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DEPARTMENTS

2 Editorial
The academic health center in a disrupted world
Steven A. Wartman, MD, PhD, MACP

37 New members of the Pharos editorial board

39 The physician at the movies
Peter E. Dans, MD
Unbroken
American Sniper

ARTICLES

10 The $6 million physician
A history of robotics making surgeons better, stronger, faster
Marc A. Polacco, MD

16 23andWe
How can doctors decode direct-to-consumer genetic testing?
Melissa Pritchard

23 Claude Bernard
A failed playwright
Irving Kushner, MD

30 Breaking the silence
N. Karp, MD

32 Cowboy
Thomas T. McGranahan, Sr., MD

34 The Doctor Jim Health Plan
Joel L. Chinitz, MD

The Pharos • Volume 78
Number 2 • Spring 2015

On the cover
See page 23

POETRY

29 Med Students
Richard F. Gillum, MD

36 Stroke
Henry N. Claman, MD

47 Hope Springs Eternal
Albert I. Kaufman, PhD

Emesis
Aaron McGuffin, MD
The academic health center in a disrupted world

Steven A. Wartman, MD, PhD, MACP

Introduction
Richard L. Byyny, MD
Executive Director, Alpha Omega Alpha

At the time of the founding of Alpha Omega Alpha in 1902, the Flexner Report was still eight years in the future and the academic health center as we know it today did not exist. These institutions developed as a mid to late twentieth-century approach to aligning education and research with patient care, and have become critically important to the medical profession and health care worldwide. Academic health centers have evolved to represent the best in medical care, research, and medical education in the United States. But what has become the traditional structure of academic health centers faces significant challenges in an increasingly hostile budgetary and globalized environment, requiring these institutions to find the leadership they need to guide them through this period of economic, social, and technological disruption.

Dr. Steven Wartman, President and CEO of the Association of Academic Health Centers, wrote this editorial at my invitation to explain to members the structure and function of academic health centers, and to tell us about the challenges they face in the twenty-first century, and the kinds of leadership they will need to master these challenges.

The author (AΩA, Johns Hopkins University School of Medicine, 1970) is President/CEO of the Association of Academic Health Centers, a member of the Board of Directors of Alpha Omega Alpha, and a member of the editorial board of The Pharos.

In my role since 2005 as president of the Association of Academic Health Centers (AAHC)—and building on my prior experience in academic leadership—I have gained a unique perspective about the institutions comprising the health-related components of universities. The mission of these institutions is to educate the next generation of health professionals, conduct cutting-edge basic and clinical research, and provide comprehensive and advanced patient care. Their central defining feature is the ability to align education and research with patient care. As such, they are horizontally focused organizations that aspire to remove the traditional boundaries between health professions, schools, specialties, departments, and other divisions to create a whole capable of providing synergies that are vastly larger than the sum of its individual parts. Academic health centers (AHCs) are, in a sense, evolving works-in-progress that innovate continuously to meet the challenges and opportunities of twenty-first-century trends in patient care, education, and research.

Over the past decade, the world of AHCs has begun an especially interesting and important transition, sparked by the emergence of both unprecedented—often daunting—challenges and exhilarating new opportunities. I believe a new model of the AHC is evolving. AHCs are currently in a prolonged period of “mission disruption”—preserving some traditions and jettisoning or transmogrifying others, while simultaneously forging ahead in wholly new directions. Each AHC’s unique priorities and issues mean that many new models are emerging. Here, however, I will focus on general and overarching trends that apply broadly to the universe of AHCs.

An AHC is an accredited, degree-granting institution of higher education consisting of a medical school (either allopathic or osteopathic), one or more other health professions schools or programs (e.g., allied health sciences, dentistry, graduate studies, nursing, pharmacy, public health, veterinary medicine), and an owned or affiliated relationship with a teaching hospital or health system.1 AHCs are thus unique hybrids of business and academics, pursuing simultaneously the business of patient care and the missions of education and research. The use of the term “center” to describe what these institutions do is more historical than contemporary—in reality, AHCs might be better described as “systems” or “networks,” in that they include an expanding geographic range of institutions and facilities that offer many different kinds of services.

There are two prototypical models of the organizational structure of AHCs:
1. The fully integrated model, in which academic, clinical, and research functions report to one person and one board of directors.
2. The split/splintered model, in which the academic and clinical/health system operations are managed by two or more individuals reporting to different governing boards.2 This model typically includes a defined contractual relationship between a medical school and a teaching hospital.

Obviously, there are a number of nuances of the two types,
including variations in locating the responsibility for faculty practice plans and other health system components.

AHCs are vital to their communities, whether they be regional, national, or international, fulfilling a broad social mission. Their three central activities of education, research, and patient care improve health and well-being and expand the boundaries of knowledge. AHCs train future generations of health professionals in medicine, nursing, public health, and related disciplines. They develop transformative knowledge through biomedical research that often leads to innovative therapies. They deliver a comprehensive range of medical services informed by continuous improvement. In addition, AHCs address the intractable challenges such as rare diseases and threats to public health—including Ebola and HIV—that otherwise would not receive focused attention. Many AHCs serve as safety net institutions, caring for a significant proportion of the uninsured. They provide what is often the local source of specialized services, such as burn units and transplant centers, and stand at the forefront of the country’s defense in response to public health outbreaks, natural disasters, local crises, and potential terrorist attacks.

AHCs also serve as powerful economic engines. They employ thousands of people, with billions of dollars paid for salaries, research funding, and direct spending. The research they support generates original products and technologies driving economic growth and benefitting the health and well-being of millions of people worldwide. AHCs are economic anchors of their communities and often serve as the nucleus for groups of biomedical industries that grow around them.

Clearly, a strong future for AHCs must be secured and sustained. But to continue to flourish in increasingly competitive national and global economies, AHCs must achieve unprecedented scales of efficiency and agility in their mission areas of education, patient care, and research. The challenges they face have never been more acute.

Disruption and transformation

The forces of disruption in medicine today are many. The explosion of consumer empowerment created by the internet and related technologies challenges the knowledge hegemony of caregivers. The “omics” revolution and entrepreneurial advances in health and internet-related technologies is creating a new scale of “personalized medicine.” The long-standing and highly successful U.S. model of biomedical research in AHCs, in which clinical revenues subsidize research and teaching, is increasingly fragile given the downward pressures on reimbursement and lack of real growth in many funding agencies, including the U.S. National Institutes of Health (NIH). Further, ongoing consolidation within the health marketplace, especially in the United States, raises serious concerns about the ability of individual AHCs to compete with far larger national or international health systems.

At the same time, of course, AHCs are also being buffeted by broader trends—to cite just a few, these include changes in societal needs and values, disease patterns, economic trends, globalization, politics, population demographics, policy changes, and advancing science and technology.

Meanwhile, the day-to-day operations of AHCs are predominantly affected by market consolidation, changes in clinical funds flows, and downward pressures on research funding. A recent survey of AAHC members found clear markers of disruption and change:

- Forty-one percent are undergoing major expansions of their hospital or physical network.
- Thirty-seven percent are embarking on large-scale cost-reduction measures.
- Thirty-six percent are opening a new health professions school or new branch campus.
- Thirty-one percent are changing their governance structures or significant reporting relationships.

These dynamic realities challenge or perhaps even upend the grand tradition of the “virtuous cycle,” in which the business side of academic medicine subsidizes the research and education functions, while the academic side enhances the margins and reputation of the clinical programs. In the face of the forces of disruption, however, new realities about health care must be acknowledged and appropriate new business models evolved.

Three trends, among others, are particularly noteworthy as harbingers of disruption and transformation for AHCs:

1. New economic realities
2. The trend towards interprofessional (team) education and practice
3. The evolving relationship of medicine and machine.

Economic realities

Patient care

Since the advent of Medicare and Medicaid, AHCs have increasingly relied on clinical revenues to support research and teaching. This model is unique to the United States. Today, this long-standing arrangement is being challenged by changes in health care delivery and economics. These changes are so disruptive that I euphemistically describe them as creating a “new physics” of patient care. With apologies to Dr. Einstein, the following frames my argument for rethinking the way AHCs deliver health care.

* Portions of these observations are adapted from my chapter, “Academic Health Centers: Future Shock or Future Success?” in reference 11.
In this tongue-in-cheek model, care anywhere \((c^1)\) reflects two key trends. First, technological advances allow care to be delivered wherever the patient happens to be, rather than keeping it tethered to a hospital or clinic. Second, increasingly knowledgeable and informed consumers are seeking more convenient options for receiving health care. Among other implications, this means that large infrastructures, such as hospitals, while continuing to be necessary, will need to be configured differently as part of systems or networks that expand far beyond their fixed boundaries.

Care in teams \((c^2)\) refers to the reality that the once sacrosanct one-to-one doctor/patient relationship is giving way to patient relationships with multiple kinds of health professionals. In this context, determining how to gain the most value from team care will be crucial. Reimbursement practices will need to be realigned to support this new model, and the scope of practice will likely need careful redesign as interprofessional health care teams play a much larger role in health care delivery.

Care by large data sets \((c^3)\) suggests that with the rise of Big Data, enormous volumes of information can and will be collected for each individual patient, often continuously, requiring fundamental shifts in practices for analysis. Big clinical data sets may yield insights that will transform individual patient care, but will also create challenges in developing best practices to manage and operationalize them. A new interpretive and functional infrastructure will be required to manage this remarkable flow of data. This trend is likely to lead to a new confluence of medicine and machines.

**Evolving payment models**

The market forces driving institutional consolidation and consolidated provider power particularly threaten AHCs that serve as comprehensive care providers and often as community health care safety nets. To flourish, such AHCs will need to form new alliances and strategic partnerships, while still meeting the challenges of preserving and maintaining their fundamental missions.

Against this complex backdrop, there is no perfect payment model. As a 2001 paper put it: “There are many mechanisms for paying physicians; some are good and some are bad. The three worst are fee-for-service, capitation, and salary.” The sad truth is that each payment methodology has its flaws: fee-for-service can lead to overuse of health services; capitation can lead to underuse; and salaries can lead physicians to do less work less efficiently.

As health systems adapt to new market realities, a hybrid of payment methodologies reflecting health system priorities and political contingencies will evolve. These methodologies will be calibrated according to the degree of risk for population health that is assumed by the care provider. Being willing to take risks in the first place, and being able to manage risk well, will eventually be defining characteristics of the “new physics” of patient care.

**The changing dynamics of research and the future of the single-lab funded investigator**

Research is rarely a profit center for institutions, either academic or commercial. Data collected by AAHC’s Research & Analytics program indicate that, on average, external grants and contracts are the largest funding source for U.S. medical schools, and that thirty-five percent of total research expenses are funded using internal funds. Thus, for every one dollar increase in research expenses funded by external grants and contracts, U.S. medical schools pay an additional fifty-two cents.

Much of that fifty-two cents has traditionally come from patient care revenues. It is no coincidence that the rise in NIH funding has been largely paralleled by the rise of non-tenure track clinical faculty. However, as clinical margins shrink and traditionally available resources either lose purchasing power or become more competitive, institutions in both the public and private sectors—as well as international institutions—will need to compete aggressively for new sources of research support. More attention is also being paid to research efficiency and research emphases: institutions are increasingly moving to shared resource models that offer the promise of lower overhead and increased economies of scale. One result is that, for many institutions, it is no longer economically practical to consider every grant a “good” grant. Rather, institutions are in the early stages of adopting a more business-like approach to R&D, with careful budgeting that focuses on areas of priority. Grants falling outside these focal areas will be scrutinized—and possibly even declined. Moreover, it is likely that these economic forces will drive further differentiation among AHCs in the extent and reach of their research portfolios.
researcher producing astounding insights is indelible. From Archimedes to Galileo to Newton to Einstein, the dazzling accomplishments of lone scientists reinforce society’s preconceptions of how science is done. Indeed, the classic model of the single-lab funded principal investigator has historically been the backbone of much biomedical research at AHCs. In contrast, today’s breakthroughs increasingly derive not from lone researchers but from teams of scientists collaborating across disciplines. That trend, now also seemingly indelible, has significant implications for AHCs, including for budgeting.

At the same time, other fundamental building blocks in the economics of laboratory research are crumbling. The RoI model is significantly challenged, of course, by erosion in NIH funding, both in terms of the decrease in the number of successful RoI applications—now at record low levels—and the reality that funding for the NIH overall has not kept pace with inflation and has thus been eroded in general.\(^{16}\) As if changes in the economics of lab research did not pose a significant enough threat to current budgeting practices in AHCs, broader factors also apply. The rise of mega data sets, combined with the possibilities of cloud- and crowd-sourcing, point to control of research beginning to shift from tightly contained, peer-reviewed mechanisms to a more open framework. With the possibility of data aggregation open to individuals through new medical apps and body sensors, for example, patients may choose to consult millions of their peers rather than participate in clinical trials. Finally, the public in general, and legislators in particular, are increasingly impatient for research results—factors that affect not just funding but also public opinion about research. Each of these trends creates its own innate and potentially truly significant impact on AHCs.

Budgeting for research in AHCs has not yet definitively shifted to a model based on team science. AHCs still mostly design budgets and allocate space based on the increasingly inefficient construct of a lone RoI-funded investigator heading up his or her single-PI lab. Can such research effectively meet the evolving economic, socio-political, and big science imperatives? In short, the rise of team science coupled with the economic realities of supporting research is a game-changer for the traditional science paradigm of AHCs. This challenging issue demands profound thinking and hard decisions, including deep scrutiny of long-held assumptions.

**Health care teams: The need for interprofessional education and practice\(^ {17, 18, 19}\)**

The new physics of patient care points to care increasingly delivered by interdisciplinary teams. AHCs need to organize and manage their health centers to maximize the value of input and collaboration across the full diversity of health care professionals. Indeed, across medicine writ large, a strong business case can be made for interprofessional health care.\(^{20}\)

Worldwide, the increasing predominance of non-communicable diseases, the pressing need for better access to health care in general, and our growing understanding of the social determinants of health\(^ {21}\) all argue for integrated health care across the full diversity of health care professionals. In the United States, the increase in demand for health services by baby boomers over the next several decades suggests that effective interprofessional care will lead to decreased demand for acute care services. The reality is more likely to be a shift in needs for acute care. For example, while the demand for acute care of diabetes and hypertension may diminish, the need for care in other critical areas, such as cancer and Alzheimer’s disease, will increase as people live longer. Robust and well-integrated collaboration among diverse health professionals will be crucial to meet these health care needs.

And fundamentally, interprofessional health care provides patients with better access to core provider competencies. Consumers will increasingly demand that such care be accessible as readily as any other service. The ability of the health care system to provide easy access will require more widespread use and acceptance of interprofessional health care, which will lead to increased effectiveness of care, improving health care outcomes and quality, while lowering costs.

**Barriers to interprofessional health professions education: A baseball metaphor**

As they develop and enhance their interprofessional education programs, AHCs will need to master new electronic and digital education platforms to help develop interprofessional teams. New teaching modalities such as the “flipped classroom” add important alternatives to problem-based learning and other standard methodologies.\(^{22}\) While information overload in curricula is not a new problem, what and how to teach have become increasingly difficult and important questions, especially since today’s students will probably still be practicing medicine in 2050.

In participating in discussions on interprofessional education, I have often reflected on the barriers to practicing it. One conversation on the topic occurred during the World Series, and started me thinking about these impediments in terms of baseball. Too often, those of us seeking better ways to integrate interprofessional education and practice spend inordinate energy pursuing home runs: trying to develop large-scale fixes that will solve many things all at once. Maybe our attention would be more productively focused on incremental fixes: to round the bases one by one, addressing challenges incrementally in ways that might eventually result in more wholesale reform.

Let’s call first base the “guild mentality” of the health professions. We silo health care disciplines, which not only divides health practitioners and knowledge, but creates competition and duplication where today we urgently need collaboration and efficiency. The guild mentality inhibits an integrated, interdisciplinary approach to a full spectrum of health care and population health. To get beyond first base, we
need to develop strategies that overcome the attitudes and beliefs that get in the way of true interprofessional learning and practice and that arbitrarily divide health care professionals.

On second base, we need to carefully review current university and hospital structures and procedures. Traditionally, professions, disciplines, hospitals, and health systems are separated administratively into departments and other units, each with its own schedules, operating principles, and policies—such as those for promotion and tenure—that deeply impact behavior. As well, they often compete with each other for limited resources. The lack of alignment between management and infrastructure thus drives a wedge between types of professionals. How can we restructure institutions to ensure better integration and alignment? Addressing that challenge would move us that much farther along a path to broader reform.

Third base addresses the dizzying variety of regulation and accreditation requirements for various health professions. Licensure requirements, scope of practice laws, accreditation requirements, and other regulations complicate coordination and collaboration across professions. Such strictures limit, for example, who is qualified to serve as an educator. They overburden some clinicians and undervalue others. Generally, the lack of coordination and consistency among regulators and accreditors impedes the efficient delivery of health care. A deep look at this body of regulations with reform in mind would greatly facilitate the process of moving us closer to true integration of interprofessional education and practice.

Scoring is the ultimate goal. In the area of interprofessional education and practice, however, reaching home plate is perhaps the most formidable task. This involves aligning the incentives of the health care delivery system to support and promote the kind of system we would like to envision. It is becoming readily apparent that interprofessional education and practice will serve an increasingly important role in health care in the years ahead. It is therefore incumbent upon AHCs and health systems to begin an organized process of aligning curricula and policies to support and nurture true collaboration among health practitioners at all levels. The “four bases” scenario described above, which considers the guild mentality of the health professions, university policies and procedures, accreditation and regulatory bodies, and the incentives of the health care system, offers an approach to this important and challenging issue.

Medicine and machines: Toward a new paradigm of professional intelligence

The practice of medicine is increasingly taking place at the nexus of patients and machines. From diagnosis to rapid data analysis and robotic surgery, computer-assisted advances are transforming the delivery of health care. Couple that with patients’ expanding access to medical information on the internet, and the traditional role of health providers is challenged. The doctor may no longer be the principal expert and possessor of unique skills. Machines are fundamentally changing the nature of the provider-patient connection—and, ultimately, what it means to deliver health care. The profession needs to refine its thinking about the intensifying marriage of medicine and machine.

Foremost is the issue of how the physicians being trained today will develop the expertise needed for the future. Currently we educate and train health professionals quite well for practice as it was, and less well for how it is and will be. The curriculum now needs to focus on the development of a new kind of proficiency that I call professional intelligence, defined as the confluence of professional values and expertise. The curriculum for professional intelligence has yet to be written, but we need to get started. It needs to acknowledge that no human can effectively process the exploding volume of medical knowledge and data, as well as the implication that machines will know more and be able to perform more tasks than physicians. Scientific and technological advances are already creating devices that out-perform human capacity both cognitively and physically. Computer algorithms, for example, offering rapid analyses and suggesting both diagnostic and therapeutic possibilities, far out-perform what a human expert can review to reach a reasonable decision.23

The pressing need to instill a new form of professional intelligence in our students and trainees demands that we accelerate the preparation of students in the health professions for
practice as it will be. It is not surprising that health professions schools concentrate more on training for the development of skills and competence than expertise. Skill is the ability to perform a concrete act, and competence is the level at which you are able to perform that skill. Expertise, however, refers to the ability to see the big picture, to understand all the unique elements involved, and to draw appropriate conclusions. While many skills and competencies will eventually be largely taken over by machines, expertise is uniquely human.

The leadership imperative

Clearly, the challenges and emerging opportunities that AHCs face—and will face—underscore the importance of hiring, nurturing, and supporting exceptionally capable leaders. Making high-level appointments at academic institutions is arguably one of the most important actions to be undertaken. In working with and visiting more than 100 AHCs, however, I have found that identifying and keeping high quality leaders is extraordinarily challenging. Too often, and too regularly, AHCs find themselves wondering how to reach the next level, and searching, yet again, for new talent to fill key leadership positions.

In part, the problem is often attributable to two types of lapses: lack of understanding of the characteristics of successful leaders for these complex institutions, and breakdowns in the recruitment process itself. Through a collaborative effort with academic health center leaders and leading search firm executives, the AAHC has analyzed the search process in depth and made a series of recommendations to improve the likelihood of a successful outcome. These suggestions apply broadly for searches, not just in AHCs but throughout academe.24

Defining successful leaders

Being a successful academic does not mean someone can be a successful leader. While a strong academic track record is often an important prerequisite for top leadership posts in AHCs, other factors—such as humility and emotional intelligence—may be as important, or even more important, to successful leadership in these institutions.

Similarly, candidates with a high level of narcissism and/or arrogance may be perceived—incorrectly—as well suited for the job. A charismatic personality may obfuscate a candidate’s actual managerial and administrative capabilities. In the quest for top-level talent, therefore, those participating in the search process should be advised about the importance of distinguishing confidence from competence.

Changing the dim view of leadership

Faculty often have the vague impression that the administration (the “suits”) is adversarial to the academic ethos. Part of the problem is that there is insufficient understanding of what leadership actually entails. Faculty may believe that the leader is “sitting on a pile of money and not giving me any of it.” Because of the lack of deep comprehension of and appreciation for the leadership role, faculty members do not often seek leadership positions, but may find themselves becoming “accidental leaders” when they happen to be appointed. As a result, there is not a clear preparatory pathway to obtaining leadership positions. Academic administration needs to be “demystified” through open and transparent leadership styles that clearly demonstrate the realities and challenges of leadership, along with the development of programs (e.g., leadership academies) to promote the development of effective leaders.

Finding successful leaders

Broadly speaking, search processes for institutional leaders have been only intermittently successful. In part, this is due to a lack of detailed organization for the search itself and the lack of a “pathway” to becoming an AHC leader. Ideally, a search process consists of three distinct phases and proceeds in an orderly and efficient manner.

• Phase I, the pre-search phase, establishes the principles and foundation for a successful search.
• Phase II, the active search phase, involves screening, interviewing, and ultimately selecting the final candidate.
• Phase III, the transition/on-boarding period, introduces the successful candidate to the institution and is designed to help the new hire adapt successfully to his or her new role.

The path forward

The landscape of disruption and change has many ramifications for AHCs. Clearly, these challenges call for a strong, definitive course of action. That mandate will be no less demanding over the next decade. In this regard, I believe AHCs must get back to fundamentals, using as a guide the answers to two essential questions:

• How best can we apply knowledge to improve health and well-being?
• How best can we build the knowledge economy and apply it in patient care?

The answers will both serve as a general approach as the institution moves forward in a disrupted landscape and provide
the backdrop for the specific actions that need to be taken. Six steps seem particularly warranted:

1. Find the best mission balance
   I believe each AHC must decide its own best mission balance, emphasizing areas in which it can make the most difference and greatest contributions. Once it makes a decision, it must budget accordingly, preparing for the end of open-ended funding and developing methodologies and tools to assess and improve efficiency, especially in the area(s) on which it chooses to focus.

2. Adjust to changing funding streams
   AHCs must find new ways to optimize efficiency, including clear and delimited resourcing of research and teaching. New methodologies to assess efficiency in all mission areas are needed. Difficult questions need answers, such as what is meant by research and education full-time equivalents (FTEs). Institutions will also need to establish how much they are willing to invest for optimization in both current and new areas. Business models need to be adapted to the operational implications of the changing clinical care delivery and payment systems.

3. Develop an integrated interprofessional vision
   To thrive in an era of disruption and change, an AHC needs to pursue strategies that capture the combined power of its component parts, largely through bringing disciplines together in purposeful alignment.

4. Broaden the understanding of what AHCs encompass
   Fundamentally, AHCs need to expand the scope of their mission, shifting from a focus on management of individual patients to management of community and population health—locally, regionally, nationally, and globally. This includes the need for AHCs to address the social determinants of health as a critical part of improving health and well-being. Including expertise from disciplines previously thought of as external, such as engineering, business management, and the social sciences, would provide both immediately applicable benefits and tools that can catalyze system change. Broadening the scope of interdisciplinary thinking in this way could lead to potential advances in effective system redesign, medical device development, and advancing population health.

5. Be willing to change
   A disruptive environment poses something of an existential problem for AHCs. Writer Clay Shirky addressed the heart of this dilemma when he noted “Institutions seek to preserve the problem to which they are the solution.” To meet the challenges of constrained resources, for example, AHCs must transform the way they teach, conduct research, and deliver patient care. But how do they shake loose their insular, siloed traditions to change their culture and behavior? A large part of the answer is to have visionary leaders who are skilled in the art of change management.

6. Find visionary leaders
   AHCs need to find the kind of leadership that can guide them through disruption. These leaders need to be highly skilled in transactional operations, but they also need to be able to envision how to help transform their institutions and reposition them. Bold new thinking is necessary not only to foresee what new kinds of leadership are needed, but to rethink the processes AHCs are using to recruit tomorrow’s leaders. As discussed earlier, the specific identification of leadership abilities is essential, along with a search process designed to optimize the chances of a successful outcome.

Concluding remarks
   AHCs will be well-positioned for success if they can successfully achieve three overarching strategic goals:

1. Function as organizations that align academics (teaching and research) with the care of patients.
2. Focus on the next generation of education, research, and patient care.
3. Have the transformational leaders necessary to change culture and behavior.

   AHCs are in the process of transforming themselves to meet ever-changing societal needs and priorities, while dealing with evolving health care delivery and economic conditions in the midst of rapid scientific, technologic, and pedagogic advances. As they do so, I am confident that they will ultimately be successful and lead the way in educating a new generation of health professionals, making scientific breakthroughs that offer new diagnostic and therapeutic modalities, and providing cutting-edge patient care—all with the goal of improving health and well-being.

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How can doctors decode direct-to-consumer genetic testing?
implies that someone or something is standing so obstructively between patients and their genetic information that the entire premise of the product is to bypass this unnamed roadblock. Of course, the roadblock is the same as that standing between a patient and any medical test—the patient’s doctor. These implied issues of accessibility spurred the evolution of genetic testing.

Genetic testing for years has been a rare but valuable tool for those at risk for specific conditions, or a novelty for the curious few willing to spend a significant amount of money for a look at their genetic code. But in recent months, rapidly changing policies, increased commercial availability, and evolving public opinion have made DTC genetic testing much more accessible, and much more popular. Now patients can—and will—order personalized genetic testing without any involvement from their physicians. This has its downsides: physicians cannot ensure that the information will be reliable, or that the provider will ensure that the results are fully understood. They also have no control over whether the consumer/patient’s privacy will be protected. But these advances also provide physicians with a unique opportunity to help patients understand the genetic information given to them and—even more importantly—to further engage patients in their own health and health care.

A free-for-all of genetic testing

The technology to conduct genetic tests has been available for years, but in many ways the race toward widely available DTC genetic testing began on June 13, 2013, when the Supreme Court handed down a decision in Association of Molecular Pathology et al. v. Myriad Genetics, Inc., et al.¹ This case not only brought up many of the most divisive issues surrounding genetic testing, the decision enabled companies to move forward with offering more tests. Following studies at the University of California, Berkeley, that demonstrated the association between BRCA genes and breast cancer, biotech company Myriad Genetics sequenced the BRCA₁ and BRCA₂ genes, enabling them to test for these genes for clinical purposes. It then patented the locations and sequences of these genes, and by virtue of that information, the ability to test for mutations. One patent in particular, 17q-linked breast and ovarian cancer susceptibility gene (U.S. 5,747,282 A), filed in 1995, enumerates an (unsurprisingly) extensive list of the scientific and therapeutic items that the invention relates to, most relevant here being “the screening of the BRCA₁ gene for mutations, which are useful for diagnosing the predisposition to breast and ovarian cancer.”² This broad patent prevented others from conducting testing and research surrounding the BRCA genetic sequences, prompting the Association of Molecular Pathology to contest its validity.

The patent asserts that the regulatory sequences, promoter regions, coding regions, and specific mutations of chromosome 17 are Myriad’s scientific creation. That position was negated in Justice Thomas’s unanimous majority opinion, which elaborated on the statement that, “A naturally occurring DNA segment is a product of nature and not patent eligible merely because it has been isolated,”¹ and noted that Myriad did not seek to patent any sequencing method or machine to which a patent could have actually been applied. Justice Thomas made the point that the BRCA gene sequences have been isolated as a naturally occurring DNA sequence unlike, say, cDNA, which is created as a complementary sequence to the edited downstream messenger RNA sequence, and is patent eligible because it is an inherently man-made entity. The oral arguments of the case ranged far and wide, ultimately comparing the difference between patenting naturally occurring genes and modified, lab-created cDNA to the difference between patenting a tree and a wooden baseball bat.

The Supreme Court’s invalidation of Myriad’s patents eliminated the

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company's monopoly on the genetic test for BRCA, which, given the prevalence of breast cancer in America, is a widely sought after metric. The service that Myriad had charged approximately $4,000 to provide was suddenly susceptible to competitive market rates, and was incorporated into existing DTC genetic testing kits. As the breadth of information available in these kits grew, the companies providing them found ways to make them more widely affordable as well.

No company achieved rapid name recognition, popularity, and affordability quite the way that 23andMe did. 23andMe was founded in 2006, and by 2008 its personalized genetic testing kit was *Time Magazine's* "Invention of the Year." At that time, 23andMe sold what *Time* dubbed the "Retail DNA Test" for $399—not prohibitively, but not quite an impulsive Christmas gift for the curious.

In the five years following that article, 23andMe incorporated a number of new tests—notably the BRCA tests, which were added in 2013. Even more importantly, the company received an influx of cash from venture capital (much came from Google,* an obvious choice when you consider that the company plans much of its further expansion through gathering and monetizing "personal information")⁴. This increase in funding allowed 23andMe to offer its kit at the ultimate bargain-basement price: $99. At that price, it’s no surprise that as of November 2013, 23andMe had sequenced the genotypes of approximately 500,000 individuals, making it the most popular and visible provider of DTC genetic testing.⁵

But popularity doesn’t mean invincibility, and by rising to the top of the food chain, 23andMe acquired a target on its back. The largest controversy so far erupted in November 2013, when the FDA demanded that the company immediately stop marketing its Personal Genomic Services (PGS). In a scathing warning letter, the FDA argued that 23andMe had marketed the PGS as a medical device, “intended for use in the diagnosis of disease . . . or intended to affect the structure or function of the body” and that as a result, it was subject to the regulations of section 201(h) of the Food Drug & Cosmetics Act, 21 U.S.C. 321(h).⁶ By ordering 23andMe to comply with these regulations, the FDA essentially required that the company demonstrate that its tests actually detect what they claim to detect. The warning letter cited as an example the potential consequences of false test results for the BRCA genes—either an unnecessary prophylactic procedure in the event of a false positive, or a lack of preventive screening or prophylaxis in the event of a false negative. The alternative response, which 23andMe has employed in the meantime, is to offer genomic sequencing for consumers with absolutely no interpretation of what the information might mean—in essence, eliminating the troubling marketing element and making it no longer a “medical device.” Yet once 23andMe has provided the data and modifications required by the FDA, it is likely that they will be able to return to their original model of operation.

**Concerns from all sides**

The FDA’s warning outlines what should be the medical profession’s greatest concerns surrounding DTC genetic testing—how reliable is it? And can we make clinical decisions based on such tests? Of course, a demonstration of just how reliable 23andMe’s services are is exactly what the company has been cited for not providing, so the jury is still out. In a public statement in reply to the FDA’s warning, co-founder Anne Wojcicki insisted that, “We have worked extensively with our lab partner to make sure that the results we return are accurate. We stand behind the data that we return to customers—but we recognize that the FDA needs to be convinced of the quality of our data as well.”⁷

While providers clash with the FDA, the public discussion of the potential inaccuracy of these tests is getting louder. On December 30, 2013, the *New York Times* featured an article by Kira Peikoff, a bioethics student at Columbia, in which she underwent genetic testing provided by three different companies—23andMe, Genetic

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* It is worth noting that 23andMe co-founder Anne Wojcicki and Google co-founder Sergey Brin are married, although now separated.
Testing Laboratories (GTL), and Pathways Genetics—and compared the results. The discrepancies were alarming. The results diverged on Peikoff’s genetic risk for a number of conditions: for example, 23andMe’s test estimated her lifetime risk of psoriasis as 20.2%, while GTL’s test placed her risk at 2%. Even in cases in which they did agree on the numbers, the companies offered different interpretations of those numbers, categorizing identical results as “reduced risk” versus “medium risk,” and giving significantly different impressions about what concurring results meant. Both of these types of discrepancies are alarming—it is clear that at least one of these companies provided Peikoff with results that were just plain wrong, while it is also clear the these companies have no standardized way of interpreting results for patients, so that even if numerical accuracy is assured, consumers may not really understand what their results mean.

This issue of interpretation is more contentious—it is easy to agree that the results should be accurate, but it is unclear what the obligation a company has to explain results to a patient. Companies are eager to refute accusations that their consumers do not fully understand the results they are given, yet criticism persists that, as a result of poorly explained testing, patients are not making fully informed decisions, and that incomplete understanding of results leads to poorly informed health care decisions and significant anxiety. 23andMe’s research division conducted its own evaluation of customers who were BRCA-positive and had agreed to participate in research.

Their first notable finding was that of this group, only 67% had elected to view their results for the BRCA mutations. Had the other 33% decided that, having sent in their test kit, they did not actually want that piece of information? Were they unaware that the test was included? Were they, like me, lost in the infinite labyrinth of 23andMe’s website? The research team only contacted individuals who viewed their results, so there is no way to know why the others did not look at them. But of the BRCA carriers who did view their results, only 41% of them knew that the test was included when they purchased it. This begs the question—why did so many not know the full nature of the product they were ordering? Did 23andMe obtain the informed consent of these customers before viewing their test results? 23andMe does try to keep its customers from being unwittingly surprised by the result by adding the extra step of “unlocking” the result. Yet electing to undergo the testing and choosing to view the results are two separate steps, and the patient should be able to give informed consent at both stages.

One study by Kaufman et al. examined the ability of a group of consumers to interpret the results of some basic sample test results. For the study, participants were given an example lifetime risk of a certain disease, in addition to the general population’s risk of that disease, and were asked to interpret whether the example had an increased or reduced risk of the disease. Ninety percent of the subjects correctly interpreted the first example, and 94% correctly interpreted the second example. Yet those who answered incorrectly were likely in the 12% of participants who described their own results as difficult to understand, leading to the conclusion that those who are confused about the results are profoundly confused. Furthermore, the single best predictor of confusion in interpreting DTC genetic test results was advanced age, a population for whom screening and preventive health care is extremely important. The study also went on to ask the participants to make a subjective judgment about the examples given—classifying them as high, moderate, or low risk—with widely varying results. The only consistency revealed by this analysis was that individuals without postgraduate...
education were more likely to minimize the risk of an example with elevated risk of disease. These results show that even in a clear-cut example of increased risk, understanding of the results was not perfect, and interpretation of the results varied considerably. This finding reinforces concerns that patients who have DTC genetic testing do not fully understand their test results and therefore are not benefiting from the information they are given. They may even be harmed by misunderstandings of their results.

Medical professionals and the public alike have also raised concerns regarding the privacy of patients’ genetic information in the hands of DTC genetic testing providers. It is possible that individual genetic information could be abused, leaked, or stolen, and when the information is in the hands of a for-profit company—as opposed to a hospital dedicated to providing care—the possibility for misuse seems greater. 23andMe acknowledges that it is retaining its customers’ de-identified information for the purposes of creating a dataset that will be marketed to industries like the pharmaceutical industry. While this has the potential to generate useful research on an unprecedented scale, many distrust the extent of the company’s privacy protections. The possibility for misuse of data that combines genetic and personal information appalls conspiracy theorists wary of the partnership of 23andMe and Google. Yet these suspicions have little firm basis in fact, and the question of genetic privacy in DTC genetic testing is a better question for lawyers than for physicians. Regulations such as the Genetic Information Non-Discrimination Act of 2008 prevent health insurance providers and employers from discriminating on the basis of genetic information. But as genetic testing continues to evolve, physicians can expect to be called upon to advise lawmakers about the best ways to protect patients in the fact of advancing technology.

**The role of physicians in DTC genetic testing**

As 23andMe and its competitors take off, today’s medical students can reasonably assume that by the time we are practicing medicine, it will be our responsibility to integrate DTC genetic testing into the doctor-patient relationship. In the not-too-distant future, just asking a patient whether he has undergone genetic testing may prove important. In a 2011 study in the *New England Journal of Medicine*, Bloss and colleagues found only 26.5% of consumers shared their results with their physicians. A follow-up study in 2013 by the same group found that 39.5% of their respondents had discussed their results with a physician. These results suggest that although some 39.5% of DTC genetic testing patients may be receiving valuable information about their genetics from their doctors, 60% or more of patients are left to interpret their results on their own, meaning an increased potential for a consumer to forgo important screenings, to place less importance on certain lifestyle choices, or to simply feel anxious about elements of their results. All of these potential problems will decrease if more physicians ask their patients whether they have joined the growing ranks of the DTC-tested.

The 2011 Bloss study also presented a more heartening finding—those patients...
who underwent genetic testing and did choose to discuss the results with their physician were significantly more likely to make lifestyle changes than those who did not. These patients both increased their physical activity and decreased their fat intake. Similarly, the Kaufman study observed that patients who discussed their results with a physician were significantly more likely to reduce their fat intake and undergo preventive screening tests. While the relationship might not be causal, and it seems likely that a self-selecting demographic elects to undergo genetic testing, the result is still encouraging. If a $99 test can help patients feel more engaged in their health care, and can create a personally applicable impetus for them to make healthier choices, physicians should consider this an opportunity. Patients are aware of the impact of lifestyle choices on health, but because these seem broad and unspecified, patients often struggle to apply this knowledge directly to their own lives. Using genetic testing to relate to patients their personal risk of diseases that are affected by how they behave could be the direct link between an individual's health and lifestyle that motivates him to make better choices.

Physicians can also view a patient's decision to undergo genetic testing as indicative that the patient is particularly receptive to discussing preventive health care. The physician should seize the opportunity to acknowledge that the patient has taken this step towards assessing his own health status and capitalize on the fact that he might want to do more. Even if an increased risk of a particular condition is not identified, the physician can still use this opportunity to engage the patient in discussing what preventive screenings or lifestyle choices are most important to him. The 2013 Bloss follow-up study found that patients who discussed their results were more engaged in their health care, undergoing significantly more screening procedures than those who did not discuss their results with their physician. In the event that a significant risk of a genetic condition is identified, this should be viewed as reason to investigate further. In light of the current doubts about the validity of DTC genetic testing, results that are strongly associated with serious conditions should be replicated before proceeding. Yet regardless of whether an individual result proves to be a true-positive or a false-positive, it remains likely that many patients will eventually learn of significant genetic risk for a serious illness that would otherwise have gone undetected. Therefore it makes sense that DTC genetic testing could serve as a first-line screening tool, despite its many shortcomings.

Physicians must navigate the complex arrival of genetic consumerism in the clinic both because of, and in spite of, the potential pitfalls. Physicians must be involved because the consumers of DTC genetic testing are patients—and the potential consequences of DTC genetic testing's problems are medical. Physicians are thus those who are best situated to ensure that patients are educated and protected when they use DTC genetic testing. Furthermore, physicians are those who can bring this method of testing to its full potential. The information gained is intended to inform a patient's medical decisions and lifestyle choices, and physicians are the most suited to help patients use this information in the best way possible. DTC genetic testing continues to advance, and as its reliability becomes established, so will its popularity. Therefore physicians must prepare to meet this new player in health care, and seize the opportunity to use it to its full potential.

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Sorted into groups of ten
The novices come hungry
To the table, eager to
Taste slices of mystery
Hypnosis, prayer
Near-death experiences
Spontaneous remissions
And chew them into
True-false facts
Before the next exam.

As priests of science
They will handle fiber-optic
Serpents, cast out cancers,
And speak in tongues of jargon.
But who among the multitude
Will be wholly healed?

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Breaking the Silence

N. Karp, MD

During the last eight years of my medical education, I was taught over and over again to look for and recognize signs of intimate partner violence. As a resident physician in obstetrics and gynecology, I screened and counseled countless women affected by domestic abuse. I have a dedicated medical education, an undergraduate psychology degree, and a generally independent and self-reliant personality. Despite all of that, in the middle of my residency training I became ensnared in an abusive relationship, and it took me almost a year to leave.

It was slow and almost calculated work, that began with his complete devotion to me. He gave me a speedball dose of attention that I never even realized I wanted, but to which I was easily attracted. He was intelligent, hardworking, and gregarious. He included—or, in retrospect, ingrained—me in every aspect of his life. He showed up at the hospital with coffee when I was on call. He made a point to introduce me to his friends, and bring me to work functions. He told me he loved me early and often. He said I was beautiful and smart, and he admired my passion for my work. As a fellow physician, he understood my daily triumphs and challenges, and provided comfort after stressful days. He planned out the life we would have together, complete with the house, three children, and two dogs. As the child of divorced parents, he offered me the nuclear family I had craved for years, wrapped in a comforting blanket of adoration. In hindsight, it was infatuation, but at the time it felt like love, and I thought I was lucky to have found it. I relaxed into the fold of the relationship, never doubting the love from this man who would seemingly do anything for me. This, of course, was the first step of the process: gaining my trust.

I do not know exactly how or when the dynamic began to change. Seemingly benign arguments escalated quickly, and developed a common theme: it was always my fault. I was inconsiderate. I hurt his feelings. I confided in my friends more than in him, and didn’t make him feel important in my life. The guilt had a paradoxical effect, pulling me closer to him, and further from my support network.

He was quick to get angry when we argued. It was confusing, at first—why was this person, who supposedly adored me, so furious with me? Over something so small? My inevitable tears enraged him even further. He would shout and threaten to leave. I would cry harder, ask for forgiveness, and beg him to stay. I became dependent on him for my happiness and self-worth. I needed him. Perhaps it surprised even him to watch the independent woman he fell in love with collapse into an apologetic heap, weak and insecure. I just wanted so desperately for him to be happy, for us to be happy. He always followed the outbursts with remorse. He just had a quick temper, he said. If I learned to stop reacting like that, he would say, everything would change. If I could just be better, I thought, everything would be perfect.

Initially I was honest with close friends about our trials as a couple. It was toxic, they said. Not normal. Not healthy. They saw a gradual dismantling of my confidence and happiness, until I was only a shell of the friend they had known. But I was invested, and I loved him. So I did the easiest
thing. I stopped telling them. Step two of the process: isolation.

We functioned beautifully as a dysfunctional couple, and we excelled at maintaining appearances. I continued to be responsible for all of our difficulties. If he was unhappy, I accepted the blame. He became more controlling, dictating when we would go out, and with whom. He had opinions on every aspect of my life: I should exercise more. I should do fellowship at this program, not that one. Not even little things, such as my habit of listening to white noise to fall asleep, escaped his criticism.

The constant struggle for his approval chipped away at my sense of self, leaving me with a heart-crushing sense of loneliness. I could not bring myself to reach out to anyone, and became even more desperately attached to him. When he yelled at me, I cried so hard it caused petechiae around my eyes. I would curl up in a ball, and he would glare down at me with harsh, cold eyes. It was a frightening look that seemed filled with hate. He told me I was crazy. That no one would ever love me. And then, he would film me, sobbing on the floor. He recorded me crying, begging him to stay, and said, over and over again: “See how crazy you are? You think your friends don’t know you’re crazy? You think anyone could ever love this? Look at what you’ve become.”

I should have seen it coming, should have known that physical abuse would follow the emotional abuse. At that point my blinders were fixed, and so instead it came as a shock. The first time it occurred to me I was in an abusive situation, I was in our gynecologic oncology clinic. My patient had just quit smoking, and I congratulated her and asked her how she had done it. She said, “I just realized it was like an abusive relationship. It wasn’t doing anything but hurting me. And I had to leave.” I felt her words wash over me, and then they struck me as if I had been punched. She was telling my story. And yet, I stayed.

Why? I still tortures myself with this question. Part of it was a sense of determination, of trying to hold on and make things work. It was as though the tenacity that had been a positive attribute in other facets of my life became displaced and destructive. I cannot deny that I wanted that fairytale picture he had initially painted. As a resident, with work being the overwhelming portion of my life, I craved balance. I thought that in order to be settled I would have to settle. And though I feared him, I also loved him.

The fights escalated, and became more physical. I went to our chief residents’ graduation with a baseball-sized bruise on my knee that I carefully covered after being thrown to the ground. It was my fault, of course. We were arguing, and as I begged him not to leave, he picked me up and threw me onto the bed. He had purposely thrown me there because he did not want to hurt me, he said. It was my fault I fell off onto the hardwood floor. Only a week later, it escalated even further. Again we argued, and in a blur, I found myself pinned on my couch, his hands around my neck. He smashed my cell phone, and stormed out of my apartment, leaving me with no way to call for help.

How had I gotten to this place, huddled on my floor in the middle of the night, scared, bruised, and alone? How was I going to take care of patients, having gotten so deep into a situation in which I had lost myself? My life was wrapped so intricately around him, that despite those events, initially I still ached to have him back in my life. I knew that what had happened was wrong, but I still mostly blamed myself. I was still weak enough to potentially let him back in my life. To prevent that, I finally broke my silence. I told my closest friends. I told my family. I even told my residency program director and another trusted faculty mentor. And I was fortunate to be showered with the support and resources I needed to close that door forever.

It is difficult to understand how I opened myself up to such a toxic situation. We collided in a way that clearly brought out the worst in both of us, once the initial infatuation had faded, but I was blind to it then. The self-blame has subsided, but the question still lingers: How did I miss my own diagnosis? Unfortunately, this pattern is not as uncommon as we would like to believe. It was a tremendously difficult and painful experience that I endured, but because of it I am stronger today than I have ever been. Reaching out to those around me and allowing them to help was the key to my recovery. By breaking my silence, I want to empower others to recognize what I could not see in myself. I hope to help patients, friends or colleagues who may find themselves in a similar cycle break free, seek help, and find their own strength and independence.

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I wish I knew where I was. I know I must be somewhere, and I guess I’m not dead or I wouldn’t be thinking and wondering where I am, but I can’t seem to move anything, or see anything. I feel like I am tied down like Gulliver, but I’m blind too. I can hear a little if noise is loud or someone talks into my ear. My father seems to get real close and talk to me sometimes. He says everything is OK and I will be fine, but where am I, and what has happened to me? There is some kind of whooshing sound right near my right ear. I seem to make the sound when I breathe. Oh God, I’m scared. Sorry, Mama, I know I shouldn’t say God like that, but I am really scared. Maybe if I can go to sleep I will feel better when I wake up.

Well, I am awake now, and I am still here, wherever this is. Maybe if I can remember what happened I can figure it out.

Mama had been called to an emergency board meeting at the university, and I had a little cold so she had kept me home. Lizzy, Mama’s good friend who usually stays with me, was teaching at her school, and since it was daytime, all the neighbors were at work. Mama didn’t want to leave me alone and she had never done that before, but she said this was an emergency and wouldn’t take long. We had had family fire drills, so I knew what to do in a fire, and she had taught me how to dial the new emergency number, 911. And I was not to answer the door if anyone knocked or rang the bell.

I was reading *Gulliver’s Travels* and blowing my runny nose when the doorbell rang. I didn’t open the door, but went to the bay window where I could see who was there. I had seen a picture in a book in Mama’s office and when I pulled it out and asked her who it was, she said it was my father, who had gone away before I was born. The person at the door looked...
The Pharos lived. He said he had worked there and studied art. But we
if he knew where there was a library. He said that the only li
them before we got to wherever we were going. I asked Father
so they wouldn't blow out and let the sun finish drying them.
We tucked them in the back of the truck the next day
Father washed out some our clothes and hung them on a rope
an old ring in the tub, but we got a bath and it felt really good.

I didn't know what to do. I wasn't supposed to open the
doors, but surely that didn't apply to my father. After he rang
times I opened the door.

“Jimmie,” he shouted, and grabbed me and kissed my
cheeks and neck and held me tight and I think I saw tears in
his eyes. He held me for the longest time, but finally he put me
down.

“How would you like to take a trip with your father?” was the
first thing he said after he put me down. Wow, I had never
even seen him and he wanted to take me on a trip, an “ad-
venture” he said. I explained that Mama would be home in a
little while and we could plan it with her. His face got a mad
look and he said, no, if we were going we had to leave now.

We went up to my room and he put some of my clothes in a
backpack. I didn't know what to do. I knew we should wait for
Mama, but he was almost dragging me around by my arm.

“Is there anything special you want to take with you?” he
asked. I said I wanted to take Gulliver’s Travels and Swiss
Family Robinson, I could get those into the backpack.

“Can we take my bicycle?” I asked.

“We can get it in the truck,” he said, and that really made
me happy. I left a note for Mama saying that I was going on an
adventure with my father, so she wouldn't worry. Then we put
my bicycle into his old red Ford pickup, put the backpack be-
hind the passenger seat with some other stuff, and we were off.

Father said we were going west, and I could be a cowboy.
We only got about 200 miles the first day and found a place
to camp. Father had a little tent and a tiny stove that burned
little white things. Then we would build a real campfire with
any wood we could find around. Each day we had donuts for
breakfast, would stop at a McDonalds for lunch, and at night
father would heat up some beans on the stove and make hot
chocolate if we had gotten some milk, but sometimes we had
to just use water.

After about three days father began to smell bad and I
didn't smell too good either, really smoky, and I was pretty
dirty. Mama would have thrown me into the bathtub. So we
stopped at a real motel. Father said he was looking for one on
the old highway with a garage. He thought it would be safer if
the truck and the bicycle were under cover. He finally found
what he was looking for, and stayed for the night. It wasn't too
modern. Some of the wallpaper was peeling off and there was
an old ring in the tub, but we got a bath and it felt really good.
Father washed out some our clothes and hung them on a rope
to dry. We tucked them in the back of the truck the next day
so they wouldn't blow out and let the sun finish drying them.

At night I would read my books by the campfire, or some-
times in the motel, until I fell asleep. I was sure I would finish
them before we got to wherever we were going. I asked Father
if he knew where there was a library. He said that the only li-
brary he knew was at a famous state institution where he had
lived. He said he had worked there and studied art. But we
never stopped for more books.

As we got further west we started seeing signs for a big
drugstore in Wall. There were signs for miles and miles, and
we finally got there. The drugstore was more like a carnival,
and they sold everything. Father bought me a cowboy hat,
boots, a pair of jeans, and a shirt with shiny buttons that he
said were mother of pearl, and after that I wore my cowboy
clothes every day. We didn't even wash them.

Father was funny about time. When I would ask him what
time it was, he would say Grennich mean time is whatever
and it never seemed like that time of day to me, but he said
Grennich mean time was the only true time.

The last thing I can remember is that we were in Wyoming,
camping on a hillside way out nowhere. I saw a few antelope
on a hill in the distance. I had never seen antelope before or
any animals in the wild. It was a beautiful, clear morning with
a warm breeze and I wanted to ride my bicycle. Father said not
to go downhill because I might go too fast and fall, but ride
back and forth on the road on the hillside.

Now I am here, wherever this is. At first I had to pee really
bad, but they stuck something up my johnny and now that is
better. Mama said to call it my penis, but I still like johnny.
That's funny, I can't really feel most things, but I can feel my
johnny and my throat. There is something stuck in there, too.
And I have a headache. If I could do anything, I would ask for
an aspirin. Every so often something clicks on and off right
over my face, or at least somewhere between my ears

I don't know how long I have been like this. I can't tell time,
not even Grennich mean time. I just figure it is day when I am
awake, and night if I am asleep. Father talks to me every day
and once I thought I heard Mama talking very loud and angry.
We probably shouldn't have left without telling her.

Well, I am awake again, and I heard someone say some-
ting about a plug. I hope they are talking about the thing in
my johnny. I sure could do without that, though I don't know
how I could pee.

Father just told me that it is almost over and that we would
be going back out to where I rode my bicycle, and I could stay
there. He was going to use his art training to design a place for
me. That seems like a lonely place to stay. He said my cowboy
outfit had been washed and that I could wear that, but we
weren't going to go until it was midnight Grennich mean time.

I am awake again. It must be midnight by father's time.
They are taking that thing out of my johnny and, wow, they
are taking the thing out of my throat too. Oh, it is a little hard
to breathe, and God I am scared again. Sorry, Mama. I need to
go to sleep and when I wake up it should all be over. That's it. I
need to go to sleep.

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Jennifer Gribben... Jennifer.”

There was no response. The waiting room, as always, was crowded and loud. He would have to be louder.

“Jennifer Gribben.”

“She’s here somewhere,” MaryAnn reported and then pointed to a woman, slumped over, eyes closed in one of the phony leather chairs with cracked cushions. MaryAnn shook the woman’s shoulder, and with the next “Jennifer Gribben” she stood, rubbed her eyes, and followed Dr. Jim up the stairs and into the first room on the left.

He was Dr. Jim because no one in the clinic could pronounce his last name. He was also Dr. Jim because this was not one of the fancy offices on Highland Avenue or Dilworth Street. This was the free clinic on North Brewster where you could get a shower, new socks, and a chance to use the phone, if you were lucky.

Dr. Jim opened the chart as Jennifer inched up onto the examining table. “How are things going?” he asked as he put the chart down and moved toward her. Having seen her just two weeks ago, it didn’t take long for him to receive the answer. The cavity on her right forearm was full of creamy debris and had raised red edges.

“You’ve got to stop skin popping and start taking care of yourself. Things are getting worse, and you have more ulcers on your arms than last time.”

“Well, but, eh, this one is getting better, see,” she protested, pointing. It was hard to stop using and hard to take care of herself on the street. “I’m supposed to use warm compresses and dry dressings. Ha, that’s a joke,” she added.

That was how the morning had started. Then there was Bill. It was not easy, Bill and Dr. Jim agreed. Not easy to take care of yourself when you have diabetes and live in a cardboard box.

“I keep the box dry,” Bill reassured the doctor, whose head was shaking. “I just can’t see that well in there to get the right amount of insulin. And someone stole my glucose tester.”

At least Arnold Benedict did have a place to live. It was in the basement of his daughter’s house. “But they is always drinkin’ and fightin’,” he told the doctor, who wanted to know why Arnold hadn’t been back to get his blood pressure pills.

And look at how much weight he had lost. With his collar fully buttoned it would be possible to fit another neck in his shirt.

This went on and on that Tuesday morning. The schizophrenic who would not take her pills. The crack addict who had crushing chest pain when smoking but couldn’t stop.

It was only Orlando, the last patient called into the room, who seemed fit. Dr. Jim had known Orlando since the day he started coming to the clinic nine years ago. He had watched him grow weaker with dry cracking skin and bloodshot eyes. He had seemed to age as rapidly as this old row house they called a clinic.

But now on this rainy morning, after not having seen Orlando for more than a year, Dr. Jim was shocked. The guy looked great with full cheeks, no pimples, and without that twitch in his right shoulder. And he spoke using full words, one following the next into an understandable sentence. Was this really Orlando the wheezer? Dr. Jim wondered.

Yes, it was. “And where have you been?”

“I’ve been away.”

“Away?”

Away, Orlando explained, meant that he had been picked up on a parole violation and away was the Burlingame Prison Facility upstate.

Suddenly Jim realized where he had gone wrong this Tuesday and every Tuesday since 1994. There was, he thought, hope for Orlando and for every other homeless drug dependent schizophrenic with no health insurance. Hope for every skin-popping heroin addict on Keeley Street. But the hope was not here on Brewster Street. The hope was two hundred miles north in Burlingame Prison. How could he have missed that fact? “Things will never be the same,” Jim whispered to himself.

“Didn’t catch what you said, Doc.” Orlando, leaning forward on the examining table, responded. But Jim shrugged his shoulders and smiled. He would not repeat the words or reveal the plan they had triggered.

The plan, set into action that day, was obvious only two years later. Obvious only after the local police had the benefit of the new Crimestat Computer and Jennifer Gribben’s confession.

Her confession brought the police to the twisted peeling green door of the Brewster Street clinic and up the stairs to the examining room.

“Doc,” Officer Trevail asked Dr. Jim, who turned from the chart he was writing on, “Do you know a woman named Jennifer Gribben?”

“Well, I know her skin.”
“She told me that you gave her the floor plan of Beck’s TV Land so that she could burgle the place.”
Silence.
“Is that true, Doc?”
More silence.
“We would have ignored, skipped over, that little fact until we came to notice that the area crime rate, high as it was, has increased 472.6% in the last eighteen months . . . ”

Dr. Jim shrugged his shoulders.
“. . . and that seventeen of your patients are now doing time.”

Beads of sweat collected on Jim’s neck.
“Do you have anything to say about that?”

“Yes, officer,” Jim smiled as he spoke.
“I have a question. How are they doing?”
“Far as we know, they are all doing quite well.”

Dr. Jim smiled. “Thank you. Yes, officer, a crime has been committed. Isn’t it a crime that so many people need to go to jail to get the basic services and health care that they need?”

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You sit quietly, now and then silently waving your left hand.
You volunteer nothing, yet struggle to retrieve the right answer from the thicket.
She proclaims your marvelous progress—a cheerleader without a team.

Henry N. Claman, MD

Dr. Claman (ΩΩΩ, University of Colorado, 1979 Faculty) is Distinguished Professor of Medicine (retired) at the University of Colorado School of Medicine. His address is 596 South Olive Way, Denver, Colorado 80224. E-mail: hclaman@aol.com.
We are pleased to announce the addition of six new members to the Pharos editorial board.

**Lynn Cleary, MD**

Dr. Cleary (ΩΑΩ, Ohio State University, 1978) is Professor of Medicine at Upstate Medical University, Distinguished Teaching Professor at the State University of New York (SUNY), and currently serves as Vice President for Academic Affairs at Upstate. She previously served as Senior Associate Dean for Education in the College of Medicine. Dr. Cleary is an active clinician in both inpatient and outpatient general internal medicine and a clinician educator. Her scholarship is in the area of medical education and she has served as an ad hoc reviewer for *Academic Medicine* and the *Annals of Internal Medicine*. Dr. Cleary is currently Vice-Chair of the Board of Directors of the National Board of Medical Examiners and Governor of the Western region of the New York State chapter of the American College of Physicians where she received a Laureate Award for service. She has served as counselor for the New York Gamma Chapter of ΩΑΩ at Upstate since 2003, and is a counselor director on the board of directors of Alpha Omega Alpha. She serves on the Advisory Board of *The Healing Muse*, a journal of literary and visual arts published annually by the Center of Bioethics and Humanities at Upstate Medical University.

**Joseph J. Fins, MD, MACP**

Dr. Fins (ΩΑΩ, Weill Cornell Medical College, 2011, Faculty) is the E. William Davis, Jr. MD Professor of Medical Ethics and Chief of the Division of Medical Ethics at Weill Cornell Medical College where he is Professor of Medicine, Professor of Health Care Policy and Research, and Professor of Medicine in Psychiatry. He is the founding Chair of the Ethics Committee of New York-Presbyterian Weill Cornell Medical Center where he is an Attending Physician and Director of Medical Ethics. A member of the Adjunct Faculty of Rockefeller University and Senior Attending Physician at The Rockefeller University Hospital, he co-directs the Consortium for the Advanced Study of Brain Injury (CASBI) at Weill Cornell and Rockefeller. He is a Senior Research Scholar in Law at the Yale Law School. Dr. Fins is a member of the Institute of Medicine of the National Academy of Sciences, a Fellow of the American Academy of Arts and Sciences and an Academico de Honor of the Real Academia Nacional de Medicina de España.

Dr. Fins is the author of over 300 publications. His most recent book is *A Palliative Ethic of Care: Clinical Wisdom at Life’s End* (Jones and Bartlett, 2006). His current scholarly interests include ethical and policy issues in brain injury and disorders of consciousness, palliative care, research ethics in neurology and psychiatry, medical education, methods of ethics case consultation, the history of medicine and bioethics in the Spanish-speaking world. He is a co-author of the 2007 *Nature* paper describing the first use of deep brain stimulation in the minimally conscious state. His forthcoming book, *Rights Come to Mind: Brain Injury, Ethics & The Struggle for Consciousness* will be published in 2015 by the Cambridge University Press.

**Lara Hazelton, MD**

Dr. Hazelton is an Associate Professor with the Department of Psychiatry and Director of Academic Faculty Development for the Faculty of Medicine at Dalhousie University in Halifax, Nova Scotia, Canada. She completed residency training at Dalhousie in 1999, followed by a fellowship in psychotherapy at the University of Toronto. She obtained a Masters of Education degree from Acadia University in 2013, her thesis research focusing on the teaching and assessment of professionalism.

Dr. Hazelton has published in the areas of medical education, humanities, and ethics. She has been awarded the 2012 Royal College Fellowship for Studies in Medical Education, and the 2011 Gerald and Gale Archibald Gold-Headed Cane Award for excellence in the field of medical humanities. Her current areas of research and scholarly activity include narrative, remediation in medical education, and the pedagogy of critical thinking. Since 2012, she has worked as a general adult outpatient psychiatrist at the Cobequid Community Health Centre near Halifax, Nova Scotia.

**Jerome Lowenstein, MD**

Dr. Lowenstein (ΩΑΩ, New York University, 1957) is Professor of Medicine and Firm Chief at New York University School of Medicine. His full time activities include teaching, patient care, and translational research. In 1979, Dr. Lowenstein founded and still directs the Humanistic Aspects of Medical Education program at NYU. He is the Founding Publisher of the Bellevue Literary Press and the Senior Editor for Non-fiction of the *Bellevue Literary Review*.

Dr. Lowenstein is the author of four books: *Acid and Basics* (Oxford University Press, 1992); *The Midnight
New members of the Pharos editorial board


Therese Jones, PhD
Dr. Jones is Associate Director of the Center for Bioethics and Humanities and Director of the Arts and Humanities in Healthcare Program at the University of Colorado Anschutz Medical Campus (www.coloradobioethics.org) and an Associate Professor in the Department of Medicine. She has published and presented extensively on HIV/AIDS and the arts; literature, film, and medicine; and medical education; and is the editor of the Journal of Medical Humanities (Springer) and lead editor for the Health Humanities Reader published by Rutgers University Press in October 2014 (see our review on page 44). Her classes include Film and Healthcare at the School of Pharmacy; and at the School of Medicine, Reel Psychiatry: Film and Mental Illness, The Doctor-Patient Relationship in Literature and the Arts, and AIDS and American Culture. Recent projects include developing the first health and humanities undergraduate minor for University of Colorado Denver. Her areas of interest include humanities and arts in medical education, cultural studies of medicine, and disability studies.

C. Ronald MacKenzie, MD
Dr. MacKenzie is an Attending Physician at the Hospital for Special Surgery and Professor of Clinical Medicine and Public Health (Medical Ethics) at Weill Medical College of Cornell University. Recently awarded The C. Ronald MacKenzie Chair in Ethics and Medicine at the Hospital for Special Surgery, he has pursued an interest in medical ethics both at the medical institutions with which he is affiliated as well as with his major professional society, the American College of Rheumatology. In this capacity he was formerly Chair of this national organization’s Ethics and Conflict of Interest Committee. He is a consulting physician in Rheumatology at Memorial Sloan Kettering Hospital.

Selected as a faculty scholar in the Ethics Division at the New York Presbyterian Hospital (2002–2004), Dr. MacKenzie was recently named a member of the American Osler Society. Dr. MacKenzie has published numerous peer reviewed articles, book chapters, and abstracts and regularly lectures on matters pertaining to the rheumatic diseases, medical ethics, and medicine in general. His book, The Perioperative Care of the Orthopedic Patient, was published in 2014.

Apart from his professional responsibilities Dr. MacKenzie previously served on the Board of the Health Care Chaplaincy of New York, an organization devoted to the training of health care chaplains and to the spiritual care of hospitalized patients. This year he joined the Board of the Newport Festival Foundation. In his spare time Dr. MacKenzie is a musician (clarinetist), a member of the Westchester Symphonic Winds. In his nearly twenty-five year association with this organization he has performed at Avery Fisher Hall and the Caramoor Music Festival. He holds dual citizenship in the United States and Canada.

Philip A. Mackowiak, MD, MBA, MACP
Dr. Mackowiak (AFIA, University of Maryland, 1992, Faculty) is Emeritus Professor of Medicine and the Carolyn Frenkil and Selvin Passen History of Medicine Scholar-in-Residence at the University of Maryland School of Medicine. He is a Master of the American College of Physicians (ACP) and a former governor of the Maryland chapter of the ACP. He began his career in academic medicine as an Epidemic Intelligence Officer with the Centers for Disease Control in the early 1970s. In 1975, he joined the faculty of the University of Texas Southwestern Medical School in Dallas, where he rose to the rank of Professor of Medicine before joining the faculty of the University of Maryland School of Medicine in 1988.

Dr. Mackowiak has published over 150 peer-reviewed articles, editorials and book chapters on a variety of medical topics and is perhaps best known in the medical community for his work on the diagnosis, prognosis and treatment of fever. His book, Fever: Basic Mechanisms and Management, now in its second edition, is the first comprehensive monograph on the subject since one published by Wunderlich in 1868.

For almost two decades, Dr. Mackowiak has hosted an internationally-acclaimed series of Historical Clinicopathological Conferences in Baltimore. These have given rise to over a score of peer-reviewed articles, as well as a book entitled Post Mortem: Solving History's Great Medical Mysteries. These works earned Dr. Mackowiak the American College of Physicians' 2010 Nicholas E. Davies Memorial Scholar Award for Scholarly Activities in the Humanities and History of Medicine, and have established him as one of today’s most accomplished medical historians. In 2013, Oxford University Press published a sequel to Post Mortem, entitled Diagnosing Giants: Solving the Medical Mysteries of Thirteen Patients Who Changed the World.
The physician at the movies

Peter E. Dans, MD

Unbroken

Starring Jack O’Donnell, Takamasa Ishihara (Miyavi), Domhnall Gleeson, Finn Whittrock.
Running time 137 minutes.

Intense” best describes this film based on Laura Hillenbrand’s outstanding book Unbroken: A World War II Story of Survival, Resilience, and Redemption,¹ which chronicles the extraordinary life of Olympian Louis Zamperini (Jack O’Donnell). He survived two crash landings, the last one followed by forty-seven days on a raft at sea and two years as a Japanese prisoner of war. With its many scenes of brutality, the movie certainly does not qualify as entertainment, but it does tell an important true story. Actually, as the book’s subtitle implies, there are many layers to the story. Some are done well. Others, especially the last part, would have benefited from more fleshing out.

The film begins with a harrowing crash landing of a B-24 catching flak just after Zamperini releases its bombs. Viewers are effectively brought into the plane as it starts to lose altitude. The crew manages to get back to the base; remarkably, all survive. They are not as lucky on their next mission. A clueless administrative desk jockey assigns them a plane that they know has been cannibalized to provide parts for other planes and,
sure enough, the engines go out and they crash into the sea. Swallowing blood and oil, Zamperini surfaces, and he and the two other survivors, pilot Phil Phillips (Domhnall Gleeson) and gunner Mac McNamara (Finn Whitrock), are left clinging to a raft in a limitless part of the Pacific Ocean with no landmarks.

Director Jolie then takes a step back to introduce us to Louie Zamperini, a juvenile delinquent in a loving and respected Italian-American family. His brother Pete sees the good in him—and his ability to run fast. Track gives Louie an identity, and Pete acts as his brother’s timekeeper. When Louie is discouraged, Pete tells him, “If you can take it, you can make it,” an admonition that will serve him well later on. Louie ultimately sets the state high school record for the mile, earning him the nickname “The Torrance Tornado.”

Zamperini qualifies for the U.S. Olympic Team to compete in the 1936 Summer Games held in Berlin. Despite coming in eighth in the 5000 meters, he runs the last lap in a phenomenal 56 seconds, shattering the record of 69.2 seconds. Hitler seeks him out to shake his hand, calling him “the boy with the fast finish.” Everything looks rosy for his chances in the upcoming Olympics to be held in Tokyo in 1940. The games are called off because of the war and Zamperini joins the Army Air Corps.

The film returns to the Pacific, where Zamperini tries to ration the precious fresh water and chocolate, which are depleted when a frightened Mac wolves down a week’s worth of provisions. The men are beset by sharks, and on the twenty-seventh day they are finally spotted by planes that turn out to be Japanese. They are strafed for thirty minutes as they try to escape the bullets and the sharks. The rafts are left with forty bullet holes, but the men manage to craft an intact one from the remnants. On the thirty-third day, McNamara dies. During a particularly bad storm, Zamperini prays, promising that if he survives he will give his life to God.

Finally, after drifting 2000 miles, Zamperini and Phillips make land in the Marshall Islands. They are captured by the Japanese and sent for interrogation to Kwajalein, which was known as “Execution Island” because as soon as the prisoners gave whatever information they seemed to have, they were executed by beheading. Zamperini’s life is spared in recognition for his track prowess. He is sent on a “hell ship” to another POW camp; on the way, eighty prisoners die. There he is tortured mercilessly by the sadistic camp director Corporal Mutsuhiro Watanabe, played convincingly by Takamasa Ishihara, a Japanese rock star whose stage name is Miyavi. Called “The Bird,” Watanabe was the scion of wealthy family. Washing out of officers school left him insecure and bitter about being unappreciated, which he proceeds to take out on his captives. He holds a special animus for the famous Zamperini. Their interaction is covered almost to excess: when the Bird tells all the prisoners to slug Louie in the jaw, a couple of times would have sufficed—we didn’t need to see a squad of men do it. The Japanese had POWs do propaganda broadcasts about how well they were being treated. Those who complied were treated to good food and hotel accommodations. Zamperini does one broadcast in which he just says he is alive but refuses to read the script. He is sent back for twenty-five more months of torture at the infamous Japanese POW camps Ofuna, Omoki, and Naotesu.

He is eventually freed at war’s end. The film ends when he gets back to the United States and is welcomed by his family. He had lost nearly 100 pounds, and weighed 65 pounds when he returned home. His conditioning probably helped him survive. Amazingly, despite all the trauma, he lived to 97.

The “redemption” in the subtitle is covered in a few scrolling paragraphs as part of the final credits. On Greta Van Susteren’s show in December 2014, Franklin Graham, son of the Reverend Billy Graham, discussed his new film *Louis Zamperini: Captured by Grace*, which focuses on what Paul Harvey used to call “the rest of the story.” Although careful to commend Jolie for doing a good job, he noted that the film makers chose to end the movie at the book’s chapter 33, leaving out five chapters and an epilogue in which Billy Graham played a prominent role. In doing so, she missed the opportunity to create a real-life story of post-traumatic stress disorder (PTSD) and the difficulty veterans have re-entering civilian life, as well as the role of faith in combating it. If she had, a good film could have been a great film, ranking with the 1946 Academy Award-winning Best Picture *The Best Years of Our Lives*.

In Graham’s film, Zamperini recounts the perils of being a “hero.” Everybody wanted to buy him a drink or to invest in some deal. He descended into alcoholism; drinking to oblivion was the only way to blot out the nightmares of torture at the hands of Bird, whom he vowed to kill. In May 1946, he married Florida debutante Cynthia Applewhite, with whom he had a child. The nightmares did not abate, and psychiatric treatment didn’t help. One night, he woke up with his hands around his pregnant wife’s throat. Afraid and fed up with his benders, Cynthia filed for divorce. Attending a tent meeting during the Reverend Billy Graham’s first national tour, Cynthia accepted Graham’s invitation to welcome Christ into her heart and urged Louie to go hear him. He told her that he didn’t need anybody to tell him that he was a sinner. She responded that if he attended she would not divorce him.

The first night, he stormed out of the meeting. The next day, he was about to walk out again—then he remembered his promise to serve God. He stayed and heeded Graham’s call to conversion. He went home and “got rid of his liquor, cigarettes and girlie magazines” and retrieved the New Testament that he had kept his promise but he hadn’t. The rage, fear, and humiliation seeped out of him to be replaced by peace, and the Bird left his dreams. He dedicated his life to helping wayward boys as the director of the “Victory Boys Camp.”

He decided to return to Japan to preach forgiveness. His message to 850 war criminals at Sugamo Prison touched a
number of guards, many of them his former captors. Before his conversion Louie had wanted to kill the Japanese; now he was able to go back and forgive them.

Addendum: It is estimated that twenty-seven percent of western POWs died in Japanese captivity, seven times that of British and American POWs held by the Germans. Watanabe was in the Top 40 list of war criminals. Unrepentant, he was aghast at being ranked with Tojo and went into hiding. He came out only when, for political reasons (the Korean War had broken out and a rehabilitated Japan was essential for stability in the region), General Douglas MacArthur, pardoned all criminals not in custody. The remaining captives who had not been tried were freed when the American occupation ended in 1952. The Bird never agreed to meet Louie. He died in 2003 at eighty-five, a wealthy man.

References

American Sniper

Starring Bradley Cooper, Sienna Miller, and Kyle Gallner.
Directed by Clint Eastwood. Rated R.
Running time 132 minutes.

If Unbroken is a 10 on the intensity scale of 1 to 10, this film rates a This Is Spinal Tap 11. It tells the story of Chris Kyle (Bradley Cooper), a Navy SEAL whose job was to protect Marines and American and Iraqi soldiers as they fought and captured such hostile towns as Fallujah and Ramadi. The film opens with his father teaching him how to hunt and conveying a philosophy of life. He divides people into sheep, wolves, and sheep dogs. The sheep are like innocent Americans, the wolves are those who want to hurt them, and the sheep dogs are those who protect the sheep. They are the ones who care for others.

Kyle is a Texan who aspires to be a cowboy, spending his time on the rodeo circuit busting broncos and carousing until he sees news footage of the 1998 U.S. embassy bombings and finds his calling. A self-professed sheep dog, he commits his life to getting the bad guys and protecting the sheep from the wolves. He trains as a Navy SEAL, training so rigorous as to border on what some might consider torture, conducted by hard-nosed drill sergeants spouting profanity and insults to toughen up the recruits. He meets his future wife Taya (Sienna Miller) in a bar. Their romance and marriage are well-handled, and the light-heartedness is a nice counterbalance to the SEAL training and what is to come later.

Following the September 11 attacks, he begins the first of four tours in Iraq that will ultimately total 1000 days. In between the tours, he is zombie-like, often sitting on a chair in the house. Meanwhile he and his wife have two children. His wife says she needs him to be human, but he finds it difficult be a father or to connect with his wife and others on the home front. He wants to go back to protect his men.

Life in Iraq is primitive, but they do have cell phone access. I was surprised to see him talking to his wife while stalking a target. He must stay alert for hours as he covers the Marines going door-to-door, never knowing what’s behind one.
he has to relieve himself, he does so in a special bag. As the number of his kills rises to 255 (160 officially confirmed), making him “the most lethal sniper in U.S. history,” the terrorists put a bounty on his head. He wants to get Anwar al-Awlaki, the American recruiter for al-Qaeda who was placed by President Obama on an authorized to kill list in 2010. During Kyle’s tours, al-Awlaki is protected by the Butcher, who kills and beheads any Iraqi collaborator who reveals their whereabouts. On Kyle’s his position. He is wounded and during a sandstorm he barely makes it to a rescue helicopter.

Again, he finds it difficult to adjust to life back home. There is an excellent scene portraying a Navy psychiatrist to whom he admits that he is haunted by the guys he couldn’t save. The doctor takes him back to a ward filled with seriously injured survivors. The sheepdog again finds a mission and as he helps them, he overcomes his PTSD.

Bradley Cooper bulked up forty pounds by eating 8000 calories a day to play Kyle, whom he resembles. He carries ninety percent of the film. Cooper deserved the Oscar nomination for Best Actor and should have been a front runner for capturing the award, as should the film have been for Best Picture. This is considered by many to be the first film to realistically portray the Iraq war and to show that the men who volunteer to protect us do it for love of country. I was swept into the movie and experienced a frisson of fear as the Marines went house to house, only to do it again the next day if they survived. If I were one of those men who survived or a relative of one who died, I would be heartbroken to see those towns being recaptured by ISIS once America withdrew from Iraq. The film broke the box office record for a drama or an R-rated film, garnering $105.2 million, well over its budget of $58.8 million, in the first weekend it opened.¹ People who had given up on Hollywood’s ability to get it right are going to theaters in droves. It is not an easy film to watch but it is worth seeing, no matter your political persuasion or attitude about the war. I didn’t know the ending and was glad I didn’t.

References

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Reviews and reflections

Being Mortal: Medicine and What Matters in the End
Atul Gawande
Reviewed by Dean Gianakos, MD

When Atul Gawande was recently asked what book he would most recommend to aspiring doctors today, he answered, Leo Tolstoy’s The Death of Ivan Ilych.1 The story and its themes figure prominently in Gawande’s new book, Being Mortal: Medicine and What Matters in the End. In the opening pages, Dr. Gawande recounts how Ivan Ilych, a Petersburg magistrate, strives to live a socially proper, pleasant, and comfortable life. He gets promotions at work. He lives in the right neighborhoods, and belongs to the right clubs. Everything goes pleasantly well for him until he develops a mysterious, deadly disease that confounds his doctors. During his illness, he asks himself serious questions: What is the meaning of my life? Is it possible I have focused on the wrong things?

In Being Mortal, Gawande asks similar questions of doctors: Is it possible we are focused on the wrong things, especially when it comes to delivering care at the end of life? Is it possible for older adults to find meaning in their lives as they suffer loss after loss? How can doctors help them to do that?

Not long ago, I admitted a stoic, eighty-year-old man to the hospital. His family said he had been vomiting for several days. The patient did not complain about it. He looked ill and wasted. There were dark, bilious stains on his hospital gown. His breaths were shallow; his pulse weak and rapid. One week earlier, he had been diagnosed with rectal cancer, and had extensive metastases to his liver, peritoneum, and lungs. He did not argue with the oncologist when she suggested a trial of chemotherapy. His children were all for it—“There’s always a chance, dad, right?” Not wanting to disappoint the doctor or his family, he consented. During this admission, the palliative care specialist declined to see the patient until the oncologist determined there was “nothing more to do.”

Here’s the dilemma, perfectly described by Gawande:

In all such cases, death is certain, but the timing isn’t. So everyone struggles with this uncertainty—with how, and when, to accept that the battle is lost. As for last words, they hardly seem to exist anymore. Technology can sustain our organs until we are well past the point of awareness and coherence. Besides, how do you attend to the thoughts and concerns of the dying when medicine has made it almost impossible to be sure who the dying even are? Is someone with terminal cancer, dementia, or inurable heart failure dying, exactly?2

Gawande tells moving stories about older adults coping with illness and decline. The best one is about his father—an energetic surgeon like his son—who develops a life threatening spinal tumor. Gawande shares the difficulties of making decisions in the face of contrary medical opinions, his father’s conflicted values, and his own feelings about what should be done. Between the stories, he offers insightful commentaries on modern medicine’s inadequate attempts to help ageing and ill patients like his father find meaning in their lives. He also provides interesting histories of pauper houses, nursing homes, hospice, and the assisted living movement. He offers advice from palliative care experts and geriatricians. As an internist who sees primarily older adults, I learned another good question to ask patients: “If time becomes short, what is most important to you?”

If there is one shortcoming to this excellent book, it is this: Gawande offers few suggestions on how to slow the medical imperative. He acknowledges he is short on answers. His hope is the book will raise awareness of the problem, in the same way illness roused Ivan Ilych to question the meaning of his life:

This is a book about the modern experience of mortality—about what it’s like to be creatures who age and die, how medicine has changed the experience and how it hasn’t, where our ideas about how to deal with our
Reviews and reflections

As I pass a decade in surgical practice and become middle-aged myself, I find neither I nor my patients find our current state tolerable. But I have also found it unclear what the answers should be, or even whether any adequate ones are possible. I have the writer’s and scientist’s faith, however, that by pulling back the veil and peering in close, a person can make sense of what is most confusing or strange or disturbing.

Gawande successfully pulls back the veil, and leaves physicians with a vital question: if time becomes short, what is most important to your patient? It’s a question we hope our own doctors will ask us when our time comes.

Reference


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The Health Humanities Reader

Therese Jones, Delese Wear, and Lester Friedman, editors
Rutgers University Press, 2014, 603 pages

Reviewed by David A. Bennahum, MD (AΩA, University of New Mexico, 1984)

The Health Humanities Reader, edited by Therese Jones, Delese Wear, and Lester D. Friedman is a 600-page compendium of stories, poetry, and commentary that will be of most value to teachers of the social sciences and literature to students of the health sciences, rather than to the students themselves. While I found a number of interesting essays and stories, I particularly appreciated “What Is Sex For? Or, the Many Uses of the Vagina,” by Alice Dreger, which was simply hilarious, as well as sad and often scary. On first reading I found much of the volume heavy on the analysis. But I must admit that my bias is for the story, the poem, or the case rather than the theory. However, as I delved deeper into the collected essays I did find the theory intriguing and quite instructive.

Another exception to the rule that this is serious stuff was my colleague Jack Coulehan’s “Occupational Medicine,” a charming reminiscence of his time as a college student working in the Wheeling Steel plant in Steubenville, Ohio. Discovering that their greenhorn apprentice was premed instantly elevated him to the rank of physician in the estimation of his co-workers: “I turned into ‘Doc’... ‘Hey, Doc, my wife’s gall bladder is acting up.’ ‘Hey, Doc, my youngest boy, he’s been coughing all night.’ ‘Listen, Doc, Brick’s got the clap again. He says penicillin doesn’t work. What do you think he should do?’” pp149–50

The text is divided into twelve parts, each part composed of three or four chapters. The editors and authors represent some of the most distinguished scholars of the medical humanities. The parts are: Disease and Illness, Disability, Death and Dying, Patient-Professional Relationships, the Body, Gender and Sexuality, Race and Class, Aging, Mental Illness, Spirituality and Religion, Science and Technology, and Health Professions Education.

In contrast to the analytical writing of a number of the authors, there are several graphic stories illustrating the value of images to narrative. In fact the importance of narrative is stressed throughout the volume, especially the insights of Arthur Kleinman and Howard Brody that have influenced many of the scholars and writers represented. Digging through the demanding analysis of the essays in this book, the reader can find much wisdom in the editors’ understanding of the importance of narrative to the encouragement of empathy and to the practice of listening to patients. In reality, if there is a fundamental problem in modern scientific medicine, it may be the too common failure of so many physicians—often pleading their lack of time—to listen for and elicit the patient’s story, the history.

As the grandfather of a young boy who is on the autistic spectrum, I was very interested in the essay “Teaching Autism Through Naturalized Narrative Ethics: Closing the Divide between Bioethics and Medical Humanities,” by Julie M. Aultman. She comments on the difference between medical ethicists and humanities scholars.

The often unspoken, but ever-present social divide between medical ethicists and medical/health humanities scholars is created in part from the ways illness, disability, and death are conceptually, descriptively, and normatively examined. Medical ethicists use theories, principles, and approaches to ethical decision making to recognize, resolve, and reflect on ethical problems. The humanities scholar, in contrast, is
Edmund Pellegrino wrote that the good physician was both competent and compassionate. But that same physician and nurse are often wounded warriors. Long hours, the suffering and death of patients, work that separates the health care professional—especially young house officers—from family and friends, all exact their toll. A defense and a strategy for healing from the unavoidable deformation that is a consequence of caring for the sick is the search for meaning through images and literature, music and dance, and the other arts and humanities. Medicine is indeed an art, what the Greeks called techne, or the craft of medicine. And it is often indeed in the humanities where those of us who care for the sick can find meaning and healing.

This book will be very helpful to teachers of the humanities to medical students, physicians, nurses, and all other health professionals who wish to prepare themselves to use a variety of materials such as short stories, images, music, and the social sciences to encourage the natural empathic skills of their students, and to offer meaning and healing to those engaged in the privilege of caring for the sick. It belongs in every health sciences library and on the desk of many humanities and social science teachers.

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The Birth of the Pill: How Four Crusaders Reinvented Sex and Launched a Revolution

Johnathon Eig
New York, WW Norton, 2014
Reviewed by William P. Reed, MD

The history of the development of the birth control pill is remarkable for the low cost of the process and the simplicity of testing and marketing it, as told by Johnathon Eig in this detailed and readable book. The idea began with Margaret Sanger, the fiery and well known proponent of woman’s rights. Mr. Eig summarizes her role in the first sentence of the book: “She was an old woman who loved sex and she had spent forty years seeking a way to make it better.” Sanger fervently believed that there should be a way for a woman to take a scientifically designed pill in the morning and have sexual intercourse later in the day with no fear of pregnancy, while knowing that she could stop taking the pill and return to normal fertility. She had asked many medical scientists if such was possible, and had always received the answer that no, there was no way that such a pill could be developed.

At age seventy-one, still looking for a scientific way to fulfill her dream, Sanger visited forty-three-year-old Harvard scientist Gregory Goodwin Pincus, an expert in the hormonal aspects of pregnancy. Considered to be a brilliant scientist, his work on in vitro fertilization in animals was widely reported by the press, although misrepresented as an attempt to produce test tube or bottle babies. (He was in fact re-implanting fertilized eggs in experimental animals.) The notoriety led to Harvard’s refusal to renew his contract. After unsuccessfully applying for jobs at many universities, Pincus eventually gained a minor appointment at Clark University in Worcester, Massachusetts, where he established his laboratory in a dirty basement. Unlike other scientists Sanger had contacted, Pincus believed that it was possible to create a birth control pill. He immediately focused on progesterone and manmade progestins. Progesterone concentrations were known to be elevated during pregnancy and were presumed to be the reason that pregnant women did not ovulate. Some progestins were known to block ovulation at much lower concentrations than were required for progesterone itself. Over the next decade Pincus concentrated his experiments on the birth control problem and became the scientific brains behind the idea.

To pay for the experiments, Sanger relied on her friendship with Katherine Dexter McCormick, the daughter-in-law of the founder of International Harvester. Dexter had earned a BSc in biology at the Massachusetts Institute of Technology in 1904, and later that year married Stanley McCormick. In 1906, Stanley McCormick was diagnosed with schizophrenia, and he was declared legally incompetent some years later. After meeting Pincus, McCormick became interested in his experiments, and supported them until they were complete.

For the first part of his animal studies Pincus had worked on using progesterone or a progestin as an agent to prevent ovulation. Because he had no idea what dose to use in humans and what the toxicity of the drug would be, he needed a medical doctor to oversee that part.
of the study and to run the subsequent clinical trials. That was John Rock, MD, the last major person to become involved in the development of the birth control pill. Rock was a Harvard professor of obstetrics and gynecology, one of the world’s leading experts in the treatment of infertility, and intensely interested in women being able to control their own reproduction. Rock had a sterling reputation and became the ethical standard bearer for the study. Before his participation, and even after he became involved, parts of the trial had ethical lapses that would be unlikely to be tolerated today. In one case, female Puerto Rican medical students were told in one class that they had to be subjects in an early study evaluating the safety of the drug, and that their grades would partly depend on their participation. While Pincus knew and approved of this attempt to force participation, Rock did not.

Even as the date approached on which the group had hoped to have the pill on the market, Pincus had not decided which progestin he would use. He finally settled on a 10 mg dose of norethylnodrel, a G.D. Searle patented progestin. The drug choice may have been influenced by Searle’s willingness to provide the progestin and manufacture and market the drug, although the cost to the company was very low. The dose was chosen since Pincus knew that it would provide near 100 percent efficacy in preventing pregnancy; the side effects could be reduced later if necessary by reducing the dose.* One batch of the drug provided to Pincus was inadvertently contaminated by estrogen—when Pincus learned of this, he realized from the test data that the addition of estrogen had reduced the side effects, leading him to incorporate low-dose estrogen in the pill.

Application to the Federal Drug Administration (FDA) faced the problem that no criteria existed for approving a drug to be taken by healthy women for contraception, given the existence of non-drug options, as well as opposition by the Catholic Church. It was decided to apply for permission to market the drug for menstrual disorders (too much bleeding or painful periods), for which there was adequate experimental evidence that the pill had value when taken for several cycles. The FDA at the time was seriously understaffed and overworked, and sought outside advice. The drug was finally approved in 1957; there is no evidence that it could have been approved as a contraceptive. Pincus touted Enovid’s use as a contraceptive at conferences, noting that physicians could prescribe it off-label for that purpose. This was reported widely in the news media, leading to the drug being regularly prescribed for contraception. Enovid was approved for contraception in 1960 as an amendment to the original approval.

It would be difficult to think of another drug that has had a greater effect on human behavior than Enovid, initially marketed at about fifty cents a pill. And it is remarkable that only four people were primarily responsible for its development: Sanger with her dream and drive to make it happen, Pincus with his scientific knowledge and skill to develop the drug, McCormick with the funds and commitment to pay the majority of the costs, and Rock with his clinical skills and reputation that made the drug successful.

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*In a study of eighty patients, only five had no side effects. Common side effects were nipple swelling or discoloration, soreness of the breast, nausea or vomiting, vaginal discharge, changes in libido (usually an increase), and occasional subjects experienced lactation. In other studies there was breakthrough bleeding. Thrombophlebitis was later noted as a side effect.
When I was thirteen
My father died in his sleep;
I heard his death rattle,
I watched my mother’s efforts to revive him,
And I listened, without hearing,
As the doctor tried to comfort me.

I saw my father in his coffin,
And saw that coffin lowered into the ground;
Yet, weeks later,
When, from a distance,
I saw a man that looked like him,
Walked like him and dressed like him,
I ran to get a closer look,
Hoping I’d been cruelly tricked—
Realizing I had not.

Now in my seventy-seventh year,
Beloved friends and relatives have died;
I saw them in their coffins,
I saw their coffins lowered into the ground,
And still I run after their look-alikes,
Only slower.

Albert I. Kaufman, PhD
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William Gardner (2013 Northeast Ohio Medical University)
W Timothy Garvey (1977 Saint Louis University)
Walter J Gaska (1964 SUNY Upstate Medical University College of Medicine)
James C Gay (1978 Emory University)
Thomas A Gennarelli (1968 Loyola University, Stritch School of Medicine)
Craig John Gerard (1985 Wake Forest School of Medicine)
Dale N Gerdig (1967 University of Minnesota)
Richard L Gerety (1976 University of New Mexico)
Michael H Gewitz (1988 MCP Hahnemann [Allegheny University])
Charles Eugene Giangarra (2010 Marshall University School of Medicine)
Eric Paul Gierke (1990 University of Washington)
William Donal Gieseke (1968 Indiana University)
Edward B Gilmore (1965 Harvard Medical School)
Robert A Gisness (1979 University of South Dakota)
Wolfram Glaser (1969 University of Alabama at Birmingham School of Medicine)
Paul R Glowienka (1982 Uninformed Services University)
2014 Donations

Richard J Gnaedinger (1993 University of Illinois)
James E Goddard Jr (1957 University of Pittsburgh)
Edward L Goldblatt (1966 University of Alabama at Birmingham School of Medicine)
Francisco Gonzalez-Scarano (1975 Northwestern University)
Erica T Goode (1994 University of California, San Francisco)
Samuel Goodloe Jr (1968 Howard University)
Gary G Gordon (1958 State University of New York, Downstate Medical Center)
Ronald A Gosnell (2000 University of Minnesota)
Bobby L Graham Jr (1982 University of Mississippi)
Caleb Michael Graham (2013 University of Mississippi)
Carla C Graham (1990 East Carolina University Brody School of Medicine)
Avrum Vreemnie Gratch (1959 University of Chicago)
Mark T Grattan (1978 University of California, San Francisco)
Gilman D Grave (1966 Harvard Medical School)
David Wayne Gray (1987 University of Illinois)
Leonard Joseph Graziani (1975 Sidney Kimmel Medical College, Thomas Jefferson University)
Alan R Green (1969 New York Medical College)
Jacob B Green III (1964 University of Texas Medical Branch)
Burton H Greenberg (1960 University of Illinois)
Harold L Greenberg (1965 University of Miami)
Mary A Greene-McIntyre (1983 Meharry Medical College)
William B Greenough III (1957 Harvard Medical School)
Dorothy R Gregory (1958 University at Buffalo, School of Medicine & Biomedical Sciences)
Christopher P Grenier (1986 Louisiana State University School of Medicine in New Orleans)
Jamie B Grimes (1990 Uniformed Services University)
Thomas J Grogan (1979 University of Cincinnati)
J D Guillory Jr (1958 Louisiana State University School of Medicine in New Orleans)
Thomas F Gumprecht (1975 University of Washington)
Robert Allen Gustafson (1986 West Virginia University)
Brett B Gutsche (1984 Raymond and Ruth Perelman School of Medicine at the University of Pennsylvania)

H
Edward D Haak Jr (1967 University of Virginia)
Clayton R Haberman (1949 University of Wisconsin School of Medicine and Public Health)
Michael D Hagen (1975 University of Missouri)
David R Hall (1990 Medical College of Georgia at Georgia Regents University)
Geoffrey G Hallock (1974 Sidney Kimmel Medical College, Thomas Jefferson University)
Steven K Hamar (1974 Baylor College of Medicine)
Christopher D Hamilton (1988 David Geffen School of Medicine at University of California, Los Angeles)
Edwin H Hamilton (1990 Meharry Medical College)
Elizabeth L Hamilton-Byrd (1987 University of Southern California)
Stanley F Handel (1964 University of Texas Medical Branch)
Peter R Handley (1993 Wayne State University)
Lara C Hanlon (2001 Geisel School of Medicine at Dartmouth)
Nancy B Hansen (1978 University of Tennessee Health Science Center)
Sami J Harawi (1973 American University of Beirut)
Joseph E Harlan Jr (1976 Wake Forest School of Medicine)
Lawrence L Harms (1982 University of Nebraska)
Gregory R Harper (1975 Albany Medical College)
Ian J Harrington (1964 University of Western Ontario Faculty of Medicine and Dentistry)
Michael S Harris (1966 University of Texas Southwestern Medical Center at Dallas)
Frank N Harrison Jr (1973 Medical College of Georgia at Georgia Regents University)
Gregory T Harshbarger (1974 Creighton University)
John A Haugen (1975 University of Minnesota)
Arthur Haut (1949 Columbia University)
Donald R Hawes (2005 Indiana University)
Jackie Hayes (1987 University of Mississippi)
Helen Hays (1987 University of Alberta Faculty of Medicine and Dentistry)
L Julian Haywood (1981 Howard University)
Jerris R Hedges (1994 Oregon Health & Science University School of Medicine)
R David Heekin (1997 Uniformed Services University)
Alexandra S Heerdt (1986 Sidney Kimmel Medical College, Thomas Jefferson University)
James J Heffernan (1976 Boston University School of Medicine)
Anthony Hein (1994 David Geffen School of Medicine at University of California, Los Angeles)
David Joseph Heinsch (2010 Medical College of Georgia at Georgia Regents University)
Richard Hellman (2005 Rosalind Franklin University of Medicine & Science)
John H Helzberg (1980 University of Rochester School of Medicine and Dentistry)
Dennis L Hemingway (1960 University of Wisconsin School of Medicine and Public Health)
John W Henderson (1949 Northwestern University)
Marlene A Henning Sachs (1997 Geisel School of Medicine at Dartmouth)
Charles Michael Herndon (1977 University of New Mexico)
Michelle Montoney Herron (1996 University of Rochester School of Medicine and Dentistry)
Guy M Hicks Jr (1949 Tulane University)
Eve J Higginbotham (2008 Morehouse School of Medicine)
John V Hill (1964 University of Iowa)
William A Hill (1968 University of Alabama at Birmingham School of Medicine)
Mark W Hinshaw (1965 University of Missouri)
Frederick P Hoba (1962 University of Vermont)
Scott C Hobler (1993 University of Toledo College of Medicine)
Larry Hobson (1994 Meharry Medical College)
Melanie Catherine Hodge (2013 Pennsylvania State University College of Medicine)
Irwin Hoffman (1993 University of New Mexico)
Robert Cary Holladay (1987 Louisiana State University Health Sciences Center in Shreveport)
Gary N Holland (1979 David Geffen School of Medicine at University of California, Los Angeles)
Anne M Hollister (1982 University of California, Davis)
Silas Wendell Holmes Jr (1990 University of South Carolina)
Elmer J Holzinger (1996 University of Pittsburgh)
Daniel L Hood (1984 Wright State University Boonshoft School of Medicine)
Beulette Yvonne Hooks (2013 Mercer University School of Medicine)
Alan R Hopeman (1950 University of Minnesota)
Melvin Horwith (1950 Albany Medical College)
Sharon L Hostler (1985 University of Vermont)
Mary F Hotchkiss (1988 Ohio State University)
Robert Smith Howard II (1987 University of Kentucky)
Teresa Ann Howard (1990 University of Kentucky)

52
Wm James Howard (1963 Raymond and Ruth Perelman School of Medicine at the University of Pennsylvania)
Harold R Howe Jr (1980 Wake Forest School of Medicine)
Harry E Howe (1952 University of Vermont)
Jimmy F Howell (1973 Baylor College of Medicine)
William F Hoyt (1970 University of California, San Francisco)
Judith A Hsia (1978 University of Illinois)
Daphne T Hsu (1982 Yale University School of Medicine)
Ana G Huaman (1990 University of New Mexico)
Philip J Huber Jr (1993 University of Texas Southwestern Medical Center at Dallas)
Hubert Carl Hueb (2004 Wayne State University)
William E Hughes (1984 University of South Alabama College of Medicine)
Edgar W Hull (1964 Yale University School of Medicine)
Tracy Lynn Hull (1986 Ohio State University)
Vernon B Hunt (1971 University of Pittsburgh)
Nadene D Hunter (1944 Tulane University)
David D Hurd (1972 University of Illinois)
Thomas P Hutchens (1979 Emory University)
Maj Gen Edward J Huycke (1992 University of Oklahoma)
Vera C Hyman (1968 University of South Carolina)

I
Omer Aslam Ilahi (1989 Baylor College of Medicine)
Ricky L Irons (1980 University of Alabama at Birmingham School of Medicine)
John A Irvine (1992 University of Southern California)
Luis A Izquierdo (1994 Universidad Central del Caribe)

J
Edward Cornelious Jacobs (1968 Loma Linda University)
Christopher F James (1977 University of Maryland)
David W Jaskar (1971 Medical College of Wisconsin)
William R Jewell (1960 University of Illinois)
Tamison Jewett (2010 Wake Forest School of Medicine)
Abiodun O Johnson (1996 Meharry Medical College)
Brent Edward Johnson (1987 University of Arizona)
Cheryl A Johnson (1993 Pennsylvania State University College of Medicine)
Daniel J Johnson (1979 Ohio State University)
David H Johnson (1975 Medical College of Georgia at Georgia Regents University)
Gary K Johnson (1969 University of Washington)
Mark Leo Johnson (1991 University of Minnesota)
Richard T Johnson (1955 University of Colorado)
Tom M Johnson (1984 University of North Dakota School of Medicine and Health Sciences)
Robert E Jones (1975 University of Utah)
Kirk G Jordan (1990 University of Texas Medical Branch)
Patricia K Joseph (1979 University of Florida)
Martin F Joyce-Brady (1979 University of Maryland)

K
Andreas Kaden (2008 University of Texas Medical School at Houston)
Donald L Kahn (1967 MCP Hahnemann [Allegheny University])
Frederick A Kam Jr (1992 University of Miami)
Elaine S Kamil (1973 University of Pittsburgh)
Nathan H Kander (1983 Wayne State University)
Charles F Kane (1945 Raymond and Ruth Perelman School of Medicine at the University of Pennsylvania)
Gary J Kanter (1993 Rutgers Robert Wood Johnson Medical School)
Louie Kantzavelos (2002 University of Illinois)
Harold Lawrence Karas (1998 MCP Hahnemann [Allegheny University])
Riad C Karimy-Jones (1989 George Washington University)
Barry H Kart (1968 Temple University)
Donald J Kastens (1981 University of Oklahoma College of Medicine)
Leonid Katz (1990 University of California, Davis)
James P Kauth (1961 Medical College of Wisconsin)
Rae-Ellen W Kavey (1972 State University of New York, Downstate Medical Center)
John A Kazmierski (1970 University of Illinois)
Michael J Kearns (1980 University of California, Irvine)
Richard P Keeling (1972 Tufts University School of Medicine)
Edward J Keenan (2003 Oregon Health & Science University School of Medicine)
Virginia T Keeney (2001 University of Louisville)
Elisabeth A Kelley (1980 Georgetown University)
Debra Jean Kelsh (1991 University of Kansas)
H Ronald Kennedy (1979 University of South Florida)
James A Kenning (1973 Sidney Kimmel Medical College, Thomas Jefferson University)
Rose M Kenny (1969 Sidney Kimmel Medical College, Thomas Jefferson University)
William F Kern (1979 State University of New York, Downstate Medical Center)
Jack D Kerns (1974 University of Iowa)
Douglas S Kerr (1965 Case Western Reserve University)
Lawrence J Kerzner (1974 Georgetown University)
Martin E Kessler (1979 Weill Cornell Medical College)
Hooman Khorasani (2004 University of Southern California)
Ernest A Kiel (2005 Louisiana State University Health Sciences Center in Shreveport)
Thomas W Kiernan (1988 Rutgers New Jersey Medical School)
Patti A Kile (1979 University of Minnesota)
Nancy Kim (2004 Rutgers New Jersey Medical School)
John C Kincaid (1975 Indiana University)
Thomas M King (1981 University of Minnesota)
Adam P Klausner (1995 SUNY Upstate Medical University College of Medicine)
Caroline M Klein (1993 University of Texas Medical Branch)
Kenneth M Klein (2004 Rutgers New Jersey Medical School)
Barbara Jane Klenczak (1986 University of California, Davis)
John A Kline (1969 Sidney Kimmel Medical College, Thomas Jefferson University)
Quentin F Knauer (1957 Case Western Reserve University)
Norman Miles Knetsman (1990 University of Alberta Faculty of Medicine and Dentistry)
Steven Knezevich (1984 Rush Medical College)
Kermit Knudsen (1955 University of Illinois)
Alfred J Kobak Jr (1958 University of Illinois)
Mordecai Koenigsberg (1962 Albert Einstein College of Medicine of Yeshiva University)
William M Kohen (1974 Wayne State University)
Colette M Kohler (1955 University of Texas Medical Branch)
Evan R Kokoska (1994 Washington University in St Louis School of Medicine)
Jeffrey I Komins (1970 MCP Hahnemann [Allegheny University])
James Duval Koonce (2006 University of Tennessee Health Science Center)
Stephen S Kornbluth (1979 Albany Medical College)
James S Kort (1977 Johns Hopkins University)
Martin A Koschnitzke (1986 University of Texas Medical Branch)
Richard J Kossmann (1959 Weill Cornell Medical College)
2014 Donations

Nicholas T Kouchoukos (1961 Washington University in St Louis School of Medicine)
Mark Kozak (1984 Johns Hopkins University)
Nicholas A Kozlov (1975 University of Illinois)
Robert A Kral (1976 Sidney Kimmel Medical College, Thomas Jefferson University)
Janet P Kramer (1997 Drexel University College of Medicine (merged with Hahnemann in 1998))
John R Krause (1965 University of Pittsburgh)
Michael J Kraut (1977 Wayne State University)
Robert A Kreisberg (1957 Northwestern University)
Lawrence A Kriets (1977 University of Missouri)
Joan Margaret Krikava (1968 University of Minnesota)
Paul A Krosgard (2010 Tulane University)
Kyle Gregory Krohn (1989 University of Texas Southwestern Medical Center at Dallas)
James C Kudra (1976 Northwestern University)
Kenneth M Kurokawa (1962 University of California, San Francisco)
William J Kurtz (2003 University of North Dakota School of Medicine and Health Sciences)
James P Kusher (1961 University of Pittsburgh)

L

Anthony Labruna (2003 Weill Cornell Medical College)
Carolyn Lacey (2003 Drexel University College of Medicine (merged with Hahnemann in 1998))
F Marc LaForce (1981 Rutgers New Jersey Medical School)
Luis E Lagana (2000 Ponce School of Medicine)
Kimberly F Laret (2003 University of Nebraska)
Randolph J Lamartiniere (1987 Louisiana State University Health Sciences Center in Shreveport)
Donald H Lambert (1977 University of Vermont)
Y Alan Lambert (1951 Baylor College of Medicine)
Ronald W Lamont-havers (1945 University of Toronto Faculty of Medicine)
Harry William Lampiris (2013 University of California, San Francisco)
Gary L Lamson (1976 University of Minnesota)
Karen W Landau (1975 Boston University School of Medicine)
Christopher A Lang (1978 University of Cincinnati)
Glenn A Langer (1953 Columbia University)
Christopher E Larson (1986 University of Pittsburgh)
Michael N Laslie (1965 Medical College of Georgia at Georgia Regents University)
Francis Y Lau (1964 University of California, San Francisco)
Hillard M Lazarus (1974 University of Rochester School of Medicine and Dentistry)
George F Leatherman (1979 University of Texas Southwestern Medical Center at Dallas)
George F Lee (1967 Albany Medical College)
Hyung M Lee (1978 Virginia Commonwealth University)
J Fletcher Lee (1960 Duke University School of Medicine)
R H Lee (1948 Stanford University School of Medicine)
Shuk Yi Lee (1991 State University of New York, Downstate Medical Center)
Edward J Lefebre Jr (1966 University of Texas Medical Branch)
Bob L Leibowitz (1970 University of Illinois)
Leonard Leight (1967 University of Louisville)
James C Leisen (1975 Wayne State University)
Nancy Ann Leitch (1990 University of Minnesota)
Mark Steven Lemel (1986 Case Western Reserve University)
George A Lentz Jr (1956 University of Maryland)
Jack I Lesher Jr (1980 Medical College of Georgia at Georgia Regents University)

Samuel M Lesko (1976 Sidney Kimmel Medical College, Thomas Jefferson University)
Raymond L Lesonsky (1960 University of Southern California)
Richard W Letton Jr (1990 University of Kentucky)
Jennifer A Levin Popovsky (1995 Temple University)
Jerome M Levine (1950 Raymond and Ruth Perlman School of Medicine at the University of Pennsylvania)
Stephanie M Levine (1988 George Washington University)
Richard A Levinson (1957 University of Illinois)
Seymour H Levitt (1953 University of Colorado)
Philip A Lewalski (1988 Wayne State University)
Richard S Lewis (1997 East Carolina University Brody School of Medicine)
Theophilus Lewis (2001 State University of New York, Downstate Medical Center)
Thomas P Lewis (1977 New York University)
Robert A Liebelt (1957 Baylor College of Medicine)
Richard S Liebowitz (2000 University of Arizona)
Alton L Lightsey Jr (1970 University of Mississippi)
Vivian Lim (1985 University of Texas Health Science Center at San Antonio)
Walter E Limehouse Jr (1973 Medical University of South Carolina)
Alexander L Lin (1994 Northwestern University)
Daniel V Lindenguth (1964 University of Maryland)
Shari Ling (1989 Georgetown University)
Rebecca M Lipscomb (2001 Eastern Virginia Medical School)
Kenneth A Litwin (1995 MCP Hahnemann [Allegeny University])
Rolf Charles Loescher (1985 Indiana University)
Randall Loftus (1992 University at Buffalo, School of Medicine & Biomedical Sciences)
James P Logerfo (1968 University of Rochester School of Medicine and Dentistry)
Thomas A Lohstreter (1979 University of Minnesota)
William E Lombard (1973 Temple University)
David C Long (1976 Oregon Health & Science University School of Medicine)
Jose Eugenio Lopez (1969 University of Puerto Rico)
Alfred E Lounsbury (1979 University of Minnesota)
Donald Bruce Louria (1987 Rutgers New Jersey Medical School)
Maureen Helen Lowery (2009 University of Miami)
John F Lucas III (1981 Duke University School of Medicine)
Amanda Luchinger (1993 Medical College of Wisconsin)
Carlos Luciano (2012 University of Puerto Rico)
Kenneth Marc Ludmerer (1986 Washington University in St Louis School of Medicine)
Dennis J Lutz (2007 University of North Dakota School of Medicine and Health Sciences)
Dennis J Lynch (1965 Georgetown University)

M

Giles F MacDonald Dr (2000 University of Alberta Faculty of Medicine and Dentistry)
Rob Roy MacGregor (1964 Harvard Medical School)
Sidney D Machefsky (1977 Vanderbilt University)
George E Maha (1953 Saint Louis University)
Richard J Mahler (1973 New York Medical College)
Adel A F Mahmoud (1982 Case Western Reserve University)
Gerald A Maida (1972 Loyola University, Stritch School of Medicine)
Eyal Maidan (2011 University of Kansas)
Frank A Maldonado (2012 Rosalind Franklin University of Medicine & Science)
Willford E Maldonado (1958 University of Oklahoma College of Medicine)
Peter C. Mancusi-Ungaro (1967 University of Miami)
Dean S. Mann (1992 University of Miami)
Karen Virginia Mann (2007 Dalhousie University Faculty of Medicine)
Beth Ann Marcinkowski (1986 Northeast Ohio Medical University)
Stuart I. Marcus (1983 Albert Einstein College of Medicine of Yeshiva University)
Walter E. Margie Jr (1950 Temple University)
David A. Margileth (1971 Baylor College of Medicine)
Charles H. Marino (1953 University at Buffalo, School of Medicine & Biomedical Sciences)
Anthony Markarian (1956 MCP Hahnemann [Allegheny University])
Charles Markle (1964 SUNY Upstate Medical University College of Medicine)
Eric S. Marks (1973 Wake Forest School of Medicine)
Richard F. Marsan (1966 University of Nebraska)
Suzanne Martens (1992 Medical College of Wisconsin)
Charmaine Martin (2011 Texas Tech University)
George L. Martin (1975 Rosalind Franklin University of Medicine & Science)
Nancy Sharon Martin (1982 University of Mississippi)
Robert G. Martin (1967 University of Louisville)
Gabriel A. Martinez (1990 Ponce School of Medicine)
Benjamin M. Maser (1990 Sidney Kimmel Medical College, Thomas Jefferson University)
M. Richard Maser (1987 Raymond and Ruth Perelman School of Medicine at the University of Pennsylvania)
Alfonse T. Masi (1954 Columbia University)
Ravi B. Masih (1998 Creighton University)
Clint E. Massey (1979 Medical College of Georgia at Georgia Regents University)
Guy G. Massry (1990 University of Southern California)
Allan W. Mathies Jr (1960 University of Vermont)
Anne Schlafke May (1987 James H. Quillen College of Medicine at East Tennessee State University)
K. Jane Mayberry-Carson (1995 James H. Quillen College of Medicine at East Tennessee State University)
Bette G. Maybury (1983 Indiana University)
Eugene H. Maynard Jr (1994 University of North Carolina)
John E. Mazuski (1981 David Geffen School of Medicine at University of California, Los Angeles)
C. Kenneth McAllister (1970 Emory University)
Lori A. McBride (1992 Louisiana State University School of Medicine in New Orleans)
Charles A. McCallum (1986 University of Alabama at Birmingham School of Medicine)
James P. McCarron Jr (1968 University of Virginia)
Paul L. McCarthy (1969 Georgetown University)
Robert N. McClelland (1953 University of Texas Medical Branch)
George R. McCollum (1956 University of Pittsburgh)
Franklin Dennis McCool (1976 Saint Louis University)
Amy A. McDonald (1996 Indiana University)
Timothy J. McDonald (1993 Emory University)
Timothy G. McGarry (1987 University of Virginia)
Robert K. McKechnie (1960 University of Louisville)
Edward M. McMahon Jr (1970 Duke University School of Medicine)
John T. McManus (1983 Medical College of Wisconsin)
W. Kendall McNabney (1987 University of Missouri-Kansas City)
John P. McNulty (1950 Tulane University)
David R. McNutt (1965 Ohio State University)
John A. McPherson (1993 David Geffen School of Medicine at University of California, Los Angeles)
Jason L. Meadors (1947 Emory University)
Norman Bret Medow (2003 State University of New York, Downstate Medical Center)
Joan Younger Meek (1986 University of Kentucky)
Anthony S. Melillo (1986 Medical College of Wisconsin)
Victor N. Meltzer (1975 Northwestern University)
Victor D. Menashe (1967 Oregon Health & Science University School of Medicine)
David I. Mendelson (1963 University of Pittsburgh)
Richard A. Menin (1970 Temple University)
Kofi Ayagye Mensah (2011 University of Rochester School of Medicine and Dentistry)
Michael E. Merhige (1979 University of Kentucky)
John F. Mermel (1980 George Washington University)
Boyd E. Metzger (1958 University of Iowa)
Michael H. Metzler (1971 Albany Medical College)
Joseph P. Meurer Dr (1974 Oregon Health & Science University School of Medicine)
Carol F. Meyer (1966 Medical College of Georgia at Georgia Regents University)
Morgan Paul Meyer (1978 University of Illinois)
Ronald C. Meyer (1965 Albany Medical College)
Frank I. Meykens Jr (2001 University of California, Irvine)
Alan Micco (2011 Northwestern University)
John D. Middleton (1978 University of Texas Medical Branch)
Kristi J. Midgarden (1997 University of North Dakota School of Medicine and Health Sciences)
Donald J. Mielcarek (1968 Saint Louis University)
Philip J. Migliore (1955 University of Pittsburgh)
Frederick Miller (1961 Stony Brook University School of Medicine)
Henry S. Miller (2000 Wake Forest School of Medicine)
Virginia I. Miller (1966 University of Puerto Rico)
York E. Miller (1974 Duke University School of Medicine)
Robert E. Mines Jr (1959 Meharry Medical College)
Paul R. Minton (1956 Boston University School of Medicine)
Jose Maria Miramontes (1989 University of California, San Francisco)
Dace B. Mitchell (1975 University of California, San Francisco)
Mark R. Mitchell (1981 Meharry Medical College)
Mark R. Mitchell (1981 Meharry Medical College)
Ilan Mizrahi (2012 Boston University School of Medicine)
Alan R. Mizutani (1950 University of Vermont)
Jeanette Mladenovic (1974 University of Washington)
David J. Moeller (1981 University of Texas Medical Branch)
David Mohr (1975 Baylor College of Medicine)
George Carl Mohr (1957 Harvard Medical School)
Barry L. Molk (1971 University of Colorado)
Kathryn Leah Molt (2013 Albany Medical College)
Juan Montes (2012 Universidad Central del Caribe)
Walter Joseph Moore (2005 Medical College of Georgia at Georgia Regents University)
Richard A. Morin (1983 University of Nebraska)
Kenneth C. Morley Jr (1959 Boston University School of Medicine)
Deborah L. Morris (1992 University of North Carolina)
Linda S. Moser in the name of Robert H. Moser (1969 Georgetown University)
Harold Moskowitz (1959 State University of New York, Downstate Medical Center)
Judd W. Moul (1982 Sidney Kimmel Medical College, Thomas Jefferson University)
Samdeep Konda Mouli (2006 Northwestern University)
Andrew M. Muckle (1990 David Geffen School of Medicine at University of California, Los Angeles)
Joseph C. Muhler II (1974 Loyola University, Stritch School of Medicine)
Jeanie Muir (1997 Rosalind Franklin University of Medicine & Science)
2014 Donations

Raghu Mukkamala (1996 James H Quillen College of Medicine of East Tennessee State University)
John B Muldowney (1975 Northwestern University)
Francisco J Muniz MD, FACP (2012 University of Puerto Rico)
Joseph N Muok (1987 Meharry Medical College)
Daniel T Murai (1998 University of Hawaii)
Dale P Murphy (1971 Ohio State University)
David R Murray (1985 University of Illinois)
John F Murray (2000 University of Southern California)
Marc J Myer (2000 University of Wisconsin School of Medicine and Public Health)
Evan R Myers (1992 Duke University School of Medicine)
Mark C Myron (1972 University of Missouri)

N
Nagendra Nadaraja (1963 University of Rochester School of Medicine and Dentistry)
Andrew M Namen (2000 Wake Forest School of Medicine)
Virginia B Neaville (1985 University of Arkansas)
Francis A Neelon (2002 Duke University School of Medicine)
Samuel E Neff (1949 University of Colorado)
David Nelson (1993 University of California, Davis)
David L Nelson (1962 Washington University in St Louis School of Medicine)
Don G Nelson (1964 University of Illinois)
John D Nelson (1976 University of Minnesota)
Mario R Nevarez Alonso (2003 University of Puerto Rico)
David N Nevin (1981 University of Wisconsin School of Medicine and Public Health)
J Paul Newell (1965 University of Western Ontario Faculty of Medicine and Dentistry)
Jeffrey B Newton (1969 Albert Einstein College of Medicine of Yeshiva University)
Anh Van Nguyen (1988 University of Texas Medical Branch)
Alfred L Nicely (1966 Ohio State University)
Stephen W Nicholas (1981 University of Colorado)
John E Niederhuber (2009 Ohio State University)
Wilberto Nieves-Neira (1990 University of Puerto Rico)
Michael J Nissenblatt (1972 Columbia University)
Bruce C Nisula (1969 Harvard Medical School)
Howard John Noack (1992 Pennsylvania State University College of Medicine)
Thomas M Nolen (1973 University of Tennessee Health Science Center)
Phillip T North (1976 University of Chicago)
Howard B Norton (1953 Medical University of South Carolina)
Patricia Norwood (1983 Louisiana State University Health Sciences Center in Shreveport)
Jose O Novoa (1992 Howard University)
Edward R Nowicki (1965 Sidney Kimmel Medical College, Thomas Jefferson University)
Michael S Nussbaum (2006 University of Cincinnati)
Robert A Nussbaum (1986 Icahn School of Medicine at Mount Sinai)

O
Robert S O'Connell (1975 Weill Cornell Medical College)
William N O'Connor (1994 University of Kentucky)
Robert F Oakley Jr (1975 University of Texas Medical Branch)
S Scott Obenshain (1992 University of New Mexico)
Samuel A Ockner (1984 University of Cincinnati)
Dennis M O'Connell (1971 Creighton University)
Milford S Ofstun (1955 University of Wisconsin School of Medicine and Public Health)
Adedamola A Ogguniyi (2008 Columbia University)

Mildred MG Olivier (2010 Rosalind Franklin University of Medicine & Science)
John Olson (1995 University of Iowa)
Alice Amy Onady (1987 Wright State University Boonshoft School of Medicine)
Beale H Ong (1959 George Washington University)
Cindy A Opolka (1991 Wayne State University)
E Mitchell Oprencak (1981 Ohio State University)
Walter A Orenstein (1972 Albert Einstein College of Medicine of Yeshiva University)
RALPH M ORLAND (1984 University of Illinois)
Jose A Ortiz Rosado (2000 Ponce School of Medicine)
Kwame Osei (1988 Ohio State University)
Mark L Ostlund (1981 University of Minnesota)
David Joseph Overley (2002 University of Louisville)
William O Owen (1955 Northwestern University)
James W M Owens (1997 University of Washington)
Calvin E Oyer (1952 Indiana University)

P
Douglas L Packer (1979 University of Utah)
Heriberto Pagan-saez (1968 University of Puerto Rico)
Nancy Laraine Palmer (1986 Rutgers New Jersey Medical School)
Diamondis John Papadopoulos (1987 Emory University)
Leslie J Parent (1986 Duke University School of Medicine)
Jerry M Parker (1960 George Washington University)
Joseph C Parker Jr (1961 Virginia Commonwealth University)
Robert W Parkey (1983 University of Texas Southwestern Medical Center at Dallas)
Cynthia J Parlatore (1980 University at Buffalo, School of Medicine & Biomedical Sciences)
Donald E Parlee (1938 Temple University)
Earl Parson (1985 Meharry Medical College)
Eugene F Paschold (1977 Wake Forest School of Medicine)
Hiren P Patel (1997 University of Minnesota)
Manish Surendra Patel (2006 Eastern Virginia Medical School)
Celeste H Patrick (1982 Medical University of South Carolina)
Michael K Patrick (1996 Medical College of Wisconsin)
Roman L Patrick (1957 Duke University School of Medicine)
Richard D Patten (1991 University of Maryland)
Jean Marie Payer (1985 Rutgers New Jersey Medical School)
George J Pazin (1963 University of Pittsburgh)
Dallas Earl Peak (1990 Indiana University)
Alan Pechacek (1967 University of Iowa)
Elizabeth K Peck (2001 Texas Tech University)
Marc R Peck (1962 Raymond and Ruth Perelman School of Medicine at the University of Pennsylvania)
William A Peck (1960 University of Rochester School of Medicine and Dentistry)
Timothy A Pedley (1968 Yale University School of Medicine)
Vincent D Pellegrini Jr (1979 Geisel School of Medicine at Dartmouth)
William T Pennington (1994 Medical College of Wisconsin)
Gerald J Pepe (2005 Eastern Virginia Medical School)
Paul E Pepe (1975 University of California, San Francisco)
Judith S Perdue (1981 Virginia Commonwealth University)
F Xavier Perez (2000 Meahrry Medical College)
Miguel Perez-Arzola (1993 Ponce School of Medicine)
Gordon W Perkin (1958 University of Toronto Faculty of Medicine)
Marc B Perlman (1978 Albany Medical College)
John R Perry (1989 Washington University in St Louis School of Medicine)
Sophia Brothers Peterman (1980 University of Michigan)
Brian L Pettit (2001 University of Pittsburgh)
Samuel R Pettis Jr (1978 Howard University)

Garth D Phibbs (1972 University of Western Ontario Faculty of Medicine and Dentistry)

Carol A Phillips (1974 University of Vermont)

Stuart I Phillips (1959 Louisiana State University School of Medicine in New Orleans)

Theodore J Phillips (1980 University of Washington)

Chester M Pierce (1967 University of Oklahoma College of Medicine)

Elizabeth Pierce (1978 Virginia Commonwealth University)

William C Pierce (1987 David Geffen School of Medicine at University of California, Los Angeles)

Donald J Pinals (1958 State University of New York, Downstate Medical Center)

Jeffrey M Pines (1973 Columbia University)

Anthony Pirrello Jr (1961 Temple University)

Marshall Plaut (1967 Johns Hopkins University)

Richard A Plessala (1960 Saint Louis University)

Donald A Pocock (1972 Case Western Reserve University)

Ted R Podl (1996 Case Western Reserve University)

Joseph W Poe (1995 Marshall University School of Medicine)

Ross B Pollack (1977 Georgetown University)

Daniel J Pollman (1990 University of South Alabama College of Medicine)

Donald D Pollock (1962 Albany Medical College)

Maria Carol Poor (1985 Indiana University)

Jerome B Posner (1978 Weill Cornell Medical College)

Bradley K Post (1994 University of Texas Medical School at Houston)

Robert H Posteroaro (1973 Texas Tech University)

Josephine Pressacco (1999 University of Toronto Faculty of Medicine)

William J Preston (1962 University of Oklahoma College of Medicine)

Donald L Price (1959 Albany Medical College)

Sandy James Pritchard (1976 University of Western Ontario Faculty of Medicine and Dentistry)

Ronald J Pritzka (1999 Creighton University)

Warren R Procci (1971 University of Wisconsin School of Medicine and Public Health)

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W Pulliam (1966 Washington University in St Louis School of Medicine)

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Robert W Putsch III (1964 University of Colorado)

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Jerome Radding (1944 Oregon Health & Science University School of Medicine)

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Sekou Robertson Rawlins (2010 SUNY Upstate Medical University College of Medicine)

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Glenn A Rediger (1980 Indiana University)

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Larry Rhodes (2011 West Virginia University)

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Luis Roman (1958 University of Puerto Rico)

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Y
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Anthony P Ziebert (1960 Medical College of Wisconsin)
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Gretchen M Zimmerman (1980 MCP Hahnemann [Allegheny University])
Michele M Zormeier (1993 Wayne State University)
Craig W Zuppan (1979 Loma Linda University)
Michael P Zygmunt (1972 Loyola University, Stritch School of Medicine)
There is, perhaps, grace in the way my toes elevate with each guttural heave; predictable and precise, like the slosh pound of saltwater onto pilings of a weakened pier.

The commotion of swirl, scent, and sound, circulate around my hunched shoulders; a drown of gasps among successive retch.

Feeble hands landlock on wobbled knees. The grotesque drip of acidic scraps, their frothy repel thick from the lips.

A therapeutic cleanse, repulsive. A rugated stomach now hollow from a purge and scourge. The body, cleaning house the way it knows how.

Aaron McGuffin, MD

Dr. McGuffin (A.G.A, Marshall University, 2002) is Associate Professor of Pediatrics at the Marshall University Joan C. Edwards School of Medicine. His address is: 1600 Medical Center Drive, Suite 3413, Huntington, West Virginia 25701. E-mail: aaron.mcguffin@marshall.edu. Illustration by Jim McGuffin.
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