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If your actions inspire others to dream more, learn more, do more, and become more, you are a leader.
—John Quincy Adams

Leadership has long been a core value of Alpha Omega Alpha Honor Medical Society (AΩA). One of the tenets of our mission, and criteria for membership, is “to improve care for all by encouraging the development of leaders in academia and the community.” We support, and contribute to, leadership promotion and the development of physician leaders through several of our national programs and awards.

For many physicians, leading comes naturally through training and research opportunities in medical school, residency, and career development. Leadership can be manifested in coaching, teaching, medical rounds, chairing committees, running a clinic, etc. Learning to lead is experiential, developed, and enhanced through these and many other career opportunities.

Physician leaders

Medical education, medicine, and health care are more complex in the 21st century than ever before. Physicians, based on their unique knowledge and experience in the core professional values fundamental to medicine, are ideally prepared to serve as leaders. Their professional experiences in serving and caring for people, and working with colleagues in the health professions, provide a solid foundation for leading others.

Physicians embrace the vital importance of medical and scientific research, and garner great respect for their values, commitment, hard work, teaching, and myriad other societal contributions.

The integral parts of the professional life of a physician are in the Medical Professionalism Charter that emphasizes the primary principles of patient welfare, patient autonomy, and social justice.

Dr. Wiley Souba (AΩA, University of Texas McGovern Medical School, 1978) writes:

Five fundamental leadership principles are critical to building a better future:
1) Recognizing that the work of leadership involves an inward journey of self-discovery and self-development;
2) Establishing clarity around a set of core values that guides the organization as it pursues its goals;
3) Communicating a clear sense of purpose and vision that inspires widespread commitment to a shared sense of destiny;
4) Building a culture of excellence and accountability throughout the entire organization; and
5) Creating a culture that emphasizes leadership as an organizational capacity.

Leadership and learning are inextricably linked.1

Great leadership can be developed through education, training, mentoring, practice, experience, and reflection. New models of leadership development need to meet contemporary and future needs.

In the ever-changing world in which we live, effective, sustainable, and accomplished leadership should be based on core professional and personal values, and a commitment to servant leadership.

Leadership and professional values

Medicine is based on a covenant of trust, a contract with patients and society. Medical professionalism stands on this foundation of trust to create an interlocking structure among physicians, patients, educational and medical institutions, and society that determines the values and responsibilities in the care of patients. Leadership in medicine and related organizations must be grounded in core professional beliefs and values.

These values start with an obligation and commitment to serve and care for people, especially those who are suffering. It includes positively contributing to health and well-being, prevention of disease, education, and to meeting social responsibilities. These professional values are based on high ethical and moral standards:

- Treat others as you would like others to treat you.
- Do no harm.
- Never lie, steal, or cheat, and have no tolerance for these behaviors.
- Demonstrate integrity, always do what is right, both morally and legally.
- Show respect for others.
- Be loyal to patients, team, colleagues, organization, and societal values.
- Be diligent in fulfilling obligations to patients, team, colleagues, and organization.
- Practice selfless service with passionate commitment to the vision and mission of the profession.
• Be honorable by living up to one’s professional values.
• Commit to professional competence and life-long learning.
• Treat everyone humanely, with benevolence, compassion, empathy, and consideration.
• Serve in an ethical, responsible, reliable, and respectful manner.
• Listen to others with understanding, respect, and communicate effectively.

Servant leadership

The first responsibility of a leader is to define reality. The last is to say thank you. In between, the leader is a servant.

—Max DePree

Servant leaders live, lead, and act their values by their inward sense and understanding of what is right. They inspire others to care and serve. They instill a set of values, including fairness, justice, honesty, respect, contribution, and trust. They follow truth and principles, and share values among team members and those they serve. This produces moral authority in the leader and the team.

Servant leaders and their teams dedicate themselves to a higher purpose, cause, or principle worthy of their commitment. Their focus is outward instead of on themselves. They find joy, self-respect, and integrity in the service of others, and in contributing to an important purpose.

Servant leaders engage their teams in creating a shared vision—a compelling picture of the future. They inspire others to dig deep and use their knowledge, experience, and talent, both independently and interdependently, to serve others through this shared vision.

Great servant leaders are fervent and committed to achieving their vision of caring. They have the will, and perseverance to succeed. They build greatness through a blend of humility and professional will, competency, dedication, and indefatigability.

Servant leaders rarely have, or need, executive power to make important decisions. In their realm, leadership sets a positive example, taps idealistic passions, and uses persuasion, inclusion, inspiration, common interest, a sense of community, balance, discipline, teamwork, and delegation of responsibility to get the right things done at the right time. They are role models and always work as hard or harder than everyone else. They are willing to do whatever job needs to be done. They are caring, self-motivated, self-disciplined, principled, and always do the best they can in service to others. Servant leaders celebrate the work and success of those contributing and serving, and express appreciation regularly. Everyone matters and everyone can or does make a difference in serving.

They lead by example with humility, authenticity, interpersonal acceptance, stewardship, and by providing vision, direction, and inspiration.

Preparing for leadership

Before you are a leader, success is all about growing yourself. When you become a leader, success is all about growing others.

—Warren Bennis

Leadership is an ongoing process. Great leaders continually hone their skills, and are life-long learners.

Leaders who make the most difference are those who want to be great, and want their teams and organizations to be great. They deliver superior performance and make a positive, important, and distinctive difference over time. Servant leaders work with their teams to define what it means to be great in what they do and how they serve.

In Good to Great Jim Collins refers to “level 5 leadership.” Level 5 leaders are passionate, and dedicated to the cause, movement, mission, or work—not themselves—and have the will and commitment to succeed. They build enduring greatness through a blend of personal humility and professional will.

In medicine, health care, and education executive power is usually impractical. These settings are where it is imperative that leaders set a positive example and tap ideas and passions.

Level 5 servant leaders develop and support the best teams of people who are motivated by their service and professional values. Their team must define how to produce the best long-term results. What the leader and the team can do best is determined by understanding how the team can uniquely and effectively contribute to the people it serves.

The next greatest need, and a difficult one to achieve, is finding the resources, especially the right people, to do great work, and saying no to things that may impede achieving the vision and service.
### Characteristics of Servant Leaders

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Explanation</th>
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<tbody>
<tr>
<td><strong>Listening</strong></td>
<td>The Prayer of St. Francis reminds us, “...grant that I may not so much seek to be...understood as to understand...” Communication is very important, but it starts with first listening intently and receptively. You can better understand the will and point of view of a person or group by listening. Later reflection on what was said can lead to enhanced understanding and increased respect.</td>
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<tr>
<td><strong>Empathy</strong></td>
<td>Servant leaders work to understand and to empathize with their teams and others. Empathy is developing the awareness of the thoughts, feelings, and experiences of others without having those experiences yourself. We show empathy by respecting other’s views, while not necessarily agreeing with them.</td>
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<td><strong>Healing</strong></td>
<td>Recognize that those who are being served and those involved in serving, share a goal of healing. The collaborative search for wholeness is part of the compact with the servant leader.</td>
</tr>
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<td><strong>Awareness</strong></td>
<td>Servant leaders are vigilant in observing events and interactions, recognize what is happening, and then draw inferences from what they observe. They are mindful and perceptive in using their knowledge and experience.</td>
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<tr>
<td><strong>Persuasion</strong></td>
<td>Servant leaders rarely use positional authority, relying more on value-based authority or persuasion. They work to persuade others to adopt a point of view through teaching, and using knowledge, facts, and opinion.</td>
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<td><strong>Conceptualization</strong></td>
<td>The ability to conceive and think logically, and evaluate information, issues, events, plans, dreams, visions, and a future beyond day-to-day realities.</td>
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<tr>
<td><strong>Foresight</strong></td>
<td>The art of using knowledge of historical and current events, and related situations combined with an understanding of possible consequences to predict the likely future. Foresight allows one to develop intuition—the ability to know or understand something without proof or evidence.</td>
</tr>
<tr>
<td><strong>Stewardship</strong></td>
<td>A commitment to the careful and responsible management of an organization or people entrusted to one’s care. In servant leaders, it involves, first and foremost, a commitment to serving the needs of others, and relies on openness, caring, trust, and persuasion.</td>
</tr>
<tr>
<td><strong>Humility</strong></td>
<td>Includes being humble, valuing other people, and treating everyone with respect. Too many ineffective leaders are noted for hubris or self-aggrandizement, taking personal credit for what is the work of many. In doing so, they demonstrate an unflattering arrogance.</td>
</tr>
<tr>
<td><strong>Community</strong></td>
<td>Any organization that serves and cares for people works best with community involvement. Building communities to serve others is a part of servant leadership, exemplified by shared values and responsibility for each other and for those served, based on commitment, trust, respect, values, and ethical behavior.</td>
</tr>
<tr>
<td><strong>Mentoring</strong></td>
<td>Servant leaders educate, empower, and develop people.</td>
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Identity formation

Whatever you are, be a good one.

—Abraham Lincoln

Physicians have developed a personal and social identity as a doctor, a professional, and a member of the medical community of practice.

Leading and leadership result from knowing oneself and aspiring to lead others. It is a change in one’s personal and social identity with expansion of capacity to be effective in leadership roles and processes.

Early in life, our identities form the basis of understanding who we are. It has long been known that human beings proceed through developmental stages from birth throughout life, each emerging with unique identities. Development of personal and social identities is an ever-changing, life-long process.

Personal and social identities are multifaceted and complex concepts influenced by many factors, evolving over time, and enacted through language and objects in a social world. They are related to gender, race, genes, personal characteristics, religion, culture, family, class, education, ethnicity, sexual orientation, friends, experiences, and myriad other factors. Personal identity is shaped through socialization and a process of negotiation with acceptance, compromise, rejection, reflection, and reformulation.

AΩA members have the personal and social identities of a physician—healer, medical professional, and member of a specific community of practice. They also have many other identities that modify and adapt based on personal, professional, and social identities, over the span of a career and lifetime.

Part of identity development is a moral process of shaping our identity and understanding right from wrong as we continue to be subject to many different moral influences and experiences. Our identities are developed through exploration and commitment.

Our cognitive identity provides a personal frame of reference for interpreting information, solving problems, and making decisions in relation to our identity. We actively construct new understandings through the interaction of our prior beliefs, as well as new events, activities, and experiences.

As physicians, we developed from a novice with legitimate peripheral participation and pretending and acting like a doctor through developmental transitions. This involved learning to play the role and pretending to be a doctor, eventually learning the language of medicine, and becoming participants in the learning environment and health care system.

With the assistance and guidance of teachers, role models and mentors, clinical and non-clinical experiences, through conscious reflection, unconscious acquisition, formal teaching and assessment, self-assessment, and socialization we developed into physicians—healers and medical professionals. We cultivated competencies; learned to live with ambiguity and uncertainty; learned to cope with fear, stress, and anxiety; and experienced the joy and satisfaction of acquiring the identity of a physician.

This identity development occurred, through experiential learning, in stages from observation and imitation—initially carrying out uncomplicated tasks and culminating in more complex activities—to expert with full participation in the professional medical community.

As we continue to develop, the next identity is that of leader.

Identifying as a team leader

The leaders who work most effectively...never say “I.” ...They don’t think “I.” They think “we;” they think “team.”

—Peter Drucker

Leaders develop a vision, establish what matters and articulate why, set direction, and inspire and guide others. They understand that their job is to help the team to function. There is an identification (very often quite unconsciously) with the task, and the group.

Leadership is about achieving influence, not securing compliance, thereby distinguishing leadership from management. Leadership is about getting things done through others with aspiration and inspiration; getting followers to see each other as part of a common team or group, with a common purpose and goals.

Management processes are position and organization specific. Management emphasizes distinct knowledge, skills, and abilities using proven solutions to problems. Effective leaders often employ the skills of both leadership and management. They hire smart people to be on their teams, and have at least a basic understanding of management, including planning and budgeting;
Transforming leadership in medicine

coordination, control, and execution of activities; organization and staffing; and working within an existing structure. An advantage of selecting a strong leadership team is that included are those who are knowledgeable about different management issues, and those who bring their expertise and experience to assist the leader and the team.

Self-reflection and the inward journey

You have been leading yourself for most of your life. You began leading yourself by setting goals, staying on task, and learning self-discipline. You constructed your own implicit leadership from experiences as a way of making sense of leadership, your own mental model of what leadership is about and how it works.

—Wiley Souba, MD

Leading, and leadership, result from knowing yourself, and aspiring and learning to lead others. Learning to be a leader takes place within a defined domain and is situation and context related. The process of becoming a leader involves moving from legitimate peripheral participation to full participation in leading and leadership, which is the acquisition of the identity of a leader. This occurs in stages, proceeding from observation to imitation, then to carrying out uncomplicated leadership roles and tasks, and culminating in expertise in more complex situations and challenges.

Leaders learn to identify a problem or challenge, and diagnose the situation and values involved; communicate to manage the emotions and stress for adaptive work; identify and focus on issues, avoiding distractions; encourage and allow those involved to reach resolution with support; listen and evaluate differing points of view; and assess the costs and possible outcomes of proposed solutions. The leader must then make a decision, communicate their decision and why they made it, and direct the necessary action required to bring the decision to fruition.

Self-regulation is essential to being a leader who effectuates change, and positively serves their organization and others. When the new or unusual surfaces, the effective leader evaluates the situation, and finds new answers, interventions, and innovative responses to address the issue.

This is the transformation from novice to expert in leadership.

There are multiple factors that influence this developmental process. The most powerful are mindful and reflective observation; role models and mentors; and accumulation of individual and team experiences.

Leadership identity formation occurs through complex conscious and unconscious processes that lead to both explicit and tacit knowledge and skills. Role models are admired for their “ways of being and acting,” and for serving as experienced and trusted counselors and teachers. The goal is often to emulate them in action, appearance, and beliefs as one moves from a peripheral role to the center of active leading.

Reflection on individual experiences with observation, role models, and mentors is fundamental to learning how to be a leader.

The new leader

The challenge of leadership is to be strong, but not rude; be kind, but not weak; be bold, but not bully; be thoughtful, but not lazy; be humble, but not timid; be proud, but not arrogant; have humor, but without folly.

—Jim Rohn

Developing leaders must learn the new language of leadership, and management. Ambiguity and uncertainty are as common in leading organizations as in medicine. Learning to deal with uncertainty is a tenant of good leadership. Leaders must remain true to their values, continue to learn throughout their careers, and be understanding of, and true to, their personal and professional identities.

The pathway and process to becoming a leader is achieved through day-to-day leadership opportunities over a sustained period of time, and learning through experiences. This is accomplished with the support of mentors and others to develop your identity as a leader.

Leaders who inspire, teach, are reflective, and are true servants to themselves, their organization, and the people they lead, are deserving of such a title.

Leadership is lifting a person’s vision to high sights, the raising of a person’s performance to a higher standard, the building of a personality beyond its normal limitations.

—Peter Drucker

References
For the past six years, a Post-it® note has been taped to the corner of my bedroom mirror. The writing has faded over time, but the importance of these words has not:

1. Ask an unscripted question
2. Don’t complain
3. Count something
4. Write something
5. Change

The list comes from the speech “Suggestions on Becoming a Positive Deviant,” by physician and writer Atul Gawande. At the time I read this speech I had barely left the seat of my first-year medical school classroom, yet Gawande’s words struck a chord. I felt compelled to write them down and put them in a place I would see everyday—on my bedroom mirror.

Most of Dr. Gawande’s suggestions I understood without further explanation. A simple question—Where did you grow up?—fosters an emotional connection with patients. Those personal details are reminders of our patients’ humanity, which may be a key motivator regarding Gawande’s admonition not to complain.

The act of counting something may sound arbitrary, but it represents the most basic form of research, which
ultimately impacts patient outcomes. The ability to change in response to evolving clinical situations is a critical skill for anyone in health care.

However, his fourth suggestion, to “write something,” gave me pause. Never before had I thought that writing would be a skill I would need as a physician.

Yet, over several years, I’ve come to learn that writing is vital to the successful practice of medicine. Not only has writing been shown to have substantial benefits on the mental and physical well-being of individuals, but it also allows for self-reflection, which, in turn, enables both personal and academic growth.

Physicians are natural born writers. Medicine nurtures literary intelligence through training in the art of gathering a story. Taking a patient’s history requires focused listening to capture key components of a plot, and then stringing them together in a succinct storyline. While we might not acknowledge this as a literary process, a physician’s medical notes are, in many respects, a biography of his/her patients’ lives. Hippocrates was among the first to acknowledge this when he said, “It is far more important to know what person the disease has, than what disease has the person.”

The intersection of art and science has remained at the core of medical education for the majority of the last 2,000 years. To be a physician in the time of Hippocrates meant mastering not just one of the sciences, but also other disciplines including astronomy, astrology, botany, pharmacology, orthodoxy, philosophy, and anatomy. A medical education was well rounded, and informed by a multitude of disciplines, ideas, and perspectives.

This tradition continued throughout the Middle Ages and the Renaissance. Many doctors enjoyed careers as authors during the 16th, 17th and 18th centuries. The Scottish poet Arthur Johnston, the English composer Thomas Campion, and the liberal thinker John Locke were all physicians who helped to shape the growing body of literature in their respective centuries. Though rarely remembered as a physician, Thomas Lodge is best known for writing Rosalynde, which is believed to have inspired Shakespeare’s As You Like It.

With the emergence of the novel in the 18th century, many physicians started writing as an additional career. One of the first was Dr. Oliver Goldsmith, who wrote one of the bestselling novels of his time, The Vicar of Wakefield in 1766. About 75 years later, Peter Mark Roget, a retired British physician, authored the first known thesaurus, Thesaurus of English Words and Phrases. And, though known only to few as a surgeon, John Keats spent much of his short life in the operating theatre instead of writing poetry. Much of his literary genius was informed by his experience as a physician, as evidenced by the medical language he uses in his poems.

Fade far away, dissolve, and quite forget
What thou among the leaves hast never known,
The weariness, the fever, and the fret
Here, where men sit and hear each other groan;
Where palsy shakes a few, sad, last gray hairs,
Where youth-grow pale, and spectre-thin, and dies;

I see a young woman of my same age in whose presence I can feel nothing but guilt for my own health and normalcy of life
Where but to think is to be full of sorrow
And leaden-eyed desairs²

The 21st century has witnessed a continued explosion of the medical humanities. Many of the past decade’s best-selling books have been written by prominent physicians including Gawande, Abraham Verghese (AΩA, James H. Quillen College of Medicine of East Tennessee State University, 1989, Faculty), and Khaled Hosseini.

Major newspapers such as The New York Times have taken interest in the links between writing and medicine.³

Most medical schools have incorporated reflection as a key educational competency that is often achieved through the writing process. Many institutions now offer seminars focused on the literary aspects of medicine.

Additionally, numerous medical journals have provided platforms on which health care providers can offer more than just their scientific findings. Annals of Internal Medicine was among the first to publish a column that features articles written by physicians for the purpose of reflection.⁴

Numerous online blogs have also sprung up in the last decade, making it clear that physicians are writing as an additional aspect of their education and personal development.

However, as physician interest in writing has grown, so has our knowledge of medical science. Unlike in the time of Hippocrates, practicing medicine now requires a narrow field of study to approach mastery. It would be reasonable to expect physicians to pay less attention to fields outside the medical realm, and yet, it appears the opposite is happening.

Writing is good for us. Perhaps this is because research has shown that expressive writing is extremely beneficial to our overall health. The first study to explore this question was conducted in 1986 by Pennebaker & Beall.⁵ They asked college students to write for 15 minutes on four consecutive days about their most traumatic or upsetting experiences. Controls were asked to write about meaningless topics. The study showed that students who wrote about their emotional experiences demonstrated significant benefits with fewer visits to the doctor, and fewer episodes of illness. Never before had writing been shown to have such an effect on health. This became known as Pennebaker’s Writing Paradigm.

Since then, numerous studies have demonstrated that writing provides a positive impact on health, well beyond the psychological realm. A daily writing plan as outlined by Pennebaker’s study has been shown to improve immune response in HIV patients receiving highly active antiretroviral therapy; to decrease disease severity in patients with inflammatory bowel syndrome; and to improve lung function and disease severity in patients with asthma and rheumatoid arthritis, respectively.⁶–⁸ Additionally, it has been shown to reduce the length of hospitalization in patients with cystic fibrosis, and to shorten sleep onset in patients struggling with insomnia.⁹,¹⁰ Though no studies have been conducted to determine the effect of writing on physicians, it stands to reason that clinicians would also experience multiple health benefits from a daily writing practice.

This concept has inspired a literary movement within the medical community. As one of the present day champions of the medical humanities, Dr. Rita Charon of Columbia University has spent much of her career researching various means of incorporating writing and reflective processes into clinical practice. In 2001, she coined the term “narrative medicine.”¹¹ As she explains, this brand of medicine relies on “narrative competence” that physicians use “to recognize, interpret, and be moved to action by the predicaments of others.”¹² As with any other skill, narrative competence must be taught and practiced. Charon has accomplished this through the study of literature and bioethics in medical school, as well as the
adoption of expressive writing as a form for self-reflection and introspection.

To further nurture these abilities, Charon developed the practice of keeping a parallel chart, wherein clinicians keep a private record of their perceptions of their patients, their frustrations, and any unfiltered thoughts regarding their clinical interactions. For instance, the medical record might say, “A 28-year-old female with metastatic melanoma s/p bilateral mastectomy with multiple complications.” The parallel chart would say, “I see a young woman of my same age in whose presence I can feel nothing but guilt for my own health and normalcy of life.” Review of one’s parallel chart allows for introspection, identification of biases, and the opportunity to explore emotional aspects that often limit clinicians. Though Charon’s initial intention with parallel charts was not meant for therapeutic benefit but to improve clinical skills by creating empathetic physicians, it seems the two may be intimately intertwined, and thus, even more beneficial.

Medicine is perhaps one of the most emotional careers that exists. The joys of helping one patient can easily be overrun with the pain of an unsuccessful outcome for the next patient. With rigorous academic demands, clinicians often fail to stop and reflect on their own emotional experiences. Over time, failure to reflect can lead to numbness by virtue of familiarity. Even death and dying can become routine, which in turn, results in a loss of compassion. By pausing to practice Pennebaker’s Writing Paradigm, or keeping a parallel chart, physicians become their own emotional educators by staying connected to the very part of themselves that brought them to the medical field.

Writing can also bring about action. Whether advocating for political change, reporting and identifying a medical mistake, or simply searching for answers to a complex medical question, writing creates a dialogue within the community that promotes evolution. Many of us question our surroundings, but often on an unconscious level. Writing forces us to pause, and tap into that inner conversation. It is through that process that one can discover new ideas that, when shared with others, bring energy to the seeds of change.

Though only in the beginning stages of my career, I have come to realize that whether we practice narrative medicine, or incorporate narrative into medical practice, writing is an integral part of medicine. It teaches practitioners how to connect with their patients more readily; enables them to be moved to reach out to other health care professionals; stimulates discussions with the public about important health care initiatives; and further develops emotionally competent individuals.

As Gawande instructed, whether writing for a blog, in a medical journal or on a personal Post-it note, one simply needs to write something. This is where much of our potential lies.

References

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How old are you?
65.
Any medical history?
No, sir.
Anything new?
No.
Any allergies?
How about surgeries?
Not that I know of. No.
What do you do?
I'm a retired vet, but since I moved back home again I work in construction, and the odd job or two.
And where do you live?
Well doc, d'ya know that bridge? The one over by River Ridge?
Yes.
Well.
He looks away.
Do you smoke at all?
Drink alcohol?
Any drugs?
I smoke, but I'd like to quit, and each night I drink a fifth, usually vodka—
on the streets it's better than any sheets—and yes, sir, from time to time I take a hit.
Of what?
 Mostly heroin, sometimes meth.
Depends on what I can get.
Have you ever been tested for HepC?
How about HIV?
Yessir, I have HepC, but you see the meds, I can't pay, I don't have insurance that's why I'm here today.
Do you have any family?
Yes, two kids. But we lost touch. These days, well I'm not around people much. I'm sorry.

I reach over and take his hand. His lips tremble. He starts to stand.
I don't mean to cry He says as he squeezes shut his eyes.
It's just been awhile since some—since someone's—it's just been awhile y'know?
My speech is thick but I manage to smile.
It was good to meet you I swallow and say.
We'll see you back next Thursday.
He moves for the door, the one he came in just 30 minutes before with his clothes too big, or himself too thin.
I watch him.

How old are you?
65.
Same as my dad, who he could almost be, if not for a different H&P.

Marc M. Beuttler
Below, Dr. Louis Auzoux’s anatomic model of a horse, at the Museum of Anatomy of the National Veterinary School in Toulouse, France.
Duncan McEachran and the One Health movement

by Jennifer Pors, MDCM; Russell Fraser MSc, DVM; and Richard Fraser MSc, MDCM

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The father of modern pathology, physician Rudolf Virchow wrote in the early 1880s “...between animal and human medicine there are no dividing lines—nor should there be.”¹ He recognized the association between human and animal disease and medicine that had been loosely made for centuries, and presaged the concept now known as One Health—the integrative effort of multiple disciplines working locally, nationally, and globally to attain optimal health for people, animals, and the environment. The One Health Initiative includes physicians, veterinarians, dentists, nurses, and individuals in allied disciplines. Its mission statement is:

Recognizing that human health (including mental health via the human-animal bond phenomenon), animal health, and ecosystem health are inextricably linked, One Health seeks to promote, improve, and defend the health and well-being of all species by enhancing cooperation and collaboration between physicians, veterinarians, other scientific health and environmental professionals and by promoting strengths in leadership and management to achieve these goals.²
The medical aspects of this mission include two principles:

1. There is a close biological relationship between humans and animals, with the implication that understanding one species can lead to better understanding of the other; and

2. There is an overlap of human and animal disease illustrated, for example, by the potential of its transfer from animal to man.

Duncan McEachran, veterinarian, professor, and founder of the Montreal Veterinary College (MVC), played an important role in promoting these ideas in the 19th and 20th centuries, foreshadowing the development of the One Health movement.

Disease associations

There are many examples of animal-human-environmental disease associations. Zoonotic (animal to human) transmission is one of the more obvious and important, representing the largest source of emerging infectious diseases today. It is associated with almost 60 percent of the 400 newly identified diseases since 1940.3

In 2002, a species of coronavirus—the cause of severe acute respiratory syndrome (SARS)—crossed the species barrier from bats to humans, and within four months spread globally, representing the first pandemic of this millennium.4 Fortunately, it was quickly contained, and there were only 550 (14%) deaths among the 4,000 reported cases.

By contrast, avian influenza H5N1 represents a more serious and ongoing threat, with the virus sporadically jumping from chickens to humans. Although human-to-human transmission has not been documented, and only 846 cases of H5N1 influenza had been reported by February 2016, 449 (53%) of these were fatal.5

More recently, the West African Ebola virus epidemic, suspected to have originated in bats, caused more than 28,000 deaths, the largest and most protracted outbreak of human Ebola infection to date.6

Understanding the interconnectedness of humans, animals, and their shared environment forms the basis for prevention and control of diseases such as these. The One Health approach is the embodiment of this philosophy.

The early history of One Health is most clearly evident in the field of infectious disease. In the 18th and 19th centuries, general observation and advances in scientific methodology led to the hypothesis that animal diseases such as glanders, anthrax, and rabies could be transmitted to people.

In 1820, Jean Hameau, a family practitioner in Bordeaux, France, first reported human death from glanders when he described a veterinarian who died with pustular disease after months of caring for infected horses under poorly sanitized conditions.7 In addition to such direct human consequence, recognition of the socioeconomic importance of the animal-human association led to societal-political involvement. As a result, a national chair of comparative medicine in France was established. Pierre Rayer, a physician scientist who had a long-standing interest in a comparative approach to medicine, became the first director.7

Disease transmission research

Research involving animals was first directed toward understanding economically important disease. However, as the potential for transmission between humans and animals was increasingly appreciated, animals began to be used as models to study human disease. At the time, it was commonly thought that disease transmission occurred through contagion—either miasmatically (via “bad air”) or zymotically (via direct contact).

The study of pyaemia and septicemia helped advance understanding of such transmission and was based, in part, on discoveries reached through collaborations.
between human and animal research. For example, Bernard Gaspard, a rural physician, injected animals with putrid human vomit, bile, or urine in a variety of experiments between 1808 and 1821. In the published report on his findings he anticipated the possibility of reciprocal transmissibility from animals to humans, and advised people to avoid eating “black gamy meat, stinking game-birds, putrid ragouts, and infected cheeses.”

Francois Magendie, the French physiologist infamous for his vivisectionist experiments, anticipated germ theory with the discovery that purulent fluid was less harmful after it was sifted.

Following these and other discoveries, the concepts of One Health blossomed in Europe—particularly in France and Germany—where international political competition, stringent organization, and a spirit of collaboration between medical and veterinary science provided the perfect conditions for the field’s development.

Such collaboration was particularly productive in providing the foundation for germ theory. In 1850, French physician Casimir Davaine studied what would become known as anthrax. Inspired by Louis Pasteur’s work on fermentation, Davaine injected a rabbit with blood from sheep infected with anthrax. After the rabbit died, he injected a second rabbit with blood from the infected rabbit—the second rabbit also died. He then observed the second rabbit’s blood under microscope and described a rod like structure in the blood, which he posited to be the cause of the disease. Pierre Rayer, who assisted in these experiments, had previously described the same corpuscles in infected sheep blood as “small filiform bodies in the blood, about twice as long as a blood corpuscle.”

In the 19th century, Robert Koch was inspired by Davaine’s findings and began investigating anthrax. After replicating earlier experiments on mice, Koch was able to more completely characterize the nature of the disease when he provided an explanation for why pastures inhabited by anthrax-infected animals were unusable for years after infected animals had grazed there. He found that Davaine’s rod-shaped organisms were able to form long filaments and produce granules with a hard protective shell in favorable moist environments. In dry conditions the filaments would disintegrate, but the spheres would remain. When the dried granules were placed in a moist environment, the rod-shaped organisms would appear. Koch postulated the existence of “spores”—resilient but inactive forms of the microorganism developed under difficult environmental conditions.

Louis Pasteur helped to confirm Koch’s discovery in 1878 when he placed anthrax-infected sheep blood onto sterile culture, allowed the bacteria to grow, and repeated this several times until he was certain that none of the original rods remained in the dish. He then infected a sheep with organisms from this final culture, proving that the bacterium was to blame.
Duncan McEachran

McEachran was born in Scotland, and graduated from the Edinburgh Veterinary College in 1861. Following his immigration to Upper Canada in 1862, he joined the Upper Canada Veterinary School (later the Ontario Veterinary College) in Toronto. He taught pharmacology and, together with the school’s founder Andrew Smith, coauthored a veterinary textbook for Canadian farmers, *The Canadian Horse and His Diseases*.12

As a result of pedagogical differences with Smith, McEachran moved to Montreal in 1865, and received a $300 grant from the Board of Agriculture of Lower Canada, which he used to found the Montreal Veterinary School, the first such institution in Quebec.14 In 1873, the School was relocated to a new, state-of-the-art building constructed at considerable personal expense to McEachran. In addition to offices and a student lecture room, the building included a teaching library and museum, a dissecting room, a large animal ward that could accommodate 20 horses, and a small animal infirmary.

The MVC was conceived in the context of McEachran’s personal vision of veterinary medicine, and included a number of innovative features. It was the first institution to teach veterinary pathology in North America,12 a feature that coincided with his invitation to William Osler to join the college’s faculty.

The MVC syllabus was modeled after that of the McGill University Faculty of Medicine, and McEachran sought to have it affiliated with McGill.15 In contrast to the business-like model of Andrew Smith’s Upper Canada Veterinary College, where a large number of students with lower credentials were admitted, McEachran placed high value on academic excellence. He established stringent requirements, including an entrance exam, a three-year course (unlike the two years of other programs), and graduated 10 students in the first few years, compared to 130 in Toronto.15,16

The MVC had a large museum with hundreds of models, casts, and other teaching specimens. One of the most spectacular was a life-size anatomical model of a horse fabricated by the French physician Louis Auzoux. At a cost of $1,000, it consisted of 1,000 painted pieces that the student could take apart and put back together to help learn the animal’s anatomy.

The MVC curriculum had strong roots in the concepts of One Health.13,17,18 It was broadly based, and included courses in anatomy, dissection, materia medica, medicine, surgery, veterinary obstetrics, physiology, histology, chemistry, and botany.16 As a result of its ties with McGill, most teaching was performed by McGill professors from that faculty rather than veterinarians. If graduates from MVC completed an extra year of study in the McGill medical school they could be certified as physicians.

Two of the most noteworthy staff at MVC were Sir William Osler and Albert Clement. Osler was recruited in 1876 to teach physiology, histology, and pathological anatomy.18,19 He was quite popular, and it was said that he “was able to bring his famous ‘bedside teaching’ methods to the stables.”19

McEachran encouraged Osler to undertake research in comparative pathology, which he did on several occasions.12 In his eulogy to Osler in the *Canadian Medical Association Journal*, McEachran wrote:

> He considered it of the greatest importance that students should be students of general medicine and their course of instruction should embrace comparative anatomy and comparative pathology, no matter which branch they intended to make their life work.18

Clement, a veterinarian, also made significant contributions to One Health. In 1885, he published the first pathology paper by a veterinarian in North America, in which he described the kidney in equine azoturia (later known as equine rhabdomyolysis).12 He completed a year of postgraduate study in Berlin and England, where he was inspired by the potential for collaboration between human and animal medicine.13 In a talk at the MVC he discussed examples of comparative medicine which he had seen in Europe, including treatment of human disease based on animal models. After his return to North America in 1889, Clement published a textbook on veterinary post-mortem examination, in which he advocated for the use of the animal autopsy such as that taught by Virchow for the investigation of human disease.

In 1889, the MVC became a formal part of McGill University and was renamed the Faculty of Comparative Medicine (in part on the suggestion of Osler).18 This change was undertaken to enhance the status of veterinary medicine, and to emphasize the importance of general medical education to veterinary practitioners. At the same time, courses in bacteriology, zoology, cynology (the study of dogs), and comparative pathology were incorporated into the curriculum.16,17

McEachran pushed the bounds of One Health farther than pathology and physiology when he postulated similarities between the human and animal psyche. He founded...
the Society for Comparative Psychology in 1887, and advanced the notion that the animal psyche has a depth and expression similar to that of the human child. Such ideas foreshadowed the evolution of veterinary medicine in the 20th century by focusing on animal emotions, particularly with respect to suffering.

McEachran’s insistence on quality was partly responsible for the decline of the MVC, as its strict entrance requirements and longer study period hindered student enrollment. An additional complication was competition from new French-language veterinary schools in Quebec, led by McEachran’s former pupils. The decreasing enrollment combined with a lack of an endowment and aging equipment, forced the MVC to close its doors in 1902. It had been a remarkable institution—ahead of its time—and because of his work, McEachran was named Professor Emeritus.

McEachran also had significant input in the second aspect of One Health—the overlap of human and animal medicine. During his inaugural lecture at the MVC he discussed the threat of contagious disease to national livestock and how, while living in the Scotland, he had witnessed the failures of a weak government in preventing the spread of animal disease.14 He was outspoken to the Canadian government of “inspection, quarantine, and disinfection.”14 Recognizing his enthusiasm and knowledge, in 1876 he was named by the Canadian government as Chief Inspector of Livestock, and in 1884 Chief Veterinary Inspector, a position he held until 1902.

In the late 19th century, there was debate whether Mycobacterium bovis, the organism causing tuberculosis in cows, was transmissible to humans. McEachran rightly believed that the ingestion of cow milk from a tuberculous udder could lead to the spread of bovine tuberculosis in humans, and he published a paper promoting this concept.18 He was also one of the first proponents of the tuberculin skin test in Canada and argued (unsuccessfully) for universal testing in presentations to the Montreal Board of Health, and other health agencies.18 He was a member of the Milk Commission of Montreal, and recommended pasteurization and safe distribution of milk years before these measures were adopted. From 1890 to 1902, McEachran developed a research program to investigate bovine tuberculosis in animals using a rare variant with obvious udder disease compared to the more common variant without udder disease. He was unable to complete the project as he could not find enough experimental subjects.
One Health today

The concepts of One Health may not be integrated as formally in teaching as they were in McEachran’s time; however, its ideas and practices are still important for practitioners of both veterinary and human medicine. Although not always successful, McEachran attempted to advance these concepts in his teaching, research, and everyday practice. T.W.M. Cameron, in an essay about veterinary education in Canada published in 1938, said:

> It is generally agreed that [the vet student’s] training should have the closest association with human medicine, and if McEachran’s ideas had been carried out by other colleges—not only in Canada—nothing but good would have resulted from them.\(^9\)

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The first time I held your hand,
Your eyes were unfocused—
Staring off to some unknown golden horizon,
its yellow hues reflecting itself onto your sclerae.
A thick needle punched into your engorged belly
and liters drained from you, like rivers to the sea.
You smiled.

We did that many more times, day after day—
bottle after bottle full of sloshing fluid
(amber, with a blush of pink).
I’d hand an empty bottle over, get a filled one back
and shudder internally at its warmth.
It was as if there was a whole ocean inside you,
surging back each day. We’d force an ebb
only to be met with more roaring flow.

Yet always, you’d grip my hand
and smile that same unfocused grin.

You were young.
Your family didn’t want to know words like
liver cancer, kidney failure, metastasis.
They knew words like husband, father, friend;
words like hope, miracles, prayer.
A whole world of people came to your bed.

But soon, a thick fog settled outside your door.
We could feel it in the halls. We could see it in the trails
of saltwater on your loved ones’ faces.
I could count it in each new bottle we took from you.

I was the last one in your room, after all the chaos had settled.
I pulled out your lines, one by one,
each another rope that had tethered you to life.
Gently, I unmoored you and set you adrift.
Mastectomy by Nicolas-Henri Jacob and Jean Baptiste-Marc Bourgery. The main image portrays the surgeon making an incision while an assistant retracts. The patient is awake and not anaesthetized. The smaller inset images show the incision itself in greater detail as well as the closed and dressed wound with an apparent drain in place.
Idealized Mastectomy:
19th century developments in breast surgery and anatomic illustration

by Trang Ngoc Diem Vu, MD; Johnathon M. Aho, MD; and W. Bruce Fye, MD

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The most notable developments in breast surgery included a shift from nodal excision to progressively radical mastectomies, spearheaded by Charles Moore, Herbert Willy Meyer (AΩA, Columbia University, 1918), and William Halsted. Despite incredible surgical changes during the 19th century, the illustrations of mastectomy during this time demonstrate the disparity between artistic depictions and surgical reality.

19th century mastectomy illustrations

The union of artistic and surgical developments is evident in the striking illustrations of mastectomy which were influenced by the 19th century rise of Neoclassical trends in art. The images reveal a striking disconnect between art and reality, encapsulated by a clean, idealized depiction of what was a severe, painful, and disfiguring procedure.

Bourgery began creating the Traité in 1831, with the final volume being published in 1854, five years after his death. It is a massive collection of 725 lithographs from drawings by Jacob, an accomplished artist who had studied with leading French painter Jacques Louis David (1748–1825).

Bourgery supervised careful dissections that Jacob would depict, sometimes in conjunction with a lithographer and colorist. Their combined efforts resulted in images that were anatomically accurate, and artistically beautiful.

Previously, anatomical illustrations reflected the ideals and trends of Renaissance and Baroque art featuring skeletons posed in prayer or écorchés (flayed figures) leaning on trees amidst pastoral scenes. Through the 18th and 19th centuries, illustrations became “far less concerned with natural theology, the depiction of a human body made in the image of a benevolent God, but they were no less freighted with meaning beyond their overt medical content.”

During the 19th century, dissection became a standard...
Idealized mastectomy

part of medical training. Renaissance and Baroque artistic conventions were replaced by those of academic dissection practices, which aligned with Neoclassicism. Cadaveric specimens were draped just as they were in the dissection laboratory, and just as the edges of busts and portraits were softened with fabric in the artist’s studio. Also, according to Neoclassic fashion, the figures in illustrations were sometimes portrayed in almost regal repose. If faces were shown, they appeared to be in peaceful sleep, or awake with minimal, serene emotion.

Although less pious in nature, the images are remarkably idealized, and straddle the border between scientific documentation and artistic fantasy. Jacob wrote in the Traité that he and Bourgery aimed to portray “an ideal form, the most beautiful and most perfectly developed of the species.” Bourgery encouraged a dialogue with Jacob that would allow their work to be a union of medicine and art.

Photography began to be employed in the preparation of medical illustrations in the second half of the 19th century. However, engravings and lithographs remained popular because artists could use shading and texture to highlight specific features of a specimen. Artists could employ narrow palettes of colors to highlight different structures or tissues—red for arteries, crimson for muscle, blue for veins, and yellow for nerves.

Mass production of photographs was prohibitively expensive, and medical students needed cheap, practical textbooks. Lithographs were clearer, their colors more vivid, and they were amenable to mass reproduction. Lithographs and engravings allowed the flourishing of anatomical book publishing which took place in early 19th century Europe.

A lithograph from Traité features a woman undergoing a mastectomy without anesthesia. The first of the three images shows the hands of the patient’s surgeons retracting and excising breast tissue, while the other two focus on the incision and the surgical dressing.

The first image is the most striking, a work of art just as much as it is a tool for surgical instruction. With her neatly coifed hair, and sheets elegantly draped around her, the patient looks like the subject of a Neoclassical painting. Jacob chose to portray her with eyes open, awake and aware during the painful procedure. Her face is completely relaxed without any sign of discomfort or pain. She does not acknowledge the hands of the surgeons invading her skin and subcutaneous tissue.
19th century breast surgery

Socially, the divide between surgeons and physicians diminished during the 18th and 19th centuries as more surgeons underwent formal medical training, and the practice of surgery became more scientific. Breast cancer treatment began to reflect a transition from the Greek physician Galen's ancient humoral theories of disease to concepts that reflected the development of the clinical-pathological correlation, and cell theory.

One manifestation of this was the recognition that breast cancer could spread through the lymphatic system, which included the axillary nodes. French surgeon Henri François Le Dran (1685–1770) was one of the first to dissect enlarged axillary lymph nodes in cases of breast cancer, with the goal of local control and the prevention of further spread through the lymph system.

Jean Louis Petit (1674–1750) another French surgeon proposed excision of the breast, palpable lymph nodes, and pectoral fascia and muscle. Thus, Petit was the first to propose a radical mastectomy.

Breast surgery in the first half of the 19th century was embroiled in debate over the preceding century's developments. Various surgeons resurrected old techniques from Ambroise Paré's (1510–1590) use of compression to cut off blood supply; to cauterization (a technique documented in the practice of breast surgery as early as the first century AD); to bleeding with leeches or lancets, and the administration of hemlock, arsenic, or mercury.

Several surgeons decried operative treatment if lymph nodes were involved by cancer. Scottish surgeon James Syme (1799–1870) wrote in his 1842 book Principles of Surgery, "It would be subjecting the patient to useless pain and would bring surgery into discredit to attempt extirpation in cases where the extent or correction of the disease prevented its complete removal."

This was the environment in which Bourgery and Jacob depicted mastectomy in Traité. Their illustrations were featured in an 1844 book by Philadelphia surgeon Joseph Pancoast (1805–1882), A Treatise on Operative Surgery. Accompanied by 80 full-page plates, this text was the main means by which the Traité illustrations became accessible to American surgeons.

Pancoast, in his discussion of breast surgery accompanying the Bourgery-Jacob illustration, stated:

"[P]erfect recovery occasionally takes place after the removal of a cancerous breast, but that in the greater number of cases a return of the disease is to be expected,"
either at the site of the cicatrix, or upon some of the internal viscera. [...] The essential principle in reference to [a mastectomy’s] success, is to remove the cancerous breast, while it yet forms a well-circumscribed and local tumor. If it has involved the chain of axillary glands, and especially if it has become adherent to the pectoral muscle, or has formed an open ulcer, the chances of success, even when there is a prospect of removing apparently all the tissue affected, will be considerably impaired, and the operation ought not to be undertaken without a candid statement on the part of the surgeon of the liability of the patient to suffer sooner or later a return of the affliction.6

But, a few paragraphs later, Pancoast states that lymph nodes must be removed if they are found to be “scirrhous, or are even indurated and enlarged.” He was among the first surgeons to describe removal of the breast with its axillary lymphatic drainage with one incision and accompanying procedure.8

Surgical treatment for breast cancer increased in the latter half of the 19th century due in part to the introduction of surgical anesthesia in 1846; the progressive adoption of antiseptic wound treatment in the 1870s and 1880s; and a growing understanding of the cell theory and its implications for the spread of cancer.7

Several prominent surgeons turned their attention to increasing the magnitude of excisions. Moore (1821–1870) was a strong proponent of excision of the entire breast, reasoning that any remaining traces of cancer would lead to recurrence.9 Before him, there had been no standardized operation, and surgeons varied on whether they removed lumps, breast segments, or entire breasts, with or without skin flaps.7 Moore criticized partial resections, and advised removal of the entire breast, including adjacent skin, areolar tissue, and axillary lymph nodes if they appeared to be cancerous.8 This approach differed from radical mastectomy in that Moore did not promote routine removal of the pectoralis major muscle.8 Moore’s approach became standardized in accordance with his recommendations.7

Antiseptic surgery pioneer Joseph Lister (1827–1912) introduced antiseptic wound treatment which halved the operative mortality of mastectomies with axillary lymph node removal, as well as overall mortality.7 Lister adopted Moore’s approach, but advocated division of the pectoral muscles to provide better exposure during axillary lymph node dissections.8

Halsted is best known for promoting radical excision of breast cancer. Like Moore, he believed that extensive local surgery could remove cancer cells and prevent future growth.10 He thought that breast and other malignancies began as small foci that enlarged in a slow, centrifugal manner before spreading.10 Halsted was influenced by German pathologist Rudolf Virchow’s research which demonstrated that cancer arose from collections of diseased cells, and spread through the lymphatic system.11

In 1894, Halsted published a landmark article on his technique of classic radical mastectomy, in which he described removal of the axillary nodes and excision of the pectoralis muscles and fascia.8 It was known as the “complete operation” rather than the “radical mastectomy.”8

In the article, Halsted presented data based on 50 patients he had treated since 1889.12 His recurrence rates were only six percent compared to the 50 percent to 80 percent recurrence rates from mastectomies performed using the method of German surgeon Richard von Volkmann (1830–1889)8 who advocated removal of superficial pectoral muscle fibers.8 Halsted wrote, “Volkmann’s operation is manifestly an imperfect one. It admits of the frequent division of tissues which are cancerous, and it does not give the disease a sufficiently wide berth.”12

Meyer described his version of Halsted’s radical mastectomy in a lecture he delivered 10 days after Halsted’s article was published.7 Meyer’s mastectomy differed from Halsted’s in that he performed the axillary dissection before the breast and muscle excision, and used scissors in order to decrease the surgical time.9 Meyer also removed both pectoral muscles.7

**Radical mastectomy**

Halsted is credited with bringing the radical mastectomy to its final form due to his reputation for meticulous surgical technique, and his emphasis on en bloc removal of the cancerous tissue to prevent seeding of cancer cells into the operative site.10 The data he obtained from retrospective case reviews demonstrated remarkable decreases of local recurrence after his procedure, as well as improved cure rates in patients with lymph node-negative disease.10

By 1915, the Halsted radical mastectomy was the standard procedure for breast cancer at all stages.10 Halsted’s procedure gradually declined in popularity toward the end of the 20th century with the advent of chemotherapy; wider use of radiation; increasing concern about the side effects caused by radical mastectomy; and the demonstration that more limited surgical approaches could be equally effective.10

**Brödel, illustrator extraordinaire**

German-American artist Max Brödel (1870–1941) drew
In 1894, when Halsted presented his mastectomy data from the Johns Hopkins Hospital at a medical meeting, Brödel had just begun working at the institution. He had no formal medical training, but became well versed in anatomy and pathology, and produced unique illustrations with exquisite detail. He used perspectives that allowed the viewer to observe the scene through the surgeon’s eyes. Brödel would become the first director of the Johns Hopkins Department of Art as Applied to Medicine.

Brödel’s illustrations of Halsted’s mastectomies were among his first works at Johns Hopkins, as well as one of the earliest representations of the radical mastectomy. The first of Brödel’s images bears many similarities to that created a half century earlier by Jacob and Bourgery. The woman lies supine with her breast incised and ready for dissection of the chest wall along with the pectoralis muscles. She is draped in a beautifully rendered sheet. Her hair is neat, and her facial appearance does not suggest pain or fear. She looks completely calm. The focused gaze of the patient is in full view. Her dark, unwavering eyes implore onlookers to consider her as more than an inanimate object, but a living, breathing woman.

In Brödel’s second image, the patient’s face is covered with a cloth. The artist’s decision to portray her in this fashion may have been influenced by the more graphic nature of the breast excision in this image. The combination of a full gaze with the depiction of a swollen breast hanging from the chest wall, tethered only by a few clamps and tense threads of tissue, may have been considered too unsettling by the artist for his audience. Still, the rendering of the drape on her face remains beautiful, recalling the elegant folds in the dress of a subject of classical marble sculpture. Brödel chose to draw the patient’s loose curls of hair in such a way that an astute viewer will recognize the woman’s youth, despite her obscured face.

**The use of anesthesia**

These early mastectomies caused significant pain and disfigurement. Anesthesia was introduced in 1846—two years after Pancoast’s book was published.

Halsted’s patients had the benefit of anesthesia, but his radical mastectomy procedure (done with the hope of reducing local and regional recurrences of cancer) left women severely disfigured. Excision of the pectoralis major could leave the woman in a shrugging position without the ability to move her arm normally, and lymphedema could cause severe arm swelling. Infection and hemorrhage were also significant risks, along with severe ongoing pain, and morbidity.
Idealized mastectomy

The gender gap

There is a gender aspect to mastectomy and the artistic depiction of the procedure. In the 19th century, surgeons were mostly male, and patients who underwent surgery for breast cancer were predominantly female. Gender was relevant in the conversations surrounding mastectomies.

Women in the 19th century underwent mastectomy at the counsel of male physicians who sought to excise every cancerous cell. They experienced pain and sacrificed a significant portion of their physical femininity. They were willing to accept the disfigurement with the hope that the operation would ward off recurrences of the deadly disease.

Some of Halsted’s patients wrote to thank him for performing what they hoped would be a life-saving procedure. Others wrote to alert him of their pain, arm swelling, mutilation, and humiliation.10

Brödel’s and Bourgery’s illustrations presented idealized images detached from the reality the female patients suffered.

The 19th century women who underwent mastectomy did so in an era of debate and experimentation. They were pioneers of the development of surgical therapy of breast cancer, as were the men who operated on them.

21st century breast cancer treatment

Today, partial mastectomies are outpatient procedures, and total mastectomies usually require only a short hospital stay.

While the surgical treatment of breast cancer has been greatly enhanced since the 19th century, controversies and debates concerning breast cancer management persist. The demographics of the medical profession continue to change along with disease concepts and treatment strategies.

An increasing number of women specialize in breast care, are breast surgeons, administer radiation, deliver chemotherapy, and advise patients. Women come to surgeons armed with more information and comfortable asking difficult questions. Health care providers and surgeons are now encouraged to provide patients with knowledge, and to participate in shared decision-making. Providers continue to strive every day to make the authoritarian, patriarchal delivery of medicine that persisted in prior centuries a phenomenon of the past.

References


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The call to prayer beckons over loudspeakers atop minarets, those urban quotation marks, punctuating Istanbul. I perform the ritual abulation, cleansing my body in an attempt to purify the uncertain soul beneath. I enter the hall and lay down the prayer rug: it stretches across the carpet like a cat gently waking from a nap.

A pager emits a soft green backlight and chirps its birdsong: that familiar tune of duty and action. The surgical scrub is cold against my skin, and it lathers promises of success and failure, both imminent. I enter a sterile theater, its cold steel instruments lined on the tray like silent violins quivering in the anticipation of music.

And then the movement begins, flowing as naturally as the rosary follows prayer: as smoothly as a fresh blade cuts skin. A calm order falls in these two temples, and we execute the familiar choreography: the prescribed sacrifice of a perfect ballet. I dance at the altar of a God that has only ever sent me mischievous angels and I wonder what purpose there is to my supplication.

Then, it occurs to me that in each of these sanctuaries a grieving mother has wept on my shoulder, and I remember suddenly why temples are places of divinity.

Ali I. Rae

Mr. Rae is pursuing an MD at Brown University, and an MPH at Columbia University, with a concentration in Medical Humanities and Ethics. His poem tied for second prize in the 2017 Pharos Poetry Competition. Mr. Rae's e-mail address is ali_rae@brown.edu. Illustration by Laura Aitken.
The body as a smart city

Claude Bernard is best known for his assertion that when life evolved beyond single-celled organisms and left the aqueous environment in which they were in equilibrium, the tissues of the body were sustained by a “milieu interieur” (internal environment). He wrote, “It is as though the organism had enclosed itself in a kind of hothouse where the perpetual changes in external conditions cannot reach it.”

That has been seen as the rationale for the evolution of a variety of physiologic systems (predominantly renal and pulmonary) devoted to the maintenance of the constant composition of the extracellular fluid, the internal milieu, in which cells, tissues, and organs are bathed. Bernard’s thesis evolved at a time in the history of science (1865) when the knowledge of human physiology was in its infancy. This view of the milieu interieur was very much the same when Walter Cannon (ΑΩΑ, Harvard Medical School, 1906, Honorary) coined the term “homeostasis” in his Wisdom of the Body, published in 1932.

There may be value in considering Bernard’s milieu interieur as a part of a much larger system exemplified by the evolving concept of the smart city. A smart city is an urban development vision to integrate information and communication technology in a secure fashion to manage a city’s assets. These assets include local departments’ information systems, schools, libraries, transportation systems, hospitals, power plants, water supply networks, waste management, law enforcement, and other community services.

What makes the analogy between the smart city and the internal milieu of the smart body so instructive is that each of the components of the smart city must be carefully designed and integrated with other systems utilizing the most up-to-date technologies. One might consider cells,
tissues, and organs as islands in the smart body, i.e., the whole organism.

Information systems

Bernard’s internal milieu can then be seen as more than a bathing fluid whose electrolyte composition serves to maintain the electrolyte and acid-base composition of cells and tissues. Beyond delivering nutrients and removing waste products, extracellular fluid is a central component of signaling throughout the body. It is the carrier of protein-bound hormones, dissolved signaling molecules, dissolved gases, and products of cellular metabolism, both waste products and precursors for cellular synthetic activities.

In the construction of smart cities, such as the Hudson Yards project on the west side of New York City, extensive networks of signaling cables have been imbedded to connect, in ways that will serve both the present needs and anticipated future needs, the many discrete modules of the smart city. Similarly, the manner in which the extracellular fluid serves these roles requires a deeper consideration of the many modules in the smart body that must be interconnected, and the often unique manner in which the extracellular fluid, the internal milieu of the smart body functions to signal to these modules.

Many different types of cables are employed and interconnected to rapidly meet the great number of needs of the smart city. Many components of the smart body require signals that travel much faster than the bulk flow and diffusion of extracellular fluid. The brain; the retina; peripheral receptors for temperature, touch, pain, joint position, skeletal muscle, cardiac muscle, and the adrenal medulla may be considered rapid response systems requiring a communication system far faster than could be supplied by the delivery of signals carried by extracellular fluid. The nervous system, both peripheral and central, serves this function with signals traveling in milliseconds between receptors and effectors.

Information distributed through specialized cables in the smart city are similar to signals sent through the nervous system in that they may be stored and retrieved as memories or conditioned reflexes.

While electrical signals are transmitted along nerves and mediate their effects at specialized nerve endings in the smart body—like electrical outlets in the smart city—the manner in which chemical signals are transmitted to targets utilize many different forms of signaling. The simplest signal from the extracellular fluid is exemplified by the diffusion of uncharged, lipid-soluble signals such as oxygen, carbon dioxide, ether, and nitrous oxide. These substances cross the lipid bilayer of all cell membranes following a simple concentration gradient.

More specific targeted signals follow different routes. Hormones, secreted by endocrine organs, are small molecules that are protected from loss across the glomerular capillary, or hepatic-portal capillary network, by binding to specific hormone binding proteins or to albumin. These signals are targeted to cells bearing surface hormone receptors which, having a greater affinity for the hormone than its carrier protein, allow the hormone to activate cell surface receptors or activate ion channels that facilitate downstream cellular signaling, usually through a chain of cytoplasmic phosphorylation reactions.

In the smart city, electrical signals originating from members of the community via implanted chips, akin to the chips imbedded in dogs that allow them to open entrances to their homes, might serve to activate street illumination, open garage doors, summon an elevator, or announce arrival. This sort of signaling is already in place in some great museums in which rooms are illuminated or allowed to go dark as visitors pass through.

Protein-bound signaling molecules of other classes are transferred across cell membranes by specific organic anion or cation transporters (OATs or OCTs). These signaling molecules exert their effects only at sites of specific organic ion transporters. Signals transported in this manner, activate cytoplasmic signaling cascades.

The omnipresent maps of cell signaling pathways look remarkably like the map of the London Underground or the NYC transit system. In the smart city the equivalent of this selective delivery system might be the incorporation into the cable system of modules that deliver different newspapers to designated customers, or different meals delivered by Fresh Direct.

Power plants

What about energy? Here again, there are parallels between the smart city and the smart body. Both systems are ultimately dependent on some external source of energy. The major source of energy for cities is hydroelectric. Water is stored in dams and moves turbines to generate electrical power. The energy for the smart body is stored in the form of a small, ubiquitous molecule, ATP (adenosine triphosphate). When work is performed, the energy is supplied by the release of one or more high energy phosphates.

The parallel goes well beyond the production of energy. Smart cities harness the products of energy utilization
—heat and steam—to power generators thereby recycling energy. In the smart body, the energy expended in active transport of sodium or hydrogen ions results in transmembrane ion gradients that can account for the passive movement of potassium and chloride—an energy-conserving arrangement.

It is interesting to reflect on the fact that there is growing opposition to the dependence on the burning of fossil fuels for energy, seen as a factor in global warming. For the smart body, there has been a mounting campaign to replace the burning of simple carbohydrates as an energy source. Simple carbohydrates, as found in sweetened drinks and many prepared foods, are believed to contribute to the present epidemic of obesity and diabetes.

**Waste management**

Waste disposal represents a major task in both the smart city and the smart body. Our very distant ancestors—protochordates living in a salty soup 500 million years ago—disposed of all waste products via simple tubules that antedated nephrons as we now know them.6 Waste was simply excreted back into the environment.

The earliest cities similarly disposed of all waste through the sewers—tubes—that ran into nearby rivers, lakes, or larger bodies of water. This is the means of waste disposal still employed in some parts of the world, e.g. the favelas of Brazil. Smart cities have worked to refine waste disposal, to allow selective removal of toxic or noxious waste, and reclaim clean water, for which there is a dangerous shortage across the planet.

The smart body, with 500 million years head start, has evolved an elegant system for waste removal. The entire extracellular fluid volume is filtered at the glomerulus roughly 10 times a day. Transporters in the renal tubule actively reabsorb roughly 99 percent of the filtered water, glucose, and dissolved salts, while allowing for the removal of a host of small filtered wastes. Several organic anion transporters secrete protein-bound metabolic waste products7 into the draining tubule.

**Law enforcement**

Safety is a major concern in smart cities. Ultimately, cities will have systems to recognize homeowners, personnel, workers, delivery services, and others who enter the community. These systems will center on finger prints, iris patterns, voice recognition, and ultimately recognition of HLA types—many of which are already in use in households and businesses.

The immune system, from the earliest, most primitive single cell organism, has evolved recognition systems termed “innate immunity” and “acquired immunity.” These defense systems rely on signals not much different from those that guard the entrances, stores, factories, schools, and private and public spaces in smart cities. Pattern recognition, whether it is the pattern of a finger print or the shape of an antigen, is the common feature.

**Parallel evolutionary paths**

The parallels between the smart city and the smart body are impressive. It may simply be that the two systems have evolved independently, yet for some reason, possibly because they are effective, have evolved along parallel lines. Or, possibly in some way, not always obvious, the lessons learned during the long evolution of modern smart bodies is imprinted on the modern architects, builders, and city planners who have invented the smart city.

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An unexamined life is not worth living.  
—Socrates in Plato’s Apology

Self-portraiture first achieved autobiography status with Rembrandt Van Rijn, who left nearly 90 self-representations. Still, it was only later in life that Rembrandt’s self-portraits turned introspective, with the most haunting being the 1659 canvas now hanging in the National Gallery of Art in Washington, DC.

This self-portrait is also the only major oil painting where Rembrandt chose to show his left cheek. This is odd, since from the Renaissance onward artists typically captured their sitters’ more emotional side, which is usually the one controlled by the right brain and thus the left hemiface (the right in self-portraits, given the mirror constraint). That’s what Rembrandt typically did, but in 1659 he showed the opposite cheek—in one of the darkest moments of his life.

For with much wisdom comes much grief: and he that increaseth knowledge increaseth sorrow.  
—Ecclesiastes 1:18

Self-portraiture can be traced back as far as Old Kingdom Egypt, yet it was only during the Renaissance that it evolved into an independent art form. This was a result of cheap mirrors, and an increased focus on the individual.

Renaissance Man Leon Battista Alberti proclaimed it the origin of art itself, “Narcissus, who saw his reflection in the water, and trembled at the beauty of his own face, was the real inventor of painting.” Alberti was right, 90 percent of emotional communication is non-verbal and mostly conveyed through the face, thus making it the road to the human soul.

Raphael, Michelangelo, and Leonardo all dabbled in the genre, yet the idea of portraying yourself for its own sake was born in Northern Europe, first with Albrecht Dürer, and then on a larger scale with Rembrandt (1606-1669).

Scholars still argue about the number of self-portraits Rembrandt produced over his 40 years as an artist. A recent exhibit at the National Gallery of London displayed 51 oils, 31 etchings, and a handful of drawings, which is close to 20 percent of his entire artistic output.

It can be argued that if Montaigne pioneered the idea of an autobiography in words, Rembrandt left one in paint.

The term self-portrait didn’t exist in Rembrandt’s time. Instead, the convoluted, “contrefeitsel van Rembrandt door hem selfs gedaen” (Rembrandt’s likeness done by himself), or “het portrait van Rembrandt door hem zelf geschildert” (the portrait of Rembrandt painted by himself) was used to describe this art form. It was only in the 19th century, and with the rise of a different form of self-awareness, that the term self-portrait came into use.

Rembrandt’s many portraits displayed in the Rijksmuseum’s browser
Today, we have the selfie, the latest permutation in our self-centeredness, so widespread a phenomenon to the point of being selected by Oxford Dictionaries as the Word of 2013.5

Rembrandt's selfies span his artistic life, but can be divided into three periods. The first is mainly devoted to tentative self-examination, 1625 – 1643. As the cheapest and most readily available of all models, Rembrandt tries on himself a variety of clothes, postures and expressions. These representations do not exhibit interior drama, and only turn introspective with the 1640 self-portrait hanging in the National Gallery of London, and one from 1643 that followed the death of his wife.

The mid-period of Rembrandt’s artistic career, 1643 – 1651, had few self-portraits. He had become busy, and his artwork was highly sought-after, expensive, and often copied. He was a successful artist. He had also become a spendthrift, wasting fortunes on exotic collections and a palatial home.

In the third and final period of his life, with all unraveling around him, Rembrandt returned to portraying himself. He painted a canvas a year. His eyes had turned painfully introspective, at times almost cruel. His portraits ceased to be experiments in technique, or mere boasts of wealth and status. They became brutally honest self-studies, expanding in size, possibly because of his 1652 purchase of a huge mirror.3

The large paintings, now in Vienna (1652) and New York (1658) are examples of this evolution toward inner dialogue—bold, painfully human, groping for answers. A personal and disillusioned way of looking at the world's vanities.

Right versus left

In most of his self-renditions Rembrandt shows the left side of his face (the right on the canvas, given the mirror image). In his book Faces: The Changing Look of Humankind, Milton Brener reviews the evolution of facial representation, from its total absence in prehistoric art to the gradual appearance in pre-Hellenistic times.2 He notes that early faces are typically inexpressive and schematic, looking straight ahead or to the viewer's right side, thus showing the sitter's right cheek.

Intriguingly, this is also the kind of facial representation made by dyslexics, prosopagnosics, and other subjects with right hemispheric dysfunction.6

It was with the rise of Greek civilization and its emphasis on the individual that facial orientation gradually shifted, and paintings, drawings, coins, gems, cameos, and vase portraits started displaying the sitter's left cheek.2 However, this tendency was lost during the Dark Ages, but re-emerged with the Renaissance. In a review of 1,474 portraits produced in Western Europe from the 16th to 20th centuries, McManus and Humphrey, of the Medical School at the University of Birmingham, found a 60 percent left cheek bias (P<0.0001), which is even greater when the sitter is a woman rather than a man (68% versus 56%, P=0.001).7

Today, 80 percent of right-handers drawing a human profile direct it toward the left of the viewer, portraying the sitter's left cheek.8

A review of the direction of gaze in 50,000 facial representations found that the profile shift may reflect a change in cerebral hemispheres’ dominance for higher visual perception.8 This would have started around 600 BC, and eventually led to the visual primacy of the right hemisphere. The right hemisphere processes faces, captures emotional content, and builds empathy,9,10 which may explain the artist's interest in portraying the sitter's more emotional left hemiface, the one being controlled by the subject's right hemisphere, the most charged with emotional content. Since it’s also the artist’s right hemisphere doing the viewing, this would reinforce the emotional connection with the sitter, and lead to a more expressive representation.

Rembrandt's left cheek

Forty-eight Rembrandt's (a miscellanea of paintings, etchings and drawings) show a right cheek bias.11 Only one major oil painting has a left-cheek bias—his most haunting. In that self-portrait Rembrandt gazes intently at his right hemiface, and, given the mirror image, shows his left cheek.

When Rembrandt completed this painting he was 53 years old, but he looks much older, and tired. The year 1659 had been his latest annus horribilis, both professionally and personally. After losing his wife and three of his children, he was forced by the courts to pay a healthy settlement to a former mistress; he was under attack for living with a young woman; a war with England had dried his commissions; he was starting to be considered passé; and his collecting habits had stretched him so thin he was bankrupt. By 1659, everything Rembrandt owned had been sold. He was destitute, but not broken. This canvas hauntingly conveys the stoic endurance of the human spirit.
Rembrandt van Rijn, *Self-Portrait at the Age of 34*, 1640, oil on canvas. The National Gallery, London

Rembrandt van Rijn, *Self-Portrait with Beret and Two Gold Coins*, c 1642-1643, oil on canvas. Museo Thyseen-Bomemisza, Madrid

Rembrandt van Rijn, *The Large Self-Portrait*, 1652, oil on canvas. Kunsthistorisches Museum, Vienna

Rembrandt van Rijn, *Self-Portrait*, 1658, oil on canvas. The Frick Collection, New York
The darkness of Rembrandt’s clothing draws the viewer immediately to the lit face, which has such a profound empathy and vulnerability that by gazing at the man we seem to stare at our own naked humanity. He’s almost ruthless in showing the ravages of time—the wrinkles, blotches, thick features, pockmarks of rosacea, rhinophymatous nose, sagging jowls, and deep set eyes of premature aging. Only the pursed lips and tightly clenched knuckles betray the inner tension. His sad face remains full of dignity, eyes firmly locked into place—so unsettling that viewers are almost forced to avert their gaze. In those eyes, Rembrandt’s personal drama transcends into the viewers the drama of the human condition. The experience leaves a disturbing insight—the dignified defiance of our tragic solitude.

But why the odd pose? Why is he showing the other cheek? Why does he give an expression of his left brain? Why is this portrait so different from all others?

The conventional explanation is that Rembrandt was copying Raphael’s portrait of Baldassare Castiglione which he had seen in Amsterdam 20 years prior, and made a drawing of it. There are similarities in composition, but there might be a deeper and more psychological explanation for why this painting is one of the few, if not the only, where the artist gazes at his right hemiface. The reason may very well be depression.

Depression is consistent with evidence indicating that certain neuropsychological functions, especially those relying on the right temporo-parietal region, are significantly reduced in depressed patients, while the right frontal region’s activity may actually intensify. This imbalance often coincides with less vivid imagery. Left visual field
deficits from decreased right hemispheric function are common in patients with bipolar depression. This would apply to Rembrandt, whose spending sprees suggest phases of mania.

This hypothesis is further supported by the study of infant-holding preferences in depressed versus normal mothers. Independent of handedness, mothers tend to cradle their babies on the left side. One possible explanation is the closeness of the child to the maternal heartbeat, which is supposed to be soothing to the baby, possibly reminiscent of what he/she heard in the womb. However, the more intriguing theory is that while cradling infants on the left, mothers get to see their babies’ left hemiface with their own right hemisphere, thus establishing a more emotional connection. This pattern typically reverses when the mother gets depressed, with cradling shifting to the right. This has been interpreted as a left visual field deficit due to depression-induced right hemispheric dysfunction. Breastfeeding might protect against this.

Thus, there may have been unique neuropsychological reasons why this most compelling of all Rembrandt’s self-representations shows the artist’s right face. A morphing of his self-portraits further underscores the rarity of this pose. The neurological explanation doesn’t alter the emotional impact of the artwork, but allows us to see it through different eyes, much like a physicist looking at the stars of a nocturnal sky does not just see tiny points of light, but billions of massive gas collections glowing into darkness. Still, we are deeply touched. In fact, probably even more.

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Longing for the good old days in medicine

by Dean Gianakos, MD

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I used to feel badly about longing for the good old days in medicine until my sister referred me to a *New York Times* article touting the mental health benefits of nostalgia. At one time, nostalgia—the sentimental longing or wistful affection for the past—was considered a psychiatric disorder closely associated with melancholia or depression. Although it is often triggered by feelings of loneliness or loss, new research suggests nostalgia can act as a compensatory mechanism to boost optimism, social connectedness, and self-continuity. It can help individuals to discover meaning in life.

In the article, Dr. Constantine Sedikides relates how his own sentimentality for the University of North Carolina inspired him to study nostalgia. Shortly after moving to the University of Southampton in 1999, Sedikides experienced nostalgia for North Carolina (“memories of old friends, Tar Heel basketball games, fried okra”). A colleague at Southampton thought he was depressed. Sedikides thought otherwise:

> I told him I did live my life forward, but sometimes I couldn’t help thinking about the past, and it was rewarding. Nostalgia made me feel that my life had roots and continuity. It made me feel good about myself and my relationships. It provided a texture to my life and gave me strength to move forward.

Since 1999, Sedikides and others have contributed to a growing body of science that supports his personal experience of nostalgia:

Regarded throughout centuries as a psychological ailment, nostalgia is now emerging as a fundamental human strength. It is part of the fabric of everyday life and serves at least four key psychological functions. It generates positive affect, elevates self-esteem, fosters social connectedness, and alleviates existential threat. By so doing, nostalgia can help one to navigate successfully the vicissitudes of daily life.

Social scientists are not the only ones writing positive things about nostalgia. In his poem “Radio,” Louis Jenkins recalls the bittersweet experience of listening to far away radio stations in the middle of the night:

> When I was a kid I listened to the radio at night. I tuned it low as I could and put my ear right up next to it because my dad didn’t like it. He’d say, “Turn off that radio. It’s after midnight!” No matter how low I tuned it he could still
Longing for the good old days in medicine

Illustration by Jim M'Guinness
hear, from down the hall and through two closed doors. He was tired. It had been a long day and this was just one more thing, the final thing, keeping him from the sleep, the absolute dead silence he wanted. As for me, whatever music I was listening to, some rock station way down on the border, probably, “100,000 watts of pure power,” has become even more faint over the years. But I can still hear it.4

The father in the poem works long days. He is awake after midnight. Perhaps he has regrets, wishing he didn’t have a day job that causes him to toss at night. The faint noise of his son’s radio is one more thing, “the final thing,” keeping him up.

It may be after midnight in the life of the father, but it is morning in the life of the boy—full of promise, possibility, and opportunity. The narrator recalls being wide awake, with his ear to the radio. He is excited by the words and music of disc jockeys in far off places, imagining what it’s like to be living in a big city near the border.

“Radio” is a metaphor for the mind. It broadcasts memories to the narrator, connecting him to his present life. The memories are bittersweet. Maybe he sees a little of himself in his father, beaten down by life. Yet, he still has pleasant memories of excitement and power, memories that connect him to the past in an optimistic, self-affirming way.

When I first read this poem, it brought back a similar memory for me: listening to rock and roll at sleepovers with my best friend from elementary school. We were thrilled to pick up stations like WABC in New York, and WLS in Chicago, tempting us to keep listening, despite the commands of our mothers and fathers. I still hear the faint music now, bringing me back to another time in my life—simpler, innocent, and full of possibilities. Remembering my friend, the radio, the music, and the house still gives me warm feelings of connection and continuity.

Jenkins’ poem evokes the same positive feelings that Sedikides and other social scientists are finding in their research on nostalgia.

Like many middle-aged physicians, I occasionally long for the days when I was able to spend more time with my patients. I recall breaking away from the office to attend a 104th birthday party for a patient in a nursing home. Fifty nursing home residents and I watched her blow out birthday candles from her wheelchair. One year later, I delivered a eulogy at her funeral.

Another nostalgic memory is counting pills on a kitchen table in the tiny apartment of a patient who had lost her ability to count. And, walking out to the office parking lot to examine a favorite patient who was too sick to walk to me.

The sights and sounds of these wonderful patients—hundreds of them—have become fainter over the years, but I can still see and hear them. They make me feel good about what I do. They also remind me that memories are not created in the electronic health record, they are created in relationships.

Of course, it would be unhealthy to spend all my days longing for the good old days in medicine. Besides, I’m too busy creating new memories with patients, residents, students, family, and friends. Science and poetry now assure me this is a healthy thing to do—occasional nostalgia builds social connections, continuity, and meaning in one’s life.

In his great novel, The Brothers Karamazov, Fyodor Dostoevsky draws a similar conclusion:

You must know that there is nothing higher and stronger and more wholesome and good for life in the future than some good memory, especially a memory of childhood, of home. People talk to you a great deal about your education, but some good, sacred memory, preserved from childhood, is perhaps the best education. If a man carries many such memories with him into life, he is safe to the end of his days..."5

References

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The MCAT, redux

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After much fanfare and anticipatory anxiety, the Association of American Medical Colleges (AAMC) began offering the revamped Medical College Admission Test® (MCAT®) April 17, 2015.

Considerable effort and discussion went into trying to create an exam that accurately measures desirable qualities in prospective medical students and physicians.

My own experience with this test dates back to 1974 when I first took the exam as a junior in college. In 1983, I found myself on an admissions committee and took the exam again to understand the applicant perspective. That experience was the subject of “The MCAT Revisited,” a 1984 Occasional Notes piece in the New England Journal of Medicine.¹

Since then, I have had an eclectic career that has included various clinical and administrative positions at two medical schools; a path that has intersected with various standardized tests. Along the way, I have obtained a Master’s degree in Public Health, passed the board exams in two specialties and one subspecialty, and re-certified twice. I am now a teacher and advisor to pre-med students in a post baccalaureate program.
As I contemplated advanced study in Public Health, I took the 2014 MCAT so I would have a test score on record for use on applications. The release of the new test intrigued me, so I also took the new version. In addition to the goal of improving my score, I was interested in better understanding the recent attempts at revision, and the totemic significance that the test has taken on the lives of my students.

I have completed four MCATs over 40 years; perhaps a dubious achievement, but also a unique one that may provide some useful and interesting perspective on the evolution and value of the exam.

The test experience

The application process is now entirely electronic, and the cost of the test has gone from $40 to $300 in 32 years. Just signing up for the exam proved to be arduous. When I registered online they quickly recognized me from my prior encounters. My retaking of the exam this time required a special dispensation, as I do not currently fit into the narrow box of “applying to medical, dental, or other health professional schools.” The web page initially took my application—and credit card—without question, but a month before the exam date, I got a brusque certified letter from the attorney-director of MCAT Security and Compliance questioning my suitability and motives. I viewed this as a thinly veiled inquisition, and replied with candor that my reasons were twofold: the notion of someday applying for additional graduate study in Public Health, and that my longtime academic interest in pre-med education and counseling had piqued my curiosity enough to make me want to take the new exam. I did note in my response that I had written about my experience before, and might do so again.

A tense few weeks followed, and it was not until I sent a follow-up query that I was granted admission, just eight days before the exam date. The letter of permission summarily and aggressively rejected my academic interest as an acceptable reason to take the exam, but did grant me the right to use my score for graduate school applications.

Prometric is a private company that has a monopoly franchise for MCAT administration. In order to take the test, you must go to one of their sites when they have a seat available, which may require travel. In my 2014 scheduling, I was unable to find a place within 100 miles of my home, which includes the entire Washington, DC metropolitan area. My students tell me that their experience has been akin to buying concert tickets; they log on when slots first open, and try to get in line fast enough to get a suitable place and date.

In light of the limited competition for the first 2015 date, I got my choice, a featureless office park outside of Richmond, Virginia, in a complex which seems to host mostly dentists’ offices and well-to-do specialty surgeons. The crowd was mostly twentysomethings, a grim looking bunch, casually dressed.

Prometric centers are not uniquely MCAT hosts, so there can be people there for other exams. There were few other MCAT takers on my test date, so I shared the exam center with a varied crowd, including a guy taking the truck brakes section of the Automotive Service Excellence certification.

Examinees get a phone call the day before the exam from one of the test site staff cheerily confirming the date and time, and once again, going over security rules and regulations. These are far more rigorous than those required for airport antiterrorist measures or penitentiary prisoner visitation.

The test center has lockers where you store everything, except your clothes, the locker key, and your photo ID. Your ID is checked repeatedly, along with a real-time photograph and computer fingerprints. These biometric parameters are reviewed each time you leave the room, and when you return to the test. You also must go through a security check each time you re-enter the room, which includes being wanded by a metal detector, everting all pockets, lifting pant legs, and otherwise going through a body search which makes TSA screeners look like amateurs.

The premises are under photo and audio surveillance at all times, including public areas. They did let in a non-MCAT taker with a cane who needed it to walk, but only after a detailed and humorless inspection of his medically necessary device.

MCAT takers ahead of me in line were horrified to discover they had to surrender their water bottles (this taps into my classroom rant about millennials who feel certain they will become critically dehydrated during a 45-minute lecture so they arrive bearing all manner of commercial hydration devices, a manufactured need economists must love.)

In addition to emptying my pockets and all detectable body cavities, I was required to give over my wristwatch (45-years-old, analog, manual wind) and later forced to spit out a contraband toothpick, which video surveillance detected in my mouth a few minutes into the exam.

The #2 pencil and paper answer books are on the trash heap of history. This test is all mouse and screen. The writing sample has been eliminated, so there is no need for a
keyboard. At the end of each section, you have the chance to review, but you forfeit the right to go back in to a section once you have moved past it.

The exam is really hard. This test is not for the timid, anxious, or unprepared. For me, it was nearly six hours of mostly misery. I cannot imagine taking it under the more typical pre-med student's high-stakes circumstances. The complexity, depth, and inscrutability of the questions amazed me. The specific content is closely guarded by the AAMC, and I have sworn on multiple occasions not to reveal any details.

The AAMC guidelines state that the test will cover four subjects: Biological and Biochemical Foundations of Living Systems; Chemical and Physical Foundations of Biological Systems; Psychological, Social, and Biological Foundations of Behavior; and Critical Analysis and Reasoning Skills. My test led off with the physical science portion, about as demoralizing a beginning as I have ever had on an exam. It required some detailed knowledge of formulas and other facts, and I was completely unprepared. I completely guessed on one-third to one-half of the questions, and was able to narrow down the rest to a few logical looking choices.

The behavior section was a bit easier. It contained passages lifted from scholarly works in the fields of psychology, sociology, and anthropology. The answers can be directly gleaned from the text offered, but it does require a level of sophistication and reading comprehension that is challenging.

The biological systems section tries to be a little more medically related, including some organ physiology and actual diseases. Critical analysis and reasoning covered a broad range of complex concepts, typically providing raw data and asking for interpretation and analysis.

A new feature since the 1983 exam is an opportunity at the end that allows the taker to void the results. The fees are not refunded, but the score is never noted or reported. A few of my students have been so gripped by anxiety and concern over poor performance that they exercised this option.

The significance of this test in the minds of potential medical school students cannot be overemphasized. Students report that they feel their chances of admission pivot on their MCAT score, and most are devoting between 100 hours and 300 hours to specific MCAT study, along with untold dollars spent on courses and materials. The average tuition for preparation courses is about $2,000, and range from open access web content to a residential 11-day immersion course for as much as $13,000.2

This obsession with achievement is not entirely new. A recent obituary of a contemporary pointed out that one of the highlights of her life had been the attainment of an almost perfect MCAT score, more than 40 years before her death.

It turns out that some of my fellow test takers are not exactly keeping to their sworn secrecy pledge, using the anonymity of the Internet to provide real-time details and reviews.3 Following the test, they quickly hit the blogosphere reporting that there were few physics questions, but lots of molecular biology, genetics, and detailed nucleic acid problems. Many of the questions were described as deep in the weeds of gene expression, and the differences between various organic structures. They also complained that the much-vaunted social sciences questions did not address real life interpersonal issues as much as they tested knowledge of academic theories and literature interpretation.

### Aligning the test with a changing curriculum

I am left again, as I was 30 years ago, to ponder the utility and value of this test. The original justification for standardized testing was that it could level the playing field by giving all applicants a common experience, and provide a relative measure of performance across a broad spectrum of preparation circumstances. This rationale has lost its validity as there are now dozens of different times and places where these tests can be taken, and each test is presumably somewhat different.

Considering the recent changes in curriculum in many medical schools relative to the reported content of this exam, is there much utility, or validity, at all?

The entire exam seems dry and unimaginative. It has no soul or personality, and seems to have abandoned the earlier attempts at linking questions to physiology or medicine. How different is the science portion from the corresponding advance placement exam? If college level science proficiency is what is really being tested, then those exams might serve the same purpose and provide a less stressful and more comprehensive look at subject mastery. Also, the knowledge of research, and the names of standard theories in psychology and sociology don't necessarily translate to empathy or kindness. While the exam may be relevant and fresh to those just finishing an undergraduate science course series, how does this sort of knowledge or testing relate to future success as a physician?

The earlier assertions that the MCAT predicted success in the first two years of medical school now seem less relevant since many schools have abandoned classroom
basic sciences for a heavily case-based, pass/fail curriculum. Pass/fail has even taken on a different significance, as medical school students say that nobody really fails, they call the grading system “pass now or pass later.” If the MCAT simply predicts success on the standardized United States Medical Licensing Examination, then could we use past SAT or ACT performance instead?

Could we borrow from those who have been deeply involved in standardized testing at the college admission level? A recent study of the SAT found that students who chose not to submit their scores did just as well in college as those who did submit scores. Bill Hiss, retired Dean of Admissions at Bates College in Lewiston, Maine, said, “To think you are going to design any single standardized test that will capture human promise for higher education is simply a trip up a blind alley.”

The field is crowded with high achieving applicants who can cram and learn test-targeted information, yet we constantly long for them to display their humanism. We need more programs similar to that at Icahn School of Medicine at Mount Sinai, where the MCAT is de-emphasized, or even ignored, in the admissions process.

A booming industry

Unfortunately, many stakeholders are aligned as a considerable force that benefits from keeping the status quo in place. The MCAT constitutes big business, generating substantial revenue for the AAMC, Prometric, and a lucrative and largely unaccountable industry. A Google search for “MCAT prep” comes up with more than 700,000 hits. It is hard to know how much revenue is generated by this array of online, written, and in-person test preparatory courses. The Kaplan test prep organization, one of the oldest and largest companies, reported revenues of $304 million in 2014.

The other industry that benefits directly from the current MCAT-featured pre-medical school requirements are college and university science departments. What would enrollment in undergraduate physics and organic chemistry courses look like if these classes were not required for premed students?

In the world of handheld electronic devices that provide instant access to facts, why do we bother to teach and test factual knowledge at all? If, as it has been recently posited in Doonesbury, “search is the new learn,” is there any point in putting prospective physicians through a meat grinder of fact based classes and exams, only to discover that they have moved away from memorizing facts to wanting to know how to use them in a proper fashion?

I am not at all relieved or delighted by this new attempt at a more relevant version of the MCAT. I am concerned about the obvious social, financial, and language discrimination that takes place in the run-up to the MCAT, and the actual content of the exam. Even beyond the cost of preparing for the test, which cannot be affordable for all aspirants, the questions are complex, and they must be particularly difficult for students who are not native English speakers.

I am again disappointed in this test. As a prerequisite for graduate study other than medical school, it is an overblown and largely irrelevant exercise. I would have been more appropriately evaluated had I taken the Graduate Record Exam as a preamble for additional Public Health study.

As an observer of the medical school admissions scene, I am even more discouraged. We are farther away from offering an instrument that measures the intelligence, social skills, cultural sensitivity, and general awareness of the world around, all qualities that we seek to find in our colleagues and our physicians.

References


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Medicine on the big and small screen:
The Immortal Life of Henrietta Lacks

Les Friedman, PhD, and Therese Jones, PhD, Movie Review Editors

The Immortal Life of Henrietta Lacks

Starring Oprah Winfrey, Rose Byrne, Renee Elise Goldsberry, Reg E. Cathey
Directed by George C. Wolfe, released April 22, 2017, HBO, DVD/Blu-ray released September 5, 2017
Rated TV-MA, 92 minutes

Reviewed by Sarah L. Berry, Visiting Assistant Professor of Humanities at Centre College in Danville, Kentucky, and Instructor in the Interdisciplinary Courses Program at Bellarmine University in Louisville, Kentucky.

“\You famous, just nobody knows it,” whispers Deborah Lacks (Oprah Winfrey), Henrietta Lacks’ daughter, to a tube of her mother’s cells near the end of the HBO film, The Immortal Life of Henrietta Lacks.

Rebecca Skloot’s bestselling nonfiction book of the same title, published in 2010, details the intertwined medical and family histories of Lacks, an African-American woman whose cancerous cervical cells were harvested without her knowledge. Lacks’ tissue provided a continuously replicating cell line (HeLa) that led to a multi-billion-dollar biotech industry, and major therapeutic advances such as the polio vaccine and in vitro fertilization.

The book has flourished as both a popular favorite (selling 2.5 million copies), and as an academic text (adopted as the common read at more than 250 colleges and universities). ¹

With Winfrey at its emotional center, the film simplifies the book’s complex tapestry of scientific and family history into a human interest story.

Like immortal HeLa cells endlessly replicating, the book and movie franchise has a complicated relationship with race, class, power, and medical ethics.
The first quarter of the book gives Lacks’ biography, but Skloot’s main narrative thread recounts, from her point of view, her investigation and her interactions with Lacks’ descendants, particularly Deborah. In contrast, the film places Deborah at the center as the protagonist in a quest for information about her mother. In obeying the rules of character-driven television drama, the film offers a story that tends to divert attention from medical ethics and foregrounds a crowd-pleasing, problematic narrative of an individual overcoming the daunting obstacles of race, gender, and class.

After an opening montage about HeLa that outlines the history of cell culture, the rise of biotech supply companies, and advances in medical research, Winfrey supplies a sober voice-over as Deborah. She informs viewers that for most of her life she has suffered from her family’s silence about her mother who died when Deborah was just a toddler. While Winfrey captures Deborah’s emotional lability, her character gains substance as the book research proceeds. Meanwhile, Rose Byrne’s portrayal of an ingenuous Skloot doesn’t change much; she’s the novice journalist who looks chronically puzzled and slightly afraid of the family members she interviews. The family’s justifiable wariness of Skloot comes across as paranoia in these scenes, which emphasize class differences between Deborah’s family and Skloot. Because the resistance serves as a plot device of presenting an obstacle in the search for information about Henrietta, the family’s decades of harassment by researchers, journalists, and even a con artist is never validated.

Renee Elise Goldsberry plays Henrietta as a pretty, warm-hearted, and fun-loving mother with a brilliant smile. Her appearance in sepia-filtered flashbacks splices a dimension of poignancy into the harrowing present of Deborah’s desperate quest to learn about her mother.

By contrast, oblique light and murky grey filters dull the scenes of Skloot’s initial contact with the family. More color appears in scenes set in Henrietta’s rural hometown of Clover, Virginia, as cousins and relatives break the family silence on Henrietta for the first time, apparently warming to Skloot’s innocence, in contrast to their Maryland relatives.

The different lighting and palettes that mark various times in the family’s past are scored with era-appropriate music such as jazz, R&B, and ’70s funk, but the soundtrack relies on folksy Delta blues riffs for transitions and emotional cues, giving the parts of the story that are centered in Clover (where many of the extended family still live) a racially-coded folksiness.

The film’s aesthetics and casting choices make Deborah the protagonist, but the plot sequence attributes agency to her in ways that differ from Skloot’s account.

In the book, Skloot has been interviewing elderly friends and family about Henrietta’s life for a year before Deborah would speak with her. But in the film, Deborah is involved from the beginning of the investigation. Witnessing her own family history as Skloot draws out the elders, Deborah develops into a motivated investigator who becomes almost a research partner with Skloot—a neat turn, and predictable character trajectory for television, but not at all what the book records.

Boosted by a big dose of Oprah-oomph, the film transforms Deborah from bystander into investigator. While increasingly in control of investigation choices, her reaction to what she uncovers is painful to watch.

Medical records—those of her mother, which she possesses, and those she seeks of her sister Elsie, who died of neglect at age 15 while at Crowsville State Hospital for the Negro Insane—are pivots for dramatic high points. Elsie’s records reveal that she endured painful experiments, and
The film shows an authentic, gut-wrenching photo of the girl’s bruised and swollen head that the book only describes. Not only are medical records valuable to Deborah as a means of personal connection with her deceased relatives, but also sharing them for publication carries great significance in terms of the ethics of consent and privacy—the very issues that Skloot brings to national attention.

In addition, the book and film pose many critical medical ethics questions about the roles of race, gender, and class in informed consent, tissue banking, medical privacy, medical abuse, and health care access.

Recently, Lacks’ descendants have been giving public talks, and their perspectives are crucial to understanding the impact of the history that Skloot published seven years ago.

Alfred Carter, Jr., Deborah’s son, shared his views of the film with me. He served as a consultant on the film, and has a cameo appearance. Overall, he was pleased with the representation of his mother and grandmother; however, he did note that while the film captured some of Deborah’s “very good sense of humor,” a shortcoming was that “they gave Oprah a heavy southern accent, and my mother didn’t have that.”

Carter wants audiences “to know that my mother was a caring, giving person. She was also a cosmetologist, a barber, and nail technician with her license for all these things, which were not shown in the book or the movie. I just want people to know that we are not illiterate people from Baltimore who never accomplished anything.”

The suppressed history of race-based exploitation in medicine in the mass media (Miss Evers’ Boys is an exception) is exactly what makes this story film-worthy. The film and book both offer an opportunity to practice antiracist pedagogy, but educators and discussion leaders should ensure safe spaces for dialogue, and use techniques that cultivate contemplative and practical approaches to racial injustice in health care.

The film frames the short life of Lacks, but the story is still unfolding as her extended family engages audiences and students. For those who use the book or the film for study, Carter says, “what happened to my grandmother was tragic. All the good that has come out of it outweighs the bad, but the bad is still there. This wasn’t a fictional character, she was somebody’s mother, somebody’s grandmother. People need to put that in the forefront when they’re teaching and learning. She was a human being, so don’t take the humanity out of the situation.”

References

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This is a remarkable book written with elegance and in a personal, autobiographical style. The author opens with a prologue that tells the history of psychosis in at least three members of his father’s generation. He relates their stories and the tragic, violent history of the 1947 Partition of India, a political, but also an hallucinatory division of the nation into Hindu and Muslim states. After an introspection on the nature of hereditary mental illness in his own family, he turns to a 2009 Swedish study:

In 2009, Swedish researchers published an enormous international study, involving thousands of families and tens of thousands of men and women. By analyzing families that possessed intergenerational histories of mental illness, the study found striking evidence that bipolar disease and schizophrenia shared a genetic link....In 2012, several further studies corroborated these initial findings....I read two of these studies on a winter morning on the subway in New York, a few months after returning from Calcutta.... The study provided a strange interior solace—answering some of the questions that had so haunted my father and grandmother. But it also provoked a volley of new questions: If (my cousin) Moni’s illness was genetic, then why had his father and sister been spared? What “triggers” had unveiled these predispositions? How much of Jagu’s or Moni’s illness arose from “nature” (i.e., genes that predispose to mental illness) versus “nurture” (environmental triggers such as upheaval, discord and trauma)? Might my father carry the susceptibility? Was I a carrier as well? What if I could know the precise nature of this genetic flaw? Would I test myself, or my two daughters? Would I inform them of the results? What if only one of them turned out to carry that mark?

On a trip with his father to Calcutta they visit the family home returning to their tragedy of inherited mental illness:

We climbed to the balcony on the roof....Dusk was falling so quickly that it seemed you could almost sense the curvature of the earth arching away from the sun. My Father (who had lost three brothers to mental illness) looked out toward the lights of the station. A train whistled in the distance like a desolate bird. He knew I was writing about heredity. “Genes,” he said, frowning. “Is there a Bengali word?” I asked. He searched his inner lexicon....“Abhed,” he offered. I had never heard him use the term. It means “indivisible” or “impenetrable,” but it is also used to loosely connote “identity”....A flaw in identity; a genetic illness; a blemish that cannot be separated from the self—the same phrase served all meanings. He had made peace with its indivisibility.

The author turns to the search for the mechanisms of heredity that were gradually teased out between 1890 and 1970. He reminds us that Aristotle had understood that the transmission of heredity was the transmission of information. He then takes the reader on the search for the genetic code that controls the cell. “In the 1890s, a German Embryologist working with sea urchins in Naples, Theodore Boveri, had proposed that genes resided in chromosomes...in the nucleus of cells.”

In 1905, biologist Nettie Stevens demonstrated that maleness in worms depended on the Y chromosome. In the same decade Thomas Morgan began his life long study of fruit flies at Columbia University, and at the laboratories at Woods Hole. Morgan asked, “How were genes organized on chromosomes? Were they strung along chromosomal filaments—like pearls on a string? Did every gene have a unique chromosomal ‘address?’ Did genes overlap? Was one gene physically or chemically linked to another?”

The author reminds the reader of the Hemophilia B gene that Queen Victoria appears to have acquired by chance mutation, and then transmitted to her daughter Alice, who transmitted it in turn to her daughter
Alexandra the future czarina of Russia, whose son Alexei had Hemophilia B with catastrophic consequences for himself and the Romanov Court, the Russian Revolution and the Russian people. He also tells the story of Rosalind Franklin, Maurice Wilkins, James Watson, Francis Crick, and the race to describe and explain the structure of DNA:

Like Pythagoras’s triangle, like the cave paintings at Lascaux, like the Pyramids at Giza, like the image of a fragile blue planet seen from outer space, the double helix of DNA is an iconic image, etched permanently into human history and memory.

The author continues with a detailed discussion of the human genome, the latest experiments on gene replacement, and the hope for treatment of genetic disease:

Our genome has negotiated a fragile balance between counterpoised forces, pairing strand with opposing strand, mixing past and future, pitting memory against desire. It is the most human of all things that we possess. Its stewardship may be the ultimate test of knowledge and discernment for our species.

This is a worthwhile book that is rich in insights, graced by wonderful language, informed by a deep erudition in science, philosophy, literature, and history. It is worth every readers’ time and effort, and sets a standard in writing about the history of science.

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The Amazing Language of Medicine: Understanding Medical Terms and Their Backstories
Robert B. Taylor, MD
Springer, February 3, 2017, 238 pages
Reviewed by Ira Rezak, MD

Medical doctors are primarily thought of as healers, even though many may prefer to perceive of themselves as scientists, administrators, teachers, or humanitarians. For centuries, doctors have earned well justified reputations as being both learned and skilled in diverse fields of knowledge.

Dr. Robert B. Taylor, Emeritus Professor of Family Medicine at the Oregon Health and Science University in Portland, has published 30 books on various aspects of medical practice. His most recent, The Amazing Language of Medicine: Understanding Medical Terms and Their Backstories, is an etymological, philological, and historical work that entertainingly elucidates esoteric origins of selected medical vocabulary without the constraints, bulk, or boredom of traditional medical dictionaries. Like Isidore of Seville, the medieval scholar who penned the encyclopedic volume Etymologiae or Origines, Taylor has ranged far and wide and tapped varied sources in the course of compiling this instructive work illuminating the provenance of medical terminology.

Richly illustrated on almost every page, this work is meant to broaden the perspective of practicing physicians, many of whom will not have had the inclination or opportunity to consider the lexical background of the terms they use daily. Derivations are described based on mythological associations (Mercury—a god before becoming a metal); imaginative comparisons based on appearances (Coccyx—from the Greek for a Cuckoo bird’s bill, which it resembles); and functions (bulimia—from the Greek for urgently eating like an ox). He describes words and terms that are borrowed from other languages (Hashish—from the Arabic for powdered hay or hemp); specific geographic locations (Clap—from a medieval red-light district in Paris); and onomatopoeia
Another category consists of eponymous terms named either after physicians who discovered diseases (Addison’s, Hansen’s, and various Paget’s diseases); anatomic features (Baker’s cysts, Henle’s loops, Cooper’s ligament); diagnostic tests (Wasserman, Roentgen, Papanicolaou); and diagnostic physical signs (McBurney’s, Blumberg’s, Dunphy).

Eponymy is not confined to physician’s names, patients (Lou Gehrig, Stephen Christmas, Helen Lane) have diseases and cell types named for them, as do fantasy characters (Peter Pan, Popeye, Baron Munchausen). The author draws special attention to Tashima’s syndrome, named for Charles K. Tashima who in 1965 described “a condition in which a physician searches for a new sign, disease or symptom to which his name can be attached.”

Taylor defines a “nonce word” as a neologism, which he also terms an “authorism,” a word specially devised for a singular textual situation, but which does not catch on, and hence, has no afterlife. This he distinguishes from those neologisms that are both attributable to a specific author, and having been adopted by others, go on to persist as standard words or expressions. He cites the 17th century English physician Sir Thomas Brown as the originator of such words as “suicide, ambidextrous and locomotion;” Carl Jung rather than Sigmund Freud as the initiator of the notion of a psychological problem as a “complex;” and Percy Bysshe Shelly as the first to use the terms “heartless, ” “optimistic,” and “national anthem.” More modern neologisms, ranging from “fascinoma” (unascribed as to authorship) and “iPatient” which first appeared in the New England Journal of Medicine in 2008 in an article by Abraham Verghese (AΩA, James H. Quillen College of Medicine, 1989, Faculty), are also noted.

Many busy and highly focused physicians could do with a bit of distraction, and relaxation, from their daily studies and routines, and Taylor’s Amazing Language of Medicine, might be just the right medicine to refresh and rejuvenate one’s workday practice while expanding one’s understanding of medical history in a significant way.

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**East West Street: On the Origins of “Genocide” and “Crimes Against Humanity”**

Philippe Sands
Vintage, July 11, 2017, 464 pages

Reviewed by David Bennahum (AΩA, University of New Mexico, 1984, Faculty)

Most physicians, and society at large, expect that health care professionals are guided by, and remain true to, a code of ethics. Students in medical schools around the world are often introduced to the ethics of medicine through reading and discussion of the Hippocratic Oath, the Oath of Thomas Percival, the Oath of Geneva, and the Prayer of Maimonides, as well as to the particular ethics of their community and religion. Yet, medicine as a profession has contributed not only to ethical practice, but also to eugenics, genocide, and crimes against humanity.

Extreme anti-Semitism and racism led to the horrors of the Nazi regime and the Holocaust, but the groundwork was laid in the pseudoscience of eugenics.

The monk Gregor Mendel’s mid-19th century discovery of genetics as the basis of heredity in plants was little known, and pretty much forgotten, until 1900. That infections were the basis for many diseases was unproven and not widely understood or accepted prior to 1892. In the absence of that knowledge eugenics was first proposed by Charles Darwin’s cousin, Sir Francis Galton (1822–1911) who initially suggested that “good” breeding would lead to a healthier and more intelligent population, and later to the idea that one could breed out perceived human defects.

In the United States in the 19th century, fear of
immigration; of the newly freed slaves and black migration; of poverty in the new industrial economy; and of poorly understood criminality, drunkenness and degeneracy created fertile soil for eugenics.

Eugenics institutes and journals appeared in the U.S. and Europe. They were followed by laws that blocked the immigration of Asians, and later Eastern Europeans, to America, as well as involuntary sterilization laws sustained by the U.S. Supreme Court in the famous decision, Buck vs. Bell, written in 1927 by Chief Justice Oliver Wendell Holmes Jr. As Holmes wrote in his majority opinion, “Three generations of imbeciles is enough.”

The Nazis would later point to American sterilization laws as a justification for their own actions.

In Germany, eugenics led to a racial hygiene movement espoused by Drs. Wilhelm Schallmayer and Alfred Plotz who wrote about “Rassenhygiene”—a new Germany that would be cleansed of the pollution of inferior races, particularly the Jews, but also the Roma and the Slavic races such as the Poles.

Hitler, while in prison in 1923 for the failed Munich Coup, read and was influenced by Principles of Human Heredity and Race Hygiene, by Bauer, Fischer and Lenz, and wrote about these ideas in Mein Kampf. In 1920, Binding and Hoche, professors of law and psychology, respectively, published The Sanctioning of the Destruction of Lives Unworthy to be Lived. The Nazi state created by Hitler and his followers was intensely biological and medical, emphasizing racial pollution and the need to cleanse out, as though with an antiseptic, polluting races. Eugenics would be the basis for the racial laws, the degradation, humiliation, and finally the destruction of the Jews of Europe.

In East West Street, by English barrister and human rights lawyer Philippe Sands, the origins of the concepts of crimes against humanity and genocide are explored. Intrigued by these terms, the author sets out to discover how they originated. The author is the child of Holocaust survivors from an area in Eastern Europe known as Galicia, that at one time or another comprised parts of Poland, the Ukraine, the Austro Hungarian Empire, Russia and Belarus. The story centers on the town of Lemberg, also known as Lwów, L'vov, or Lviv in southeast Poland, where between the wars there was an excellent university, a large Jewish population, and a rich cultural life.

Sands explores the lives of four people and their families:

1. His large family and what happened to them during the Holocaust.
2. Hersch Lauterpacht, professor of international law at Cambridge who was born in Zolkiew in 1897, a small town near Lemberg, and who originated the term crimes against humanity.
3. Rafael Lemkin, born in Ozerisko near Białystok in 1900, who as a lawyer and prosecutor coined the term genocide, found refuge in America after WWII where he campaigned for international laws forbidding genocide; 49 members of his family died in the Holocaust.
4. Hans Frank, Hitler's personal lawyer and Governor General of Poland, who was directly responsible for the mass killings of Jews, Poles, Gypsies, Russian prisoners of war, and any one else caught up or deported to Nazi occupied Poland between 1939 and 1945.

The author locates Hans Frank’s son, Niklas, who turns out to be a warm and honest man who opens up to Sands about his father’s nefarious history. Hans Frank was a man who was well educated, lectured internationally on criminal law, loved classical music and played the piano, and had appropriated for himself from a Polish museum the exquisite portrait of Cecilia Gallerani painted by Leonardo da Vinci, also known as Lady with an Ermine.

Frank was proud to be identified as a war criminal by the New York Times. Early in 1943, he announced at an official meeting, “I have the honor of being number one." The words were recorded in the daily diary without embarrassment. Even as the war turned against the Germans, he still believed that the Third Reich would last a thousand years, with no need to show restraint in relation to the treatment of the Poles and the Jews or the words he had spoken of them. “They must go,” he told his cabinet. “I will therefore, on principle, approach Jewish affairs in expectation that the Jews will disappear.” … “We cannot shoot these three and a half million Jews; we cannot kill them with poison,” he explained. “But we can proceed with the necessary steps that somehow or other will lead to their successful extermination.” These words too were recorded in his diary.

In the course of his research, the author discovers that both Lemkin and Lauterpacht studied criminal law at Lemberg with Professor Juliusz Makarewicz, although a few years apart. After the war, when the call for an international trial of the perpetrators of the Nazi killing machine led to the first Nuremberg trial, both Lemkin and Lauterpacht proposed that the Holocaust required new international crimes to be defined.

Why is this book relevant to medicine? While it was
Hitler and his most senior advisors who conceived of the eradication of the Jewish people, as well as certain other groups such as homosexuals and the Roma, it was medical professionals who designed the camps; supervised the design and building of the gas chambers and crematoria; and chose the victims as they came off the trains directing the young and healthy to work, and the very young, the old, and the sick directly to their deaths.

This book is a thorough accounting of the origins of the Holocaust, genocide, and crimes against humanity. It is often harrowing, always compelling, and most readers will come away with a better understanding of the enormity of the crimes committed, their tragic impact on individuals caught up in the whirlwind of the Holocaust, and their survivors. And, an appreciation of how medicine and medical ethics must never be complicit in such crimes.

Suggested Readings


Against Empathy: The Case for Rational Compassion

Paul Bloom
Ecco, December 6, 2016, 304 pages

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

Against Empathy is not a title likely to warm the hearts of most readers of The Pharos. Empathy is a core element in medical practice. We teach our students and residents that an empathic relationship with patients builds trust, promotes satisfaction, enhances accuracy in diagnosis, and increases effectiveness of treatment. Empathy is a sine qua non for contemporary practice models like narrative medicine, and patient-centered care. So who among us can be against empathy?

Paul Bloom, a Yale psychologist and expert in child development, has accepted the challenge. His provocative title turns out to be misleading, since the empathy he argues against is of the affective variety, not the cognitive form that concerns us in medicine. In fact, the book’s title is doubly misleading because Bloom acknowledges the positive value of affective empathy in family life and close relationships. He argues that an excess of affective empathy can lead us to make irrational, unjust, and even immoral life decisions.

First, definitions. Affective empathy is the ability to sense another’s feelings and internalize them, often called emotional contagion. This capacity develops in infancy; for example, an infant might respond to her mother’s anxiety with agitation and crying.

Cognitive empathy, or perspective-taking, develops later in childhood. This is the ability to understand, at least to some extent, what another person is thinking or feeling by careful observation and listening. Bloom recognizes that cognitive empathy, the sense in which most physicians use the word, is not only indispensable for medical practice, but for most other human relationships as well. Neuroimaging studies show that these two capacities light up different parts of the brain.

Strictly speaking, the old adage, “to walk a mile in another’s moccasins,” applies only to affective empathy,
in which you literally internalize others’ experience, and emotional distance collapses.

One example that Bloom presents is the shooting in 2012 of 20 children and six adults at Sandy Hook Elementary School in Connecticut:

Why did this give rise to such a powerful reaction? It was a mass shooting, and over the last thirty years in the United States, these have caused hundreds of deaths. This is horrible, but the toll from these mass shootings equals about one tenth of 1 percent of American homicides, a statistical nonevent.

The media gave faces and stories to these children, hence inviting our empathic response, while most homicide victims are unknown to us, and therefore, largely ignored.

Another example is the case of Willie Horton, a prisoner released in 1987 pursuant to the Massachusetts prison furlough program, who subsequently committed rape. His release was considered a “humiliating mistake” on the part of Governor Michael Dukakis, and became a major factor damaging his presidential campaign. The program was actually a dramatic success because it reduced recidivism, and convicts released on furlough committed fewer crimes than peers who completed their sentences. The lurid story of rape, generating affective empathy for the victim, outweighed the demonstrable fact that Dukakis’ furlough initiative actually decreased the crime rate.

These cases weigh against empathy insofar as it distorts our thinking. We are simply unable to have empathy for the millions of suffering people whose stories we don’t know, and therefore, those we do know have an unfair advantage.

Bloom supports his argument about the “dark side” of empathy by presenting results of numerous fascinating studies. There appears to be little question that affective empathy, which the author deems similar to philosopher Adam Smith’s “sympathy,” can cause serious errors of judgment. These frequently lead to additional suffering, as when a well-publicized little girl jumps to the top of a transplant list, thus pushing back other, perhaps more needy, candidates.

Bloom also contends that kindness and compassion have no intrinsic relationship to affective empathy. He quotes Peter Singer and Olga Klimecki in distinguishing between the two capacities:

In contrast to empathy, compassion does not mean sharing the suffering of the other; rather, it is characterized by feelings of warmth, concern and care for the other, as well as a strong motivation to improve the other’s well-being. Compassion is feeling for and not with the other.

Bloom considers “feeling for” a rational function, while “feeling with” is vulnerable to irrationality. Likewise, he presents reasonably strong—and surprising—evidence that there is little correlation between empathy scores and capacity for violence. Highly empathic people are just as likely to perform violent or cruel acts as those who score lower.

Against Empathy is a fascinating book written for a lay audience. Bloom summarizes a multitude of provocative studies in an engaging, popular style. It’s a fun book to read.

However, methinks he doth protest too much. First of all, he excludes cognitive empathy from consideration, and acknowledges that affective empathy lies at the core of close human relationships. He is concerned only with excess and distortion, as when identification with another’s feelings causes us to make irrational or immoral decisions that lead to adverse consequences. He is not so much against empathy as against an immature overreliance on affective empathy. Even in this limited sphere, the solution must require a positive program of enhancing rationality (e.g. moral reasoning, probability, and risk/benefit analysis), as well as the negative program of suppressing affective empathy. It takes two to tango.

Dr. Coulehan, is a member of the Editorial Board of The Pharos, and one of its Book Review Editors. His address is:

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what’s left out

Jay Baruch, MD
Kent State University Press, Kent (OH), March 3, 2015, 128 pages

Reviewed by Rhonda L. Soricelli, MD

In what’s left out, his second collection of short stories, emergency medicine physician Jay Baruch has done it again—challenged and disquieted us with 13 stories that
Reviews and reflections

The collection opens with “Satellites,” with an aging woman who has just been advised that her husband may not survive complicated heart valve surgery. As she and her son try to negotiate their way out of the huge hospital parking garage, the son must come to terms with his mother’s advancing dementia for which she has compensated so well, until the stress of the current situation. Both speak deep-seated truths. With incredulity, she quotes the surgeon’s parting words—so unrealistic when viewed from the family’s perspective—“Get some sleep?...I’m expected to go home and close my eyes?” p3 All this while her son realizes that he has missed the autumn years of his parents’ lives, and that:

His kids, when they grow up, will probably flee him and his wife and come back east, and he wouldn’t blame them. When you’re young, life’s frustrations play out as a multiple-choice exam whose easy answer, though not always the correct one, is distance. p3

In sharp contrast, “Emotional Contagion” takes us into the unknown. The narrator and Jimmy are coworkers who have competed for the affections of the lovely Louisa, now deceased. They lament the loutish behavior of their younger teammates in the lab, and ponder the perils of losing grant funding if the drug research under way yields little in the way of results. The catch is that the narrator, Jimmy, and Louisa are lab rats destined, one way or another, for death and dissection at the hands of the exhausted grad student, Susan, and her boss, Dr. Ben Accomb.

Likely based on the report “Empathy and Pro-Social Behavior in Rats,” by Bartal, Decety, and Mason, published in Science, December 9, 2011, this is an unexpected, and highly creative exploration of the concept of emotional contagion, the ethics of animal research, and the potential for abuse of junior colleagues.

“Soft Landings” is the multi-layered first person narrative of Cape, a 25-year-old wannabe professional baseball player, struggling with lost dreams, the decline of his neighborhood, and a mother “swallowed up by depression.” p17 New purpose comes to his life when Thistle, an elementary school classmate, recruits his help in the care of her grandmother, Annie, who now resides at the same wretched nursing home where Cape’s father died, demented and restrained after a devastating head injury.

As the young couple battles the problem of Annie’s increasing dementia, frequent falls, and subsequent head lacerations, Cape continues his quest for baseball fame only to end up with a concussion himself. The author slyly unveils Cape’s increasing sense of self beyond the baseball paradigm, and the growing bond between him and Thistle. Laced with baseball imagery, this is a gentle, at times heart-breaking, story of family, love, and loss in which the author explores the notion of “the best option for those without options.” p23

Two stories in the collection are directly linked. In “Comfortable,” Lori, a nurse in the ICU, must respond to the director’s euphemistic order “[m]ake him comfortable” twice in the 48 hours preceding the first anniversary of her son’s death in a car crash caused by an intoxicated county judge. As that anniversary approaches, Lori shuts out friends who try to understand her grief, is harassed by the judge dealing with his own guilt, and finally realizes “she needed the hatred. Without it, she faced the full thrust of her grief, the severity of how much she missed her son.” p49

“The Telephone Pole” is set two years later. The judge who killed Lori’s son has met his own demise in another alcohol-fueled accident, this time wrapping his car around a telephone pole where other drunk drivers have also met their doom. What unfolds in this biting satire is an exploration of political corruption; “spinning” by the media; increasing accommodation to the self-destructive behavior of others; and a public responding with herd mentality. The story comes to a crashing end with the deaths of three teenage boys and the apparent compromise in values of the protagonist—an accident scene investigator—who originally worked toward truth but now speaks in half-truths in order to preserve his job. Here, Baruch pushes the boundaries of believability to the limit.
In “what’s left out,” the title story of the collection, we meet Dr. Max Reece, an emergency medicine physician who has just returned to work in a dismal treatment center. Two years earlier, a YouTube video of him ejecting a patient from the emergency department (ED) where he worked led to public humiliation and the loss of his job. Filled with personal uncertainty, he must care for Tamika, a poor, uninsured, 19-year-old asthma patient on the verge of respiratory arrest. Unable to trust Dr. Reece, a ferociously protective sister takes Tamika away, only to return and then call “Cousin” to the rescue. Cousin is a drug dealer from their housing project who also specializes in asthma care—after all, many people in the projects are so afflicted.

Cousin knows his stuff, and Tamika is spared the ventilator. “what’s left out” drives the story in jarring but haunting ways: the revocation of universal coverage for life-saving dialysis and asthma care; the omitted details of the situation in the ED at the time the YouTube video maligning Dr. Reece was recorded; the reason why Tamika’s sister rejects any notion of ventilator support for her; and the consideration of how the women might pay for services rendered, both by Dr. Reece and by Cousin. In this story, we see Baruch at his best.

“Fortunata” is a story that swirls bizarrely around a corrupt pharmaceutical company executive; his wife who is committed to serving inner city youth through her charity Kids Now; and their daughter, a college student learning in a medical ethics course about “landmark abuses of human subjects in clinical research” including that done by her father’s company. Pushing the envelope again, Baruch challenges us to consider the often dark side of clinical research, and our growing propensity to “medicalize” many aspects of life in order to justify medical/pharmaceutical intervention.

Filled with subtlety and nuance and the essence of the human condition, this new collection is the work of a master storyteller. These stories should be savored over time, and considered closely.

Dr. Soricelli is Adjunct Assistant Professor in Family Medicine at Drexel University College of Medicine, Philadelphia, PA.

More AΩA member books

*The Gland Illusion: Early Attempts at Rejuvenation through Male Hormone Therapy*, by John B. Nanninga, MD (AΩA, Northwestern University, 1996, Alumnus); McFarland, February 2017, 210 pages

*A Chancellor's Tale: Transforming Academic Medicine*, by Ralph Snyderman, MD (AΩA, State University of New York, Downstate Medical Center, 1965), Foreward by Darrell G. Kirch, MD (AΩA, University of Colorado, 1976); Duke University Press Books, November 8, 2016, 336 pages

*The Education of Doctor Montefiore*, by Emmet Hirsch, MD (AΩA, Northwestern University, 1987); self-published, September 20, 2016, 294 pages


*Science, Literature, and Humanity, The Making of a Physician*, by Frank C. Wilson, MD (AΩA, University of North Carolina, 2007, Faculty); Chapel Hill Press, Inc., April 1, 2016, 226 pages

*The Anti-Depressant Book: A Practical Guide For Teens And Young Adults To Overcome Depression And Stay Healthy*, by Jacob Towery, MD (AΩA, University of Virginia, 2006); self-published, March 15, 2016, 310 pages

*A Cancer in the Family: Take Control of Your Genetic Inheritance*, by Theodora Ross, MD, PhD (AΩA, Washington University in St. Louis School of Medicine, 1993); Avery, February 2, 2016, 3014 pages
Health care in America

Conversations about the changing nature of health care in America can be complex and confusing. In “Health care in America: A right or a privilege?” (The Pharos, Spring 2017, pp2–8) Dr. Byyny and Dr. Tooker offer an in-depth and insightful description of this topic.

A recent analysis of studies about the effects of insurance coverage on health in America was conducted and published in the New England Journal of Medicine.¹ Evidence indicates that improving coverage improves health in a variety of domains including access to care and utilization, chronic care, mental health, and mortality.¹

In the current health care climate, it becomes particularly important to provide patient-centered care. As providers, we may be able to synthesize such materials and communicate salient points to our patients. The ability to explain such issues is useful in clinic, and other settings, even where we may least expect it.

A few months ago, I took a walk to a nearby dog park to play fetch with my dog, a Jack Russell terrier. “That’s a beautiful dog!” I heard someone say to me. “Thank you,” I said as I turned my head to notice an older man approaching me. He was wearing a dirty undershirt, a worn brown flannel shirt, and gray sweatpants. Slightly disheveled, he seemed to be moving slowly toward me focusing on my dog.

As he approached to pick up the clear bright blue plastic ball I had thrown for the dog, I noticed that he bent over slowly, focusing his effort to reach the ground as deliberately as possible, wincing slightly. He grimaced just enough to reveal stained, crooked teeth.

“Didn’t they have some trees over there?” He pointed to my right, along the abutting wall to the park where offices with small windows looked directly into the park. Before a recent renovation, the park had several large rows of plants for privacy.

“You’re right. There were a bunch of them right along this wall where the offices are, but I think they got rid of a lot of them when they remodeled the park,” I said.

“Too bad…I used to sleep there, right behind some,” he said. He looked at the area, almost nostalgically.

Sensing he was open to sharing, I decided it would be okay to ask a few questions. “Where do you sleep now?” I asked, almost as if taking a social history.

He was previously homeless, moving from state to state to try and secure a steady source of income as a truck driver. When he finally returned to Boston, he settled down in a one bedroom apartment he shared with two other men. He had a host of medical problems including two “clogged” arteries in his heart, and a “really bad back.” His most pressing issue was that he needed dentures.

I found myself wanting to ask specific, practical questions about his access to health care. I also wondered what he knew about his own ability to obtain medical services.
“Do you have Medicare?” I asked.

He looked at me puzzled that a stranger would ask such a question. Slowly, we began to talk about services he needed. I asked simple questions and listened. Eventually he asked if I was in health care. When he learned I was a doctor, he was thrilled. He seemed to have a lot on his mind. He wondered if his insurance would cover these services, and if he could afford them? Was there a chance he may lose his coverage? Where could he go to ask more questions?

I had recently spent several days in lectures listening to experts discuss the intricacies of health care in the United States, and strategies to improve value. Health care in the U.S. is challenging enough for most well informed health care providers that take classes, watch the news, and read medical journals. But, as we try to understand these topics in an ever-changing, tumultuous landscape, how are our patients going to fare?

From its enactment in 2010, the Affordable Care Act (ACA) has faced almost continuous assailment, the most recent being repeal and replace, rather than more constructive efforts to renovate and revise. Even President Obama acknowledged that more work is needed to improve what currently exists. Although the implementation of the ACA possessed limitations, it expanded coverage for approximately 20 million people.

Regardless of political disposition, physicians must be equipped to help prepare patients for changes. There is confusion for everyone as to how this process may impact coverage and how policies will impact things like drug benefits and public health projects. Providing patient-centered care means helping patients comprehend upcoming changes. Yet, trying to decipher the political and medical consequences of different health care proposals is arduous.

The man in the park was thankful for having someone listen to his concerns. Though superficial and basic, my explanation of Medicare, and a brief chat about of what could happen to health care, was hopefully helpful to him. He agreed to meet with a social worker as a way to get connected to additional resources.

I wondered, had it not been for the recent health policy courses I took, would I have been able to give him salient advice? Just a few months earlier, I’m not sure I would have been able to help him.

He appreciated the suggestion to find improved Part C coverage with the hopes that his dental work, a full-mouth extraction with dentures, may be covered. For him, it was not just a cosmetic issue, but one that impacted his ability to speak, to eat, and to live a normal life.

I left feeling confused, wondering how well I would be equipped to answer these questions for future patients. For many though, there is no opportunity to even ask, or they are unsure what to ask.

I thought about how we will prepare medical students, residents, fellows, and clinicians with the knowledge on how to support patients in these uncertain times. It became clear that medical care alone would not restore this man to health, but at least protecting his access to care is essential. Providing him with the knowledge and resources to see a primary care doctor allows him to focus on his health longitudinally, and to benefit from the value of incremental care. Yet, few physicians have access to the resources in the community that would do more to give this man a state of health that would allow him to work and live independently.

This is an unprecedented time of change in the U.S. health care system. There is an element of deep disarray, overlaid with a continuous stream of news headlines, that makes this challenging to grasp for our patients. This is particularly true for those with limited health literacy and socioeconomic status. We should remember to focus on the patient, providing them with the unique resources they might need. Thinking about ways to “flip” the conversation and ask, “What matters most to you?”

As we move forward, many patients will need help understanding changes to their health care, and we should communicate with clarity, providing explanations to orient patients and allay their fears in a practical way to mitigate confusion. Many such conversations will take place in the hospital, while others may happen in less common settings, like the dog park.

We must remember to realign with core goals—to improve the patient experience, improve population health, and lower costs. Amid the flux of our system, focusing on providing patient-centered care, and communication are vital.

Matthew Mossanen, MD
AΩA, David Geffen School of Medicine at the University of California, Los Angeles, 2010
Boston, Massachusetts

References
Letters to the Editor


The genomic revolution
Dear Dr. Neaves,

I read with interest your recent article “The genomic revolution and its implications for medical practice,” in The Pharos (Spring 2017, pp21–27). While I embrace many of the concepts described therein, I am troubled by the male bias used in the article’s text and images. To discuss chronic myelogenous leukemia and not mention 1998 Lasker awardee Janet Rowley (AΩA, University of Chicago, 1994, Alumnus) is a profound oversight. Her seminal papers in Nature (1973), and the New England Journal of Medicine (1973) are landmark findings.

Additional examples that could, and should, have been used:

• Barbara McClintock, Nobel Laureate, transposable elements
• Mary Claire King, cancer genetics
• Xandra Breakfield, neurogenetics
• Elaine Mardis, genome sciences/sequencing
• Deb Nickerson, exome/genome sequencing
• Christine Seidman (AΩA, George Washington University, 1978), cardiac genetics
• Helen Hobbs (AΩA, Case Western Reserve University, 1978), lipid genetics
• Emmanuelle Charpentier and Jennifer Doudna, gene editing

Each of these great scientists has made deep and lasting marks on the field of genetics.

It takes conscious effort to overcome bias, but such an effort makes us better physicians and scientists.

Thank you,

Elizabeth McNally, MD, PhD
Director, Center for Genetic Medicine
Northwestern Feinberg School of Medicine
Chicago, Illinois
AΩA, Albert Einstein College of Medicine of Yeshiva University, 1990

Dr. Neaves’ response
Dear Dr. McNally,

You are right, I sincerely regret failing to take the opportunity provided by The Pharos to acknowledge Dr. Rowley and others you noted.

Thank you for writing,

Bill Neaves
AΩA University of Texas Southwestern Medical Center at Dallas, 1990, Faculty

Editor’s Note:
The images used to illustrate Dr. Neaves’ article were selected by the editorial staff of The Pharos.

Dachau ashes

The story of the Dachau ashes (“Hidden away for seven decades: The identification and interment of ashes from the Dachau concentration camp,” The Pharos, Winter 2017, pp42–47) is highly moving. I especially appreciated the rabbinical thinking regarding their disposition. As Michael Israel noted, the whole sequence of events was highly unlikely. However, there is also a highly unlikely set of events regarding the liberation of Dachau.

The 45th Infantry gets the official credit for liberating Dachau, but it was a huge complex, with multiple subcamps, and different units got to the subcamps first. The 522 Artillery was a forward unit, and the men were horrified when they came upon bodies—living and dead—lying in the snow along the road.

More than 5,000 prisoners had been forced on a death march as the Allies approached, many dying along the way or shot as they became too weak to continue. The 522nd set up a field hospital for them, and also liberated a subcamp. Disobeying orders to wait for backup, they shot off the lock on the gates so they could get to the emaciated inmates.

They are known as the “Unlikely Liberators” because
they were a segregated unit, Japanese-Americans from Hawaii and California. They were American citizens treated like enemy aliens—many had been in internment camps just on the basis of their ethnicity, and their families still were living in the camps in the United States. Despite the shameful treatment, thousands volunteered to demonstrate their loyalty.

A persecuted minority liberated another persecuted minority.

They were ordered to not speak of what they saw and did there, and the government kept no record of their actions there. It wasn’t until more than 40 years later that the true story emerged from books by, and interviews with, Dachau survivors; and 522nd survivors and the photos they had taken.

Eric Saul, former curator of the Military Museum of the Presidio in San Francisco, researched it all and created a photo exhibit telling the story of the 522nd and the Dachau survivors they encountered and helped. Called “Unlikely Liberators” it has been exhibited at Yad Vashem in Jerusalem, Washington, DC, and various cities across the U.S. In the photos the soldiers were as anonymous as the Dachau inmates—until the exhibit came to Honolulu.

Exhibited at Temple Emanuel, the photos soon had names for most of the soldiers, provided by some 522nd survivors, their families, and friends. During the High Holy Days services, there were special prayers for the 522nd and the 100/442RCT, all Japanese-Americans who fought the Nazis in Europe, and endured prejudice in the U.S. There were also prayers for those who suffered in the camps.

Hawaii is the one state where all ethnic groups, including Caucasians, are a minority, and our former president is just another hapa-haole (half white).

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

Information and cognitive overload

In the Autumn 2016 issue of The Pharos (pp2–11), Richard L. Byyny, MD, discussed a serious and growing problem in “Information and cognitive overload: How much is too much?”

The distraction factor posed by too much information has damaged the way that doctors interact with patients. It has worn thin their mental and physical stamina, making it difficult to listen well to patients and to do a good exam.

Information overload has made being cordial with patients and showing empathy almost impossible.

Primary care doctors are uniquely susceptible to this problem. Their day is continuously interrupted by lab reports, consultation reports, emergency room reports, requests from visiting nurse and home health agencies, and the endless flow of telephone calls from patients.

Is it any wonder that burnout and dissatisfaction run so high in primary care?

I deal with this problem by limiting the number of patients I see. I don’t take on new patients. I no longer go to the nursing home, and I use hospitalists.

I am still busy and experience periods of burnout. Although my income has decreased considerably, I consider it a fair trade-off for maintaining the equanimity and peace of mind that I need and that my patients expect.

Edward Volpintesta, MD
Bethel, Connecticut

The tragedy of medical ethics

In his recent letter to the editor, former Colorado Governor Richard Lamm eloquently describes the costly paradox of unfettered medical spending on the individual patient at the expense of greater societal needs (The Pharos, Winter 2017, pp 58–59).

Physicians in the United States place the health of the individual patient as the ultimate priority in the medical decision-making process. This approach is based on the Hippocratic Oath; our society’s domineering cultural principles of freedom and autonomy; the burden of scrutiny by “quality” monitors; and an aversion to accusations of medical malpractice.

I am a practicing critical care physician in Colorado. In our ICU I am caring for a relapsed, non-compliant patient with myriad complications of alcoholic cirrhosis; a nonagenarian, paralyzed, stroke victim; and an elderly man with myeloma kidney about to embark on hemodialysis. Each and every day I provide expensive attention to individuals who disproportionately utilize societal resources.

Where does Governor Lamm suggest that we begin his “painful process of practical trade-offs with winners and losers”? Does he have any specific suggestions? Are politicians and bureaucrats able to offer any real insight, guidance, or even some small measure of protection in that regard?

Charles J. Van Hook, MD
AΩA, University of Wisconsin School of Medicine and Public Health, 1985, Faculty
Longmont, Colorado
Alpha Omega Alpha Honor Medical Society recently announced its 2017 Fellows in Leadership. This year’s recipients are:

Jonathan Fish, MD (AΩA, SUNY Upstate Medical University College of Medicine, 1999), Pediatric Hematology/Oncology, Hofstra Northwell School of Medicine and the Steven and Alexandra Cohen Children’s Medical Center of New York

Michele Manahan, MD (AΩA, Johns Hopkins University, 2001), Plastic Surgeon, Director of Patient Safety, Department of Plastic and Reconstructive Surgery, and Associate Professor of Plastic and Reconstructive Surgery, Johns Hopkins Medicine

Leadership in medicine, medical education, and health care is more complex in the 21st century than ever before. The medical profession and the country are in need of leadership that is inspiring, insightful, engaging, and humble—leadership that both understands and represents the needs of patients, physicians, medical educators, and trainees.

Because of their unique knowledge of the practice of medicine and understanding of medicine’s core professional values, physicians are ideally suited to serve as leaders in this period of change.
The AΩA Fellow in Leadership recognizes and supports the development of outstanding mid-career physician leaders. Fellows spend one year honing their leadership skills and expanding their knowledge base in the areas of:

**Leading from within**—Creating access to a broader range of ways of being, thinking, and acting to become more effective in dealing with the challenges for which the usual solutions are inadequate. Unlike most existing programs that teach leadership by imparting someone else's knowledge (a third-person approach), this Fellowship emphasizes creating leaders using a first-person “as-lived/lived-through” methodology. In working with Fellows to “unpack” their hidden beliefs and frames of reference, new contexts will emerge that give them more space and more degrees of freedom to lead effectively as their natural self-expression.

**Servant Leadership**—Based on specific core values, ideals, and ethics, effective, sustainable, and excellent leadership is based on core professional and personal values and a commitment to servant leadership.

The five essential components of the AΩA Fellow in Leadership Award are:

1. Self-examination, the “inward journey,” leading from within;
2. A structured curriculum focused on topics related to leadership, including an understanding of the relationship between leadership and management;
3. Mentors and mentoring;
4. Experiential learning to broaden the perspective and understanding of leadership as it relates to medicine and health care; and
5. Team-based learning and developing communities of practice.

Recipients will receive a $25,000 award to be used for further development of their leadership skills through a specific year-long project. The award may not be used for salary support for either the Fellow or institutional mentors. The award may be used for attendance at a leadership development course or resources related to the Fellow’s project or other expenses related to leadership development approved by AΩA.

**Jonathan Fish, MD**

Dr. Fish graduated magna cum laude from the State University of New York Upstate Medical University College of Medicine and was elected to Alpha Omega Alpha in his junior year. He completed a residency in pediatrics at the Schneider Children’s Hospital at Long Island Jewish Medical Center where he served as Chief Resident.

Dr. Fish completed fellowship training in Pediatric Hematology/Oncology at the Children’s Hospital of Philadelphia (CHOP). For one year following his fellowship he served as an Instructor at CHOP, where he received the Young Investigator Award from the American Society of Pediatric Hematology/Oncology.

Dr. Fish joined the faculty of the Hofstra Northwell School of Medicine and the Steven and Alexandra Cohen Children’s Medical Center (CCMC) of New York in 2008, where he founded the Survivors Facing Forward (SURFF) program, a long-term follow-up program for survivors of childhood cancer. SURFF provides care for nearly 600 survivors, and has served as a foundation for multiple research projects, publications, grants and awards.

**Project: Developing Critical Incident Stress Management (CISM) for Pediatric Oncology**

Emotional and psychological stress are common among hospital personnel as they experience trauma through the illness and death of the patients they care for. Caring for sick and dying children adds another layer of stress, as it is not just the illnesses of the patients themselves that lead to trauma to the health care personnel, but the effect of the illness on the parents and family of the children as well. Despite the high frequency of these critical incidents, hospitals rarely have formal systems in place to assist the staff in managing the stress of these events.

The care of children with cancer entails a wide-based team approach that includes close integration with physicians, nurses, social workers, child life specialists and others. Each of these group members develop close relationships with the children they care for, and their families. These relationships can continue over an extended period of time—years or even decades. While the overall survival for children with cancer is now more than 80 percent,
approximately one in five children with cancer die. When a child dies, it has an impact across the pediatric oncology health care worker spectrum—it is a critical incident.

My project is the development of a CISM approach to provide support for the pediatric oncology program at CCMC, with the ability to be scaled up to include other divisions within the children’s hospital that experience critical incidents, and across the Northwell Health System.

Timothy Lucas, MD, PhD
Dr. Lucas is a board-certified surgeon-scientist at the University of Pennsylvania. He divides his time between his clinical practice and his engineering lab, the Translational Neuromodulation Lab. His research efforts focus on developing implantable brain computer interface devices to restore bi-directional communication between the body and brain following paralysis. His research has been supported by NIH, NSF, DoD, foundations and corporate partnerships.

Health spending has risen at an unsustainable rate as a percentage of gross domestic product. This uniquely American problem is fed, in part, by health care commodification. Health care commodification places specific value on each service, and allows market actors to influence that value. While enabling reimbursements for services rendered by physicians, commodification inadvertently creates perverse incentives when operationalized. Commodification also devalues activities performed by academic physicians that do not directly generate revenue—such as education and research. Consequently, competing interests develop at the intersection of the academic medical school with a mission of education and research, and the health care system with a mission of maintaining profitability. Academic physicians live in this intersection.

This project will assist physician leaders to advance their interests thereby ensuring proper valuation of scholarly effort.

Michele Manahan, MD
Dr. Manahan attended Harvard University and graduated in three years, obtaining summa cum laude honors. She was also elected to the Phi Beta Kappa Society, and Alpha Omega Honor Medical Society. Dr. Manahan earned her medical degree from Johns Hopkins University School of Medicine, and completed a combined plastic surgery residency at Johns Hopkins/University of Maryland.

She serves in national leadership positions in medical organizations including the American Society of Plastic Surgeons, and state leadership positions in medical organizations such as MedChi. She has served as Speaker in the Maryland State Medical Association House of Delegates. She is a member of the Baltimore City Medical Board of Trustees.

Her passion is patient care. She is dedicated to providing the highest levels of plastic surgery techniques, including microvascular and other breast reconstruction with oncoplastic techniques and aesthetics.

Dr. Manahan is actively researching operative methods to maximize results and minimize complications. She has published multiple book chapters and scientific papers in national peer-reviewed journals.

She performs all aspects of plastic surgery with a special focus on the unification of cosmetic and reconstructive surgery of the breast.

Project: Creating A Patient-Centric Practice Community
Breast cancer is extremely common, and treatment frequently involves intensive surgical and adjuvant therapies. With prolonged chronologies that change the appearance of the native breast and chest wall, the impact on mental and physical health and quality of life, risks dehumanization of the person, making them simply the next patient.

This proposal uses the breast cancer treatment/reconstruction population to pilot an integrated, multidisciplinary, patient-centric, experiential care model of a practice community, and tracks outcomes aligned with national initiatives to assess quality based on identified areas of need.
The AΩA national office has moved.

The new address is:
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