaragua to participate in a mass immunization campaign.

During her first years as a pediatric faculty member at Columbia, DeAngelis obtained funds for, developed, and directed one of the nation’s first pediatric nurse practitioner (PNP) training programs. Later, at the University of Wisconsin, she initiated a PNP program, a general pediatrics and adolescent medicine program, and a community clinic located in a large housing project.

On to Johns Hopkins, where DeAngelis established a new Division of General Pediatrics and Adolescent Medicine, directed the pediatric residency program, became Deputy Chair of the department, and, finally, in 1990 Vice Dean for Academic Affairs and Faculty.

Active in national medical societies, DeAngelis consistently championed the role of women in medicine. Even before becoming Vice Dean, she conducted a study that demonstrated female faculty members at Johns Hopkins received lower salaries than men, and were being promoted at a slower rate. Once in the dean’s office, she worked in a number of ways to foster a more equitable environment and greater opportunities for female faculty.

In 1984, DeAngelis was only the 12th woman to be promoted to full professor in Johns Hopkins’ history. When she left that office in 1999, there were 58 female full professors.

In 1992, she was instrumental in introducing a new medical curriculum that emphasized hands-on experience, and early contact with patients. Considering the goal of...
medical education is to train practicing physicians, this change might well be considered a form of enhanced equity for students.

The third compelling aspect of the book is the author's detailed reflections on her years as Editor-in-Chief of *JAMA*. More than one-third of *Pursuing Equity in Medicine* is devoted to her experience as “jamamama,” the moniker she chose for her e-mail address.

I found this the most fascinating part of the book, partly because of the important cases and issues she dealt with as editor, but also because of the details she provides about the organization itself, the editorial process, and day-to-day experiences of life at *JAMA*. True to the theme of equity, DeAngelis begins this section with her successful negotiation for a five year contract that ensured complete editorial autonomy; preserved her academic relationship to Johns Hopkins; and provided a proportionate increase in salary. I'll bet the American Medical Association didn't expect this type of hard bargaining from a woman! I also suspect this is why DeAngelis includes the episode, along with many other examples of her insistence on being treated with the respect due to her, and to her female peers, rather than accepting the profession's “discounted” expectations of their gender.

*Pursuing Equity in Medicine* is an enjoyable and refreshing read: a good old-fashioned success story with a clear-cut hero and a happy ending. It's a tale I want to share with my first-year medical students, who sometimes become disillusioned about their prospects as future physicians. They need it—just like I do.

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**Practice Makes Perfect: How One Doctor Found the Meaning of Lives**

David Roberts, MD
CreateSpace Independent Publishing Platform, February 22, 2013, 296 pages

Reviewed by George Comerci, MD, FACP (AΩA, University of Arizona, 1982)

Of the many joys I derive from my practice of medicine, the privilege of being a part of my patient’s “story” is perhaps what I value the most. As a general internist, I am an active participant in many of the trials and tribulations of the health narratives of my patients. As these stories often involve the most important thing that we possess, our health, they tend to be invariably captivating.

Roberts opens his book describing the importance of meaningful stories in our lives, and the importance of some of his patients’ stories in his life. His narrative begins after the completion of his chief residency, with an account of his very first day of practice as a “real doctor,” having been hired by his former chief resident to join a small private practice.

His sickest patient on the first day of hospital rounds is Mr. Harandi who, after their very first encounter,
has forbidden Roberts to return to his hospital room. Nonplussed, and over the strong admonitions of the patient’s nurse to stay away, Roberts visits the patient who becomes furious at the sight of him, bolts out of his room and promptly suffers a cardiac arrest and dies. While contemplating the events leading to Harandi’s arrest Roberts concludes, “You just killed this man, David. Not exactly keeping your Hippocratic Oath here, are you?” What followed were the self-doubt, and guilt ridden thoughts that we often feel after a bad outcome.

Things get a bit lighter as Roberts describes visiting three patients consecutively, all of whom have an overwhelming uremic fetor. Initially concerned that these patients had renal failure, it finally became apparent to him that all the patients were far too healthy to have the degree of advanced kidney failure to produce such an overwhelming smell of urine. Much to his chagrin, he quickly learns that the odor is emanating from his lab coat, upon which a neighbor’s cat had urinated after sneaking into his car.

Chapter after chapter, we read of the history professor with bright yellow “jaundiced” skin who prided himself on eating two crates of iceberg lettuce per week resulting in astronomical serum levels of beta carotene; the infectious disease specialist admitted for anemia who is discovered to be secretly self-phlebotomizing to intentionally cause himself to become anemic; and the thyrotoxic pinball wizard who becomes despondent when his game is ruined by Roberts’ treatment of his hyperthyroidism.

Roberts is at his best when he describes his tender care of Chuck, who had recently lost his wife and was raising his two children who had become somewhat estranged from him. Chuck had developed advanced lung cancer, and Roberts had made a home visit to the dying man. As he sat at the patient’s bedside in a run-down trailer, he helped the children overcome their estrangement, and express their love for their father in the moments before he dies.

Frustrating for Roberts, as it is for many physicians during hospital rounds, is competing with the incessant drone of the TV set when talking with patients. He skillfully uses this distraction to give a sense of the place in time of the events he describes—the wedding of Prince Charles and Princess Diana on the TV in the room of a comatose patient; seeing an entire family transfixed by The Dukes of Hazard as their loved one slowly passes; and the attempted assassination of President Ronald Reagan during his busy ER shift.

In Practice Makes Perfect we get a glimpse of the pitfalls of private practice, and the fact that a physician’s practice is no different from any other small business. When Roberts and his partner realize that more than 65 percent of accounts payable are at least 120 days old—an unsustainable number in any business—they realign the responsibilities of their accountant, and Roberts takes over the business management of the practice. It is at this point that the practice becomes truly successful, and able to expand and grow.

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I read Practice Makes Perfect in one sitting. A surprising number of the stories recollect familiar experiences. Roberts writes with clarity, depth, and a warmth and appreciation for his patient’s. I highly recommend this book to any physician who has experienced the trials and tribulations, successes and failures, and elation and despondency of patient care. It’s a great read for all of us!

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Attending: Medicine, Mindfulness, and Humanity
Ronald Epstein, MD
Scribner, New York, January 24, 2017, 304 pages
Reviewed by Arnold R. Eiser, MD, MACP

The practice of medicine is under siege from corporatization, computerization, and consumerism. Into that fray, Ron Epstein has helped lead a growing movement that utilizes the wisdom of Buddhism and related Eastern philosophy and psychology to enhance mindfulness and resilience for physicians.

Using vivid descriptions of experiences from his medical career and practice, Epstein delves into the many challenges a physician faces in today’s medical milieu. He relates with honesty and courage his own mistakes, and how he dealt with them—sometimes effectively, sometimes less so. He makes use of advances in the neurosciences, contemporary psychology, and epigenetics to elucidate how physicians can enhance their mindfulness and presence.

“Attending” in the title is a double entendre implying both the moniker for a practicing physician, and the attentiveness needed to be cultivated through meditation and other mindfulness techniques—deep listening, appreciative inquiry, and dyadic contemplative practice—to be fully present in the clinical encounter. These practices also help the physician develop a deep source of resilience.

Epstein notes that the ability to deal with the many stresses of clinical practice is not innate for most physicians, but that these skills can be acquired. He has led many workshops for physicians that build the skills of mindfulness, presence, attentiveness, and resilience. With Michael Krasner, and others at the University of Rochester School of Medicine, he conducted an evaluation of these programs and reported the results in a seminal article in JAMA. Studying the participants longitudinally, they documented the benefits of these workshops at reducing measures of burnout while increasing measures of mindfulness and empathy.

Epstein’s candor and courage in discussing his own errors, as well as those of others, make the book compelling. One patient has a very difficult to diagnose multisystem disorder adversely affecting her life. Epstein tries to help, but feels helpless. Eventually she improves and attributes her improvement to Epstein, who has been supportive of her goals of care.

In another case, the patient’s concealed consumption of large quantities of sweetened tea leads to an excessive insulin dosage, resultant hypoglycemia, and a stroke. Epstein explores sharing responsibility for this therapeutic misadventure with the patient, the health care system at large, as well as himself.

I would have preferred that Epstein delve deeper in the systemic issues that contribute to clinician burnout, and diminished quality of care. How the 15 minute office visit for many patients is insufficient. How the time pressure on clinicians is exacerbated by the added requirement of inputting data into the electronic health record, and other challenges of the patient-physician relationship.

Using the description of the “metta,” or compassion meditation practice in chapter 8, “The Shaky State of Compassion.” Epstein expresses his initial reservations about this loving kindness practice, but notes when practicing it in a group setting it engendered in him a strong sense of community, shared purpose, and meaning. This practice consists of extending kindness to oneself, one’s friend or benefactor, a person with whom one’s feelings are neutral, a person who evokes negative feelings, and, finally, to all living sentient beings. The author relates the neural substrate for the practice that includes activation of the dorsolateral parietal prefrontal cortex, and the nucleus accumbens—linking the brain’s social cognition and moral decision-making center with its reward center.

Epstein has benefited from insights gleaned in his experience as a patient suffering from kidney stones. He relates that the cool aloofness of care he received for this condition raised his awareness of the necessity of making his own patients feel accompanied in their illness. He illustrates this by describing how he accompanies patients
walking out of the exam room and back to the reception desk, tacitly communicating what Jack Coulehan, MD (AΩA, University of Pittsburg, 1969), has termed compassionate solidarity. Epstein provides a great example here that other clinicians would do well to follow.

In the last chapter, Epstein evokes images of an imagined health care system that is mindful, and fulfills the tenets of the high-reliability organizations as described by Weick and Sutcliffe. This includes a focus on preventing errors, reluctance to over-simplify, situational awareness, working outside comfort zones, and a flattened hierarchy. Such organizational mindfulness may be sought after, but is rarely achieved into today’s medical corporate climate of mergers, rigid hierarchy, profitability, and statistical quality control.

I recommend that every medical student, resident, and physician read this book for its wisdom and practical advice on how to be a mindful, caring, and resilient clinician.

References

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A Short History of Medicine, revised and expanded edition
Erwin H. Ackerknecht, foreword and concluding essay by Charles E. Rosenberg, bibliographic essay by Lisa Haushofer
Johns Hopkins University Press, Baltimore (MD), March 14, 2016, 272 pages

Reviewed by Shannon Withycombe, PhD

Without a doubt, when published in 1955, Erwin Ackerknecht’s A Short History of Medicine was revolutionary and important. Historians in the 1950s too often relied on accounts of great men and their equally great ideas, discoveries, and inventions to tell the story of western medicine. These narratives usually closed with the miraculous golden age of medicine historians of the time were witnessing. By the mid-1950s it seemed as though American medicine was on the verge of eradicating all infectious diseases, and the typical history presented to doctors at the time was a congratulatory story of this momentous progress.

Ackerknecht veered from this path and crafted a concise history of western medicine that both broadened the meaning of medicine, and introduced readers to the idea of culturally-constructed illness and medicine. No longer content to merely focus on treatments, Ackerknecht expanded his study to include disease prevention, arguing that public health was just as important to the history of medicine.

He also investigated why the integration of religion and superstition in healing made sense to societies in the past, claiming that what worked in medicine was greatly influenced by historical and cultural context. Weaving his way from healing practices of “primitive” cultures to the wonders of scientific medicine of the 20th century, Ackerknecht urged readers not to just appreciate the compelling stories of William Harvey and René Laennec, but also to consider how the categories of normal and pathological are deeply entrenched in culture.

A Short History of Medicine stands as an important milestone in the historiography of medicine, as a text that opened the door to innumerable studies that helped to shape the field, and created the rich and robust area of study that we have today. But the reissue of this classic, along with new essays by Charles Rosenberg and Lisa
Haushofer, force us to ask: what use is this book today?

In his forward and concluding essay, Rosenberg outlines the contribution of this book and Ackerknecht’s other scholarship to the field, and argues that the work importantly “provided a usable past for a new generation of critical social historians.”\(^{206}\) Haushofer’s thorough bibliographic essay introduces readers to myriad influential studies carried out in the decades since Ackerknecht, making this text extremely useful for graduate students in history.

But Ackerknecht did not intend his book for historians. As stated in his original preface, he wrote for the “medical student, busy doctor, and other members of the great health team, as well as to educated laymen interested in health problems.”\(^{xvii}\) The cultural sensitivities that made the book so important 60 years ago are still relevant, but the history of medicine has come a long way. While Ackerknecht’s aims are still laudable, his execution runs counter to much of the medical history produced since its original publication.

Reading Ackerknecht’s text is a lesson in the language and historical style of the 1950s. His continual use of the term “primitive” to describe societies devoid of civilization and scientific medicine creates and sustains a hierarchy of medical knowledge and reasoning. In the 60 years since Ackerknecht published, historians have shown how it’s preferable to look at how healing philosophies and practices are shaped by social, cultural, political, economic, and other factors, whether they be of the ancient Egyptians or the “rational” “scientific” American doctors in the 21st century.

Ackerknecht’s prioritization of western exceptionalism, scientific progress, and university-trained practitioners creates a dangerous narrative. Rosenberg informs us that Ackerknecht believed that medical history had to begin “with the patient’s experience with sickness, and with culture’s entire repertoire of responses to felt illness.”\(^{197}\) Alongside other histories from the 1950s, this was an important claim. Today, however, A Short History of Medicine does not fulfill this promise.

Ackerknecht focuses on the Galens, the Pasteurs, and more recent Nobel Prize winners, but rarely acknowledges the patient or the experienced illness. Nor does he analyze how scientific medicine was created and carried out in a world shaped by race, class, and gender. While we might view Ackerknecht as an early pioneer of social history of medicine, his book would no longer fit within that category.

Touting this book to medical practitioners, students, and the lay public as a reissue reaffirms the common narrative that western medicine marched along a path to science; that doctors have always stood as objective, selfless figures; and, that medicine always benefits everyone.

How would a figure like J. Marion Sims fit into this picture? Ackerknecht portrays Sims as a heroic figure, an “outstanding gynecological surgeon,” who developed a procedure to repair urogenital fistulae—a common injury to women during childbirth.\(^{153}\) Ackerknecht’s narrative applauds Sims and the international reputation he gained for his “skill and daring,” but neglects the circumstances of the enslaved women Sims relied upon as his experimental materials.\(^{178}\) Following the widely-held belief at the time that African-Americans felt less pain than whites, Sims gave little thought to the multiple procedures he conducted on each woman, without anesthesia.

To recognize that this moment of progress in western medicine lay on the backs of disenfranchised women, with no power to refuse Sims’ work, is critical. It aids in better understanding the history of medicine, and aids modern practitioners and laymen alike in understanding how factors like race, gender, class, sexuality, and geography still shape the practice of medicine.

A medical student who picks up the revised, newly published A Short History of Medicine will come away confident that medicine is always objective, and somehow exists separately from the society in which it is developed and deployed, which I think, in the end was not Ackerknecht’s intent.

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Brief reviews

Bergman’s Comprehensive Encyclopedia of Human Anatomic Variation
Edited by R. Shane Tubbs, Mohammadali M. Shoja, and Marios Loukas
Wiley-Blackwell, May 4, 2016, 1,456 pages

This is the third edition of the classic textbook and atlas of human anatomical variation first published by Dr. Ronald Bergman MD (AΩA, University of Beirut, 1979, Faculty), and his colleagues in 1988. As the editors note in their preface, new radiologic techniques and surgical microscopy have “allowed us to see into the body with better accuracy than ever before.” This new edition is both comprehensive, and visually stunning with hundreds of full color illustrations, including anatomical drawings, photographs, X-ray images, and MRIs. Bergman’s Comprehensive Encyclopedia is the authoritative text on human variation for anatomical scientists, anthropologists, physicians, surgeons, and students of anatomy.

More AΩA member books

Improving Mental Health: Four Secrets in Plain Sight, by Lloyd I. Sederer, MD (AΩA, State University of New York Upstate Medical University College of Medicine, 1969); Amer Psychiatric Pub, November 1, 2016, 160 pages

Your Health, Your Decisions: How to Work with Your Doctor to Become a Knowledge-Powered Patient, by Robert Alan McNutt, MD (AΩA, Michigan State University College of Human Medicine, 1992, Alumnus); The University of North Carolina Press, September 6, 2016, 168 pages

Physicians’ Untold Stories: Miraculous experiences doctors are hesitant to share with their patients, or ANYONE! by Scott J. Kolbaba, MD (AΩA, University of Illinois, 1976); CreateSpace Independent Publishing Platform, July 24, 2016, 240 pages

The Ultimate Guide to Ovarian Cancer: Everything You Need to Know About Diagnosis, Treatment, and Research, 2nd edition, by Benedict B. Benigno, MD (AΩA, Emory University, 1964); Sherryben Publishing House, May 25, 2016, 234 pages

Progress Notes: The Federal Healthcare Student Literary Review, Adam Saperstein, MD (AΩA, Tulane University, 2000), Editor-in-Chief; Uniformed Services University of the Health Sciences, Volume 1 – Spring 2016, 54 pages
I meet with a group of first-year medical students every couple of weeks as part of a course on the human experience of illness and doctoring. If you include me, the group consists of six women and six men. Among the women, two are married, one has two children, and another is about to deliver her first child. Like the men, the women’s backgrounds are varied—athletic trainer, Wall Street analyst, actor, and Peace Corps volunteer. Overall, 64 of 132 students in our school’s Class of 2020 are women.

How different from the fall of 1965 when I entered medical school! At that time, medicine was still considered a male profession. Sure, there were already a small number of female physicians, but every young woman who aspired to become a doctor carried an extra burden, one not shared by her male colleagues. Why do you want to become a physician? Why not be a nurse? What about your family?

In my graduating class of 135, there were only nine women. Nonetheless, each of them played a vital role in our dedicated, rambunctious, and tight-knit “family,” and none more so than Catherine DeAngelis—class president, director of the annual musical spoof, and chief cheerleader for every single one of us. And now, 50 years later, the author of Pursuing Equity in Medicine: One Woman’s Journey. In this engaging memoir, DeAngelis describes a personal journey that began in a poor, but loving, Italian family in the northeastern Pennsylvania coal country. It was a journey that carried her to a position of leadership in American medicine—an eminent pediatrician, activist, medical educator, Vice Dean at Johns Hopkins, and for more than 11 years, Editor-in-Chief of the Journal of the American Medical Association (JAMA).

A unifying theme of DeAngelis’ memoir, and her entire career, is the pursuit of equity, or fairness, in her profession. While she has worked in many ways to achieve equity for students, residents, and patients, overcoming traditional barriers to women in the medical profession has been a major focus of her professional life. DeAngelis has played no small part in the changes that make my varied group of students now possible.

Three features of Pursuing Equity in Medicine make it an especially fascinating read.

First is the author’s voice. DeAngelis speaks to the
reader in an informal, down-to-earth manner with a touch of wry humor. Whether she is describing her confrontation as a medical student with a faculty member who disparaged female students, or her surprise at being asked to become Editor-in-Chief of *JAMA*, she tells the story without frills or affectation.

The author’s personality shines through on every page: disciplined, determined, principled, generous, and—this is quite striking—full of gratitude to the Great Comedian (as she likes to think of the divine) for all her opportunities and accomplishments.

The second important feature is the consistent focus on the pursuit of equity. For DeAngelis, this began in medical school when as a third-year student she walked out of an ambulatory care clinic where patients had to sit for hours because there was no appointment system. She refused to return until patients were treated more respectfully. Because she stuck to her guns, she was sent to Nicaragua to participate in a mass immunization campaign.

During her first years as a pediatric faculty member at Columbia, DeAngelis obtained funds for, developed, and directed one of the nation’s first pediatric nurse practitioner (PNP) training programs. Later, at the University of Wisconsin, she initiated a PNP program, a general pediatrics and adolescent medicine program, and a community clinic located in a large housing project.

On to Johns Hopkins, where DeAngelis established a new Division of General Pediatrics and Adolescent Medicine, directed the pediatric residency program, became Deputy Chair of the department, and, finally, in 1990 Vice Dean for Academic Affairs and Faculty.

Active in national medical societies, DeAngelis consistently championed the role of women in medicine. Even before becoming Vice Dean, she conducted a study that demonstrated female faculty members at Johns Hopkins received lower salaries than men, and were being promoted at a slower rate. Once in the dean’s office, she worked in a number of ways to foster a more equitable environment and greater opportunities for female faculty.

In 1984, DeAngelis was only the 12th woman to be promoted to full professor in Johns Hopkins’ history. When she left that office in 1999, there were 58 female full professors.

In 1992, she was instrumental in introducing a new medical curriculum that emphasized hands-on experience, and early contact with patients. Considering the goal of
medical education is to train practicing physicians, this change might well be considered a form of enhanced equity for students.

The third compelling aspect of the book is the author's detailed reflections on her years as Editor-in-Chief of JAMA. More than one-third of Pursuing Equity in Medicine is devoted to her experience as "jamamama," the moniker she chose for her e-mail address.

I found this the most fascinating part of the book, partly because of the important cases and issues she dealt with as editor, but also because of the details she provides about the organization itself, the editorial process, and day-to-day experiences of life at JAMA. True to the theme of equity, DeAngelis begins this section with her successful negotiation for a five year contract that ensured complete editorial autonomy; preserved her academic relationship to Johns Hopkins; and provided a proportionate increase in salary. I'll bet the American Medical Association didn't expect this type of hard bargaining from a woman! I also suspect this is why DeAngelis includes the episode, along with many other examples of her insistence on being treated with the respect due to her, and to her female peers, rather than accepting the profession's "discounted" expectations of their gender.

Pursuing Equity in Medicine is an enjoyable and refreshing read: a good old-fashioned success story with a clear-cut hero and a happy ending. It's a tale I want to share with my first-year medical students, who sometimes become disillusioned about their prospects as future physicians. They need it—just like I do.

Dr. Coulehan is a member of the Editorial Board of The Pharos, and one of its Book Review Editors. His address is:
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Practice Makes Perfect: How One Doctor Found the Meaning of Lives
David Roberts, MD
CreateSpace Independent Publishing Platform, February 22, 2013, 296 pages
Reviewed by George Comerci, MD, FACP (AΩA, University of Arizona, 1982)

Of the many joys I derive from my practice of medicine, the privilege of being a part of my patient's "story" is perhaps what I value the most. As a general internist, I am an active participant in many of the trials and tribulations of the health narratives of my patients. As these stories often involve the most important thing that we possess, our health, they tend to be invariably captivating.

Roberts opens his book describing the importance of meaningful stories in our lives, and the importance of some of his patients' stories in his life. His narrative begins after the completion of his chief residency, with an account of his very first day of practice as a "real doctor," having been hired by his former chief resident to join a small private practice.

His sickest patient on the first day of hospital rounds is Mr. Harandi who, after their very first encounter,
has forbidden Roberts to return to his hospital room. Nonplussed, and over the strong admonitions of the patient’s nurse to stay away, Roberts visits the patient who becomes furious at the sight of him, bolts out of his room and promptly suffers a cardiac arrest and dies. While contemplating the events leading to Harandi’s arrest Roberts concludes, “You just killed this man, David. Not exactly keeping your Hippocratic Oath here, are you?” What followed were the self-doubt, and guilt ridden thoughts that we often feel after a bad outcome.

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enced by historical and cultural context. Weaving his way
from healing practices of “primitive” cultures to the won-
ders of scientific medicine of the 20th century, Ackerknecht
urged readers not to just appreciate the compelling stories
of William Harvey and René Laennec, but also to consider
how the categories of normal and pathological are deeply
entrenched in culture.

A Short History of Medicine stands as an important
milestone in the historiography of medicine, as a text
that opened the door to innumerable studies that helped
to shape the field, and created the rich and robust area
of study that we have today. But the reissue of this clas-
sic, along with new essays by Charles Rosenberg and Lisa
Haushofer, force us to ask: what use is this book today?

In his forward and concluding essay, Rosenberg outlines the contribution of this book and Ackerknecht’s other scholarship to the field, and argues that the work importantly “provided a usable past for a new generation of critical social historians.” Page 206. Haushofer’s thorough bibliographic essay introduces readers to myriad influential studies carried out in the decades since Ackerknecht, making this text extremely useful for graduate students in history.

But Ackerknecht did not intend his book for historians. As stated in his original preface, he wrote for the “medical student, busy doctor, and other members of the great health team, as well as to educated laymen interested in health problems.” Page xi. The cultural sensitivities that made the book so important 60 years ago are still relevant, but the history of medicine has come a long way. While Ackerknecht’s aims are still laudable, his execution runs counter to much of the medical history produced since its original publication.

Reading Ackerknecht’s text is a lesson in the language and historical style of the 1950s. His continual use of the term “primitive” to describe societies devoid of civilization and scientific medicine creates and sustains a hierarchy of medical knowledge and reasoning. In the 60 years since Ackerknecht published, historians have shown how it’s preferable to look at how healing philosophies and practices are shaped by social, cultural, political, economic, and other factors, whether they be of the ancient Egyptians or the “rational” “scientific” American doctors in the 21st century.

Ackerknecht’s prioritization of western exceptionalism, scientific progress, and university-trained practitioners creates a dangerous narrative. Rosenberg informs us that Ackerknecht believed that medical history had to begin “with the patient’s experience with sickness, and with culture’s entire repertoire of responses to felt illness.” Page 197. Alongside other histories from the 1950s, this was an important claim. Today, however, A Short History of Medicine does not fulfill this promise.

Ackerknecht focuses on the Galens, the Pasteurs, and more recent Nobel Prize winners, but rarely acknowledges the patient or the experienced illness. Nor does he analyze how scientific medicine was created and carried out in a world shaped by race, class, and gender. While we might view Ackerknecht as an early pioneer of social history of medicine, his book would no longer fit within that category.

Touting this book to medical practitioners, students, and the lay public as a reissue reaffirms the common narrative that western medicine marched along a path to science; that doctors have always stood as objective, selfless figures; and, that medicine always benefits everyone.

How would a figure like J. Marion Sims fit into this picture? Ackerknecht portrays Sims as a heroic figure, an “outstanding gynecological surgeon,” who developed a procedure to repair urogenital fistulae—a common injury to women during childbirth. Page 153. Ackerknecht’s narrative applauds Sims and the international reputation he gained for his “skill and daring,” but neglects the circumstances of the enslaved women Sims relied upon as his experimental materials. Page 178. Following the widely-held belief at the time that African-Americans felt less pain than whites, Sims gave little thought to the multiple procedures he conducted on each woman, without anaesthesia.

To recognize that this moment of progress in western medicine lay on the backs of disenfranchised women, with no power to refuse Sims’ work, is critical. It aids in better understanding the history of medicine, and aids modern practitioners and laymen alike in understanding how factors like race, gender, class, sexuality, and geography still shape the practice of medicine.

A medical student who picks up the revised, newly published A Short History of Medicine will come away confident that medicine is always objective, and somehow exists separately from the society in which it is developed and deployed, which I think, in the end was not Ackerknecht’s intent.

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Brief reviews

**Bergman's Comprehensive Encyclopedia of Human Anatomic Variation**

Edited by R. Shane Tubbs, Mohammadali M. Shoja, and Marios Loukas
Wiley-Blackwell, May 4, 2016, 1,456 pages

This is the third edition of the classic textbook and atlas of human anatomical variation first published by Dr. Ronald Bergman MD (AΩA, University of Beirut, 1979, Faculty), and his colleagues in 1988. As the editors note in their preface, new radiologic techniques and surgical microscopy have “allowed us to see into the body with better accuracy than ever before.” This new edition is both comprehensive, and visually stunning with hundreds of full color illustrations, including anatomical drawings, photographs, X-ray images, and MRIs. *Bergman's Comprehensive Encyclopedia* is the authoritative text on human variation for anatomical scientists, anthropologists, physicians, surgeons, and students of anatomy.

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The Pharos/Spring 2017
Aafter a thorough review of possible national office locations, Executive Director Richard L. Byyny, MD, FACP, has made the decision to relocate the AΩA national office from Menlo Park, California, to Denver, Colorado.

Executive Director Byyny decided the move would programmatically and budgetarily strengthen the efficiency and effectiveness of the national office, and support AΩA members, Chapters and Councilors. His decision was unanimously support by the AΩA Board of Directors.

“We spent many months conducting a comprehensive review and cost analysis of the current office location, and national opportunities for possible relocation of the National Office. Other San Francisco Bay Area locations, Chicago, Washington, DC, and Denver were all researched and considered as possible locations,” Byyny said.

“We found the 184-acre Colorado Science and Technology Park/Fitzsimons Innovation Campus, located adjacent to the Anschutz Medical Campus, provides the best option for the advancement of the AΩA national office,” Byyny continued. “Myriad life sciences research and development companies of all sizes, from start-ups to established industry leaders will be our neighbors in this new location, adjacent to a health sciences center campus.”

The Menlo Park location will close effective 5 p.m., June 15, and the Denver office will officially open June 21. The AΩA national office will remain open for business—staffed remotely—during the transition so that Chapters, Councilors, Deans, members, and all other interested parties will have the ability to conduct their business with

Chapter and national news

AΩA to move national office to Colorado Science and Technology Park at Fitzsimons Life Science District in Colorado
AΩA. The move will be seamless for anyone who conducts business with AΩA.

The AΩA national office’s new phone number will be 720-859-4149. The new mailing address will be 12635 E. Montview Blvd., Suite 270, Aurora, CO 80045. The new phone number and address are now available and working. The former phone numbers and address will continue to work for a period of time, but members and others working with the office are encouraged to use the new phone number and address.

The new location has state-of-the-art core facilities with conference rooms, lecture halls, meeting areas, and information technology available to facility residents at no additional cost. There are campus faculty, staff, and resources available, and an on-site health sciences library.

“We look forward to hosting our Fellows in Leadership Orientation and 2017 AΩA Board of Directors annual meeting in Denver,” Byyny added. “This new location will help us to save money and operate more efficiently and effectively for our members and Chapters.”

The Colorado AΩA office is a 20 minute car ride from Denver International Airport and downtown Denver. It is 35 minutes from the University of Colorado Boulder, and 60 minutes from Colorado State University, both of which have established relationships with the Biosciences Park and the campus. The mass transit University of Colorado A Line runs just north of the campus and provides regular connections to downtown Denver (17 minutes), and Denver International Airport (21 minutes).

The Colorado Bioscience Park is managed by the Fitzsimons Redevelopment Authority (FRA), a not-for-profit 501(c)(3), with its own leadership and Board of Directors. Members of the FRA Board of Directors include prominent business leaders, bioscience industry leaders, University leadership, and community leaders. The Anschutz Medical Campus is one of the largest employers in the Denver Metropolitan Area.

The FRA is a not-for-profit entity established to develop and manage the health-related facilities for companies and organizations. Property management is through the FRA.

Biosciences Research Building I, new home to the AΩA national office.
The AΩA national office is moving!

Effective June 16, 2017 the new address will be:
12635 E. Montview Blvd.,
Suite 270
Aurora, CO 80045

Effective June 16, 2017 the new phone number will be:
720-859-4149