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Correction

In “Excerpts from Dr. Atnip’s opening remarks,” Summer 2016, p. 59, the first sentence of the sixth paragraph should have read, “On a recent afternoon, his necrotic surgical leg wound eroded into his bypass graft and he began to hemorrhage massively.”
Information and cognitive overload

How much is too much?

Richard L. Byyny, MD

We are in an age of information overload. The Internet, e-mails, apps, spam, tweets, social media, texting, Facebook, Instagram, memes, news feeds, online videos, updates, and myriad other forms of information have significantly increased the information directed at us, as well as those in which we request to participate.

We have come to regard this overload of information, and brain drain, as the norm. We accept this inundation as communication, learning, practice, performance, social and professional interaction, and decision-making, without ever considering our well-being, productivity, and sanity.

A 2012 survey found that average workers spend 28% of their time managing e-mail, and a British study found we check our phones on average 221 times a day, or about every 4.3 minutes. A Stanford University School of Medicine team found that nearly one in eight Americans exhibit problematic Internet use.

In 2009, 50 billion e-mails were sent each day. In 2010, that number rose to 294 billion e-mails per day.

Social norms have introduced a presumed requirement to participate, and collaborate, in every message we receive. In contrast to the continuous growth in technology and information, our human capabilities are limited.
Our neurons don’t increase in numbers, nor do they respond more quickly to this overdose of information. Our memory does not increase in capacity. We do not learn or think faster, and this mismatch creates, contributes to, and causes information, participation, and collaboration overload. The effort required to keep track of, and participate in, what is going on professionally, with family and friends, and in the world requires an ever-increasing amount of attention and time.

We are continuously distracted from important priorities—thinking, learning, reflecting, decision-making. The presentation of information has become an insidious influence in the loss of our intellectual independence. We are bombarded with jibber-jabber, rumor, and opinions that are often biased with inaccurate or false information.

In the days of Walter Cronkite, there were only a few sources of information, and each had important filters — journalistic reviews, peer reviews in journals, and fact checkers—that reviewed the information and verified its accuracy before it was presented publicly. With today’s 24/7 communication environment, it’s about posting it on the Internet first, and fact checking later.

Information is often presented by self-claimed experts, colleagues, and a multitude of journalistic-like outlets. Many media specialists, bloggers, podcasters, and others have no professional training or background in journalism, professionally-mandated ethics, or communication.

We should wonder if what we are reading or hearing is valid and substantiated. Many so-called experts are more interested in serving their own egos, and enhancing their reputations than actually providing valuable information and knowledge. Unfortunately, based on their biases, they presume that they know what we should know, and think they know better than we know ourselves.

From a social perspective, this is compounded by a herd mentality that can characterize and influence the story and information over time. As a society, we have come to let people we don’t know, and who are not always qualified, to decide what we need to know and when we need to know it. This creates an unintended consequence of impeding knowledge and learning.

Increasingly, more people are becoming addicted to the plethora of information on the Internet, which can result in compulsive pursuits without any thought process. There is unsolicited information, task-relevant information, well-known information, vaguely known information, and information based on belief and opinion. It takes an inordinate amount of time and attention to participate in the preponderance of available sources of information.

Information must be filtered and considered in the context of the user—not the disseminator. It should be filtered for substance, significance, reliability, and completeness. Our critical thinking should make us wary to completely trust what we read on the Internet. As Gerhard Fischer wrote, “We should focus on our need for the right information, at the right time, in the right place, in the right way, to the right person.”

Information overload is compounded by the accompanying participation overload, which consumes time, attention, and brain power. It creates a poverty of attention.

**Cognitive overload**

Cognitive load is the amount of mental effort being utilized in working memory at any given time. Human
memory is limited in its capacity to effectively utilize and learn from cognitive input. Cognitive psychologists and scientists often categorize memory into three primary subsystems—sensory, working, and long-term memory.

Sensory memory perceives, and briefly retains, visual and auditory information. Sensory information is stored long enough to be transferred and utilized in short-term memory allowing for the retention of impressions of sensory information, after the original stimulus has been processed.

Working memory is constrained by a small storage capacity. It is vital to learning, and performing tasks. Working memory retrieves relevant knowledge possessed and stored by the learner in long-term memory. It organizes the new with the existing information to facilitate efficient storage of the new information in a modified schema.

In a seminal paper in 1956, George Miller, Princeton University, demonstrated that most individuals can only hold seven +/- two units of information in working memory at any given time, and can organize, compare, and contrast no more than two to four elements at any given time. That means working memory is very limited in capacity, which creates an inherent constraint on our ability to process and store information in long-term memory.

Long-term memory has nearly unlimited storage. Retrieving information is constrained by use rather than limits on capacity.

In order for information to be used and applied it must be stored in long-term memory and be recalled and applied when necessary. Memory retains and stores information learned into file drawers or schemas of accessible learned information. We retrieve the information using retrieval cues to open the right drawers, and transfer that information into working memory. The long-term schemas give rise to expertise.

Cognitive load has also been categorized as intrinsic load, which depends on the number and complexity of information elements, and the interaction of the elements in the learner’s knowledge—the load associated with the task.

Extraneous load is not essential to the task, but induced by design of the task, and how information is presented in the environment. It includes thoughts about non-emergent and unimportant work items—social media, transient digital information, etc.

Germance load is devoted to the processing, construction and automation of schemas in working memory so they can be integrated into existing knowledge and long-term memory, and retrieved and used for problem solving and decision-making.

Dr. Jerome Kassirer (AΩA, Jacobs School of
Medicine and Biomedical Sciences at the University of Buffalo, 1956) found that, “to develop expertise in problem-solving and decision-making, it is not enough to learn how to find information. We also need to remember the information and know how to use it.” Cognitive learning theory is based on understanding and diverting cognitive processing power toward germane cognitive load.

We have a harder time learning new things when our brains are distracted. This is also complicated when inaccurate information is stored for retrieval into working memory, resulting in faulty reasoning and decision-making ability.

**Multi-tasking is not all it’s cracked up to be**

Information overload is also related to multi-tasking. Many people take great pride in being a multi-tasker, and see multi-tasking as an accomplished skill. However, evidence indicates that multi-tasking does not improve work, decision-making, or productivity, but it does contribute to cognitive overload and its associated consequences.

The average young adult moves between media platforms 27 times per hour, which can lower IQ by as much as 15 points. As a contrast, studies that have shown an eight percent decrease in IQ for regular marijuana smokers who used heavily from adolescence onward.

Multi-tasking adversely affects emotional intelligence, and cognitive functions. We know that the brain cannot pay attention and process more than one thing at a time, but multi-tasking requires rapid and repeated switching of attention from one thing to another, and back again. This results in ignoring important information, faulty or incorrect reasoning, and slower completion of tasks that are done less well than if done one at a time with a thoughtful approach.

Multi-tasking creates decreased attention span, a state of inaction, and negatively impacts the ability to make smart decisions. It adversely affects work performance, and the time to get the task done, thereby limiting innovation, ingenuity, and creative thinking.

It has been shown that it takes an average of 25 minutes to return to a work task after an e-mail interruption, and workers who completed the same tasks in parallel took 30% longer and made twice as many errors as those who completed tasks sequentially.

We are also increasingly burdened by just-in-case learning rather than just-in-time learning. Studies on heavy media multi-taskers compared to light media multi-taskers found that heavy media multi-taskers have a reduced ability to filter out interference from irrelevant information, and they are more likely to pay attention to a large scope of information rather than focusing on any particular piece of information. Heavy multi-taskers are less selective in filtering information and tasks they should attend to, and accomplish, in a defined time period. They are more likely to interpret all information as equal, or nearly equal, in importance. In addition, it is harder to learn and remember new important information when frequently distracted by many activities.

Chronic multi-tasking is rapidly becoming nearly ubiquitous, creating challenges and adversely affecting human cognition, thinking, and learning.

**New disorders**

Neuroscientists and psychologists have identified new maladaptive behaviors including Internet Addiction Disorder (IAD), Problematic Internet Use (PIU), and Addiction Deficit Disorder (ADD). The layperson may know this as Information Fatigue Syndrome, but it can, and often does, evolve into a full-blown disorder.

Although the definitions and criteria lack standardization, and are not yet recognized in DSM-5 as psychological disorders, they do seem to be part of a continuum of technology addiction. Due to the prevalence, and potential adverse effects and outcomes, it appears to be analogous to other compulsive use disorders.

Officially named disorder, or not, excessive involvement and use of information technology and social media can have serious effects, affect memory, and influence everyday life. It is still unknown how much use and involvement is too much to cause adverse emotional, functional, and health outcomes.

What can, and should, we do about this new and increasing phenomenon? Let’s start with increasing awareness of the problematic side of information and cognitive overload. As physicians, teachers, educators, and writers, we strive to contribute to others’ learning about new things, including unintended adverse consequences.

As physicians, it is our job to understand and influence
harmful behaviors, and support positive change. We have patients who can benefit from changing their perceptions, attitudes and regimen with regard to Internet and social media use. We have family, friends, colleagues, and are a member of organizations where our awareness and knowledge can be of benefit to those suffering from information and cognitive overload.

In 1967, Peter Drucker noted in “The Effective Executive” that effectiveness in accomplishing tasks requires a focus of attention on one problem at a time, and devotion of the time needed to complete the task. In our profession, we have developed task and time management approaches and strategies, but often by habit rather than thoughtful planning. We also know that some approaches work better than others.

We need to respond and adapt to behavioral changes, and modify our thinking and behaviors. We can do things differently, make changes, better manage our time, and reduce interruption and unanticipated distractions.

Developing a time management protocol requires a modest investment and focus for one week to analyze current time use. By keeping an hourly time log for a typical week, with all hours and activities logged, including sleep and non-work-related activities recorded, we can determine how, when, where, and why we spend our time. At the end of the assessment week, time should be subclassified into categories, e.g. medicine, education, meetings, idle/wasted, family, etc. This helps determine changes that can be initiated to better manage time.

The next step is to set personal goals categorized by interest, necessity, work, education, health, etc. This will develop an awareness of requirements, electives, unnecessary activities, and others, to create a plan to make effective changes.

After personal goals comes daily goals, also categorized by what can be achieved each day, then prioritized. Goals that are achieved are checked off. Strategies to achieve goals and eliminate time-wasting activities will become apparent, and the ability to take control through choices will become achievable.

Time is our greatest asset and must be used wisely. Parkinson's Law states that there is a human tendency to spend effort and time on more insignificant tasks that are perceived as important rather than on those of true importance. For example, Dr. Pete Reynolds, one of my mentors and professors, felt compelled to keep up his continuing education, but found difficulty in pursuing his education because of constant interruptions. When on rounds, he had a notebook in which he would record questions that he or others couldn't answer when asked. Every Thursday night, his family knew that he would be away studying, and not home for dinner. He would go to the county medical association library, because he wouldn't know anyone there who might disrupt his attention and concentration. He would research the questions he had written down in his notebook. Upon leaving, he would tear up the list of notes, and start over for the next week. He was the smartest and best informed of any of my teachers, mentors, and colleagues.

As another example, when I started my first job as a faculty clinician, I had an open door policy in my non-clinical office. I was repeatedly interrupted by almost anyone for almost anything, and couldn't complete tasks, study and write. I obtained a study carrel in the university library, and scheduled time on my calendar to be away for a half day each week. I didn't carry a beeper during those times, and wouldn't have carried my cellphone if I had one. No interruptions, and my productivity soared. I found that the problems that were waiting for my return had usually been solved without my input.

Time management strategies include setting short- and long-term goals; setting priorities for responsibilities; planning and organizing activities; and minimizing activities that waste time. It is more about behaviors than time; and matching time with priorities and goals. Time management takes time to learn, practice, and master.

Effective time management is one of the most important competencies for physicians. We must learn to say no in a professional and justifiable way. We must learn to delegate, and minimize interruptions and distractions. We should schedule time on our calendars—professional and private—for our predetermined priorities and important tasks.

Stephen Covey’s “7 Habits of Highly Effective People” provides Covey’s Time Management Grid (see illustration). The grid is used to manage information and responsibilities into classifications: urgent; non-urgent; important; and not important. Quadrant I is urgent and important for the immediate and imperative deadlines. Quadrant II is non-urgent and important for long-term strategizing, priorities, tasks and responsibilities that require time and attention.

Quadrant III is urgent and not important. It represents unimportant time pressured distractions, but someone wants it now or soon creating an illusion of importance and a stress response mentally with an adrenergic/dopaminergic reaction (many information and...
cognitive distractions fall into this quadrant).

Quadrant IV is not urgent and not important for activities that have little or no value, but are often used for taking a break or distraction from other important activities.

Most activities fall into Quadrants I and III, while Quadrant II is most important because one must work with attention and allocated time to accomplish the task. The lesson here is to quit spending time and attention on unimportant tasks and activities, and do the important things first.

**Improving our well-being**

Information and cognitive overload lead to a loss of control over much of our professional and personal lives. This creates undo stress and unimportant distractions which may adversely affect our work and lives and contribute to professional dissatisfaction and burn out. A thoughtful understanding of this problem, and implementing effective approaches and strategies can help to regain control of many, if not most, responsibilities, work, and other activities.

We are exposed to too much unimportant information that leads to cognitive overload. We are depleting our brain power with babble, drivel, foolishness, gibberish, and balderdash. The expectation that we will participate and respond to copious unimportant sources of information is unreasonable and impracticable. We must become experts at managing our time, expectations, and the influx of information that we seek out, and in turn, seeks us out. If we recognize and understand this new intrinsic element of the modern era, we can adapt, make behavioral changes, regain control, and improve our professional roles, personal and professional lives, and our overall well-being.

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<tr>
<th>URGENT</th>
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<td><strong>Quadrant I:</strong> Urgent &amp; Important</td>
</tr>
<tr>
<td><strong>NOT IMPORTANT</strong></td>
<td><strong>Quadrant III:</strong> Urgent &amp; Not Important</td>
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From Steve Covey’s 7 Habits of Highly Effective People.

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Managing mission tensions in academic health centers

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Unprecedented collective forces challenge the preeminence and survival of today’s academic health center (AHC).1,2

Academic structure and culture have proven difficult to change to meet current societal needs, because they entail a deeply entrenched faculty value system,1,3-9 and ingrained sociocultural norms that impede organizational innovations and leadership diversity.10-13 This increased complexity of AHCs, compared with other academic settings, exponentially magnifies challenges, and makes leaders reluctant to abandon practices in which they are heavily invested.1,9,14-18

Dr. Steven Wartman’s (AΩA, Johns Hopkins University, 1970) 2015 editorial in The Pharos asserted that the academic health center must adapt to a disrupted world.1 A period of unique adjustment associated with a prolonged and permanent decrease in federal funding for research; fundamental changes in health care financing with the passage of the Affordable Care Act; the rapid emergence of major new electronic educational methods; and uneven recovery from the Great Recession. He asked how AHCs might “shake loose their insular, siloed traditions to change their culture and behavior,”1 and proposed identifying transformational leaders who can align academics with patient care in a future orientation requiring skill in change management.

Hearing from AHC leaders

To explore institutional change management strategies by AHC leaders, a series of focus groups were conducted. Between December 2011 and September 2012, 74 leaders from the Association of American Medical Colleges’ (AAMC) professional groups (Graduate Education, Research, Faculty Affairs, and Diversity and Inclusion),19 with alumnae of the Executive Leadership in Academic Medicine (ELAM) program,20 participated in nine focus groups. Group members included deans, associate deans, and chairs of medical schools; associate deans of research, faculty affairs, and diversity; deans and directors of graduate schools; and vice deans and provosts. Most had a strong history of federally-funded research, and careers of two decades or more in academic medicine.

The focus groups described the current state of affairs in AHCs as a polarity21 between an emerging AHC structure and culture in response to financial and cultural forces, and the sustainability of the traditional...
The leaders’ responses to questions about trends in collaborative and translational research, faculty trends, institutional and national influences, and the impact on institutional policies and practices echo the dilemmas identified by Wartman1 and others. Responses included:

- Adapting promotion and tenure systems to value faculty’s collaborative research, including instituting new promotion and tenure policies to foster institutional collaboration; providing additional time to tenure; and instituting new academic tracks that recognize diverse contributions. Institutional leaders play promotional roles by supporting new policies, and play inhibiting roles by maintaining traditional discipline-focused, single author publication standards of excellence.

- Managing faculty affairs and development for success of diverse faculty, often through mentoring and monitoring its influence on retention.
- Training in collaborative research, and creating a culture of collaboration in research.
- Prioritization and allocation of scarce resources to overcome the financial storm that results from trying to maintain traditional academic scholarship and productivity. This includes bridging investigators between grants, reducing tuition for medical students facing crushing debt, funding graduate schools, and tangible incentives for collaborative research.
- Generating clinical revenue within an academic system by recruiting clinical faculty, and establishing expectations for research when they are able to fund their activities and time.

The leaders recognized the need for change that will hold AHCs more accountable to their community and society.22,23 However, they also discussed the immediate daily problems they face, such as being overwhelmed dealing with the immediate crises, which leaves little time and energy to consider fundamental changes to the traditional academic system. One participant explained, “We pretty much don’t have time to focus on those, because we’re waiting for the next thing to come down the pike from D.C. and/or the state…[this has] thwarted any real interest in trying to get ahead in terms of what systems, what processes can we put into place…that can produce better outcomes and better behaviors, because we’re just trying to keep up.”

The leaders focused on incremental adaptations in institutional policies and practices that sustained traditional academic missions and values, rather than describing explicit “out of the box” or “over the horizon” institutional responses. They spoke of not knowing what to change or how to change the academic culture:24,25

You have to have people who will recognize the value of being able to think that it is important to do this type of work and put the incentives...on the table, and unless you have grown up with the idea that this is important, you are not going to...this is something that people need to get us [to] start thinking about as important to be able to implement it.

The leaders emphasized the importance of outside funding sources to enable innovations, which calls into question how many of the adaptive responses they mentioned could be sustained.

Polarity mapping as a way forward

We live in a world of extremes and polarities.….We spend energy on justifying our position...on defending our ground, on protecting our position...we’ve lost sight of the middle...where possibilities reside.….Humility and curiosity is what shifts us to center...toward the middle ground, with its fertile promise of new ideas and new relationships.

—Margaret J. Wheatley

Addressing the complex issues facing AHCs today
requires moving beyond the usual change-management methodologies.\textsuperscript{5–7,17} Several new approaches have been developed that involve actively engaging everyone—leaders, faculty, staff, students, boards, community members, patients—in developing a shared vision, implementing an action plan with iterative experiments, and monitoring for fast learning and adaptation.\textsuperscript{6,7,14,26–28} These approaches recognize the inevitable tensions and paradoxes between independence and interdependence, consensus and conflict, and resistance and power.\textsuperscript{28,29}

Polarity mapping\textsuperscript{21} is a strategic organizational approach to align the values and culture of AHCs with innovations across silos. It enables a closer linkage and accountability to communities and society.

The polarity approach in change management enables dialogue to move forward in a strategic manner, beyond the current debate oscillating between the two poles—maintaining the traditional AHC with its intellectual rigor, and developing collaborative and open systems in order to be societally accountable.

An integrated polarity leveraging model\textsuperscript{21} used in health care,\textsuperscript{30} nursing,\textsuperscript{31} and churches,\textsuperscript{32} helps address the tension and conflict that arise from competing paradigms. The approach was developed to address ongoing, chronic issues that are inescapable in organizations, while also harnessing the tension to propel movement forward. Rather than seeking to identify the right paradigm, polarity management provides a process for drawing on the strengths of each. The process involves identifying competing trends (polarities); determining how each optimally supports and detracts from the larger system; and determining how to strengthen actions that contribute to optimizing benefits.

Polarities embedded within AHCs include:

- Tradition versus innovation;
- Stability versus adaptation;
- Academic ivory tower versus embracing societal needs;
- System centralization versus physician decentralization;
- Faculty autonomy versus collectivization; and
- Internal focus versus external focus.

From the focus groups, there was no indication of the institutional responses being out in front in regard to Rogers’ theory\textsuperscript{33} of responses to change—the response that determines how the world needs to change rather than coping with, reacting to, or denying, the need for change. This may be related to the negative impact of the influences—mixed messages from funders, short tenures of leaders,\textsuperscript{34} and an academic culture that serves as an invisible backdrop of constraints.\textsuperscript{1,8,10}

The polarity map serves as a catalyst to thinking, dialogue, and action to better manage the important, yet competing, realities in becoming vibrant leaders of innovation.

Application of polarity theory suggests several steps to answer the question, “How can we avoid the threats that inhibit our aspirations, and maintain a productive level of innovation that draws on both poles?” It can identify warning signs that an AHC is focusing too much on either pole, and conceive possible actions to bring the system back into balance.

The polarity management strategy is designed to function within dynamic systems of ongoing change, and can aid AHCs in productively moving forward. The ultimate goal is to advance academic medicine’s capacity to innovate and adapt in clinical care, research, and education.

This strategy builds on the AAMC’s initiative to describe five future forces, and their impact on academic medicine by 2025.\textsuperscript{2} Organizations such as the AAMC, National Institutes of Health, and foundations could convene iterative meetings, commission groups, and/or conduct surveys to develop polarity management maps that identify the major polarities, and identify warning signs and strategic actions for rebalancing.

In addition, AHC leaders can be educated on the tools required for complex adaptive change, changing the academic value system, and obtaining a broader perspective beyond AHCs.

The recent Institute of Medicine report on Clinical and Translational Science Awards indicated the need to “create new benchmarks that place value on team-based science, leadership, community engagement, and entrepreneurship.”\textsuperscript{16}
Polarity mapping catalyzes dialogue to take the conversation beyond either-or polarities, and to identify and pursue opportunities for serving missions while allowing for needed organizational change.

AHCs using this method of managing through organizational change will be optimally positioned for clinical, translational, collaborative, and entrepreneurial medical scientific research and application. They will have the ability to forge new academic values and culture, and be prepared to acclimate their community to the rapidly changing health care landscape.

Acknowledgments
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References
POLARITY MANAGEMENT® MAP

Greater Purpose Statement (GPS*) - Why balance this polarity?

**Academic Health Centers as Vibrant Leaders of Innovation**

**ACTION STEPS**

How will we gain or maintain the positive results from focusing on this right pole? What? Who? By when? Measures?

- Include individual and group contributions in criteria and decisions for promotion, advancement, and merit.
- Set clear targets and jointly negotiated expectations for outcomes.
- Provide continuous learning and skill development, especially in group inclusion of individual talents and perspectives across the organization.
- Provide professional development in areas of individual expertise.
- Incentivize collaborative activities aligned with institutional goals.
- Foster ongoing transparency, with orientation to priorities, use of multiple communication methods, sharing information, and changing goals.

**EARLY WARNINGS**

Measurable indicators (things you can count) that will let you know that you are getting into the downside of the right pole.

- Increased reputation by external stakeholders (e.g., reduced funding, decreased student applications).
- Decreased diversity, same types of leaders (e.g., same goals, aspirations, actions, outcomes).
- Decreased recruitment and retention, especially collaborative and diverse talent; increased faculty departures.
- Decreased faculty/staff satisfaction, engagement, productivity; increased depression, burnout.
- Decreased excellence with faculty/staff assigned to new jobs for which they are not competent, and are not provided with training.

**MEASURABLE INDICATORS**

- Academic culture is so ingrained and invisible that systems are difficult to question or change.
- Silos of specialties prevent information sharing resulting in uncoordinated approaches; reinventions with minimal variation.
- Experimental scientific mental model requires evidence of high probability of generalization and effectiveness before investigation and implementation; inhibits applied action research, risk taking, and innovation even in face of external pressure for change.
- High value on individual achievement inhibits relationship building and organizational learning; leads to predominance of ideas by small number of influential individuals; leads to incremental vs. coordinated research.

**ACTION STEPS**

How will we gain or maintain the positive results from focusing on this left pole? What? Who? By when? Measures?

- Broaden criteria for faculty reward and advancement to include collaborative scholarship, achievement of group goals.
- Promote organizational learning through professional development programs and individual development.
- Plan for succession and orientation to new roles.
- Monitor the climate of fulfillment, morale, awareness of opportunity across the system, and establish standards of accountability for results.
- Build more relational opportunities, recognitions and rewards (formal and informal).
- Educate leaders in establishing transparency, mutual strategic goal setting.
- Create awareness of new technologies, systems, and public expectations throughout the system.

**EARLY WARNINGS**

Measurable indicators (things you can count) that will let you know that you are getting into the downside of the left pole.

- Disorienting and scary (e.g., leaves faculty wondering, “Where do I fit?”, “Where is my professional home?”).
- Collectivism compromises individual contributions and recognition.
- Dialogue and consensus building with too many stakeholders requires increased communication skills and time; can slow decisions and implementation.
- Weak leadership and ill-defined goals result in lack of direction and increased risk of team disruption and conflict.
- Participation without expertise can drive agendas to unintended consequences.

**MEASURABLE INDICATORS**

- Transparency of process and information increases probability of trust-based culture.
- Shared accountability and goal orientation stimulates teamwork.
- Increased rates of progress from discovery to application.
- Improved engagement, satisfaction, and organizational productivity.
- Increased retention of diverse talent.
- Social accountability encourages work for the greater good.
- Public participation engages a wide circle of stakeholders.

**ACTION STEPS**

How will we gain or maintain the positive results from focusing on this right pole? What? Who? By when? Measures?

- Include individual and group contributions in criteria and decisions for promotion, advancement, and merit.
- Set clear targets and jointly negotiated expectations for outcomes.
- Provide continuous learning and skill development, especially in group inclusion of individual talents and perspectives across the organization.
- Provide professional development in areas of individual expertise.
- Incentivize collaborative activities aligned with institutional goals.
- Foster ongoing transparency, with orientation to priorities, use of multiple communication methods, sharing information, and changing goals.

**EARLY WARNINGS**

Measurable indicators (things you can count) that will let you know that you are getting into the downside of the right pole.

- Decreased faculty/staff satisfaction (e.g., lack of feeling valued for individual contributions).
- Decreased collaborative productivity (e.g., confusion over individual responsibilities; groups assigned fail apart before work/goal is accomplished).
- Increased administrative burden in coordination and accountability monitoring.
- Faculty/staff “doing their own thing” (e.g., pursuing own agendas; not being aligned with team efforts).
- Autonomous learning, independent of group goals.


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Representative analysis of one polarity (center quadrants) in academic health centers, using a framework of sustaining traditional academic rewards and commitment to service (left) and innovating in a collaborative, open environment (right); shown are each pole’s benefit (upper center), and threats and fears about negative results of over-focus (lower center). The polarity management map (outer quadrants) shows early warning signs of over-focus on each pole (outer bottom left and right) and action steps organizations can take (outer top left and right) to rebalance for each pole’s benefits (upper center quadrants). Polarity Management Map adapted from Polarity Management Associates, LLC.
The 20th General Hospital

The reach of formalized medicine during World War II

Merrill’s Marauders, waiting in the Burmese jungle, 16th May 1944. Photo by Hulton Archive/Getty Images.
Christopher Magoon

Mr. Magoon is a member of the Class of 2018 at the Raymond and Ruth Perelman School of Medicine at the University of Pennsylvania. His essay won First Place in the 2016 Helen H. Glaser Student Essay Competition.

It was a glorious night and turned the distress of India into a mirage of heavenly softness and romance.

—Rev. Louis Meyer, 20th General Hospital

In the aftermath of World War II, a traveler to the town of Ledo, in the far northeast of India, would have found a curious site. As the rest of the country was ablaze with the India-Pakistan partition, Ledo was newly quiet. The steady drone of machines no longer penetrated the dense jungle. Instead, the sound of monsoons and wild birds reigned.

If a traveler could avoid the groups of Chinese bandits flourishing within the post-war power vacuum, a narrow road snaking through the mountainous jungle, now pot-holed and covered by landslides could be seen. At the western terminus of this road, near Ledo, stood a single structure in a clearing. It had been a chapel, property of the United States Army, but post-war belonged to a well-armed Indian contractor who used the structure to stockpile surplus war products purchased from the former tenants.

By 1947, no other structures surrounded the chapel-turned-depot, but to those who were there two years before, the setting was unmistakable. For them, the area around the chapel was the nucleus of their wartime lives from 1943-1945.

It was a medical beehive, home to 289 buildings and 162 tents that treated more than 73,000 patients.

It was where they carried out the activities of daily
life, both familiar—eating, washing, and working—and unfamiliar—hunting snakes, mending mosquito nets, and battling dysentery.

For them, that clearing was the 20th General Hospital of the United States Army. For those who were not there during WWII, it could be tempting to see that clearing in the jungle as little more than a shadow of a vestige, a hidden reminder of a terrible conflict. However, the 20th General Hospital is an example of the arc of military medicine in WWII.

When the doctors and nurses arrived in Ledo, the hospital was little more than a mud pit. By the time they left, the Army had poured enough precious assets—doctors, nurses, food, logistics—to turn a jungle into a fully-equipped modern hospital.

Hospitals such as these were built across U.S. military zones, but the 20th General Hospital reached a far corner of the war in a distant jungle, a demonstration of the ubiquity of modern medicine in the U.S. Armed Forces. The creation of this hospital is a story of the U.S. Army’s commitment to formalized military medicine during WWII.

Despite requiring tremendous resources, this medicalization of warfare yielded a strategic advantage for the Allies. In the words of General Raymond Kesler, “The 20th General Hospital would be outstanding anywhere in the world, and is the equal of university hospitals.”

The 20th General Hospital delivered state-of-the-art health care in the middle of a malarious jungle at the end of the longest supply line in the war. Its story represents a drastic departure from a time when disease killed more soldiers than the enemy.

From ancient times to the Burma jungle

“War is the only proper school for a surgeon”

—Hippocrates

Since the ancient world, advances in medicine have been motivated by war. In ancient times, soldiers received care from physicians, while civilians were under the care of priests, and the priest’s medical advice was typically valued over the physician’s. This hierarchy often broke down during military campaigns. Separated from priests, wartime military physicians were free to develop treatments by empirical means.

World War I was the first major international conflict where modern medicine entered the battlefield. As a result, many historians focus on this conflict, leaving a relative paucity of scholarship on WWII medical history. Still, many who study the history of medicine in WWII conclude that the most revolutionary feature of the conflict was the inseparability of the military and medical establishments.

During WWII, medicine was, for the first time, seen as a vital military resource, cementing both the “medicalization of the military,” and “militarization of medicine.”
During the conflict, modern medicine followed modern warfare to all theaters of war, even into the remote jungle of the India-Burma border region.

The concept of the general hospital was built on the formal staging system established in WWI, and was designed to be a fully-functional, modern hospital built near the front lines, with a capability to house at least six percent of the military force in the field. In addition to standard medical care, general hospitals were to provide specialized procedures such as plastic surgery, neurosurgery, and orthopedic reconstructions. They were designed to be the end-of-the-line for patient flow. Patients at a general hospital were either sent home, convalesced to return to duty, or died.6,8

Also modeled after a WWI system, doctors and nurses from a single stateside institution staffed a particular general hospital. The 20th General Hospital, with its 60 physicians, 120 nurses, and 600 enlisted men, drew from the University of Pennsylvania with Dr. Isidor S. Ravdin (AΩA, Raymond and Ruth Perelman School of Medicine at the University of Pennsylvania, 1931, Alumnus), professor of surgery, as its executive officer.3

The hospital was a part of the China-Burma-India Theater, a campaign which saw relatively little American involvement. Though the 20th General Hospital did not arrive until 1943, the fighting in Burma began in 1942, when the Allied British, Indian, and Chinese forces were driven out by the Japanese.

The military retreat yielded untold suffering as thousands of locals also fled the advancing Japanese army. Strategically, the Japanese advance was problematic to the Allies because it prevented the transportation of supplies via the Burma Road to the Chinese forces fighting the Japanese in the interior of China. As a result, the Allies had to airlift supplies over the Himalayas, a dangerous and costly endeavor which became known as “flying the Hump.” To alleviate the need for this airlift, the Allies began constructing a road from northwest India through northern Burma and into western China, bypassing the Japanese forces which had settled in southern Burma. Named the Ledo Road for its western terminus, it was where the 20th General Hospital was stationed.9

The mission of the 20th General Hospital was to care for those constructing the road—predominantly Indian, Chinese, and African-American U.S. soldiers—as well as the Chinese and U.S. soldiers fighting the Japanese throughout the region. This melting pot of patients led Dr. Ravdin to declare the 20th a “League of Nations” hospital. Nevertheless, the wards were mostly segregated.10

The medicalization of this far-flung military outpost required massive mobilization of personnel and equipment, demonstrating the military’s strategic commitment to extend state-of-the-art medical care throughout the theaters of war.

Beginning with a few shacks in a muddy field, the 20th General Hospital grew to become a fully equipped medical complex. Myriad bamboo structures and tents held full laboratory services, blood storage facilities, X-rays, surgical theaters, and medical wards. Though officially rated as a 2,000-bed facility, it sheltered as many as 2,560 patients at one time.

Of the 73,000 patients admitted to the hospital, 300 died, resulting in a mortality rate comparable to top U.S. hospitals at the time.4

A rough beginning

In 1940, U.S. Surgeon General Thomas Parran Jr. called on the University of Pennsylvania to organize a medical unit, in case of sudden need. Volunteers from the medical and dental schools filled the initial request for 73 officers.4

For more than two years, preparations were made from
Philadelphia. On May 15, 1942, 64 doctors and 120 nurses from the Hospital of the University of Pennsylvania gathered at 30th Street Station, and boarded trains to a training camp in Louisiana. The president of the University of Pennsylvania told a reporter, “We hate to see such good men go, but the sooner they go, the sooner we’ll get this over with.” Presumably he was sad to see the nurses go as well.

Life in Camp Claiborne, Louisiana, was similar to many non-combat units preparing for deployment—boring and filled with anticipation. The diary of neurosurgeon R.A. Groff tells of day after day of military foot drills under the hot sun. However, his June 24, 1942 entry conveys unusual excitement: “At 1:15 prepared for movies and we saw a skit on sex and personal hygiene and another film on the results of letting out information which is secret.”

Unfortunately the heat and boredom did not relent when the doctors and nurses boarded ships in Long Beach, California, January 19, 1943, for “Destination Unknown.” On the high seas, their accommodations became more uncomfortable as Dr. Groff recorded in his diary, “We have allotted ourselves one shower every 5 days. Water is like platinum. We are really beginning to smell like a sweat box.” In addition, deck space was limited, and a rotation was set for time on deck in the fresh air.

The group landed off the coast of Wellington, New Zealand, where they paraded through the streets to boost the morale of the allied island. They were greeted with an outpouring of support—United States flags, cheers, and invitations to tea.

Upon departing Wellington, only the ship’s crew knew their final destination. The group passed the time playing cards, writing letters, and sharing the few books they brought on board.

In March 1943, the 20th General Hospital team reached Bombay, India. There they were entertained by British high society who chatted nervously about the Japanese army looming to the east. On March 6, still unsure of their final destination and mission, they loaded onto train cars. Dr. Phil Hodes, a radiologist, played Auld Lang Syne on his violin. The passengers sang along with the tune while tears streamed down their faces as they headed to war.

The next three weeks were spent traveling by rail from Bombay to Ledo. The new environment was one of mystery, wonder, dread and disease. Local Indians carried baskets on their heads, and there were two water spigots—one for Hindus and one for Muslims.

Now, 10 months removed from Philadelphia, one member wrote, “Violence was being done to a lifetime of habits and tastes; everything about this land was a
reminder of home and loved ones, not in the customary suggestions of civilized communities, but in contrasts of opposites.” 12 One officer wrote, “I ate, because I was hungry, like an animal; not in the manner of a man.” 12

Dysentery was spreading throughout the ranks. “The sole topic of conversation was diarrhea.” 12 Latrines became known as “thunder houses.” The 20th’s priest, Reverend Louis Meyer, appreciated the desperation of the situation as he wrote in his diary about a local Indian boy who was hired to clean the latrine, declaring, “Pagan or no pagan, that lad will get to heaven.” 1

Upon arriving at Ledo, Dr. Ravdin, who had spent time in military hospitals in the Pacific, recalled, “The first view of the hospital was something never to be forgotten. We splashed out of the trucks into nearly six inches of soft slippery mud. [The hospital] consisted of a large polo field, on which were no buildings because it was said to be covered with water during the monsoon.” 10

A new home away from home

Bashas were 2,000-square-foot bamboo structures that served as home, kitchen, and workplace, for the team. The window and door covers were made of bamboo, the roofs were leaves, and the floors were dirt. Each member of the 20th had a bed, but no mattress, just wire springs, and a mosquito net. Each night, they checked their clothes for bugs, lizards, and snakes.

The basha that had been declared the mess hall did not have chairs or tables, but it did have bacon, eggs, and coffee.

Because the Japanese occupied the ports to the south, Ledo’s supply line crossed the entire span of India—the longest in the war. Any item that could not be secured locally required weeks of planning. This included hypodermic needles and penicillin, as well as coffee and bacon.

As supplies trickled in, dysentery continued to run rampant, and improved hygiene became a top priority. As a result, one of the first contraptions erected in the mess hall was an empty oil drum over a brick oven for boiling water to sanitize mess kits. 1 From grand to small, innovations such as these slowly came to Ledo, which was an ecosystem of continuous improvements.

Boots were purchased at the local bazaar, laboratories were erected, and blue nurses’ uniforms were replaced with brown ones to better accommodate the mud.

Gradually, a hospital was born, fed by train loads of equipment from more than 2,000 miles away.

About Christopher Magoon

I began reading history books while growing up in Canton, Ohio, followed by a degree in history from Yale University. After I graduated, I was fortunate to receive a scholarship to move to the far southwest of China. After learning the language, and chatting with many the people, I became fascinated with the story of the China-Burma-India theater. I can be contacted at: Christopher.magoon@gmail.com, or @cpdmagoon.

Merrill’s Marauders

The American fighting unit cared for by the 20th was the 5307 Composite Unit (Provisional), or more commonly known as Merrill’s Marauders, after their commander Frank Dow Merrill. This unit worked in coordination with the Chinese to slip behind enemy lines and attack the Japanese from the rear flank. As a result, the Marauders hiked through leech-infested swamps, and across steep precipices, which made it difficult to execute the stepwise organization of medical aid. Regimental surgeons, cut off from supplies, often had to borrow simple tools from locals. If a Marauder was wounded, he often rode a pack animal back to a clearing where he was evacuated by a small medical plane that landed wherever it could. Often times, when the plane arrived at the 20th General Hospital, the soldier had been wounded days before. 9

Sergeant Michael Pelot of Hazleton, Pennsylvania, had his hand torn open by an explosion while operating behind enemy lines. According to his own report, maggots infiltrated the wound within two hours. He was evacuated by ox cart to the 20th General Hospital on a journey that lasted eight days, during which time he developed gangrene. Once he arrived at the 20th, he underwent a series of surgeries, followed by postoperative care, which resulted in a full recovery. 14

A research hospital

Tropical disease plagued both the 20th and the armed forces in the region. Scrub typhus and malaria were the most common. In the monsoon season of July through October 1943, the 20th admitted 12,000 malaria patients. 15

Though malaria could be effectively controlled by
quinine, the Japanese army held most of the world’s Cinchona trees, the natural reservoir for the drug. The Americans were left to control malaria with a relatively new drug, Atabrine. Atabrine tasted bitter and often turned skin yellow, which made adherence difficult. As Elise Sours, a nurse with the 20th, recalled, “Some people came down with malaria, though everyone was supposed to take Atabrine. We used to wonder why one girl didn’t turn yellow like the rest of us. When she became sick, we found out she wasn’t taking it. We used it to dye curtains and anything else. Everything was shades of yellow.”

The 20th was also a research center. Dr. Thomas Machella began conducting research on prevention and treatment of tropical ailments. Though Atabrine was the prophylactic treatment for malaria, it was unclear if intravenous (IV) Atabrine would be as effective as other treatment options for those already infected.

Machella designed an experiment where soldiers who were diagnosed with malaria were either given IV Atabrine, oral Atabrine, or a single infusion of quinine. His data showed that IV Atabrine was effective, but the patient needed to be watched closely due to a high likelihood of adverse reactions.

His results were distributed widely, affecting treatment throughout the armed forces. However, he was prohibited from publishing his results in a medical journal, as the military was concerned about the information falling into enemy hands.

Machella was also instrumental in assessing the safety and efficacy of the anti-malarial drug Chloroquine. The drug was discovered in the 1930s, but sidelined due to what was believed to be unacceptable toxicity. During WWII, researchers in the United States theorized that the initial toxicity estimates had been overestimated. Aware of this debate, Machella tested the drug and wrote a report, concluding, “It is believed that SN 7618 [Chloroquine] is effective in the suppressive treatment of malaria. Troops are more willing to take it than Atabrine. The drug is effective in fighting an attack of *P. Falciparum* malaria.” Machella’s report proved to be the accepted evaluation of Chloroquine, however, due to conflicting results elsewhere, the drug was not approved for general use until 1946.

Machella also conducted research on the intracellular parasite *Orientia tsutsugamushi* which causes scrub typhus. Though relatively unknown by American doctors before the 1940s, scrub typhus caused severe epidemics in Burma throughout the WWII, and affected many of Merrill’s Marauders. Treatment options were limited, but Machella provided treatment to 64 cases and published his results in the *American Journal of Medical Science*.

Machella was awarded the Bronze Star for conducting studies on a variety of diseases commonly affecting troops in his area; improving methods of treatment resulting in the lowering of morbidity and mortality of diseases such as cerebral malaria; and developing a more complete knowledge of many tropical diseases.

The 20th General Hospital began as mud pit in a marginalized theater of war. Located at the end of a 2,000-mile supply line, its patients—primarily of color—were
the beneficiaries of military planners who prioritized high medical standards, and appreciated and supported medical research.

Amidst the mud, dysentery, and the Japanese army, this outpost of modern medicine achieved successes commensurate with the most modern hospitals of the time.

By establishing an acute care research hospital in the middle of a malarious jungle, the Army advanced the field of preventive medicine, and ensured high quality medical care in a marginalized theater of war.

Acknowledgments
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History of present illness

Liat Bird
Ms. Bird is in the Class of 2016 at Boston University School of Medicine. Her essay won Second Place in the 2016 Helen H. Glaser Student Essay Competition.

Ms. B is a 65-year-old woman with a 35-pack-per-year smoking history, and stage IV small cell lung cancer (SCLC), s/p six cycles cisplatin/paclitaxel without improvement. She presents from clinic with vegetative depression, and failure to thrive.

Three weeks prior to admission, Ms. B finished her first round of chemotherapy to treat metastatic SCLC. She reports having many side effects, including skin rash, nausea/vomiting, and headaches. A post-treatment CT scan shows progression of her disease, with lesions in the long bones and liver, as well as the lung. CT head does not show any brain lesions.

She was scheduled to begin cisplatin/irinotecan chemotherapy at clinic today, but upon presentation appeared dehydrated and thin. She reports that she has not eaten for one week. Her daughter, who came with her to clinic, also reports that Ms. B has been taking in very little fluids. Ms. B reports that she is “not hungry,” and that she “knows she should eat” but does not want to.

She does not report nausea/vomiting/abdominal pain. She does not report any suicidal ideation.

Of note, she has lost 10 pounds over the past two weeks, and per clinic notes, her affect was very flat.

She was admitted to the hospital for vegetative depression, and failure to thrive.

Mrs. B

I don’t want to eat.  
I know that sounds crazy, and maybe I am, but I just don’t want to. Nothing sounds good. Not even strawberry ice cream mixed with strawberry Boost, my go-to meal since chemo.

I’m losing weight.

My family is worried.

My family. I know they want me to eat. I think they know that I’m trying. I would eat for them, if I could. I just can’t.

And now, I’m sitting in the oncology clinic, again, having the conversation about chemotherapy, again. I’ll listen.

My daughter mentions that I haven’t eaten in four days, that I just say I’m not hungry and move on with my day. This is true. I’m not hungry, and the days go on, don’t they?

The oncologist’s face scrunches into a worried frown. He asks me why I’m not eating. Why do they keep asking? I just don’t want to. Nothing sounds good.

He asks me if I feel depressed. The small part of me that is still alive laughs at that. Depressed? Me? With stage IV lung cancer and the most miserable three months of my life behind me? With more miserable months ahead hooked up to an IV pumping in chemicals that make my skin feel like it’s melting off my body, make me nauseous, make me tired? Wouldn’t that make anyone welcome death, like an old friend?

I can’t think like that. My family. They need me. My children. My husband. I can’t fail them.

I just don’t want to eat.

My daughter explains that I would force down food maybe once a day, but that stopped four days ago. I couldn’t force it anymore. Not even when my husband looked at me with those hurting eyes. Not even when my daughter was crying in the kitchen when she thought I
The doctors come in. They ask all the same questions. I tell them, again, I just don’t want to eat. I can’t force it anymore. Everyone leaves. My daughter says goodbye.

A girl in a short white coat comes in. She looks nervous. She sits down. She asks what is going on.

I thought she was going to ask me about the food again. I answer that I just don’t want to eat. She says she heard that from the others. She repeats her question: What’s going on? She just looks at me. Cocks her head like a dog does when it’s listening. Says nothing.

She told me later it was because she was so nervous. She’s a student, and she didn’t know what to do or say. She was scared, so she did the only thing she could think of, which was to wait and listen. Now that I think of it, I could hear her heart beating from across the room.

She sits, looks at me expectantly, and lets the silence fill us up. We let my death be with us. It feels gentle, and the part of me that is still alive stirs. It says, I can’t force it anymore. It says it’s not about the food, it’s about the fight.

She nods, and my living part grows, exploding upward, rushing to the surface and bursting out of my face as I say aloud the things I’m scared to feel.

I say that I never wanted to fight this, to spend my last months in misery. I have had such a wonderful life, with my husband of 40 years, and my two beautiful daughters. I have done all I ever wanted right at home, in Waltham. I have made Halloween costumes, and baked cookies, and fought with my rebellious teens and my exasperating husband, and made up with them, and lived my simple beautiful fulfilled life.

Suddenly, I am saying out loud that I do not want more chemotherapy; that I am ready to die. My living part, rooted within me and now blooming across my cheeks, demands to be sustained until my heart stops beating. This is not living I say. It is worse than dying. It is something else, and I do not want it.

She still says nothing. I come back to myself and remember why I started chemotherapy in the first place.

I remember sitting in my doctor’s office after having pneumonia for months and months. It would get better with antibiotics, but then it would come back once the pills ran out. My daughter, the preschool teacher, felt bad because she thought she gave it to me from her kids at school. She was sick before me, then I was sick. She got better but I didn’t.

The X-rays kept coming back with things on them. I was still smoking cigarettes then; a decades-long habit doesn’t disappear just because you’re having trouble breathing. Then I started sweating heavily at night, and losing weight. With the recurrent lung infections, my doctor said something about “post-obstructive pneumonia.” Then there was a scan of my lungs, and then another one of my whole body, and then, all of a sudden, there I was with my doctor and she was saying cancer. Then I couldn’t hear anything at all.

Of course, my two daughters and my husband came with me to the first oncology appointment. I wasn’t feeling too bad, just drenching sweats at night, and that annoying cough that wouldn’t go away. The oncologist starting talking about chemotherapy, and I thought why, it’s everywhere: in my lungs, and my bones, and my liver, and I don’t want to suffer. Before the words could get out, my daughters and husband were nodding along, comforted by the you-never-knows, and the she-could-have-five-more-years, and the we’ve-come-a-long-ways. When they looked at me, brimming with hope, it was spilling out of their

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The Pharos/Summer 2016
eyes and into their laps in a shower of golden groundless optimism—I couldn’t say no.

I started chemotherapy, and went from night sweats and coughing to nausea, vomiting, skin rashes, pain in my arms and legs, hair loss that hurt, and fatigue so bone-deep and wearying that getting out of bed became a Sisyphean task—just one more struggle in the wasteland of my life.

The scans came back with still more cancer, and I wanted to scream, but the shimmering insubstantial hope kept pouring out of my oncologist, and out of my desperate, eager, wounded family—so much that I felt like it was choking me in a beautiful boundless flood.

So, when the oncologist said we should try again, I said “yes,” rather than stem that tide of belief.

I have lived my life for my family, and I would live my death for them too, if that was what they wanted. 

But now…I just don’t want to eat anymore. I can’t force it.

I’m crying. The girl strokes my hand, says that I am so strong, she cannot imagine how a person can be that strong. She tentatively asks me if I know about a thing called hospice. I do not. She says she worked in one for a summer and it was the patients there, like me, who inspired her to go to medical school.

She tells me about it. About comfort, and acceptance, and symptom control.

My living piece—pausing in its task of implanting roots within me—tells me that this is what we need, or we’ll go back to the not-living-not-dying place where not even strawberry ice cream with strawberry Boost tastes good.

I ask her to call the hospice doctors.

It all happens so fast. My living part busily curling up past my ears in green growing tendrils as things move forward. A doctor comes and talks to me, and then we all meet—my oncologist, my family, and this doctor who runs the meeting.

I say all the things I wanted to say months ago when the chemo started. I cry, and my family cries. Then, the most wonderful thing happens. They tell me that it’s hard to let go, but they don’t want me to hurt. I know they all can see my living piece, the part that came from them, and our years together. The realest thing. Budding above my eyes and around my forehead, waiting.

The ethereal flood of boundless optimism stops flowing out of them, stops crushing me. Instead, small searching vines of warmth, love, acceptance, support, everything, grow from them, down their legs, up my arms, right into my beating heart. My living part bursts into full bloom.

My husband’s hurt is still there in his eyes, but then he takes my hand gently and says he will stand with me now, just like he did 40 years ago at the altar when we promised each other in sickness and health, til death do us part.

He says I have always taken care of him, and he asks me to let him take care of me, just this one time. I say of course. Of course.

We’re all so sad, but it’s peaceful too. Somehow comforting, real, honest, right.

I’m finally happy, now that I’m out of the not-living-not-dying place. The flowers of my life are around me, sustaining me. I’m happy now that I can be alive, right up until I die.

When the girl comes to say goodbye (because I can go home now, now that I’m alive again) we hug. I think for a moment, and then ask her to share a strawberry ice cream mixed with strawberry Boost with me.

It tastes wonderful again.
The Way They Live - 1879. Oil on canvas, Anshutz, Thomas P. (1851-1912).
James Comotto
Mr. Comotto is a member of the Class of 2018 at the University of Maryland School of Medicine. His essay won Third Place in the 2016 Helen H. Glaser Student Essay Competition.

The slavery hypertension hypothesis was first proposed by University of Minnesota professors Henry Blackburn, MD, and Ronald J. Prineas, MD, PhD, in 1983, and later refined by Thomas W. Wilson, PhD, and Clarence E. Grim, MD, in 1991. It employed America’s historical involvement in the Atlantic slave trade to explain a genetic foundation for the high prevalence of hypertension among present-day African-Americans.

Although the hypothesis was challenged in 1992 by Philip Curtin, a leading historian on the Atlantic slave trade, and shown to lack corroboration by genetic support, it has continued to be prominent in the media, and cited in medical textbooks.

The hypothesis
Hypertension affects all racial and ethnic groups in the United States. According to the Third National Health Nutrition and Examination Survey, the prevalence of hypertension in the United
States in persons 18-74 years of age is 25%, with African-Americans exhibiting the highest prevalence (32.4%) among all racial groups listed.4 Hypertension in African-Americans has an earlier onset, and produces more target-organ damage than in other racial groups. Compared to Caucasians, African-Americans with hypertension suffer higher mortality rates from stroke, heart disease, and end-stage renal disease.4 Although awareness, treatment, and control of hypertension have improved in recent years, progress remains suboptimal in the general population, especially for African-Americans.5

While essential hypertension has been shown to be a risk factor for cardiovascular disease, the etiology of it remains uncertain.6 Multiple hypotheses have been proposed to explain its predilection for African-Americans, such as a race-based increased sodium-sensitivity, or an upregulated tissue angiotensin II system. Other hypotheses point to socioeconomic factors, such as limited access to health care, delays in diagnosis, and iatrophobia.4 However, the most controversial theory, is the slavery hypertension hypothesis, which is founded on two basic assumptions:

1. The regions of Africa from which slaves came were salt-scarce; and
2. Fifty percent to 60% of the slaves taken from Africa died during transit to America via the Middle Passage, and in the first three years of bondage, and the disorders responsible for this extraordinarily high death rate were salt-depletion disorders, such as diarrhea, fevers, and vomiting.

The hypothesis argues that slaves with "an enhanced genetic-based ability to conserve salt had a distinct survival advantage over others and were, therefore, more likely to bequeath their genotype to subsequent generations of Western hemisphere blacks."2 The survival advantage of these salt-conserving genes transformed into a liability with the advent of the modern, high-salt Western diet by conferring a salt-sensitive hypertension phenotype on today’s descendants of African slaves.

Dismantling the historical evidence

While the slavery hypertension hypothesis has had considerable public appeal, its historical underpinnings have been dismantled by Philip Curtin, a historian of the slave trade on whose work the hypothesis is based.3 Wilson and Grim suggest that slave mortality rates of 10% to 15% occurred during capture and delivery of slaves to the African coast; while awaiting transport to America; and during their time at sea.2 Curtin argues, it would be impossible to know the mortality rates that occurred during capture, imprisonment, and transport as African slave traders kept few, if any, records. Therefore, estimates of mortality rates are, at best, guesses.3 Curtin continues, "while some deaths from dehydration and salt-depletion could have occurred, there is no evidence that either was a significant cause of death on the slave ships."3 Wilson and Grim’s contention that limitations in the amount of salt fed to slaves increased the number of deaths due to salt-depletion disorders is also at odds with the available historical data. At the time of the Middle Passage, salt was both abundant and cheap, and salted meat was a main staple of the slave diet.7-10 However, water-deprivation could have been a major contributor. In testimony given by abolitionists before the British Parliament in the mid-1800s, slaves were said to have endured ineffable suffering from lack of water.
during the Middle Passage. A captain of a slave transport ship described slaves “labouring under the most famishing thirst...being in very few instances allowed more than a pint of water a day.” Abolitionist Thomas Buxton alleged that there was “nothing which slaves during the Middle Passage suffer from so much as want of water.”

In addition, it is estimated that the temperature below deck where the slaves were housed during transport reached 120°-130°F. In those temperatures, sweating could reach levels as high as 2.5 liters/hour. Although additional water was provided to slaves during transport in the form of a daily quart of soup, it’s not likely that any slave could have endured the 35 day to 70 day voyage without succumbing to dehydration.

The historical evidence, although limited, suggests that the diet of slaves during the Middle Passage was likely high in salt, but severely limited in water. Since the overall mortality among slaves transported to America was no higher than 10%, the daily water ration must have been considerably greater than that reported by abolitionists testifying before the British Parliament. And, given the fact that slaves were fed considerable amounts of salt in the form of cured meat, and as medicine, those with an enhanced genetic-based ability to conserve salt should not, as suggested by the slave hypertension hypothesis, have “had a distinct survival advantage.”

A different hypothesis

The enforced immobility of slaves chained below deck during voyages would have placed them at considerable risk of deep vein thrombosis. Hemoconcentration resulting from the chronic dehydration described above would have increased this risk. Therefore, deep vein thrombosis may have been responsible for “edematous swelling of the legs” of slaves, which Guinea surgeons (surgeons assigned to slaves ships) attributed at the time to scurvy.

However, deep vein thrombosis would have led to pulmonary emboli as a cause of at least some of the deaths during the Middle Passage. It is recorded that Guinea surgeons believed that slaves were capable of committing suicide by holding their breath, but a more likely explanation would be fatal pulmonary emboli, a disorder unknowingly mitigated by slavers who later began to force slaves “to exercise themselves with dancing” at least once a day for one to two hours, with the belief that exercise reduced mortality.

If pulmonary emboli were responsible for some of the slave deaths during the Middle Passage, the diagnosis could not have been made by slave surgeons since its existence was not recognized until the German physician Rudolf Virchow (1821-1902) elucidated its pathophysiology in 1856, almost a half century after the slave trade ended.

A British ship surgeon in 1790 suggested “fully two-thirds of slave deaths during the Middle Passage stemmed from [Melancholia],” which is an example of archaic diagnoses of the time.

Flawed scientific evidence

Genetic analyses conducted to date tend to refute the existence of the evolutionary bottleneck responsible for the propensity proposed by the slavery hypertension hypothesis. In 2001, an article published in the Journal of Human Hypertension, an analysis on a sample of U.S.-born African-Americans and African-born immigrants for alleles associated with hypertension risk (G-protein, AGT-235 and ACE I/D), the AGT-235 homozygous T genotype was found to be more common among African-born immigrants than among U.S.-born African-Americans. In addition, the physicians who cared for slaves residing on plantations most often diagnosed diseases of the lungs, particularly pneumonia and tuberculosis, though malaria and gastroenteritis were also common. According to Curtin’s analysis of the historical evidence, salt-depleting diseases were not the principal cause of death among recently captured slaves. Rather, they were disorders which accounted for mortality rates of 6.3 deaths to 16.5 deaths per thousand.

Evolutionary biologists also question the slave
hypertension hypothesis based on the fact that the suggested evolutionary bottleneck is much too rapid to have had such long-term effects, and different genes likely influence salt retention and excretion.\textsuperscript{14,15} Even if there were a significant level of assortative mating within the race, it would be expected that any divergence caused by a short-term bottleneck would fade out rapidly during subsequent generations. In order to have maintained the salt-retaining phenotype, there would have had to be “almost complete genetic homogeneity...achieved during selection.”\textsuperscript{15}

While a genetic defect in salt excretion would be physiologically appealing, and “more consistent with salt-retention as a basis for hypertension, again, it is difficult to understand why selection would favor such a trait.”\textsuperscript{15}

Why so persistently popular?

Deterministic biological explanations, such as that embodied in the slavery hypertension hypothesis, absolve both society and individual of responsibility for a health problem that is, at least in part, behavioral.\textsuperscript{16} African-Americans, have not been shown to metabolize salt differently from other racial groups, rather, the bulk of evidence suggests that hypertension in general, and its predilection for African-Americans, is mediated by a host of factors such as low birth weight, low-protein maternal diet, excess glucocorticoids, vitamin A deficiency, undernourishment, and enhanced growth in childhood due to modern diet and lifestyle.\textsuperscript{16,17}

Social determinates of health and health disparities are the real factors for increased hypertension in African-Americans.

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References

Nurse stands firmly at this too-young woman’s side—her personal Cicerone—delivers herself with a bored intensity. The patient doesn’t seem to hear Nurse’s starchy admonitions. Face averted, head held downward, spine bent back the wrong way, arms cruciform: all part of the resurrected cruelty of the regimen she undergoing.

The ravening machine hovers over her—dark wingless thing—its grain hopper of a snout roots at her pelvis. In the wall to her right, behind the wire glass windows, the horror-movie nervous system of the beast, febrile with electric menace.

On the patient’s upturned face, befuddlement, as the camera takes its voyeuristic pleasure in every convoluted process of her treatment.

Most of all, the forlorn hope that this black monster will ferret out the vermin in the crawling trash heap she envisions, where her uterus used to be.

Lee Passarella, PhD

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In Flanders fields the poppies blow
Between the crosses, row on row,
That mark our place; and in the sky
The larks, still bravely singing, fly
Scarce heard amid the guns below.

- John McCrae

Speaking for a world at war
John McCrae, physician, soldier, poet

Terrence Montague, CM, CD, MD
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Spawned by a long history of nationalistic hubris, and lack of clear political strategies by leading European powers of the day, World War I produced few territorial or economic benefits for any nation, despite enormous costs in life and treasure. Nonetheless, WWI was, for many countries, a defining event in national and world evolution, calling forth incredible fervor and sacrifices not seen before, or since.

In Canada, a developing country of approximately 8 million citizens in 1914, more than 600,000 men and women enlisted in the armed forces as soldiers, sailors, and airmen. More than 400,000 Canadians served overseas—the majority as members of the Canadian Expeditionary Force (CEF), the army in the field.

Over the four-year-course of the war, approximately 130,000 CEF members were wounded, and another 60,000 died. Of those who died, one-third, or 20,000, lie in unmarked graves, and are communally remembered by the Tomb of The Unknown Soldier.

The total Canadian WWI casualties represented 48 percent of the CEF; 32 percent of the entire armed services; and two percent of the population of Canada at the time.

**Soldier and educator**

John McCrae was born in Guelph, a small city in Southern Ontario, in 1872, where he lived with his brother, sister, and parents.

Following high school, he attended the University of Toronto, receiving a bachelor’s degree in 1894, and a doctorate in medicine, with honors, in 1898. His educational years were complemented by military service as a cadet in high school, and artillery and infantry militia training during his university years.

In 1899, McCrae volunteered to serve overseas for two years in the Boer War in South Africa as a combat arms officer in the 1st Brigade, Canadian Field Artillery. For his service, he received the Queen’s Medal, with three clasps.

Returning to Canada in 1901, McCrae resumed his medical career with post-graduate studies in medicine and pathology at Johns Hopkins and McGill Universities. He was appointed to the Faculty of Medicine at McGill, and to the staff of several of its teaching hospitals.

McCrae was a contemporary of Sir William Osler and Maude Abbott. His brother, Thomas, was the editor of Osler’s iconic textbook, *The Principles and Practice of Medicine*.

He cared for patients, taught, and, coauthored *A Textbook of Pathology for Students of Medicine* with John Adami. He was described by his contemporaries as busy, serious, studious, and focused, but also sociable, amusing, and gregarious.
Although McCrae is most renowned for his poem, “In Flanders Fields,” his earlier works are also insightful and reflective of his character, traversing love, faith, conflict, and death. “Unsolved,” published in 1895, reflects his concentration on work with lonely introspection. It is complemented, however, by a suggestion, gained from gazing into a woman’s eyes, that there were challenges, knowledge and experience to be gained beyond those obtained from books alone. It has been reported that McCrae fell in love with a classmate’s sister in his late teens, just a few years before this poem was written. Unfortunately she died unexpectedly soon after they met.

Amid my books I lived the hurrying years, Disdaining kinship with my fellow man; Alike to me were human smiles and tears, I cared not whither Earth’s great life-stream ran, Till as I knelt before my mouldered shrine, God made me look into a woman’s eyes; And I, who thought all earthly wisdom mine, Knew in a moment that the eternal skies Were measured but in inches, to the quest That lay before me in that mystic gaze. “Surely I have been errant: it is best That I should tread, with men their human ways.” God took the teacher, ere the task was learned, And to my lonely books again I turned.

McCrae never married, despite a very active social life in Montreal.

During the inter-war years between 1901 and 1914, McCrae wrote and published several poems, some with accompanying sketches and drawings.

Andrew Macphail, MD, professor, History of Medicine, McGill University; editor, University Magazine; founding editor, Canadian Medical Association Journal; and a WWI Commanding Officer of 6 Field Ambulance in Flanders, described McCrae as being religious and “an indefatigable church goer,” often standing in for the padre. In “The Dying of Pere Pierre,” a poem published in 1904, McCrae reflects some of his underlying religious self, combined with a sense of foreboding loneliness, darkness and death.

Nay, grieve not that ye can no honour give To these poor bones that presently must be But carrion; since I have sought to live Upon God’s earth, as He hath guided me, I shall not lack! Where would ye have me lie? High heaven is higher than cathedral nave: Do men paint chancels fairer than the sky?” Beside the darkened lake they made his grave, Below the altar of the hills; and night Swung incense clouds of mist in creeping lines That twisted through the tree-trunks, where the light Groped through the arches of the silent pines: And he, beside the lonely path he trod, Lay, tombed in splendour, in the House of God.
McCrae dealt with the theme of war in his 1907 poem “The Warrior.” The last lines of which seem to forecast his introspective 1914 WWI enlistment decision.

He wrought in poverty, the dull grey days,
But with the night his little lamp-lit room
Was bright with battle flame, or through a haze
Of smoke that stung his eyes he heard the boom
Of Blucher’s guns; he shared Almeida’s scars.
And from the close-packed deck, about to die,
Looked up and saw the “Birkenhead”’s tall spars
Weave wavering lines across the Southern sky:

Or in the stifling ‘tween decks, row on row,
At Aboukir, saw how the dead men lay;
Charged with the fiercest in Busaco’s strife,
Brave dreams are his -- the flick’ring lamp burns low --
Yet couraged for the battles of the day
He goes to stand full face to face with life.

He had more than 30 poems published over his lifetime, many appearing in journals such as Punch, The Spectator, Massey’s Magazine, University Magazine, Canadian Magazine, The Westminster, Varsity, and The Toronto Globe.5

In Flanders Fields
The land embracing the provinces of East and West Flanders in Belgium, and the Department of Nord-Pas-de-Calais in France, was the epicenter of the Western Front in WWI. It was the site of some of the largest and most deadly battles of the war. As a consequence, completely new connotations became associated with previously mundane geographic terms like the Somme, Ypres, Passchendaele and Vimy Ridge, which became hallowed ground.

McCrae wrote letters to his relatives and friends describing life in Flanders where he was posted as Medical Officer, and Second in Command, of the 1st Brigade Canadian Field Artillery.

Many, including McCrae, lived and worked in tents, or dug into the sodden earth. McCrae’s Commanding Officer, Lieutenant Colonel Morrison wrote, “My headquarters were in a trench...on the bank of the Ypres Canal...John had his dressing station in a hole dug in the foot of the bank. During the battle, men actually rolled down the bank into his dressing station. Along a few hundred yards was the headquarters of a regiment...many times, he and I watched them bury their dead whenever there was a lull. Thus, the crosses, row on row, grew into a good-sized cemetery.” 5

The scene was captured by McCrae in a sketch showing the position of his Brigade’s medical station. This was where he wrote “In Flanders Fields.” The handwritten inscription reads, “Looking S. from our position. The back slope in the foreground.” 5

Second Battle of Ypres
Macphail said, the “inner history of war” is written by “those who have endured it.” 5

In a letter written to his mother during the Ypres battle, McCrae vividly defined the reality of soldiers in deadly combat, “The general impression...is of a nightmare...the most bitter of fights...for 17 days...none of us have had our clothes off...nor our boots. In all that time, gun fire, rifle fire never ceased for 60 seconds...Our casualties were half...the men in the firing line...Behind it all was the constant background of the sights of the dead, the wounded, the maimed, and a terrible anxiety—lest the line should give way.” 5

During this battle, on May 2, 1915, Lieutenant Alexis Helmer, 2nd Battery, 1st Brigade, Canadian Field Artillery, was killed from a direct hit by enemy fire. Helmer, 22-years-old, and a graduate of McGill University and the Royal Military College of Canada, was popular among his peers and a close friend of McCrae. His remains were collected in a blanket, and during a brief pause in the battle, McCrae
conducted the Committal Service as he was laid to rest in Essex Farm Military Cemetery, Ypres, Belgium.\textsuperscript{5}

One consequence of the prolonged intensity and chaos of the military situation surrounding the Ypres battle, was that Helmer’s grave site was lost to posterity, and he joined the legion of unknown soldiers. His name is, however, inscribed on the Menin Gate, Belgium’s memorial to the missing in Ypres.\textsuperscript{7}

\textbf{The poem}

Following Helmer’s funeral, McCrae was observed sitting on a wagon overlooking the Essex Farm Cemetery and writing on a scrap of paper. A Sergeant-Major who observed McCrae that day said, “In Flanders Fields” was an “exact description of the scene in front of us both... the poppies actually were being blown that morning by a gentle east wind.”\textsuperscript{8}

In Flanders fields the poppies blow
Between the crosses, row on row,
That mark our place; and in the sky
The larks, still bravely singing, fly
Scarce heard amid the guns below.

We are the Dead. Short days ago
We lived, felt dawn, saw sunset glow,
Loved and were loved, and now we lie,
In Flanders fields.

Take up our quarrel with the foe:
To you from failing hands we throw
The torch; be yours to hold it high.
If ye break faith with us who die
We shall not sleep, though poppies grow
In Flanders fields.

Apparently dissatisfied with his creation, McCrae discarded the paper with the poem. This action was noticed by another officer, who retrieved the paper from the ground. Exactly who forwarded the poem for publication is not certain. Initially submitted to The Spectator, it was rejected. However, it was subsequently submitted, accepted and published, in Punch, December 8, 1915.

In a contemporary analysis by Macphail, an experienced editor of poetry, the poem appears technically simple, “The theme has three phases…the first a deadly calm, opening statement in five lines; the second in four lines, an explanation, a regret, a reiteration of the first; the third, …in vivid metaphor, a poignant appeal.”

The theme itself he describes as “the dead still conscious, fallen in a noble cause, see their graves over-blown in a riot of poppy bloom…the emblem of sleep. The dead desire to sleep undisturbed…yet curiously take an interest in passing events. They regret…not living out their normal life. They call on the living to finish their task, else they…not sink into that complete repose they desire.”

The poem's popularity was instantaneous and immense among soldiers, and the general population.

Macphail also proposed an explanation for the poem's extraordinary ability to compellingly engage and move people to an “expression of a mood which, at the time, was universal, and will remain as a permanent record when the mood is passed away.”

McCrae noted the death of Helmer in his letters to his mother dated May 2 and 3, 1918, saying he died “at the guns…A soldier's death!” He did not, however, mention writing the poem.

**A life cut short**

In June 1915, McCrae was promoted to Lieutenant Colonel, and posted as Chief of Medicine, and Second in Command to Number 3 Canadian General Hospital at Boulogne, France.

The hospital of 1,560 beds and McCrae were busy treating the wounded from all the armies fighting the never-ending Flanders’ battles.

Macphail recalled that McCrae's mood darkened during this time, “His old gaiety never returned.”

In November 1917, McCrae was selected for promotion to Colonel, and appointed Commanding Officer of Number 1 Canadian General Hospital. Shortly thereafter, he was also nominated as Consulting Physician to the British Armies in the Field. However, before he could assume either of these new positions he developed pneumonia, which rapidly progressed, resulting in his death January 28, 1918.

His funeral, held the following day, was attended by his friends, medical colleagues, Lieutenant General Currie, General Officer Commanding the Canadian Corps, Harvey Cushing from the Harvard Unit of the United States Army, and, perhaps most reflective of the extraordinary regard in which he was held, 100 Nursing Sisters.

He was buried in the Military Cemetery at Wimeureux, France, where his grave is marked with a simple stone, as are the graves of hundreds of his comrades who surround him. Carved into the top of McCrae's stone is a cross, and at the bottom, a maple leaf. An inscription in the centre reads:

Lieutenant Colonel J. McCrae,
Canadian Army Medical Corps,
28th January 1918

**Living on through the written word**

McCrae was an extraordinary soldier. However, his WWI service and experience were not unique. He had a communicative gift that enabled him to speak to the world for his comrades in arms. He told of the perils of war in a manner that allowed those who were not there to viscerally understand and remember the souls of the soldiers who sacrificed, and the hopes and dreams that link all soldiers.

The universal impact of “In Flanders Fields” endures. Its words, phrases and tone capture the ultimate essence of individuals as they place themselves in harm’s way in service to their country.

This broader concept of a life well lived can be extended to all McCrae’s comrades-in-arms. They too had vital lives and worthwhile endeavours as farmers, fishermen, woodsmen, teachers, lawyers, and other occupations,
They were sons, fathers, brothers, sisters, and daughters. They volunteered to go into harm’s way when called by their country. They displayed selfless courage and perseverance that enabled WWI to be won by the allies. They were, and are, viable and relevant beacons in our ever-challenged world. We will remember them.

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References

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Flecks of free-floating collagen
cruise the ocean of my eye,
tiny sailboats with squiggly lines,
sails puffy, curved and full-blown.
An optical hallucination for some.
For me, a vision test for my muse:
a strand of cobweb, unraveled, playing
hide-and-seek with my inquisitive gaze;
a long-tailed pollywog, darting
to the periphery of my vision when
I focus on what can’t be focused on;
a blurred comet, flashing its tail
across my darkness, when I’m angled
toward something bright in the night;
a spermatozoon thrashing its tail,
desperate in its futile search
for a welcoming egg,
lost in the wrong ocean.

Clemens Schoenebeck

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Albrecht Dürer's 'Venereal Disease', 1496.
Print Collector / Contributor.
Gregory W. Rutecki, MD

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In him we find all arts and sciences...without knowing that he ever studied them. Not only are there allusions...to every craft, business, and pursuit, but those following them have the thoughts and language proper to their station.

—John Dryden (1631-1700)\(^1\)

In contrast to tuberculosis, anthropological evidence suggests that syphilis may not have been a disease of antiquity. Thousands of pre-Columbian, European skeletons have betrayed no signs of the spirochete's presence (either as periostitis or gummas). However, pre-Columbian, Dominican Republic remains have demonstrated unmistakable stigmata of syphilitic periostitis.\(^3\)

In the early 16th Century, Philippus Broaldus declared syphilis was a new disease—unknown to the ancients—with the most characteristic symptom being bone pain. A list of prominent 16th Century Spanish Historians—Oveido, Las Casas, de Sahagun—agreed, alleging Native Americans were the source of syphilis.\(^4\)

As early as 1493, long before Broaldus, Ruy Diaz de Isla of Barcelona proclaimed, “in Castile they called it bubas, but I call it the serpentine malady of the isle of Hispaniola. One cannot find a more horrible comparison, for as this animal [snake] is hideous, dangerous, and terrible so the malady is hideous, dangerous, and terrible.”\(^5\)

The first European generations to experience the post-Columbian variety of this malady not only recognized its distinctive physical signs, but left no doubt as to its method of spread. Erasmus (1466-1526) wrote of the future wife of a syphilitic husband, “luckless bride, she should clap her hands before her mouth whenever her husband offers to kiss her and should put on armour when she goes to bed with him.”\(^4\)

An aggressive disease in evolution

William Shakespeare 1564-1616.
Credit: Leemage
The name syphilis was first given in 1530, when Fracastoro, a physician of Verona, wrote the poem “Syphilis” in which he attributed the disease to a punishment inflicted by the god Apollo on Syphilis, who angered him. 

Fracastoro’s horizons extended to the clinical signs, and rapid spread of syphilis:

He first wore buboes dreadful to the sight.
Felt strange pains, and sleepless passed the night.
From him the malady received its name.
The neighboring shepherds catch’d the spreading flame.

A writer in the time of Shakespeare and Erasmus observed:

It happened in the House of Sir Bartholomew whilst I served there...that among every twenty diseased persons that were taken in ten of them had the pockes [syphilis]...I speak nothing of St. Thomas hospital...wherein an infinite number are daily in cure.

Shakespeare would also earn an unsavory literary reputation from the pen of William Shakespeare, who mentioned it in 55 lines in “Measure for Measure,” 61 lines in “Troilus and Cressida,” and 67 lines in “Timon of Athens.” However, it warranted merely six lines in seven plays by Christopher Marlowe, Shakespeare’s contemporary.

The Bard revisited syphilis in “Sonnet 55” (the “canker”), and in “Sonnet 129”:

The expense of spirit in a waste of shame/is lust in action; and still action.

Shakespeare’s works—juxtaposed with a variety of writings from his era—provide reflections from the European-American history of syphilis. His words accurately portrayed the disease in the broadest historical and medical contexts—in many ways a disease strikingly dissimilar to the infection encountered today.
A historical survey of syphilis by Shakespeare and his contemporaries

His [Shakespeare's] knowledge of the medicine of his time, his approval of the better part of it, and his reasonableness in praising principally the physiological side of it, is remarkable when we remember that he lived in an age when witchcraft was firmly believed in.⁷

In 1494, Charles VIII of France invaded Naples, Italy. Fallopius (Fallopian tubes) chronicled the defenders of Naples who "drove their harlots and women out of the citadel, especially the beautiful ones, whom they knew to be suffering from [syphilis]...the French, gripped by compassion and bewitched by their beauty, took them in."³ These infected "Trojan Horses" led to Charles' army's downfall, and homeward bound, infected soldiers spread the disease.

J.D. Rolleston, a British infectious disease specialist, observed, "In striking contrast with the absence of any certain reference to the existence of syphilis prior to the siege of Naples in 1495, an immense amount of literature, lay as well medical...followed the event."⁴

Erasmus, in "Familiar Conversations," connected syphilis to sexual encounters with prostitutes, adding a critical religious tone, "Thou makest thyself a common sewer, into which all the base, nasty, pocky fellows resort, and empty their filthiness."⁴ He also reflected with a more clinical and compassionate animus:

If I were asked which is the most destructive of all diseases...it is that [syphilis] which for some years has been raging with impunity...and so cruelly tortures the patient. What contagion has ever extended so quickly to all the countries of Europe? What contagion does thus invade the whole body? It combines...pain...danger of death.⁴

Erasmus' cause and effect connection of sex with prostitutes to syphilis also found later expression in Shakespeare ("Timon of Athens," IV, iii, 90), "Be a whore still! They love thee not that use the: give them diseases
leaving with thee their lust."7

Erasmus also observed that syphilis “is a disease in Fashion, and especially among Noblemen.”4 Ivan the Terrible, Henry III of France, and Henry VIII of Britain proved him correct.9

The French referred to the plague as Neapolitan disease, and their preference, born of national embarrassment, would not be lost on the Bard. From the outset, he recognized the “Martial connections of Syphilis,” writing in “Troilus and Cressida” (II, 3, 16) and “Othello” (III, I, 3), respectively: “After this, the vengeance on the whole camp! Or, rather, the Neapolitan bone-ache! For that, methinks, is the curse depending on those that war for a placket,” and “Why masters, ha’ your instruments been in Naples, that they speak i’ the nose thus.”6

In this metaphorical usage, instrument represents genitals, and placket the opening in a petticoat.6

The French disease also appeared in “Henry V” (V, 1, 75), “News have I that my Nell is dead i’ th’ spital of malady of France.”10

The intimate relationship of syphilis, soldiers, and war became so commonplace that the Shakespearean character Pistol returns home from military service, opens a brothel—covering his syphilitic sores—all the while feigning war wounds, (“Henry V,” I, 79):

Honour is cudgel’d, well, bawd I’ll turn and something lean to cutpurse of quick hand to England will I steal, and there I’ll steal; and patches will I get unto these cudgell’d scars, and swear I got them in the Gallia wars.6

Contemporary infectious disease experts agree with Erasmus’ observation that syphilis was a most destructive disease, and have suggested that the sexually transmitted infection of the time was far more aggressive than the disease is today. A physician quote describes the debilitating course that transpired in the 16th Century:

...all the works which appeared before 1514 agree...[an] ability to spread quickly...the intensity of pains in the head and bones...eating away cavities within them...ulcerate the body extensively, exposing the bones and eating away at the nose, the lips, the palate, the larynx, and the genitals.4

In “A Midsummer Night’s Dream,” (I, 2, 86) Quince observes, “some of your French crowns have no hair at all.”4 In French, this particular sign was called le chapelet—syphilitic lesions of the forehead and temples likened to a crown.6 It is called alopecia today, but for the Bard’s contemporaries it was a French crown.

Lucio, in “Measure for Measure” (I,2,9) says, “behold, behold, where Madam Mitigation comes! I have purchased as many diseases under her roof as come to...three dollars a year...A French crown more.”10 Additional mentions of alopecia with connections to syphilis occur in “Comedy of Errors” (I, 1, 83), “Not a man of those but he hath the wit
to lose his hair;"⁶ and in “Pericles” (IV, 2, 2), “Well, well,...
He brought his disease hither...I know he will come in our
shadow to scatter his crowns in the sun.”¹⁰

Periostitis was also portrayed by Shakespeare in “Timon
of Athens” (IV, 3, 150), “Consumption sow in hollow bones
of man; strike their sharp shins...and let the unscarred
braggarts of the war derive some pain from you.”⁸,¹³

One could surmise that the manifestations of syphilis
were obvious to Shakespeare and his target audience. With
French crowns, changes in voice, pain in the shin bones,
and hideous nasal deformities, syphilis must have been
impossible to hide. The following tirade regarding sexual
license and syphilis has been characterized by Harold
Bloom as “umatched and unmatchable”;¹³

Most mischievous foul sin, in chiding sin; for thou
thyself hast been a libertine, as sensual as the brutish
sting itself; and all th’embossed sores and headed evils
that thou with license of free foot has caught would’st
disgorge into the general world.¹³

Other historical syphilitic signatures
immortalized by the Bard

In Shakespearean times, the brothels of London were
located in the “Winchester Stews” and their prostitutes
were called “Winchester Geese.”⁴,⁶

In the early 16th Century, Robert Fabyan, an alderman,
recorded legal measures undertaken to close the popular
Winchester Stews, then totaling 18 establishments,⁴ which
were successful business ventures under the jurisdiction of
the Bishop of Winchester.⁴,⁶ Their persistence and popularity
led to 12 of them reopening after the attempted purge.⁵

The idioms “Winchester” and “Goose” were preserved by
the playwright. Doll Terasheet and Mistress Overdone are
called “geese.”⁶ The drama “Troilus and Cressida” mentions
the spread of syphilis by “Winchester Geese,” (V, 20, 53).⁶

Alleged nefarious involvement in the sex trade by the
Bishop of Winchester is also recounted by Shakespeare in
“Henry VII” (2, 35), “That thou giv’st whores indulgences
to sin;”⁷ and, “Thee I’ll chase hence, thou wolf in sheep’s
array...Out scarlet hypocrite [the Bishop]!”⁶

Shakespeare also describes the earliest therapy for syph-
ilis—mercury in the form of cinnabar,¹⁰ when Pistol cried,
“No; to the spital go, and from the pow’d’ring tub of infamy
fetch forth the lazar kite of Cressid’s kind, Doll Tearsheet
she by name, and her espouse.”⁷ (“Henry V” V, 2, 72).

In “Timon of Athens,” (IV, 2, 83) the “therapeutic” tubs
of mercury salts are also mentioned:

Be a whore still; they love thee not that use thee. Give
them diseases, leaving with thee their lust. Make use of
thy salt hours. Season the slaves for tubs and baths; bring
down rose-cheek’d youth to the tub-fast and the diet.⁶

That mercury was a medically approved treatment for
Shakespearean syphilis

Syphilis in Shakespeare’s era was attested to by the French barber surgeon who Ambrose Pare, who served Henry II, Francis II, Charles IX, and Henry III. “Some have devised a...manner of curing...which is suffitus or fumigates. They put the patient under a tent or canopy made close on every side...and they put unto him a vessel with hot coals, whereupon they plentifully throw cinnabaris (mercury sulfate).”

Certainty and controversy

Many questions raised in regard to syphilis in Shakespeare’s era cannot be answered with complete assurance. Nonetheless, selected queries may be verified with some confidence.

Is syphilis a disease of the New World?

Studies that have denied an ancient presence of the disease relied only on evidence for boney involvement. Periostitis has become a rare manifestation of secondary syphilis, and boney involvement may have been absent in pre-Columbian eras. The spirochete’s handiwork can masquerade as other diseases, and may have escaped notice under other guises prior to Shakespeare.

Why was Shakespeare so preoccupied with syphilis?

Shakespeare’s frequent allusions to syphilis may have been occasioned by his broad knowledge of, and evident respect for, medicine and its practitioners. Shakespeare’s son-in-law, John Hall, was a respected physician, held “in great fame for his skill, far and near.” The Bard also frequently penned his respect for the profession of medicine. His works portray eight physicians in seven plays, including Dr. Caius, a French physician in the “Merry Wives of Windsor;” a physician in “King Lear;” English and Scottish physicians in “Macbeth;” Cornelius in “Cymbeline;” Cerimon in “Pericles;” Dr. Butts in “Henry VIII;” and Gerard de Narbon in “All’s Well that Ends Well.” And, although Dr. de Narbon died prior to the action of the play, his daughter Helena hears from others about his medical wisdom:

This young gentlewoman had a father, whose skill was almost as great as his honesty; had it stretched so far, would have made nature immortal, and death should have play for lack of work. Would for the King’s sake he were living! I think it would be the death of the king’s disease.

In “Pericles” (iii, 2), Cerimon, the physician, says, “I have made familiar to me...the blest infusions that dwell in vegetables, in metals, stones; and can speak of the disturbances that Nature works, and of her cures which doth give me a more content in course of true delight than to...tie my treasure up in silken bags.”

Only one of Shakespeare’s physicians, Dr. Caius, was a buffoon.

Another theory suggests Shakespeare may have been a victim of the spirochete himself. We may never know the truth in this regard, however, it is plausible that personal discomforts caused by the sexually transmitted infection could have motivated the playwright.

No matter how he came by his interest, the Bard added to our knowledge of 16th-Century syphilis. Without him, we would know less of Winchester Geese, the pockes, and the telltale signs of secondary and tertiary syphilis at a time when the malady was remarkably dissimilar to today’s syphilitic infections.

References

Room

Starring Brie Larson, Jason Tremblay, Sean Bridges, Joan Allen, William H. Macy.
Rated R. Running time 118 minutes.
Reviewed by Amy Haddad, PhD

The July 18, 2016, cover of People magazine features the smiling face of Jaycee Duggard who was held prisoner for 18 years by a convicted sex-offender and his wife. Jaycee was 11-years-old when she was abducted, and gave birth to two daughters while in captivity. Now 36-years-old, she is “happy and healthy,” according to the cover story, and trying to make sense of her life in light of this unbelievable trauma.

Although the 2015 film Room is not based on Jaycee’s story, or any other real life cases, the similarities are striking. Like Jaycee, Ma, the mother imprisoned in the film, endures seven years of rape, and gives birth twice, losing the first baby. Her second child, Jack, survives.

The action of the film is terrifying and depressing, yet Room is surprisingly uplifting, as its focuses on the relationship between Ma and Jack, and the love that saves them.

Before turning to a description of the film, it is important to note that Emma Donoghue wrote both the novel of the same title as well as the screenplay. The often-heated debate about which is the better version—book or film—takes on new meaning when the author is also the screen writer. Reading Room is a very different experience than watching the film version.

Writer Annie Dillard observed that the “ordinary reader picking up a book can't yet hear a thing; it will take half an hour to pick up the writing modulations, its ups and downs, louds and softs.”

What readers hear when picking up the book Room is Jack’s voice. Room is entered through him, and as the sole narrator of the novel, the reader must wait for him to describe his world. We learn that his language is similar to our own, but slightly different, as it is a private form of communication that only he and Ma share. For example, they name the objects in Room, the proper name Jack and Ma have given where they live. This personification of inanimate objects in the book (and film) creates a unique world.

In the novel, readers are often plunged into the dark along with Jack, struggling to make sense of the world in Room, as well as the real world outside of its boundaries.

In the film, however, we learn very quickly that Jack (Jason Tremblay) lives with Ma (Brie Larson) in Room. Although we hear a voice-over from Jack a few times, we see and understand long before he does that something is terribly wrong. He lives in a small, dark space (about 11 feet by 11 feet) with a single skylight, and no visible access to the outside world. There is a door to Room, but it is metal and has a keypad.

Jack introduces us to the other occupants of Room—Bed, Wardrobe, Sink, Plant, Toilet, etc.

Beginning on the morning of Jack’s fifth birthday, we watch how Jack and Ma spend their time in Room. They eat breakfast, roll up Rug, and exercise, play games, read, and watch a barely visible television.

Ma still breastfeeds Jack, which is somewhat startling because he is
so old but understandable given the circumstances of his birth and the deep bond between them. When Jack wants to nurse, he asks Ma for “some.”

We see Old Nick (Sean Bridges), Ma’s captor, through the slats of Wardrobe’s doors because Jack has to sleep in Wardrobe when Old Nick visits Room at night.

Somehow Ma has created a loving environment for Jack within the most stifling situation imaginable. Ma worries about the lack of sunlight, proper food and vitamins, and enough space for Jack to move. She also knows Jack is growing up and asking more questions about Room. He is confused about what is real and what is not real on television. For example, Ma tries to explain that dogs are real, but cartoon dogs are not real.

Shortly after his birthday, Jack accidently wakes Old Nick who is sleeping next to Ma. She becomes nearly hysterical, terrifying Jack and prompting Old Nick to punish both of them by cutting off Room’s power for days, leaving mother and son to suffer with no heat or electricity in freezing temperatures.

Actions like this fuel Ma’s fears for Jack’s and her safety. The last time Ma attempted to escape, she smashed Old Nick’s head with the top of the toilet tank. He remained conscious and fractured her wrist. Another escape attempt would be a desperate move, but Ma recognizes that Jack is now old enough to make an escape plan possible. For the plan to work, Jack has to be exceptionally brave, while Ma has to be willing to lose him forever.

They do escape, and the film’s trailer begins there.

The second part of the film explores how Jack and Ma adapt to the world outside of Room.

Jack finds everything new and strange. He has never been in sunlight, or interacted with other people. He has never seen grass, snow, or leaves.

Several scenes are memorable, including the reunion of Ma, whose name is Joy, with her parents Nancy (Joan Allen) and Robert (William H. Macy) who, for many years, believed their daughter was dead. Nancy and Robert divorced after Joy’s abduction. They must adjust to the fact that Joy is alive, and has a son. This is particularly difficult for Robert who sees Jack’s very existence as a vivid reminder of his daughter’s rapist.

One of the most touching scenes is Jack’s first encounter with a real dog, Shamus, who belongs to Nancy’s partner, Leo (Tom McCamus). The look of pure wonder on Jack’s face when he reaches out to touch Shamus accentuates all that he has missed in his isolation from the world.

The health professionals who appear in the film—doctors, nurses, occupational therapists, and dentists—are only a small part of Jack’s and Ma’s recovery, reflecting the tangential role that outsiders, like the police, play in the arc of their lives. However, the psychiatrist who happens to be on call the night that Ma and Jack are brought to the hospital talks with her about separation anxiety, social integration, and self-blame, none of which Jack understands. The psychiatrist tells Ma, the “very best thing you did was, you got him out early. At five, they’re still plastic.” Jack has his head buried deep under Ma’s arm but whispers to her, “I’m not plastic, I’m a real boy,” which she repeats to the doctor. That exchange highlights the gap between the language that health professionals use and what patients actually hear.

Ma and Jack return to her childhood home to live, but the media attention becomes almost unbearable. Eventually, Ma agrees to an interview for a national television show during which the interviewer asks her why she didn’t give Jack to her captor when he was born so that he could be left at a hospital and possibly have a chance at a normal life. The interviewer’s question shatters Ma’s fragile defense mechanisms, and a short while later she attempts suicide.

By the end of the film, through in-patient and out-patient psychiatric care, Ma recovers enough to begin to move toward a more independent life with her son.

Although relatively few patients suffer the profound trauma of Ma and Jack, Room contains important lessons for health professionals who care for survivors of trauma—both physical and mental. For example, Ma complains more than once after their escape that she isn’t a superwoman or saint—she simply tried her best to find a way out of a horrible situation. Similarly, many patients feel trapped, and finding a way out while protecting those they love consumes their lives. Listening and patience are essential for healing as well as a non-judgmental approach.

I strongly recommend reading the novel as well as seeing the film as they are different experiences that inform each other, and both offer insightful views into a painful situation.

Reference


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In *The Wound Dresser*, Jack Coulehan continues the conversation that poets engage in to heal the spirit. Drawing from a lifetime of repairing the body, he paints delightful, witty, engaging portraits. The poet’s voice is erudite, playful, and wise. He listens intently to the voices he hears, and he weaves them into the fabric of his poems. *The Wound Dresser* taught me something about the healing arts—and even more about the art of healing.

Some poems made me laugh out loud. Among the poet’s early encounters with physicians, there’s “Dr. Barrone” making a home visit smelling “like a monsignor/smoking a cigar” as he “burst/into his wicked leer,” and gave him “poison” pills that “turned my teeth/yellow.” p77

Then there’s the “hairy man” with Ernie Kovac’s eyebrows in “Role Model” who “dug his thumbs/into my spine, humming,” and lectured the 15-year-old against masturbation and “entanglement with girls.” The poem ends:

...A vague 
craving began to unfold, 
a thirst to prove the quack 
completely wrong, to master 
my own medicine, pp80–1

These poems show the writer’s talent for using sensory details to create characters, for developing a dramatic scene, and for punctuating the poem with a larger vision. The pleasure of reading “Pair Chase Boy for His Urine” is increased by the strict structure of rhythm and rhyme in the villanelle form. This is in contrast with the couple’s lack of foresight indicated by the ironically repeated line, “It’s a solid plan they’ve hatched.” p63

This villanelle, the tight quatrains of “Ockham’s Razor,” p95 and the sonnet “Retrospective” p97 are unusual in a volume of open form poems that are structured by the patterns of image and thought.

Coulehan’s poems are lyrical and his phrases are memorable. This is because the poet is attuned to the music of language. Listen to the pace and subtle harmonies of the lines that begin his family’s journey “Out of Ireland”: Martin carries a tin chest to the coast/during the worst year of famine, alone.” The poem concludes with this multi-layered image:

At my journey’s end, a distracted priest 

driving a lawnmower repeats my name 

with moist lips. His stained, sweaty cassock, 
his thinning hair, the angel at Jesus’ grave—

*The man you are looking for is not here.* p75

The speaker uses a tone of tender intimacy in his favorite poems. In “The Exterior Palace,” I hear Mrs. Melville, who is “Dressed for cocktails at noon,” confiding in her physician, “we’ve got to get rid of that bitch of a nurse” as the nurse complains about the patient’s “noncompliance.” The physician’s eyes come to rest on “six framed photos” of the patient smiling. p18

In “The Silk Robe,” amid the “corridor’s/odor—a confusion of solvents, seepage” and “chemicals,” the doctor notices “The scent you wear—Samsara, Gardenia, Chanel?” pp16–7 In another poem, the doctor gives the patient the standard directive “Take Off Your Clothes,” so that “in a performance laden with gesture” he can read “a narrative in your flesh.” p23

I’d love to read a whole book of poems that have the passionate electricity of “Hands of Enchantment.” p15 To be heard, to be seen, to be understood—I want him to be my doctor.

Coulehan learns “The Secret of the Care” “lies in caring/for the patient,” p3 and his vision is compassionate.
In “Shall Inherit,” the physician treats the “gaunt” Kentucky children “With their small/serious eyes like coals...wearing the shrunken heads/of ancestors on their shoulders.” p69

Brazilian children smear themselves with “Cesium 137” from “an abandoned hospital site,” and they die “consumed by innocence/and radiant desire.” p68

When the visitor hears a chorus of children “playing instruments/with toes and prostheses,” at the “War Remnants Museum, Ho Chi Minh City,” he feels “an ingot of shame/in my heart.” p56

That same war blights the life of a childhood friend in “Poem for David.” A letter begging forgiveness for his “sick/activities last year,” and asking for pain medication, arrives on the same day his friend kills himself. The poet tells us, “I stood like wax/beside your open casket”:

...I hovered near the guttered flame
your father had become, recalling the months
you spent tending the wounded in Vietnam,
your endless shifts in hospitals back home.
I pictured forgiveness — an orchard
carpeted with apples, bruised and fallen. p87

Coming from authentic emotions, Coulehan’s poems speak to the reader’s emotions.

In “Phone Call from Alaska,” the daughter tells her father she was shot in the arm by a “random” bullet that came through the window of her basement apartment: “A scare, but no harm, you repeat/for the fifth time.” p53

The final poem, “Retrospective,” is based on 40 years of care. During this time, “His body replaced/its cells.” Nonetheless, the doctor says of his internship:

...a dried
umbilical cord connects that powerful womb
to the aging man, across a gulf as wide
as imagination. p97

The man who speaks in these poems has a generous imagination that encompasses the range of what it means to be human. He yearns to tip “toward happiness” the person undergoing a “Metamorphosis at Starbucks.” p25

The poems that frame this book are “On Reading Walt Whitman’s ‘The Wound-Dresser,’” and “Walt Whitman Reflects on His Doctor’s Bedside Manner.” A physician-poet, Coulehan uses Whitman as his touchstone to guide him in delivering empathetic care, just as his hero ministered to Civil War soldiers.

If you treat yourself to some time with this excellent book, you will find, as Whitman writes in his own book, “Who touches this touches a man.”

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My Degeneration: A Journey Through Parkinson’s (Graphic Medicine)

Peter Dunlap-Shohl
Penn State University Press, 2015, 108 pages

Reviewed by Jack Coulehan, MD (AΩA, University of Pittsburgh, 1969)

Until I picked up My Degeneration: A Journey Through Parkinson’s, I had never read a graphic book. I thought comic books were for children, or for adults who couldn’t tear themselves away from a menagerie of superheroes. It seemed strange that a patient suffering from Parkinson’s disease would choose to tell his story in such a frivolous genre. I thought I’d skim a few pages and put the book down.

I was wrong on all accounts. The author, Peter Dunlap-Shohl, was a political cartoonist with the Anchorage Daily News for 25 years until his retirement in 2008. When he was 43-years-old, his doctor diagnosed Parkinson’s disease. The author was stunned, “I could only focus on three words: progressive, disabling, incurable.” p6

After the initial shock and depression, he got down to the business of living with this unwelcome stranger. My Degeneration is the story of his life with a progressive, disabling, and incurable disease.

Personal narratives of illness have become very popular in recent decades. They now constitute an entire literary genre, which is sometimes called pathography.

Some pathographies I’ve read are poorly written and boring. Others contain information useful to a reader who suffers from the same condition, but are not interesting to the general reader. Still others have axes to grind, e.g.
exposing arrogant physicians and medical mistakes, or touting the efficacy of alternative medicine. Only a few of these books are truly captivating. *My Degeneration* is one of them. Despite the ponderous subject, the book sparkles with intelligence and wit.

While *My Degeneration* covers the standard topics, its approach is different from most illness narratives. Words and images are not only complementary, but synergistic. As a cartoonist, Dunlap-Shohl has experience pairing incisive text with imaginative drawings. When he illustrates Parkinson’s disease as a huge green monster hovering over him in a dark room, or presents himself as a survivor drifting on a lifeboat constructed from folded newspaper, he evokes thoughts and emotions that text alone would be hard-pressed to convey.

The book is humorous, sometimes laugh-out-loud funny. It might be difficult to imagine a “journey through Parkinson’s” having such a light touch. The author is able to distance himself and approach his catastrophic illness as just another scene in the human comedy, as Balzac or Chekhov would have put it—an obstacle to be encountered, understood, and then overcome.

In the first chapter, “Diagnosis Blues,” the author’s depression leads him to contemplate suicide. He imagines a creative suicide, death-by-bear—jogging into the woods and getting mauled by an Alaskan brown bear. The image of the terrified author screaming, “AAAA...,” as he runs from an imagined bear is very funny. Yet, the whole sequence conveys a serious message, “knowing there was a back exit was one of the things that got me through the early months.”

The author demonstrates his ability to take an ironic perspective on supposedly serious research. He tells his wife about a research study that suggested Parkinson’s patients are more honest, industrious, altruistic, and clean than “normal” people. In response, his wife muses that perhaps “dysfunction of the brain makes us better people.” The author then queries himself, “Since Parkinson’s is progressive, will I get...more honest? Altruistic? Clean? Industrious?”

*My Degeneration* has a concise and creative way it provides factual information, for example, a graphic illustration of Parkinson’s pathophysiology, and an introduction to deep brain stimulation therapy.

In the chapter “Moping and Coping,” Dunlap-Shohl discusses the “off” phenomenon, in which medications suddenly lose their effect, and Parkinson’s patients are literally stuck, unable to move. He reports that sometimes...
individuals can get moving again by trying to walk backwards, rather than forwards. On the next page, he offers an illustrated list of six techniques that patients might use to abort an “off” episode. While the author is sometimes discouraged, sometimes depressed, the overall message of his story is life-affirming. His initial depression resolves when a very buff spandex angel appears to him and proclaims, “Fear not! Though thou walk through the valley of Parkinson’s, thou art not entirely helpless!”

Throughout the book he overcomes setbacks. He learns to adapt in ways that allow him to continue a happy and productive life. In one of the final chapters, he recalls the image of his spandex angel, noting that “there are now numerous studies that confirm the wisdom of the angel’s words.” He reviews the value of bicycling, yoga, tai chi, and even videogames (virtual boxing), in maintaining motor skills. He fanaticizes an actual boxing match with Parkinson’s disease, no longer the huge green monster from the first chapter, but now a flabby opponent in the ring, whom he promptly knocks out.

My Degeneration will be an invaluable resource for those struggling with Parkinson’s disease, their families, and for medical, nursing, and physical therapy professionals who care for patients suffering from Parkinson’s and other progressive neurological disorders.

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Pulse—voices from the heart of medicine: Editors’ Picks
Paul Gross, MD, Diane Guemsey, Johanna Shapiro, PhD, Judy Schaefer, RNC, MA
Create Space Independent Publishing Platform, 2016, 272 pages
Reviewed by Jack Coulehan, MD (AΩA, University of Pittsburgh, 1969)

Literally, a pulse means the rhythmic throbbing of arteries as ventricular contraction propels blood through the body. However, the word has many connotations, each evoking life, energy, and movement.

In 2008, when Paul Gross, and his colleagues in the Department of Family and Social Medicine at Albert Einstein College of Medicine, decided to create an ezine (electronic magazine) that tells “the story of health care through the personal experiences of those who live it,” they chose Pulse as the name for their publication, reflecting the vibrancy of “voices from the heart of medicine.” Since then, Pulse has grown from a few dozen subscribers (it’s free, by the way) to more than 10,000. Appearing weekly,
Pulse (at pulsevoices.org) features the stories, poems, and personal reflections of patients, health professionals, students, and caregivers.

In Pulse: Voices From the Heart of Medicine, their third anthology, editors Paul Gross and Diane Guernsey present a remarkable sample of pieces that have appeared in Pulse during a three year period—2011 through 2013. I use the word “remarkable” advisedly, although I could just as well replace it with “engaging” or “provocative,” which are also on target. Limited to 1,000 words or less, these tales draw us into the experiential world of health care, and allow us to take its pulse.

Some stories are about patients, and/or their family members. In “Shujinwa Byoki Des” (Japanese for “My husband is sick”), Lucy Moore tells of her husband’s acute illness while on a vacation in Japan. When he becomes violently ill with high fever and rash they rush to a hospital where they are astonished by the deep respect physicians and nurses show them, despite language and cultural barriers. In gestures and broken English, the staff is able to convey “a sense of shared responsibility” throughout the five day hospitalization, which includes numerous tests and interventions. And, the final cost is only $3,500 (U.S. currency)!

Steven Lewis, in “Desperately Seeking Herb Weinman,” tells of his visit to an emergency room for persistent chest pain. As he lies on a narrow gurney feeling lonely and ignored he yearns for the warmth of his old family doctor, long since retired. He finds the hospital staff “not disrespectful or callous or incompetent. But to them I (am) little more than what appeared on a computer screen.” In the end, he is relieved that his chest pain wasn’t caused by a heart attack, and, yet, he feels that something is missing.

We hear the voices of health care professionals like Anne K. Merritt, who reflects on her emergency medicine residency in “One Hundred Wiser.” At first, she approaches each shift with excitement, anticipating a novel learning experience, like her first intubation or first placement of an arterial line. As these procedures became routine, her patients come more clearly into focus as individuals. The initial adrenalin rush subsides, and she learns to “face and feel my patients’ pain and vulnerability and my own.”

Priscilla Mainardi gives us a glimpse of a hospital nurse’s day in “Nineteen Steps.” When she begins her shift, she has seven tasks on her to-do list; by midday the list has increased to 26. Each nurse on the unit depends on a personal coping mechanism, Priscilla’s is counting her steps. Her story focuses on Mrs. Napoli, a “wisp of an old woman,” who is terminally ill. When Mrs. Napoli begins to cry, Priscilla walks 19 steps to the utility room to get her a box of tissues, and then, despite her long list of pressing tasks, she sits down to spend time with Mrs. Napoli.

The poems in Pulse tend to be miniature stories that arise from sudden, incongruous moments of insight. Tabor Flickinger’s “In Line at the Hospital Coffee Stand” gives insight to the voices of hospital personnel making momentous comments in a mundane setting—“Oh, did you take care of him before? He’s dead.”

“Catching Chickens,” by Daniel Klawitter depicts a moment, “my grandmother/trying to catch an imaginary chicken/on her deathbed.” When the grandson tries to console her with, “I caught the chicken for you./You can rest now,” she cries, “No you did NOT!” The poet concludes:

I guess we all have to catch our own chickens, before we cross the road and reach that other side.

Dr. Alan Blum’s drawings are among the best features of this anthology. For many years, Blum, a family physician and professor of family medicine at the University of Alabama, has been sketching portraits of his patients, usually as a result of a particularly quotable comment they made. The editors have scattered 12 of Blum’s portraits throughout the book, like tiny facets of the human comedy. On one of the first pages, we see a bemused woman looking downward, holding her forehead, and saying, “You think you got a medicine to stop my seizures? I don’t know why, it’s the only exercise I get.”

Later, an elderly woman complains from her wheelchair, “Doctor told me I need an autopsy, but I said I wanted to wait.”

There is one problem with Pulse: Voices From the Heart of Medicine, the pieces are so engaging you want to keep reading and reading. I’d advise trying to slow down and savor each story, poem, and drawing.

Dr. Coulehan is Emeritus Professor of Preventive Medicine, and Senior Fellow of the Center for Medical Humanities, Compassionate Care, and Bioethics at the State University of New York Stony Brook. He is a member of The Pharos Editorial Board, and is Book Review Co-editor for The Pharos. His address is:

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On showing up

Having been what all doctors should be, but few are.

—W. H. Auden, The Art of Healing

A year ago, the Autumn 2015 issue of The Pharos contained an article by Richard Christensen (ΑΩΑ, Medical College of Georgia at Augusta University, 1984), professor in the Division of Public Psychiatry at the University of Florida. Entitled “Caring for the Invisible and Forgotten,” (pp 48–50) the piece begins with an invitation the author received to speak to a group of graduating medical students. Christensen relates how such an invitation had him fretting over what he would say—“On my morning runs, at night lying awake, and on my drives to and from the clinic, I propose, formulate, and discard potential topics....”

Finally, advised by a student to “just talk about your own work in medicine,” Christensen resolved to share the story of his 25 years caring for his city’s forgotten people. His patients “shoulder burdens most of us cannot begin to fathom,” and teach him “everything about the grinding pain that arises from human isolation and aloneness.” They are our jobless, homeless, and voiceless—unseen people for whom an appointment in Christensen’s clinic represents their only opportunity to be heard, and to be reminded that their lives matter.

Christensen shared the story of a disheveled young woman who appeared in his clinic one day. Not one of the regular patients, she introduced herself as “Dead Girl,” and explained how, since her boyfriend committed suicide several years ago, she believed that her internal organs had rotted away, leaving her a “ghost,” invisible to others.

Roused by such encounters, Christensen’s calling was to go forth and meet his patients where they live, on the street. He is their doctor, but he is also their witness, and his first mission is simply to show up and say, “I see you. I hear you.”

Christensen’s is not a tale of medical heroism, or the exploits of a successful academic psychiatrist who answers the call to devote himself to the care of society’s unwanted—though every word of such a story would ring with truth. Instead, it represents an educational memoir, the story of a physician whose care summons other health professionals to join him in seeking out a new source of insight and compassion.

His invisible patients are also “exemplary teachers,” whose encounters convey better than any textbook the power of an “empathetic presence” to connect with the unseen and forgotten.

Last November, Richard Christensen, caring physician par excellence, was in Zambia on a mission trip for Habitat for Humanity. Looking forward to celebrating his wedding anniversary with his beloved wife, Kathy, he had gone out for one of the morning runs he relied on not just to nourish his health but to clear his mind and open his heart. There in the early morning hours of Thanksgiving Day, he was struck and killed by a hit and run driver, prematurely ending his service to the poor of Jacksonville, Florida, at the age of 60.

Christensen did not deliver health care. He reached out to human beings, literally remembering the dismembered fragments of our humanity.

He revealed to them, and to us, the beauty of presence, of showing up, of being there, of caring for the human in every human being, and searching for hope among even the hopeless.

No longer will he be seen scouring the streets of the city in his van, the “Hope Team” in tow, seeking out patients whose hidden places, obscure names, and forgotten stories languish in silence and darkness.

He will be sorely missed.

Richard Gunderman, MD, PhD
ΑΩΑ, University of Chicago, 1992
Zionsville, IN

James Lynch, MD
ΑΩΑ, University of Florida, 1999, Faculty
Gainsville, FL
“The uses of medical oaths in the twenty-first century”

I was pleased to see that Drs. Foster, Iles-Shih, and Stull have continued the long tradition of the late Dr. Crawshaw by surveying North American medical schools regarding the usage of medical oaths (The Pharos, Spring 2016, pp 20–25).

Their addition of new questions to inquire about statements of principles will shed new light on the ancient and evolving practice of oath-taking. One fact that emerges from a sequential study of this practice is that there has been a profound change regarding to whom the oath is sworn, as I tried to point out in the single survey that I conducted in the early 1990s.1

An oath is a promise sworn to deity: “a solemn usually formal calling upon God or a god to witness to the truth of what one says, or to witness that one sincerely intends to do what one says” (Merriam-Webster, 2016). A code, on the other hand, is “a set of laws or regulations, or a set of ideas or rules about how to behave” (Merriam-Webster, 2016), i.e., a promise sworn to people rather than to divinity.

I am presuming that a statement of principles would be established by people, and sworn to them. This raises the question whether codes and statements of principles are, in fact, oaths at all.

It is interesting, and I think instructive, to note that in the 1993 survey only 16 medical schools in the U.S. and Canada administered oaths sworn to deity; 52 used oaths sworn to “whatever I hold most sacred;” and the remaining 82 swore an oath without designating to whom it was sworn, presumably making a promise to the school or the profession. One can speculate that many of the students/graduates at those 52 schools hold God as most sacred, but some might swear on their grandmother’s grave, or even on their own wallets.

We do not have precise data regarding which oaths have been sworn over the decades, but from the historical review we did from 1928 to 1993, it seems clear that the classical oaths, which declare a promise to divinity, are gradually disappearing. This desanctification of medical oaths probably represents a shift to post-modern thinking, which rejects dogma and ideology, and moves the point of authority from divinity to something or someone earthly, and ultimately on to oneself.

This shift raises a fundamental question about whether these swearing-in ceremonies should be called oath-taking or should be given some other designation, perhaps a promise, or as used in some courts of law, an affirmation or asseveration. Sadly, in my view, this would represent another step in the deprofessionalization of the practice of medicine.

Robert D. Orr, MD, CM
AOA, McGill University Faculty of Medicine, 1966
Burlington, VT

Reference

“Time matters in caring for patients”

I have been to the asclepions at Epidaurus, Pergamum, and Kos, and the International Hippocratic Foundation, also in Kos, so Dr. Byyny’s article “Time Matters in caring for patients: Twenty minutes isn’t enough” (The Pharos, Spring 2016, pp 2–8) struck a nerve.

The asclepion at Kos is surrounded by cypress trees, and climbs a hillside overlooking the Aegean Sea and the Turkish coast. There are the remains of temples to Apollo and Aesculapius, baths, and sleeping areas. It is beautiful and peaceful. But it is the exhibits at the Hippocratic Institute that are most moving, including quotes from Hippocrates’ teachings, such as:

Observe…the diet, customs, age of the patient, his speech manners, fashion, even his silence and his thoughts. If he sleeps or is suffering from lack of sleep. Leave nothing to chance, overlook nothing. Combine contradictory observations. Allow yourself enough time.

Contemporary physicians provide strong medications, sophisticated testing, invasive procedures, and lots of opportunity for adverse effects. Ancient physicians offered time, individualized attention, diet, exercise, water treatment, herbs, and communion with the gods, with minimal risk of side effects. Successful treatment may have been somewhat less likely, but patient satisfaction much higher.

Cynthia Burdge, MD
(AOA, Rutgers New Jersey Medical School, 1985)
Kailua, HI
National and Chapter news

Alpha Omega Alpha Honor Medical Society has 12 national programs and awards through which it provides nearly $1.75 million each year.

Following is a list of the 2015-2016 academic year recipients for 11 of the programs and awards. The Moser Award will be presented for the first time in November 2016.

Administrative Recognition Award
Recognizes the invaluable work performed by Chapter administrative personnel. The 13 recipients are:

**Diedre Abrams**, Emory University School of Medicine
**Nancy Acevedo**, Stony Brook University School of Medicine
**Liza Cintros**, Universidad Central del Caribe School of Medicine
**Marcia DeCaro**, Oregon Health & Science University School of Medicine
**Forrest Page**, University of North Carolina at Chapel Hill School of Medicine
**Valerie Pepi**, Boston University School of Medicine
**Valerie Poulson**, University of Kansas School of Medicine
**Emily Slager**, University of Washington School of Medicine
**Soraya Smith**, University of Central Florida College of Medicine
**Susan Sorci**, University of Florida College of Medicine
**IvaDean Lair-Adolph**, University of Cincinnati College of Medicine
**Ginger Vann**, Brody School of Medicine at East Carolina University

Administrative Recognition Award recipients, starting from top row, left to right, from top: Dierde Abrams, Nancy Acevedo, Liza Cintros, Marcia DeCaro, Holly Holbert, IvaDean Lair-Adolph, Forrest Page, Valerie Pepi, Valerie Poulson, Emily Slager, Soraya Smith, Susan Sorci, and Ginger Vann.
Carrie Ernst, MD, presents Matthew Gallitto with his first $2,500 award check.

Carolyn L. Kuckein Student Research Fellowship

Supports medical student research for clinical investigation, basic laboratory work, epidemiology, social science/health services, leadership, or professionalism. The 53 recipients of the 2016 fellowships are:

Hadi Abou El Hassan, Class of 2018, American University of Beirut
Prevalence and molecular characterization of astrovirus causing gastro-enteritis in children less than 5 years of age in Lebanon
Mentor: Hassan Zaraked, PhD
Councilor: Ibrahim S. Salti, MD (AΩA, University of Beirut, 1962)

James Anaissie, Class of 2017, Tulane University
The effects of multiple adipose-derived stem cell intracorporeal injections on erectile dysfunction in a rat model of cavernosal nerve injury
Mentor: Wayne J. G. Hellstrom, MD (AΩA, Tulane University, 2013)
Councilor: Bernard M. Jaffe, MD (AΩA, New York University, 1963)

Beth Ashinsky, Class of 2019, Drexel University College of Medicine
Engineering nanofibrous disc-like angle-PLY structures for intervertebral disc replacement
Mentor: Robert Mauck, PhD
Councilor: Kathleen Ryan, MD (AΩA, MCP Hahnemann, 1994, Resident/Fellow)

Jeffrey Aston, Class of 2017, New York Medical College
The use of complete AlloDerm® coverage in two-stage tissue expansion and implant placement in the subcutaneous (pre-pectoral) plane: A prospective, non-randomized pilot study
Mentor: Gedge Rosson, MD (AΩA, New York Medical College, 1998)
Councilor: William H. Frishman, MD (AΩA, Albert Einstein College of Medicine of Yeshiva University, 1978, Faculty)

Colin Bergstrom, Class of 2017, Oregon Health & Science University School of Medicine
Potential role of inhibitor of DNA binding 4 (ID4) protein in the pathogenesis of endometriosis and metastasis endometrial cancer
Mentor: Terry Morgan, MD, PhD
Councilor: John Mark Kinzie, MD, PhD (AΩA, Oregon Health & Science University School of Medicine, 1999)

Samrath Bhimani, Class of 2017, Mercer University School of Medicine
Comparing the effects of current treatments of periprosthetic joint infection using a weight-bearing mouse implant model
Mentor: Mathias Bostrom, MD (AΩA, Johns Hopkins University, 1989)
Councilor: Alice A. House, MD (AΩA, Mercer University School of Medicine, 2007, Alumnus)

Yaroslav Bodnar, Class of 2017, Uniformed Services University
Identification of quantitative computed tomography imaging biomarkers of response to pulmonary tuberculosis therapy
Mentor: Clifton E. Barry III, PhD
Councilor: Patrick O’Malley, MD, MPH, FACP (AΩA, Uniformed Services University, 2008, Faculty)

Matthew Brandorf, Class of 2018, Stony Brook University School of Medicine
Metabolic role of Kruppel-like factor 5 in the pathogenesis of pancreatic ductal adenocarcinoma
Mentor: Vincent W. Yang, MD, PhD
Councilor: Jack Fuhrer, MD (AΩA, Stony Brook University School of Medicine, 1997, Faculty)

Ryan Carey, Class of 2017, Raymond and Ruth Perelman School of Medicine at the University of Pennsylvania
Airway bitter taste receptor-mediated epithelial nitric oxide production in response to gram-positive bacterial products
Mentor: Noam Cohen, MD, PhD
Councilor: Jon B. Morris, MD (AΩA, Raymond and Ruth Perelman School of Medicine at the University of Pennsylvania, 1998, Faculty)

Ankush Chandra, Class of 2019, Wayne State University
Characterization of binding sites implicated in cross activation of c-Met/Bi integrin in Bevacizumab-resistant glioblastoma
Mentor: Manish Agi, MD, PhD
Councilor: Michael T. White, MD (AΩA, Wayne State University, 1990)

Raju Chelluri, Class of 2017, SUNY Upstate Medical University College of Medicine
Defining the prostate cancer metabolic landscape using image-guided, targeted tumor biopsies and cell lines for gene expression analysis and pathway-directed pharmacotherapy
Mentor: Leonard M. Neckers, PhD
Councilor: Lynn M. Cleary, MD (AΩA, Ohio State University, 1978)

Betty Chen, Class of 2017, Saint Louis University School of Medicine
Knowledge of HPV-associated oropharyngeal cancer and barriers to HPV vaccination among adolescents, parental guardians, and school staff in St. Louis schools
Mentor: Nosayaba Osazuwa-Peters, BDS, MPH, CHES
Councilor: Matthew Broom, MD, FAAP (AΩA, Saint Louis University, 2015, Alumnus)

Guang-Ting Cong, Class of 2017, Weill Cornell Medical College
Involvement of the hedgehog signaling pathway in tendon-to-bone healing
Mentor: Scott A. Rodeo, MD (AΩA, Weill Cornell Medical College, 1988)
Councilor: O. Wayne Isom, MD (AΩA, University of Texas Southwestern Medical Center at Dallas, 1965)

Ramzi Dudum, Class of 2017, George Washington University
Medical students as health coaches to decrease chronic disease burden
Mentor: David Popiel, MD, MPH (AΩA, George Washington University, 2011, Resident/Fellow)
Councilor: Alan G. Wasserman, MD (AΩA, MCP Hahnemann, 1972)

Ava Ferguson, Class of 2018, The University of Chicago Pritzker School of Medicine
The first pelvic exam: Young women’s experiences and perceptions of future care
Mentor: Julie Chor, MD, MPH
Mentor: Susan Tsai, MD, MHS, Class of 2019, Medical College of Wisconsin
Councilor: Douglas R. Lazzaro, MD, FACS, FAAO (State University of New York, Downstate Medical Center, 1994, Resident/Fellow)
Mentor: Peter J. Bergold, PhD, Class of 2018, State University of New York, Downstate Medical Center
Councilor: John Foxworth, PharmD (AΩA, University of Missouri-Kansas City, 2005, Faculty)

Matthew Gallitto, Class of 2019, Icahn School of Medicine at Mount Sinai
Effect of DNA methylation on patterns of treatment-induced mutagenesis in glioblastoma multiforme
Mentor: Raymund L. Yong, MD
Councilor: Carrie Ernst, MD (AΩA, Weill Cornell Medical College, 2001)

Matthew Genet, Class of 2019, Northwestern University
The role of IDO1 in human glioblastoma
Mentor: Derek A. Wainwright, PhD
Councilor: John P. Flaherty, MD (AΩA, University of Illinois, 1982)

Curtis Gravenmier, Class of 2018, University of South Florida
Evolution of the Warburg effect as metabolic bet-hedging: A multidisciplinary study
Mentor: Robert A. Gatenby, MD (AΩA, Lewis Katz School of Medicine at Temple University, 2000, Faculty)
Councilor: Catherine M. Lynch, MD (AΩA, University of South Florida, 1990)

Abra Guo, Class of 2019, University of Virginia
Long-term cost and outcomes of postoperative atrial fibrillation following CABG
Mentor: Gorav Ailawadi, MD (AΩA, Northwestern University, 1998)
Councilor: Mark J. Mendelsohn, MD (AΩA, University of Virginia, 2007, Faculty)

Satvik Hadigal, Class of 2019, Rosalind Franklin University of Medicine & Science
Role of syndecan-1 in viral egress and infection in corneal epithelium
Mentor: Deepak Shukla, PhD
Councilor: Michael J. Zdon, MD (AΩA, Rosalind Franklin University of Medicine & Science, 1991, Faculty)

Comron Hassanzadeh, Class of 2017, University of Missouri-Kansas City School of Medicine
Assessing correlation and prognostic significance of pre-treatment 18F-FDG-PET/CT and 64Cr-ATSM for cervical cancer
Mentor: Perry Grigsby, MD
Councilor: John Foxworth, PharmD (AΩA, University of Missouri-Kansas City, 2005, Faculty)

Johnson Ho, Class of 2018, State University of New York, Downstate Medical Center
Can drugs induce remyelination by modulating microglial activation after traumatic brain injury?
Mentor: Peter J. Bergold, PhD
Councilor: Douglas R. Lazzaro, MD, FACS, FAAO (State University of New York, Downstate Medical Center, 1994, Resident/Fellow)

Sun Young Jeong, Class of 2019, Medical College of Wisconsin
Prognostic nomogram for patients with operable pancreatic cancer treated with neoadjuvant therapy
Mentor: Susan Tsai, MD, MHS
Councilor: Michael Lund, MD (AΩA, University of Iowa, 1996)

Pratik Kanabur, Class of 2018, Virginia Tech Carilion School of Medicine
Developing a novel combinational therapy using Temozolomide and a connexin 43 blocker to treat glioblastoma
Mentor: Zhi Sheng, PhD
Councilor: Gary Simonds, MD (AΩA, Rutgers Robert Wood Johnson Medical School, 1983)

Alexandra Keane, Class of 2019, Washington University in St. Louis School of Medicine
Role of macrophage recruitment on neuromuscular junction reinnervation after motor nerve injury
Mentor: Alison Snyder-Warwick, MD (AΩA, Washington University in St. Louis School of Medicine, 2004)
Councilor: Morton E. Smith, MD (AΩA, University of Maryland, 1959)

James Knitter, Class of 2018, University of Arizona
Response assessment of cerebral metastases after high-dose stereotactic radiation using combined diffusion and perfusion MR imaging
Mentor: Kambiz Nael, MD
Councilor: Joseph S. Alpert, MD (AΩA, Harvard Medical School, 1969)

Elizabeth Larson, Class of 2018, Albert Einstein College of Medicine of Yeshiva University
Rotavirus vaccine impact on diarrheal disease burden in Mali
Mentor: Karen Kotloff, MD
Councilor: Ellie Schoenbaum, MD (AΩA, Ichan School of Medicine at Mount Sinai, 1979)

Patrick Lee, Class of 2019, University of Cincinnati
Epigenomic integration of microbiota-derived signals in IBD
Mentor: Theresa Alenghat, VMD, PhD
Councilor: Robert G. Luke, MD (AΩA, University of Cincinnati, 1991, Faculty)

Orly Leiva, Class of 2018, Boston University School of Medicine
The role of lysyl oxidase in facilitating JAK2V617F mutation-induced myelofibrosis
Mentor: Katya Ravid, PhD
Councilor: David McAneny, MD (AΩA, Boston University School of Medicine, 2008, Faculty)

Joy Lin, Class of 2017, University of California, San Francisco
Effects of dimensions of social support on chronic and acute inflammation
Mentor: Aoihe O’Donovan, PhD
Councilor: Lee Atkinson-McEvoy, MD (AΩA, University of California, San Francisco, 2010, Alumnus)

Aria Mahtabfar, Class of 2018, Rutgers Robert Wood Johnson Medical School
Quantification of dexamethasone-mediated inhibition of glioblastoma dispersal in organotypic brain slice and retina assays
Mentor: Ramsey Foty, PhD
Councilor: Geza Kiss, MD (AΩA, Rutgers Robert Wood Johnson Medical School, 1994)

Andrew Miller, Class of 2017, University of Oklahoma College of Medicine
Optical coherence tomography angiography before and after treatment of patients with diabetic macular edema and proliferative diabetic retinopathy
Mentor: Philip J. Rosenfeld, MD, PhD (AΩA, Johns Hopkins University, 1988)
The impact of enrollment in home and community-based service waiver programs on hospitalization and institutionalization rates among aging HIV+ American men who have sex with men
Mentor: Eric C. Holland, MD, PhD
Councilor: Ranjan Gupta, MD (AΩA, Albany Medical College, 1992)

The role of SLX4 in maintaining stemness of a unique glioblastoma stem cell subpopulation
Mentor: Dimitris Placantonakis, MD, PhD (AΩA, New York University, 2003)
Councilor: Linda Tewksbury, MD (AΩA, New York University, 1990)

Selective targeting of glioblastoma stem-like cells using multi drug conjugation to carbon-dot bound transferrin
Mentor: Regina M. Graham, PhD
Councilor: Alex J. Mechaber, MD, FACP (AΩA, George Washington University, 1998, Resident/Fellow)

The Sur1-Trpm4 channel modulates expression of microglial NOS2 in the seizure onset zone during motor and memory mask
Mentor: John Schneider, MD, MPH
Councilor: James Beck, MD (AΩA, Raymond and Ruth Perelman School of Medicine at the University of Pennsylvania, 1983)

Mouse model of pyocyanin-induced chronic rhinosinusitis
Mentor: Levi A. Garraway, MD, PhD
Councilor: Ranjan Gupta, MD (AΩA, Albany Medical College, 1992)

Evaluation of a pre-exposure prophylaxis intervention for African-American men who have sex with men
Mentor: John Schneider, MD, MPH
Councilor: Ricardo Gonzalez-Rothi, MD (AΩA, University of Florida, 1991)

Impact of Tamoxifen therapy on fertility in breast cancer survivors
Mentor: Penelope Howards, PhD
Councilor: Thomas C. Pearson, MD, DPhil (AΩA, Emory University, 2004, Alumnus)

Determination of the effects of retinoic acid treatment on immune cell response against growth of IDH1-mutated glioma in novel mouse model
Mentor: Eric C. Holland, MD, PhD
Councilor: Douglas S. Paauw, MD, MACP (AΩA, University of Michigan, 1983)

Thad Vickery, Class of 2017, University of Colorado

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Councilor: James Beck, MD (AΩA, Raymond and Ruth Perelman School of Medicine at the University of Pennsylvania, 1983)

Winston Vuong, Class of 2019, University of California, Irvine

Understanding PI3Ks upregulation as a novel mechanism of resistance to PI3K inhibition in breast cancer
Mentor: Tom Walsh, Class of 2019, Florida State University

Evaluation of a pre-exposure prophylaxis intervention for African-American men who have sex with men
Mentor: John Schneider, MD, MPH
Councilor: Ricardo Gonzalez-Rothi, MD (AΩA, University of Florida, 1991)

Ian Wellington, Class of 2019, University of Maryland

The Sur1-Trpm4 channel modulates expression of microglial NOS2 in hemorrhagic stroke
Mentor: J. Marc Simard, MD
Councilors: Donna Parker, MD (AΩA, University of Maryland, 1999, Alumnus), and Yvette Rooks, MD (AΩA, University of Maryland, 2014, Faculty)

Jesse Xie, Class of 2017, University of Mississippi School of Medicine

Liver surface nodularity as a predictor of NAFLD liver-related outcomes
Mentor: Andrew Smith, MD, PhD (AΩA, University of Toledo College
of Medicine, 2004)
Councilor: Omar A. Rahman, MD (AΩA, University of Mississippi, 2012, Faculty)

Tim Xu, Class of 2017, Johns Hopkins University
Markups on healthcare services in the United States
Mentor: Martin A. Makary, MD, MPH
Councilor: Charles W. Flexner, MD (AΩA, Johns Hopkins University, 1982)

Edward D. Harris Professionalism Award
Recognizes a program in a medical school or other institution that represents best practices in medical professionalism. The 2016 recipient was:
Vanderbilt Center for Patient and Professional Advocacy
Program leaders: Gerald B. Hickson, MD, and William Cooper, MD

Helen H. Glaser Student Essay Award
Encourages medical students to write creative narratives or scholarly essays relevant to medicine. Winners are published in the Autumn issue of The Pharos.
First Place—“The 20th General Hospital: The reach of formalized medicine during World War II,” by Christopher Magoon, Class of 2018, Raymond and Ruth Perelman School of Medicine at the University of Pennsylvania
Second Place—“History of present illness,” by Liat Bird, Class of 2016, Boston University School of Medicine
Third Place—“The slavery hypertension hypothesis: A seriously flawed explanation for the high prevalence of hypertension in African-Americans,” by James Comotto, Class of 2018, University of Maryland

Fellow in Leadership Award
Provides mid-career physicians with an opportunity to continue to develop leadership skills and opportunities.
Bryan Clyne, MD (AΩA, Warren Alpert Medical School of Brown University, 2016, Alumnus), Vice Chair for Education in the Department of Emergency Medicine, Alpert Medical School, Brown University
Nora Gimpel, MD (AΩA, University of Texas Southwestern Medical Center at Dallas, 2016, Faculty), Chief, Community Health Section, University of Texas Southwestern Medical Center at Dallas
Susan Lane, MD (AΩA, Stony Brook University School of Medicine, 2011, Faculty), Program Director, Internal Medicine Residency Program, and Vice Chair, Education, Department of Medicine, Stony Brook Medicine

Medical Student Service Leadership Project
Supports leadership development in medical students. The 2016 award recipients were:
University of Iowa—Implementation of an innovative healthcare delivery science and leadership curriculum: The healthcare delivery science and management distinction track
Student leaders: David DeMik, Michael McHugh, Joseph Nellis, Charles Paul, and Sebastian Sciegienka
Mentors: Alan Reed, MD, MBA (AΩA, Weill Cornell Medical College, 1984), and Jeff Emrich, MS
Mount Sinai Icahn School of Medicine—Leaders in Health Policy
Student leaders: Ben Graif and Taylor Miller
Student members: Allie Dembar and Jake Prigoff (AΩA, Icahn School of Medicine at Mount Sinai, 2016)
Mentors: Yasmin Meah, MD (AΩA, Icahn School of Medicine at Mount Sinai, 2005, Faculty), David Muller, MD (AΩA, Icahn School of Medicine at Mount Sinai, 1995, Resident), and David Reich

Pharos Poetry Competition
Encourages medical students to write poetry. Winners are published in the Summer issue of The Pharos.
First Place—“Requiem,” by Michael Slade, Class of 2017, Washington University in St. Louis School of Medicine
Second Place—“My First Patient,” by Alexandra Houston-Ludlam, Class of 2022, Washington University in St. Louis School of Medicine
Third Place—“Petrified,” by Julia Jacobs, Class of 2017, Tufts University School of Medicine

Clockwise, Brian Clyne, Nora Gimpel, and Susan Lane 2016 Fellow in Leadership Award recipients.
Postgraduate Award
Supports residents or fellows in their pursuit of a research or scholarly project in the spirit of the AΩA mission. The 10 recipients were:

Marianne Abouyared, MD (AΩA, University of Miami, 2016, Resident), University of Miami Leonard M. Miller School of Medicine
Expression of programmed death-1 and programmed death ligand-1 in patients with head and neck squamous cell carcinoma previously treated with Tadalafil
Mentor: Donald Weed, MD

Corey Keller, MD, PhD, Stanford University School of Medicine
Induction and quantification of long-term plasticity in the human brain
Mentor: Amit Etkin, MD, PhD

Lara Kovell, MD (AΩA, Johns Hopkins University, 2011), Johns Hopkins University School of Medicine
The effect of intentional weight loss on subclinical myocardial injury
Mentor: Steven Schulman, MD (AΩA, Johns Hopkins University, 1981)

Ibrahim Nassour, MD (AΩA, American University of Beirut, 2010), University of Texas Southwestern Medical Center Southwestern Medical School
The role of Arid1a in pancreatic mucinous cystic lesions
Mentor: Sam Wang, MD

Adrienne Poon, MD, MPH, George Washington University School of Medicine and Health Sciences
Factors associated with outpatient and primary care utilization at various health service facilities among older people in China
Mentors: Weiyan Jian, MD, PhD, and Kit Yee Chan, MD

Alok Saini, MD (AΩA, University of Tennessee Health Science Center, 2011), Icahn School of Medicine at Mount Sinai
The efficacy of a drug-eluting sinus implant in patients undergoing functional endoscopic sinus surgery
Mentor: Alfred Iloreta, MD

Lauren Taylor, MD, University of Wisconsin School of Medicine and Public Health
Best case/worst case: Teaching surgical residents to use a communication tool for high-stakes surgical decisions
Mentor: Margaret Schwarze, MD, FACS

Mauricio Villamar, MD, University of Kentucky College of Medicine
Correlation of circadian and autonomic variables with electrophysiological markers in epilepsy patients undergoing phase II presurgical evaluation
Mentor: Meriem Bensalem-Owen, MD, FANA, FACNS (AΩA, University of Kentucky, 2003, Resident/Fellow)

Noelle Williams, MD (AΩA, University of Florida, 2013), Sidney Kimmel Medical College at Thomas Jefferson University
A pilot feasibility trial examining the use of electronic patient-reported outcomes in prostate cancer patients with Apple ResearchKit smartphone application
Mentor: Adam Dicker, MD

Robert J. Glaser Distinguished Teacher Award
Recognizes outstanding contributions to medical education by honoring inspired teaching of basic and clinical sciences. The four 2015 recipients were:

Gurpreet Dhaliwal, MD (AΩA, Northwestern University, 1998), Professor of Medicine, University of California, San Francisco School of Medicine

Jonathan Kibble, PhD, Professor and Assistant Dean for Medical Education, University of Central Florida College of Medicine

Thomas Kwagisrogh, PhD (AIÀ, James H. Quillen College of Medicine of East Tennessee State University, 1988, Faculty), Professor in Biomedical Sciences/Anatomy, James H. Quillen College of Medicine at East Tennessee State University
David Muller, MD (AΩA, Mount Sinai School of Medicine, 1995, Resident), Professor and Dean for Medical Education, Icahn School of Medicine at Mount Sinai

**Visiting Professorship**

Medical schools with an active AΩA Chapter may host one visiting professor during each academic year. The 64 AΩA Visiting Professors* were:

David H. Abramson, MD, Weill Cornell Medical College of Cornell University, “How eye cancer went from incurable to curable”

Kenneth Ashley, MD, Icahn School of Medicine at Mount Sinai, Institute for Advanced Medicine, “Activism, advocacy and education: Expanding the focus of patient care with HIV, LGBT, and culturally diverse populations”

Aaron Baggish, MD, FACC, FACSM, Associate Director, Cardiovascular Performance Program, Massachusetts General Hospital

Barbara Lee Bass, MD, FACS, Weill Cornell Medical College of Cornell University, ”The choice we made: Sustaining joy in our lives as physicians”

Claude Bennett, MD, University of Alabama School of Medicine, “The master word in medicine”

A. Lorris Betz, MD, University of Utah School of Medicine, “Creating a culture of respect in healthcare”

Suzanne Brandenburg, MD, University of Colorado, “The future of medical education”

Kent Brantly, MD, John Peter Smith Hospital, “ID didactic: Ebola, kitchen aprons, and compassion”

Craig Brater, MD, Indiana University School of Medicine, “Altruism and professionalism: Lessons from Kenya”

Ralph Brindis, MD, MPH, FACC, University of California, San Francisco

Fernando Cabanillas, MD, MD Anderson Cancer Center

John Calhoon, MD, University of Texas Health Science Center San Antonio, “Balance: Career & life”

Jeffrey Chiesa, JD, Rutgers School of Law, “Law, ethics, and medicine”

Marcia Day Childress, PhD, Center for Biomedical Ethics and Humanities, University of Virginia, “Importance of medical humanities in medical education”

Katherine Chretien, MD, George Washington University, “The ‘Aha Moment’ and balancing career and family”

Michael Collins, MD

Susan Desmond-Hellmann, MD, CEO, Bill & Melinda Gates Foundation, “Precision medicine for the poor”

David Doukas, MD, University of Louisville School of Medicine, “Professionalism in medicine”

F. Daniel Duffy, MD, University of Oklahoma School of Community Medicine, “Transition form medicine to healthcare”

Ruth-Marie Fincher, MD, Georgia Regents University, “A stethoscope, a pen, and a compass”

Terence Flotte, MD, University of Massachusetts

W. Bruce Fye, MD, Mayo Clinic, “The origins and evolution of the Mayo Clinic from 1864 to 1939”

Benjamin Gilmer, MD, MAHEC Family Health Center, “Leadership in medicine”

Charles Griffith, MD, MSPH, University of Kentucky College of Medicine

Seza Gulec, MD, Florida International University, “Socratic teaching”

Richard B. Gunderman, MD, PhD, Indiana University School of Medicine, “Professionalism,” and “Team leadership during changing healthcare environment”

Diane Havlin, MD, University of California, San Francisco, “Finding a mission in medicine in the 21st Century”

Eve Higginbotham, MD, Perelman School of Medicine, University of Pennsylvania

Eric Holmboe, MD, Northwestern University

Lauren Hughes, MD, MPH, MSc, Deputy Secretary for Health Innovation, Pennsylvania Department of Health

Holly Humphrey, MD, The University of Chicago Pritzker School of Medicine

Marc J. Kahn, MD, Tulane University School of Medicine

Arthur Kellerman, MD, MPH, Uniformed Services University for the Health Sciences, “Faster, dumber, better: 3 decades of treating out of hospital cardiac arrest; and Breaking free: Policy options to promote high-value innovation in healthcare”

Darrell Kirch, MD, President and CEO, Association of American Medical Colleges, “Resiliency and physician burnout”

Carrie Kovarik MD, University of Pennsylvania, “Academic and humanitarian excellence in global health medicine”

Steven Lipstein, MHA, Washington University of St. Louis, Barnes Jewish Hospital, “America’s journey to the Triple Aim: Where are we?”

Joseph Loscalzo, MD, PhD, MA, Harvard Medical School/Brigham and Women’s Hospital

Kenneth Ludmerer, MD, MACP, Washington University School of Medicine

Jennifer McCallister, MD, Ohio State University Wexner Medical Center

Julie McElrath, MD, PhD, Sr. Vice President, Director & Member, VIDD, Fred Hutchinson Cancer Research Center, “Prospects for Developing a Preventive HIV Vaccine”
L. Jeffrey Medeiros, MD, MD Anderson Cancer Center, “Hodgkin lymphomas, breast-implant associated anaplastic large cell lymphoma, diffuse large B-cell lymphoma”

Beverly Mitchell, MD, Stanford Cancer Institute

Jason Morrow, MD, University of Texas Health Science Center, “AΩA annual Grand Round on professionalism”

Joia Mukherjee, MD, MPH, Harvard Medical School, Division of Global Health Equity, “Inequities in global health”

Maureen Murphy, MD, Cabarrus Family Medicine-Concord

Lee Norman, MD, MHS, MBA, University of Kansas Hospital, “Emerging and infectious disease”

Mary O’Brien, MD, Columbia University, Division of Global Health Equity, “Universal health care: Is it possible?”

Douglas Paauw, MD, University of Washington School of Medicine

Maxine Papadakis, MD, University of California, San Francisco

Jerry Popham, MD, University of Colorado Health Sciences Center

Julian Pribaz, MD, Brigham and Women’s Hospital, “Face transplantation: Current experience”

T.R. Reid, AB, JD, Chairman, Colorado Foundation for Universal Health Care, “Healthcare: A human right?”

Charles Rice, MD, Uniformed Services University for the Health Sciences, “The gold headed cane”

Lisa Rosenbaum, MD, Brigham & Women's Hospital, Cardiologist, and National Correspondent, New England Journal of Medicine, “Service, humanism, and leadership in medicine”

Meredith Rosenthal, PhD, Harvard University, “Medical professionalism”

Steven Stack, MD, President, American Medical Association, “Becoming a physician: Mastering your craft”

Jordan Tappero, MD, PhD, Centers for Disease Control and Prevention, “The global health security agenda and the West Africa Ebola epidemic”


Leana Wen, MD, Health Commissioner, Baltimore, Maryland

Christopher Weldon, MD, PhD, Boston Children’s Hospital, “Role of basic science research in clinical training”

James Woolliscroft, MD, University of Michigan Medical School

Tirdad Zangeneh, DO, University of Arizona, “HIV/AIDS care in disadvantaged populations”

Shanta Zimmer MD, Associate Dean for Diversity and Inclusion, University of Colorado School of Medicine

* Some professors visited multiple schools.

Volunteer Clinical Faculty Award
Recognizes community physicians who contribute to the education and training of clinical students. The 41 recipients were:

Carey D. Andrew-Jaja, MD, University of Pittsburgh School of Medicine

Nancy Barr, MD, University of Maryland School of Medicine

Philip Bolduc, MD, University of Massachusetts Medical School

R. Ried Boom, MD, University of Iowa Roy J. and Lucille A. Carver College of Medicine

David Burgin, MD, Louisiana State University School of Medicine in New Orleans

Mitch Carroll, MD, University of Texas Southwestern Medical Center Southwestern Medical School

Alix Cassler, MD, University of Central Florida College of Medicine

Philip N. Chaipis, MD, University of South Carolina School of Medicine

Timothy Doran, MD, Johns Hopkins University School of Medicine

Huda M. Elhwairis, MD, University of Michigan Medical School

Adam Falik, MD, Virginia Commonwealth University School of Medicine

James Felts, MD, University of Missouri School of Medicine

Bruce Fisher, MD, Rutgers Robert Wood Johnson Medical School

Todd Gleeson, MD, Uniformed Services University of the Health Sciences F. Edward Hébert School of Medicine

Mary Holm, MD, University of North Dakota School of Medicine and Health Sciences

Sarah Hufbauer, MD, University of Washington School of Medicine

Elizabeth Hunt, MD, FAAP, IBCLC, University of Vermont College of Medicine

Anthony M. Iarussi, MD, University of Cincinnati College of Medicine

Melissa Johnson, MD, University of South Dakota Sanford School of Medicine

David Jones, MD, University of Virginia School of Medicine
The Alpha Omega Alpha family, and The Pharos Editorial Board recently lost one of its esteemed colleagues, and a dear friend.

Henry Claman, MD (AΩA, University of Colorado, 1979, Faculty), was a third generation physician, and a second generation allergist. He attended Harvard University and the New York University School of Medicine. He completed training at Barnes Hospital and at Massachusetts General Hospital. He was the Head of Allergy at the U.S. Army Hospital in Ft. Meade, Maryland.

In 1961, Dr. Claman moved to Denver, Colorado, to work with Dr. David Talmage (AΩA, Washington University in St. Louis School of Medicine, 1943) in the Division of Allergy at the University of Colorado School of Medicine.

In 1966, Dr. Claman and colleagues published the seminal observation that cellular cooperation between lymphocytes from the bone marrow and those from the thymus was essential for antibody production—the beginning of understanding of T-B collaboration in immunology. In 2004, this article was highlighted in the Journal of Immunology as the first article in the “Pillars of Immunology” series.

In 1968, Dr. Claman was a volunteer physician on the ship HOPE in Sri Lanka.

Dr. Claman served as the Head of the Division of Allergy and Immunology at the University of Colorado School of Medicine, where he founded the Arts and Humanities in Healthcare Program, that integrates the arts, literature, and reflective writing in to the medical education curriculum.

Dr. Claman volunteered his services on The Pharos Editorial Board for decades, reviewing innumerable manuscripts, articles, and poems.

He will be missed.
**Administrative Recognition Award**
In recognition of the services provided by administrative personnel in the working of local Chapters, Councilors may nominate a member of the administrative staff for this award. Submissions are accepted September - June using the online form found on the ΑΩΑ website.

**Carolyn L. Kuckein Student Research Fellowship**
To promote basic and clinical research in medical fields, social science, or health services, ΑΩΑ awards more than 50 fellowships of $6,000 to medical students at schools with active ΑΩΑ Chapters. Proposals must be submitted to the Chapter Councilor before December 31, 2016, and the final application must be received by the National Office no later than 11:59 p.m., January 31, 2017.

**Edward D. Harris Professionalism Award**
Up to three one-time awards of $10,000 recognize and honor outstanding ongoing programs in medical schools and/or affiliated institutions that represent best practices in the teaching and learning of medical professionalism. One nomination per school, submitted by the ΑΩΑ Chapter Councilor to the National Office by May 1, 2017.

**Fellow in Leadership Award**
Up to three awards of $25,000 recognize and support the further development of mid-career physicians who provide outstanding leadership within organizations in medicine and health care, including schools of medicine, academic health centers, community hospitals, clinics, agencies, or other organizations. Applications must be received in the National Office by April 1, 2017.

**Helen H. Glaser Student Essay Award**
To encourage scholarly writing, this awards offers prizes for essays on nontechnical medical topics. Winning essays receive $2,000 for first place, $800 for second place, $550 for third place, and are published in *The Pharos*. Entries must be submitted using the online form located on the ΑΩΑ website no later than 11:59 p.m., January 31, 2017.

**Medical Student Service Leadership Project Award**
Each ΑΩΑ Chapter may submit one proposal for a project funded for three years at $5,000 for the first year, $3,000 for the second year, and $1,000 for the third year. Applications must be submitted to the ΑΩΑ Chapter Councilor no later than December 31, 2016, and the final application must be received by the National Office no later than February 1, 2017.

**Moser Award**
A $4,500 writing prize awarded to an original, outstanding essay that celebrates the life of a physician, like Dr. Moser, who has enriched the world through his/her career within, related to, and/or outside of medicine. Entries must be submitted using the online form located on the ΑΩΑ website no later than 11:59 p.m., September 30, 2017.

**Pharos Student Poetry Contest**
Winning poems are awarded $600 for first place, $350 for second place, $200 for third place, and are published in *The Pharos*. Entries must be submitted using the online form located on the ΑΩΑ website no later than 11:59 p.m., November 30, 2016.

**Postgraduate Award**
Up to 10 awards of $2,000 to support residents/fellows for a research or scholarly project fulfilling the requirements for scholarly activity by the ACGME. Proposals must be submitted to the ΑΩΑ Chapter Councilor before April 30, 2017, and the final application packet must be received in the National Office no later than 11:59 p.m., May 30, 2017.

**Robert J. Glaser Distinguished Teacher Award**
In collaboration with the Association of American Medical Colleges, ΑΩΑ presents this award to four outstanding teachers nominated from medical schools in the United States and Canada. ΑΩΑ presents $10,000 to each award winner, $2,500 to the winner's teaching institution, and $1,000 to the associated ΑΩΑ Chapter. Each nominee's application, bibliography, and *curriculum vitae* must be submitted by 5 p.m., May 6, 2017, to gyoung@aamc.org.

**Visiting Professorship**
ΑΩΑ provides the opportunity for each Chapter to host one visiting professor per year for a day of activities, including grand rounds, meetings with small groups of students, and delivery of a lecture. Visiting Professor requests should be submitted to the National Office using the online form found on the website.

**Volunteer Clinical Faculty Award**
Presented annually to one doctor in each ΑΩΑ Chapter in recognition of his/her indispensable services. Submissions are accepted September - June using the online form found on the ΑΩΑ website.

Nominees and applicants for each award and program who are ΑΩΑ members must be active members and have annual dues paid in full.
Pharos Art
for home or office

A pictorial history of medical care

By artist Jim M’Guinness

Pharos Art Director Jim M’Guinness created A Pictorial History of Medical Care for The Pharos in 1973, when it was published as a black and white drawing on the Spring 1973 cover. We recently republished the art in color on the Winter 2015 cover of The Pharos, and we are now offering it in three formats for purchase.

The 18 x 24” print is available on our online store as a poster or giclee art print on fine art acid-free paper.

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