Welcome to the 2018 issue of Obliterants!

Renewal implies rebuilding, recovering, or reinventing. It suggests resilience after a time of upheaval or, alternatively, a resurgence of older ideas. In this issue of Obliterants, the writing, art, poetry, and photography convey this idea in its positive and negative connotations: Where do we see renewal in nature? What does the future look like in the face of renewed fears? How can we recognize renewal in everyday medicine?

The Obliterants Renewal Issue is filled with some amazing art, photography, and poetry from the University of Miami Miller School of Medicine’s own students and faculty. It takes a lot of courage and leadership to make your voice heard, and because of this we truly appreciate our artists’ and writers’ contributions. This year you will also find some wonderful articles written by our staff writers, who researched several topics in more detail in order to provide you with some perspectives on renewal in the modern world.

We hope you enjoy this journey, and we thank you for supporting Obliterants.

Sincerely,
Cathy Cichon and Stephen Allegra

What is Obliterants?

Obliterants is a journal published by students, residents, alumni, faculty and staff of the University of Miami Miller School of Medicine. Our mission is to publish writings and artwork that promote the humanities and social sciences in medicine and public health. Obliterants is not an official publication of the University of Miami Miller School of Medicine. Expressed written opinions are solely those of the authors and do not necessarily represent those of the University of Miami, the School of Medicine, or the Department of Epidemiology and Public Health.

Submissions:

Obliterants is published annually. Faculty, staff, residents, and students are invited to e-mail their submissions to:
obliterants@gmail.com

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Jennifer Ferrante, M.D. Program, Class of 2021
I grew up on Long Island, NY, and attended the University of Miami for college. I majored in Neuroscience and English, and have always loved expressing my passions for both of these fields through poetry.

Michelle M. Shnayder, M.D. & M.P.H. Program, Class of 2018
I am a Russian gymnast from Chicago who went to Brown University to study Neuroscience. I will be moving from sunny Miami to slightly less sunny Ann Arbor to begin my training as an interventional radiologist. Throughout medical school I was the curriculum representative of my class and have worked on occupational health science research. Outside of the hospital I like to dance, meditate, and paint.

Tara M. Irani, J.D.
I'm native to the Washington, DC Metro area and have lived in Miami for almost 15 years. I earned both my bachelors degree and law degree from the University of Miami, and I am interested in surgery in health policy. I love traveling; last summer I visited the big island of Hawaii for the first time, solo. I had an incredible, unforgettable time on my own, and I plan to take similar trips in the future. I enjoy taking photos of the beauty I experience while traveling, especially of landscapes, nature, culture, and art.

Sterling Haws, M.D. & M.P.H. Program, Class of 2019
Originally from Utah my family and I have enjoyed nearly four years in the "endless summer" of South Florida. With four kids in tow I am unspeakably grateful to my beautiful, talented and intelligent wife Lindsay who has always been superior to me in every aspect while also humble in her quiet unending support of me and my dreams. I feel blessed by the many opportunities afforded me by the University of Miami during my medical education.

Alex Gordon, M.D. Program, Class of 2021
I'm originally from south Florida and went to college at Duke where I received a B.A. in Visual Arts. I have enjoyed mixing my interests in art and medicine through the Ethics and Humanities Pathway Program and through continuing to draw/paint while still in school. Outside of art and medicine, I enjoy going to the beach, spinning, piano, and spending time with family and friends.

Shirin Razdan, M.D. Program, Class of 2018
Born in India, grown in the 305. I will be pursuing Urology residency at Mt. Sinai in NYC. In my free time I enjoy reading, dancing, watching basketball and soccer games, and planning how I’ll become an Oscar winning actress and part-time owner of Bayern Munich.

Willy Chertman, M.D. Program, Class of 2021
I'm a Miami native, went to University of Miami for undergrad and stayed here for medicine—can't seem to stay away! My first year in medical school has been enriched by being a part of Obliterants magazine and I hope to continue my involvement in the humanities. Outside medical school I enjoy writing poetry and never-to-be-published blog posts, exploring Miami's indoor and outdoor treasures with friends, and reading more than is probably healthy.

Desmond Kim, M.D. Program, Class of 2021
I was born in Korea, but lived in Nebraska for most of my life. I went to Pitt for undergrad and somehow ended up here in South Florida. I have thoroughly enjoyed immersing myself in the enriching educational and cultural environment of Miami as I establish my home for the next four years. Outside of school, I enjoy cooking, making music, learning new languages, and am a loyal fan of Nebraska Cornhusker Football.

Adriana Grossman, M.D. Program, Class of 2020
I'm a Miami native and Minnesota transplant. I've loved spending my time developing the Obliterants magazine website, coming back soon, and working on this year's issue! Working with the magazine is a delight and I'm looking forward to spending the next two years furthering its reach and progress. Outside of medical school, you can catch me playing John Adams on piano, writing poetry, reading, visiting local art museums, cooking big family meals with my husband, or hiking the local terrain.
Thankful for my first patient.
For showing me that empathy is the universal language.
For the long work hours and the short sleep cycles.
For reminding me why I'm here.

Thankful for my colleagues.
For inspiring me with their brilliance, originality, and ideas.
For challenging me to do better.
For changing the game.

Thankful for my friends.
For keeping me humble.
For reminding me of my blessings.
For bringing me out of my shell.
Thankful for my family.
For teaching me what love is, unconditional and boundless.
For being my biggest weakness and greatest strength.
For being the lighthouse that brings this lost ship home.

Thankful for Miami.
For welcoming me con un gran abrazo.
For the music, food, dance, and culture.
For being paradise on earth.

Thankful for disappointments.
For forcing me to challenge my beliefs.
For helping me revel in the victories.
For allowing me to grow.

Thankful for my journey so far.
For the tears, laughs, anger, confusion, and joy.
For the people who have come and gone.
For the lessons learned, both good and bad.
For the alliances forged and memories made.
For making me who I am.

Thankful for where this road takes me next.
For my final patient.
For my future family and friends.
For my future failures and successes.
For the uncharted ocean that is the rest of my life.
For the opportunity to leave a lasting legacy.

Thankful for so much.
Mere words cannot express.
Gratitude is a feeling, after all.
All-encompassing and sublime, cathartic and poetic.

I am thankful.
Explicit Bias in Medicine
by Misha Armstrong

The patient was scolded by the physician assistant, “You Haitian women always come in here with infections because you don’t know how to properly clean yourself after sex.”

This patient presented to a primary care office for urinary tract infection symptoms and was reprimanded based on the provider’s assumptions. At another visit, the patient was told she was not in any pain after she fell at work. She was made to feel like her concerns were unimportant in a setting where patients are supposed to come first.

On a surgery consult, I met a woman with a history of rectal cancer who was admitted for potential port site infection. She spoke no English, but her daughter was there along with a Spanish speaking nurse, who she asked to stay in the room. The daughter was upset because she had brought her mother to the hospital multiple times due to problems with the port. On this most recent visit, the ER doctor told her, “Take your mother back to your own country to get help.”

No interpreter was ever used to communicate in the ER, no bit of compassion was shown. Still, the daughter refused to tell me the doctor’s name. That physician would have learned if he tried to care for the patient; he would have learned that the daughter is a US citizen and her mother is a permanent resident with Medicaid. Additionally, he would have known that the daughter paid cash for her mother’s necessary radiation treatments and was willing to sacrifice for her mother. She didn’t care about having the doctor punished, she just wanted her mother to receive equitable treatment.

In the current political climate, many patients of our most vulnerable populations are treated as inferior with no regard for their social history or humanity. As future physicians, we are tasked with listening to our patients’ most intimate secrets without judgment and with caring for those in need regardless of race, socioeconomic status, or citizenship. These experiences have a lasting impact on patients that takes time to undo by other providers.

As we learn about implicit biases, it is important to note the continuing explicit bias that occurs in medicine and the detrimental impact it has on patients’ trust in the healthcare system. We must call these experiences exactly what they are and challenge those who see them as anything other than an outrageous misuse of power and ignorance to the reality of our diverse world. We must advocate for our patients and ensure that they know we will defend their right to quality care. Compassion for our patients trumps any perpetuation of stereotypes, disregard for history, and attempts to take healthcare from those most in need.
Their heads bent close together,
they are the keepers of life and death.
Finding cause for an ailment,
as the ice of anesthesia
slows a quickened breath.
Detailed knowledge of human anatomy,
the complications of all procedures.
It is all held with renown
in the delicate folds of a blue paper gown.
I stand tall and a gown of my own is held out before me,
like a regal garment, it seems to invite me.
Placing my arms in it, then plunging my hands down
I am now within the folds of that blue paper gown.
Then I place my hands into sterile gloves, I am prepared for the cut;
draped like a lord of knowledge, yet weak in the gut,
prepared to invade another person’s body,
to cure, to explore, to heal.
I see illness refuse to heed and to heal
our careful incisions, seemingly violent
are tenderly placed on the one who is silent.
A long education with prestige and clout
a bright full future, yet lingering with doubt.
It scares me.
It scars me,
and makes me shout,
“What must I do to make myself ready?”
“How can I carry a burden this heavy?”
“Will I ever have the knowledge to wield the knife?”
Others have struggled longer, seen farther, and been denied the right
to overcome the insurmountable and shine from gifted knowledge
I stand among gods who impart their knowledge.
My own weakness and ignorance is plain to me now
as I’m wrapped in the folds of this blue paper gown.

"...as the ice of anesthesia
slows a quickened breath"
Clinician burnout can often result from the application of a one-dimensional, single perspective approach when investigating patient concerns. This approach can lead to clinicians feeling discouraged, losing sight of their purpose, and eventually feeling burnt-out. Rather than continuously investigating patient concerns from a single perspective, clinicians should mimic the nervous system and globally acquire information from multiple sources and incorporate it into a plan of action. This method can help to decrease the feelings of futility associated with acquiring information from a single perspective.

The spatial-frequency theory of vision is defined as “the image before you.” It is a great example of integrating different types of information from multiple perspectives and combining them into a tangible result. The left hemisphere of the brain is thought to respond to “high frequency” stimuli such as specific details, textures, and colors of an object. On the other hand, the right cerebral hemisphere is theorized to respond to “low frequency” or general spatial orientation/size aspects of an object. The cerebellum is also thought to integrate some minute, motile aspects of an object. All together, this information along with other visual cues are accumulated within our cortex and enables humans to form our conscious perception of an image.

Analogous to how the brain performs this task, physicians should employ the various arms at their disposal and acquire information about a patient’s situation from these multiple perspectives. By collectively integrating this information, this approach can lead to more effective patient encounters and potentially reduce the occurrence of physician burnout.
Dolphins - Tara Irani
Burnout
by Jennifer Ferrante

Many people entering the medical profession today have heard of “burnout,” yet the actual definition of the term remains somewhat amorphous. Burnout was originally described in the 1970s, where it was defined as the consequences of severe stress in the “helping” professions [1]. Indeed, while burnout affects workers outside of this sort of helping environment, medical students, doctors, and other healthcare workers are particularly susceptible to becoming “burnt out.” Burnout is not technically considered a clinically diagnosable condition; some believe that burnout is a symptom of an underlying psychiatric condition such as depression or anxiety, while others think the symptoms of burnout might be caused by physical illness. Interestingly, research shows that experiencing burnout may actually increase one’s chance of developing depression later on [1]. Despite the lack of diagnostic criteria, burnout has several main symptoms associated with it including exhaustion, reduced performance, impaired sense of personal accomplishment, and depersonalization. The consequences that often correlate with burnout include diminished empathy and poor overall health. Burnout is an extremely important issue that is not only detrimental for the individual experiencing it, but also for patient care.

An important consideration in the prevention of physician burnout is the timing in a student’s medical training that burnout actually begins. Current research suggests that burnout likely originates in medical school, even before students begin clinical rotations. For example, in a study conducted on students who had completed their first two years of education at a traditional medical school (distinguished by a separation of the first two preclinical years and the last two clinical years), 71% of the students surveyed met the criteria for burnout [2]. This finding illustrates that physician burnout can manifest during the preclinical years, before student physicians even begin interacting with patients in a clinical setting where they are responsible for patient care. Acknowledging that the problem of burnout is often rooted in medical training as opposed to something acquired later on has important implications for preventative measures.

Armed with this knowledge, medical schools should accept that they have a great responsibility in not only providing students with the formal and technical education they need, but also in teaching students ways to cope with stress, promote emotional wellbeing, and essentially prevent burnout. A focus on building “resilience,” or the ability to recover from stress and adopt positive coping strategies, is often suggested as a way to help prevent physician burnout [3]. How exactly medical schools should handle this issue remains an area that needs to be further examined. Two important factors that contributed to a feeling of student burnout were a lack of control over their daily schedules, as well as a belief that they did not have the knowledge or skills needed to perform as successful interns upon graduation [2]. Medical schools could focus on these areas by providing more flexibility in student scheduling, by allowing students the chance to practice their skills in an environment that builds their confidence, or by offering classes to students on how to put positive coping strategies into practice in their daily lives.

Burnout has been a known issue, particularly in the healthcare field, for almost fifty years. Despite this fact and a growing body of research on the subject, medical students are still experiencing symptoms of burnout as early as their first two years of education. This problem harms not only the individual student, but negatively impacts the quality of care of the student’s future patients. Since burnout starts even before clinical experiences do, medical schools must make prevention of student burnout a priority from the beginning.

References:
I have been reflecting recently on several of the individuals who have had significant and long-lasting effects on my career and on my development as a physician.

Before considering medicine as a career path, my most important teacher and mentor was my father. Having dropped out of school in 1937 at age sixteen to help support his family, my father started by selling light bulbs door to door. After getting married and having four children and despite working long hours, my father always made sure to get to my little league baseball games and basketball games. I can distinctly remember seeing him on the sidelines of weekday afternoon baseball games that started at 4pm, even though that meant shortening his work day. He taught me by example to have that balance in one’s life and how generosity with his time was so important. My father’s integrity, loyalty, work ethic and honesty in all aspects of his life were wonderful examples for me.

In medical school, I was very fortunate to have several outstanding teachers and mentors. The first attending with whom I worked was an oncologist, Joseph Newman. He was very smart, but what set him apart was how he interacted with the patients on our team. He was patient, professional, caring, compassionate and humble.

The resident I remember the most clearly was Michael Casey at Kings County Hospital. As a third year student on his team during my medicine clerkship, Dr. Casey was a wonderful teacher, and also demonstrated by example how important it was to be prepared, inclusive and humble as a leader of the team. Years later as a medical resident at Jackson, I remember trying to reproduce the way Dr. Casey ran his team and the way he interacted with patients and students.

After starting residency at Jackson, I had the great fortune of working with several outstanding teachers and mentors, among them Dr. Lanny Gardner, Dr. Jay Sanders, Dr. Eliseo Perez-Stable, Dr. William Harrington, Dr. Frances Tedesco and Dr. Eric Reiss. All of us...
as residents learned the value of careful listening, attention to detail, preparedness, compassion, and humility. Every one of them also stressed the importance of critical thinking and a thorough knowledge of the pathophysiology of disease. I also learned from Dr. Gardner the value of humor in an educational setting and how it contributed to making the learning environment more relaxed and conducive to learning.

I will never forget a morning in the ER at Jackson when Dr. Reiss was my attending. An elderly patient with advanced dementia, multiple decubiti and cachexia had been admitted to my team with presumed sepsis. We started to discuss antibiotic options when Dr. Reiss interrupted and asked if the patient had immediate family present. The patient’s family was contacted and Dr. Reiss sensitively and compassionately recommended to them that we use whatever measures were needed for comfort, but that we not attempt to prolong her life. It was the first time I had been witness to such a discussion and it has had a prolonged and meaningful effect on me.

Dr. Arlene Goldman was another teacher and mentor who influenced me significantly. Even though all of my teachers during residency stressed the importance of a thorough history and physical examination, no one did so more than Dr. Goldman. Among other things, she stressed the importance of looking between the toes of every patient to be sure all important findings were identified.

The physician in private practice who impacted my development the most was my partner in practice, Jim Cooper. Jim’s combination of medical knowledge, professionalism, ethics and humility were unsurpassed. He showed me what it meant to be an internist’s internist and he cared deeply about his patients. Our current regional campus internal medicine residents are still benefitting from Jim’s mentoring, teaching and guidance.

I was very fortunate to have benefited from the wisdom of Dr. Daniel Federman. Dr. Federman, a Professor of Medicine and a dean at Harvard Medical School, was a friend of Dr. Gardner’s for years and during a number of winters would spend several months in Miami. Dr. Federman would attend morning report at Jackson when I was an attending physician there. We all benefited greatly from Dr. Federman’s exceptional knowledge and experience, and the manner in which he interacted with each of us. I will always be grateful for the wisdom that he so generously shared.

The role that our teachers and mentors play in each of our lives as students and physicians is very significant. Upon reflection, we come to truly appreciate the influence so many individuals have had on each of us. When this realization occurs, we each have the opportunity to express our gratitude and appreciation to our teachers and mentors. Thank you very much to all of my teachers and mentors. I am forever grateful.
Streaming Reflections
by Stephen Allegra

"Light as air, strong as stone"

Untitled - Tara Irani

Growth
Paltry beginnings
Bear weight upon the world,
Seed your garden with care

Knowledge
Fast is the storm that
Consumes the mind when
Wisdom runs at full speed

Peace
May your conscience
Become your sanctuary
Light as air, strong as stone

Morning
I see the rays
In mists of early light
My day must begin

Spring
Wet is the dew at
The start of the day, harsh is the
Wind ov’r the waves

Power
Your hand strongly grips
The cliff ledge, the rain pours down
Upon you, unbroken

Mighty
Move yourself as hard
As the ocean waves, because
We need tomorrow
Disaster Medicine by Stephen Allegra

Disaster medicine is on the forbidden list of exposures as a medical student. There are rarely appropriate opportunities or roles to play and many of the personnel involved are thoroughly trained before seeing any fieldwork. In this article, we will explore the reasons for this exclusivity and how this arm of public healthcare service operates domestically.

One of the most well recognized quotes of disaster medicine comes from the celebrated, ancient Grecian poet, Archilochus. He paints a picture devoid of illusions and uses words of caution to impart on his reader the value of practiced planning: “We don’t rise to the level of our expectations, we fall to the level of our training.” In regards to disaster medicine, this message rings clear because in times of extreme stress and calamity, the human brain does not operate near full capacity (1,2). Due to this limitation, one of the hallmarks of disaster medicine is its organization and preparation. The discipline does not rely upon humans to make smart decisions under pressure; rather the teams plan for the worst scenarios and when disaster strikes, protocols are in place to guide medical actions.

The initial general approach in a mass casualty setting is well outlined in the literature (3):

- Confirm that emergency causalities exist and obtain an estimate
- Share this information in a team huddle
- Notify your hospital administrator so that he/she can activate the hospital’s disaster plan
  - Conserve resources and prepare for a surge
- Create capacity by deactivating nonessential and non-emergency services

This approach may seem simplistic, but offers a hierarchy of decision-making that is necessary in many circumstances. Previously written and tested protocols are a part of any modern hospital system, but are usually subject to change during a disaster due to the stress on the system. During the Las Vegas shooting earlier in the year, many of the hospitals and emergency departments had poor intelligence and communication to the extent and pre-hospital services. Sunrise Hospital, a community level institution, was the closest Trauma Center to the Las Vegas strip and reported treating 200 patients from the shooting event. They initially discharged over 150 patients that night from their medical floors to make room for the surge of trauma victims (4). Sunrise called in over 100 day-physicians and 100 day-nurses to take care of patients. This level 2 trauma center saw over 120 gunshot victims in the 2 hours following the shooting. The OR staff completed 28 surgeries to stop internal bleeding within the first 6 hours and 67 total surgeries in the first 24 hours (4,5). This effort could not have been achieved without strong planning and adaptive decision-making from the leaders of the emergency and trauma surgery departments.

Below is an example of this decision-making process for hospitals and disaster medicine teams in the field: TIDAD SAD (3)

<table>
<thead>
<tr>
<th>Triage &amp; Treat</th>
<th>Spend less time per patient</th>
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<tbody>
<tr>
<td>• Triage patients appropriately to respective departments</td>
<td>• Minimize tasks and elevated importance of a few actions</td>
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<tr>
<td>• Begins before victims arrive and continues throughout the surge</td>
<td>• Selectively order tests and blood products not to overwhelm lab, blood banks, and radiology</td>
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<tr>
<td>• Identify available resources</td>
<td>• Don’t overreach</td>
</tr>
<tr>
<td>• Discharge review cycles are short</td>
<td>• Don’t do anything if patient is very unlikely to survive or if they do not need life-saving treatment</td>
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<tr>
<th>Admit</th>
<th>Ask for less</th>
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<tbody>
<tr>
<td>• Admit quickly to the floors</td>
<td>• Minimize tasks and elevated importance of a few actions</td>
</tr>
<tr>
<td>• Have known “hull” areas for overflow</td>
<td>• Selectively order tests and blood products not to overwhelm lab, blood banks, and radiology</td>
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<tr>
<th>Demand all get involved</th>
<th>Don’t over-reach</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Demand all hospital departments become involved and plan for active participation</td>
<td>• Don’t do anything if patient is very unlikely to survive or if they do not need life-saving treatment</td>
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This approach can go against some of the cardinal concepts of patient-care, but these actions are necessary to treat patients who can realistically be saved and conserve resources for saving the largest number of patients. This strategy is not intended to run rigidly and it requires adaptive flexibility and constant reassessment by leadership. Field experts say that it is best to think of this process as a staged cascade of events rather than hard and fast rules to control anything whether that is a mass casualty event, a poisonous exposure incident, or a natural disaster.

A common metaphor to disaster response and the ensuing chaos is stroke: “Think of the health care system like a person and the effects of disaster like a stroke.”(3) One of the first signs of a stroke is dysarthria or aphasia (clinically slowed, slurred speech and loss of ability to understand or express speech, respectively); these communication difficulties are similar in a disaster situation. The miscommunication of key information to medical staff and the public is a major obstacle in organizing response efforts. During the Las Vegas shooting incident, there were several cell towers jammed and communications between first responder teams were non-existent. This situation resulted in muddled...
efforts to react to injured civilians and link to other tactical response teams, who sometimes were misidentified as possible secondary shooters (4,5).

Overcapacity is a long-term issue faced by most EDs, ICUs, medical, and surgical units across the country, and the more overcrowded the units are, the worse the problem can become during a disaster. Another classic problem is tunnel vision in each department. The clinical teams in each unit, such as ICU, may only focus and advocate for their patients which can inefficiently draw resources away from other departments in need of assistance. This tunnel vision can adversely affect patient outcomes and cause increase morbidity and mortality.

Another sign of "stroke" within the healthcare structure is asymmetric weakness; it is a cardinal sign of impending hospital system failure in disaster response where some departments get overwhelmed or fail to function. Understaffed and under-resourced areas can rapidly come to a standstill with the increased patient flow and with the severity of pathology. These symptoms of collapse occur quickly and from a public health perspective there are not many answers that bust this metaphorical clot. We can reallocate more financial support to emergency and disaster preparedness, but this effort alone does not solve the immediate issues that are intangible: capacity, system awareness, interprofessional communication skills.

As future healthcare professionals interested in public health, disaster medicine is a great field to become involved in whether that is research, directorship, or direct service. The field will only expand in the future with current trends over the past decade indicating an increase in the frequency and severity of man-made and environmental disasters specifically in the United States, China, India, Indonesia, and the Phillipines (6). The opportunity to begin work in the field may be through academic means or during a fellowship after residency. The fact remains that although we may not regularly practice this method of medicine, hospital systems must train and prepare providers for the day when the unexpected happens

References:
"There are, of course, inherent tendencies to repetition in music itself. Our poetry, our ballads our songs are full of repetition; nursery rhymes and the little chants and songs we use to teach young children have choruses and refrains. We are attracted to repetition, even as adults; we want the stimulus and the reward again and again, and in music we get it. Perhaps, therefore, we should not be surprised, should not complain if the balance sometimes shifts too far and our musical sensitivities become a vulnerability."

- Oliver Sacks
Her eyes focus on something distant.
I don't think she truly sees us;
I feel as if I were translucent.
I look to the resident. He begins,
“How are you doing today, Miss?”
Silence. She stares through us.
“Are you doing well today?”
Silence. Then, struggling through
glued together lips, “Mhmm.”
She hears us. However faintly,
our question has registered.
“What do you do for fun, Miss?”
Silence. We ask her louder,
“What do you do for fun?”
“Nothing.”
I ask, “Do you go outside?”
“No. Only church.”
Her eyes are blank,
her face a mask of
unnatural neutrality.

“What do you like to eat?”
Her inhibition lifts;
for a moment, she’s giddy,
she tells us, “Fish!”
Her eyes shimmer now,
I see her teeth for the first time.
“And are you still hearing
the voices?”
Her face clouds,
the mold resets,
like drying cement.
“No.”
“Yes, that was a long time ago, Miss…”
She stares, changing
people into ghosts.
Silence again. And it roars.
I hope she can hear
one voice.
How Are You
by Misha Armstrong

A resident once joked, “Somewhere along the way, men just stop speaking for themselves. It’s around their thirties and they get married and all of a sudden the wife answers everything.”

We were talking about encounters with male patients, where the patient seemed unable to answer even basic questions about their illness. Predictably, they turn to their partners and without missing a beat the answers to every question are revealed. Their wife who can rattle off every allergy, previous surgery, hospitalization, and medication makes every medical students’ life easier.

In medicine, there are often two patients. One looks ill, lying in a hospital bed being repeatedly poked and prodded. The other, the family member that sits by their side observing it all, with too many questions and not enough time, overwhelmed with emotions and unable to share them. Although the sick patient requires medical treatment, the other “patient” still requires attention from the care team, but often the family or friend goes ignored.

I was on the nephrology service and we received a consult for hypercalcemia. I met a patient with textbook signs of hypercalcemia and a classic history for multiple myeloma. His wife was there and answered questions for her husband whenever he would fall asleep during our interview. I decided to let him rest and spent some time talking with her. We talked about their children, her career, and their life before he got sick. Finally, I asked her, “How are you doing?” and she started to cry. She described the difficulties of being a caregiver and said her daughter told her “You can’t cry in front of Dad”, but sometimes she just couldn’t help it.

On cardiology, I met a couple spending their 50th anniversary in the hospital far away from any family or friends. The husband was experiencing a CHF exacerbation and they were forced to cancel their scuba diving trip in the Caribbean. I diligently went through my history taking and exam while his wife observed. Toward the end, she started telling me about her son who was in medical school after working as a physician assistant for many years. Finally, I asked her, “How are you doing?” and she started to cry. She had been by her husband’s side through many hospitalizations and doctor’s visits. Without any family nearby, she was going home to feed their dogs and she felt bad about leaving him alone. This nightmare was not how she envisioned celebrating their anniversary.

One of my first patients was a veteran admitted to the hospital with pneumonia for 5 days. Always pleasant and willing to allow me to learn. Before he was discharged, I saw him one last time. His wife was waiting with him. She proceeded to thank me for taking care of him and her eyes started to tear. He mentioned to her that I stopped by at the end of everyday just to chat for a few minutes. She works full time and they live miles away from the hospital, so she often times was unable to visit. The patient has a therapy dog in training that was unable to stay in the hospital with him and found the experience of staying in the hospital to be very difficult. His wife appreciated that he was not alone.

When patients are sick, it is easy to be overwhelmed by the number of tasks to be done to heal them. Often times patients and their loved ones are left in the dark regarding their care. It takes just an extra minute to get a sense of how someone is handling the emotional rollercoaster that is illness. The stress experienced by spouses or caregivers can often go unaddressed. Take the time to ask just one question, not out of courtesy, but with true interest. A simple “How are you?” can change the course of a visit and create an opportunity for loved ones to feel heard.
As one of the tech giants of our modern era, Elon Musk, so aptly describes, our digital destiny lends to further complexity: “Over time I think we will probably see a closer merger of biological intelligence and digital intelligence.” This statement gives us reason to entertain future opportunities and challenges that face our individual and public health. No where is this technological movement continually out pacing legislation and current social constructs than in our own country, and therefore, we are looked to as leaders. The dichotomous nature of our digital and device fever is obvious to most users. It serves as a gateway to the information of the world and connects us to virtually any person with internet access, but just as equally provides us a new Ego and Id to constantly feed. Our virtual feeds are insatiable for our attention and it takes an emotional and physical toll on our minds and bodies.

As Tim Ferriss, a popular author and self-proclaimed guinea pig of the digital era, states, we need to seriously investigate the tool of technology in our lives: “In a digital world, there are numerous technologies that we are attached to that create infinite interruption.” This short-term, frenetic pace that virtual space creates between our work and social lives inlays a vast majority of our interactions. As the generation who grew up in this brave new landscape, the challenges and tasks of navigating it are daunting for us millennials. These are indeed new, modern issues that we will continually be responsible for, but do we need to construct our responses from grassroots? Will well-established maxims of mental and social knowledge still apply? What is at stake here?

I pose these questions as to comment on the ability of our generation to engage and work successfully with other people not only in our age group, but across different generations and societies around the globe. We must aim to identify the impact we make in this digital environment on a daily basis. What do you use your...
digital space for? Is it for self-promotion, personal documentation, or an opportunity to grow your business product?

In the midst of this modern haze, one thing is clear though - we all use, and in turn, we are profoundly affected by the digital atmosphere. More data is coming to light that we do not initially appreciate the amount of time and energy used online (1,2). We have an increased general feeling of safety with a digital device at our side, specifically a smartphone, when faced with confrontation than in situations where we do not hold such a device (3).

We receive micro-hits of dopamine with every ‘like’ and ‘follow’ we acquire through social media and this biochemical reaction may hold concern for addiction (4). In this abstract environment, it is important to remember our ecological purpose, i.e. connection to community and individual people.

The tycoon and visionary, Steve Jobs, reminds us that our social currency and world machinery are not ultimately based in the cloud: “Technology is nothing. What’s important is that you have a faith in people, that they’re basically good and smart, and if you give them tools, they’ll do wonderful things with them.” Is Jobs giving us a perspective worthy of note or is he simply promoting his industry, his products as valuable tools? Jobs may be giving us a cheery modus operandi for working in the tech sector, but the message sticks as humanity focused, which is striking.

In addition to the mental consequences, the physical side of digital proves to be equally as concerning. Recent research studies in the past decade have shown a decrease in physical activity, human interaction, and time in natural settings as a result of increased screen time. Along with these declines, there have been increases in eyestrain, general anxiety, and average number of headaches (1-3). Poor body mechanics, sleep hygiene, and nutrition are pervasively present in the modern generation of college students (1-4). Remaining grounded, however, in the basics of health is still important including moderation in screen time, scheduling exercise, and practicing sleep hygiene.

With the current stresses that the new professional workplace exerts on our lives, we must choose, as all generations before, which activities to sacrifice and which to deem as necessary parts of our packed schedules. Maintaining connection to our physical community as well as ties with loved ones living hundreds of miles away is a daily reality. These challenges have elusive resolutions and I do not intend to suggest answers in this article, but through trial and experimentation with digital tools, we may enhance this human capital we seek.

Social Creatures - Cathy Cichon

In this reflection on digital ecology, I aimed to explore the behavioral basis of and how it affects our mental and physical health. I know that we will continue to question, re-imagine, and create new ways to live healthier lives and digital will definitely develop a larger role in the near future. How will you adjust amidst these changes?

References:


Anatomical Ballet

by Jennifer Ferrante

Maybe it’s simply part of the human experience—
the rage, the terror, the choice to be ignorant.
To stare death in the face and laugh is no easy feat
yet eventually, we all did.
What was our alternative?
We know, somewhere beneath the iceberg,
what we are moving towards.
Isn’t it easier to pretend we’ll be here forever?

Not so easy when you’re dissecting
a finger with pink nail polish.
Some pull on the muscles
to make arms and legs dance.
She was a ballerina.
It’s educational...

I say a silent prayer for this
daughter, mother, grandmother.
At the end we applaud her recital,
we thank her for her dedication.
We bring roses and we commend
her anonymous final reprise.
"What areas of healthcare innovation have avoided dramatic cost escalation? What areas seem poised for revolutionary breakthroughs in the near future?"

Healthcare Innovation: The Speed of Progress
by Willy Chertman

Surrounded as we are by a state-of-the-art medical campus, Facebook feeds that alert us to every promising research lead, and more new scientific articles published everyday than any one person could keep up with, it seems crazy to even ask: Is healthcare innovation slowing down? And yet, by most conventional metrics, healthcare innovation has slowed down dramatically.

The classic measure of the health of a population has generally been life expectancy. Life Expectancy has been subject to a number of criticisms—among them, for example, that life expectancy at birth is unduly influenced by high infant and childhood mortality. As an overall measure of healthcare, however, it is still the gold standard. For that reason, it was especially concerning when the CDC announced in December 2017 that US life expectancy had dropped for the second straight year, which, as the Washington Post noted, the first time since 1963 that US life expectancy declined two years in a row (1, 2).

Of course, extrapolating from a 2-year trend is ill-advised—which is why a longer-run trend is more concerning. Wired Magazine reported that inflation-adjusted costs for bringing a new pharmaceutical drug to market in 2011 were 1000 higher and took 3x longer than in 1950. Even more concerning: this enormous increase in cost per drug has occurred even as several paradigm shifts in drug development occurred, such as high-throughput automated screening that can monitor many compounds in parallel, combinatorial chemistry and rational drug design (4). The Human Genome project, predicted to revolutionize healthcare, didn’t seem to make a blip in this trend.

Along the same lines, New Molecular Entities (NMEs), or FDA-approved medications that are not simply derivatives of old drugs, have been approved at roughly the same rate of between 10-30 new NME’s a year for the whole pharmaceutical industry from 1950 to 2008. NME’s have increased in cost by 13.4% each year, giving an average cost of about 3.9 billion dollars for each new NME in 2008 (5). In other words, every 8.5 years, after adjusting for inflation, R&D spending has approximately doubled. Not only has life expectancy plateaued, it has done so in the face of enormous sums of money, more every year, being spent to increase it.

Given these dismal statistics is there any room for optimism? What areas of healthcare innovation have avoided dramatic cost escalation? What areas seem poised for revolutionary breakthroughs in the near future?

Examining specific types of drug candidates reveals some heterogeneity in how likely a given drug is likely to be approved from 1999-2004 the rate of success for an anti-infective drug was 27%, while it was 7% for a cardiovascular drug (4). A more dramatic example is the progression of HIV from a death sentence delivered in a few years in the 1980’s to a chronic illness that in a developed country can approach the life expectancy of uninfected individuals. Recent estimates from Canada place the life expectancy of HIV-positive individuals on ART at 90% of normal life expectancy, a stunning amount of progress in 30 years (6).

The taming of AIDS is one of the great medical success stories of the 20th century, but other technologies may prove to be even more revolutionary. In contrast to the rising costs of drug development, genomics has undergone the opposite trend, beginning at 2 billion dollars for the first human genome in 2003 and dropping precipitously to around 1000 for a human genome today. This decline in cost has been more rapid than Moore’s Law (the concept that cost per a given amount of processing power halves every 18 months) and nearly the opposite of the cost rising trend detailed earlier.

The drop in the cost of sequencing genomes has lots of downstream potential: as higher-powered Genome-Wide Association studies (GWAS) reveal more of the genetic architecture of the complex traits and diseases, as opposed to rare Mendelian disorders, biotechnology companies are sitting up and taking notice. The genes that increase one’s risk for developing type II diabetes, autism or schizophrenia are highly
desired therapeutic targets for new drugs. Another possibility is to use risk scores for heart disease or strokes to guide early or more aggressive treatment with already-existing therapies. Selecting drugs based on a patient’s genetic predisposition to complications or therapeutic response is another promising possibility that already sees some use for certain therapies.

Genomics may seem like the cold fusion of medical research. The field, for example, has been hyped to deliver miracles for the last decade, yet has been hampered by the discovery that most heritability of common diseases and traits involves many genes (meaning they are polygenic) of very small effect size. A small effect size means that for a study to reliably detect such small effects, it needs very large sample sizes. Many candidate-gene studies of the late 1990’s and early 2000’s, however, that purported to discover genes influencing intelligence, obesity, or risk of developing schizophrenia, had sample sizes too small to make reliable discoveries. This was partially a consequence of the previously enormous sequencing cost of full genomes. Most of these studies failed to replicate in more highly powered studies, implying that many candidate-gene discoveries were false positives (8,11).

In 2007, the first successfully replicated GWAS study on obesity that discovered a gene had more than 4000 participants sequenced at 490,032 single-nucleotide polymorphisms and discovered a gene that explained 1% of the variance in BMI in the population (9). While this small effect size may seem overwhelming, as the price of genome sequencing continues to drop and consortia, such as the US Biobank and the NIH’s All of Us Initiative, coordinate ever larger study cohorts with more phenotypic information, the variance explained for complex traits and diseases will continue to creep higher. The fraction of variance explained for educational attainment has already reached 10% while a new approach for predicting height has reached 40% of variance explained (12,13). Educational attainment and height are classic examples of highly polygenic traits, and GWAS studies successfully elucidating their genetic architecture is a sign of the strength of GWAS methodology.

Further complimenting this veritable explosion in genomic information is the tantalizing possibility of efficiently targeted edits of genomes with CRISPR/Cas9 gene editing technology. A safe and accurate form of gene-editing could be a gamechanger for many single-gene diseases, especially in combination with our growing knowledge of genetics, but until the first human trials of CRISPR/Cas9 are underway, they remain a promising yet uncertain technology.

Amidst the likely stagnation of much of healthcare, there are promising hotspots of innovation. It remains to be seen, however, if genomics will usher in a golden age of innovation.

References
Nostalgia

by Willy Chertman

Turn the dial to summertime,
shake the snowglobe once or twice,
and open eyes to back again.
I will show you mine own life
when my sun-seared skin and messy hair
sufficed to hold my feelings warm and right.

A stitched together memory
weft lines yes but mostly whole.
There were a dozen times or more
a bolt of woven happy breaths
that mingled all with no despair.

Nestled in our final year,
not yet straining for promised life;
wings free to open beat and touch
but still unyoked from adult thoughts.

Deadlines far in future light
cast shadows but not within this night.
I remember the long days of summer;
the wide open smiles and torn open skies;
sand in my shoes and salt in my hair.

I can’t hear the words
But I can see the faces.
I remember: trusting gazes,
Simple times with simple fun,
unlined faces and flung open sails
waiting for the next year’s breeze
to fill us for the life to come.
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