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Maintaining My Humanity in Medical School

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A selection of my published writings from my time at UNMC

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Introduction:

I started writing in college and it was one of the few things that kept me sane between the crunch of pre-med classes and studying for the MCAT. At first it was a very personal way to vent about my anxieties, but quickly turned into a project that genuinely brought me joy and allowed me to express my creativity. As I transitioned into med school, I continued this hobby and tried to use my writing to reflect on the experiences I had while going through the process of becoming a doctor. In the beginning, writing was an outlet mostly for the stresses of medical education and was mostly self-oriented. I wrote about the difficulty of remembering the humanity of patients when they appeared to me only as facts to be memorized, or fleshy structures to be examined.

When I transitioned into the clinical environment, my writing reflected the exciting, beautiful, and tragic experiences I had while participating in the care of patients. I felt like I was living through great literature, and in my writing I tried to create a space where these moments could resonate. During this phase, the humanity in medicine was no longer subtext. I wrote, quite literally, about birth, life, and death, and the emotions these periods evoked in me while I witnessed them first hand. Here again I was able to pause and examine my own selfishness, and to use this reflection to reorient myself towards the patients I was there to help. And finally in the last phase of my education, while I lived through the history-making COVD-19 pandemic, I expanded my scope to write about the big ideas that I began to appreciate.

This collection of stories are unedited from the time that I finished them. As I have matured, my writing style has evolved and I have tried to push myself to experiment with new formats and topics. A version of each of these pieces have been published in some form, and while the topics do not always line up chronologically, they are ordered roughly in the order they were written. I have assembled this collection as part of the “Humanities in Medicine” Enhanced Medical Education Track (EMET) and hope that this forms a testament to the changing ways in which I have defined what exactly ‘humanity’ means.

Medical school has been a time of immense growth for me, and as I transition into psychiatry residency I hope this trend will continue, and that I will continue to find the time to write about it.

Phase I

The Best Lecture I Never Had

The workload of medical school is legendary. Class after class, seminar after seminar. Just over halfway through my first year, the days had begun to blend together and I spent my time in lectures just trying to soak up as many scraps of information as possible. In all this chaos, it was hard for anything to stick, let alone stand out, but for my classmates and I, the lecture that stands above the rest was one that we all missed.

Dr. M had given us several lectures up to that point and in a lot of ways his presentation was unremarkable. He was a Cardiologist at UNMC, and like many of our professors he was relatively young and energetic. He seemed passionate about what he was teaching but in the dead-rush of medical school I didn't look much further than the words I had highlighted on his slides. Days passed and a number of lecturers filtered through, but then late one night we got a notification that his two classes the next morning, "Ischemic Heart Disease" and "Acute Coronary Syndromes", had been cancelled, and that old recordings of the same lectures would be made available to us.

If you've never been around medical students, it's hard to imagine the angst of 130 Type-A personalities trapped in a pressure cooker then suddenly told that things would suddenly be just a bit harder. I've never seen a rhinoceros charge, but if I had, I imagine it must be something similar to the fate that met our block director, Dr. S, when he addressed us later the next day. He was a kind and quiet man, and like Dr. M he seemed deeply invested in training us to be worthy of our future patients. We were gathered in the computer lab for our second exposure to abnormal heart sounds, and he had arrived early so he could walk amongst our tables and listen to us.

At 11:00, he moved to the front of the classroom, ruffled the microphone and told us that Dr. M had been unable to give his lectures because the night before, his father had died of a heart attack. He paused as if to consider if he should go on then said, "he wanted to teach them anyway because he wanted to show you how important this is, but I personally insisted that we cancel the class". The class looked on in stunned silence and after a moment we proceeded with the activity at hand.

Later that night, when I watched Dr. M's recorded lectures, I listened more closely than usual, and I thought I caught a note of urgency in his delivery, even in these old recordings. He realized in a more acute way than any of our other professors, that we were the next generation of doctors, and that within a few short years, patients like his father would be placing their life in our hands. Perhaps he had long expected this fate for his father, or perhaps the condition snuck up on him much as it did for us. Either way, I think these lectures were not only a man's mission to make the next generation better than the ones that came before, they were a son's quest to make sure his father did not die in vain. Part of me wished he had held these lectures, but part of me rejects this as far too painful. His intention left its mark on me though, and I will never forget the things that man taught us.

Weekends In the Psych Ward

"Wha'cha watching?" Derek asked as he pulled a plastic chair away from the bare common room table in the locked adult psychiatric ward.

A man who I'll call Mark sat like he had melted into the recliner. Hardly a muscle tensed, with his belly nudging out from under his t-shirt. The few wisps of hair that remained on top of his head were twisted awkwardly, as if he had gone to sleep after having just styled them into a comb over, and as I watched him he gave his first sign of life in scratching at his week-long beard. He looked up but didn't reply.

Undeterred, Derek made as if he had not been heard and tried to squeeze a few more notes of friendliness into his tone. "What's this show about?"

Mark flicked his eyes towards the sound of his voice but quickly drew them back. "aliens" he said flatly after a beat.

"Aliens?" Derek said, his voice betraying no judgment other than a warm skepticism "Oh okay. Who's that talking now?"

"Michael Jackson. He's an alien."

"No he's fucking not" Sam, another patient sitting in a recliner across the room piped in.

"Language, Sam" Said Grace, a third patient who had just entered the common room wearing a pair of bright pink pajamas, and was scanning the table for a place to sit.

Derek and I smiled warmly and greeted her. We were both medical students in the psychiatry interest group here for what we had been calling "Sunday Social Rounds". I had always been interested in psychiatry, and one of my more cynical friends told me that I was putting my money where my mouth was, but I preferred to think of it as reminding myself that all this effort in school would one day be worth it.

This was my second time in the psych ward, but Derek was a regular so I let him lead. I think a part of me believed that he had some special soothing power in his voice, or that he was already an expert in his professed field of interest because he was a third year and I was only in my first.

"We've got some snacks and some coloring books if anyone want to join us at the table," Derek said. Mark stayed put, but after a beat Sam and Grace pulled up chairs and agreed to the coloring books. Everyone and everything seemed to move slowly in the psych ward and I found myself matching the atmosphere. It reminded me of a retirement home in that respect, except the patients here were reluctant to share their stories. Even so I found myself passing crude diagnoses in my head as we all colored and talked. I was preoccupied with why they were there but avoided broaching the subject.

Focused on our coloring books, conversation ebbed, but then after a few minutes, as if adhering to some mental clock, we all began to chat at once. We all spoke about what we did outside the locked doors of the ward, we talked about sports, books, concerts, and before long I found it hard to reconcile my silent diagnoses with the people I saw before me. Sure, some patients were more uninhibited or more odd than my medical school colleagues, but they were whole, and to my untrained diagnostic mind it seemed like only the flat criteria of the DSM-5 should be represented at this table. There was a subtle beauty in the way we all smiled together. It reminded me of the nights spent around a campfire in my youth. All eyes were on the work in front of us, and as the time wore on a bare innocence shone through in laughter.

I listened to their stories and told some of my own, and before long I was struck by how little separated me from them. Here I wasn't a medical student and they weren't patients. We were a group. I had struggled with depression but had been fortunate to be treated as an outpatient. I was lucky, and maybe in a different way, they were too. Under the hems of sleeves I noticed the scars of desperate minds, and behind affectless faces I saw eyes ringed with psychosis. But here in the psych ward there was meaning—an objective. In this room we were coloring within prescribed lines, but elsewhere on the ward nurses and doctors labored to give them a brush to paint a much more substantial picture of their own.

I returned to the ward several more times in the ensuing months, and each time I felt the same warmth. It was exciting, and with each visit I got the rush that only comes when you see raw humanity on display. There were men and women brought low by invisible pathologies, but during these short sessions I never failed to see the glimmers of brave compassion and hope. Someone once told me that as a doctor you see people on the worst days of their lives, and this used to scare me. It seemed like so much responsibility to see someone through such a trying time and I wasn't sure if I could handle it. But with each weekend visit on our Sunday Social Rounds, I gained a new appreciation of what that phrase truly meant. You see, with each visit to chat with these patients on ostensibly the worst days of their lives, we found something to laugh and talk about, and with each return visit, I found that they had checked out of the ward. I never saw the same patient twice, and after hearing all these stories I like to think that at least some of them took the tools that they had been given during their stay, and managed to craft some better days.

What I Listen to When I Study

When *The Elder Scrolls V: Skyrim* was released in November of 2011, me and several of my nerdiest friends ordered a pizza, raided several TVs from our parent's living rooms, and set them up in my basement. We started at 6 in the evening after waiting in line for our pre-ordered copies and settled into a circle of beanbag chairs with our pizza and our X-boxes ready to begin at the same moment. The game hooked us all in, and the first time I looked at my watch I was surprised to find that it was 7. For a moment I thought it was odd that I was so tired after only an hour, but when I looked around at my sleeping friends, I realized that it was 7 the next morning. We had played for 13 hours straight and barely noticed the time passing.

I haven't played the game much recently, but at the suggestion of my sister I searched for a 10 hour playlist of atmospheric Skyrim music on YouTube during one of my study sessions, and I was surprised to be taken right back to that first night with my friends. It was nostalgic and relaxing, and regardless of what I was working on, I found it was easier to motivate myself and to keep going for just a bit longer. But it wasn't just the nostalgia that kept me going. I found out later that videogame music is specifically designed to draw you in and keep your attention focused on the game. It's simple, usually instrumental, and in the case of Skyrim, meant to evoke a peaceful walk through an idyllic fantasy world—perfect for when you're stressed before a big exam.

Ever since that first experience, video game music has become a staple of my studying playlist and I think it has really done a lot to keep me motivated while I'm working. If you think this might work for you, then think back to the games you played in your childhood and see if you can find a looped soundtrack online. The goal is to find something that is meaningful but simple; something that takes you back to the days where you could sit for hours, inches from the TV in absolute focus. Those days may be gone, but there's no reason to keep those happy memories locked away. Find some music that appeals to you and use it to give you a reason to keep going for just a bit longer or keep you just a little more engaged.

Love and Medical School

I met my wife in the winter of 2011. I don't actually remember the moment we met, but I do remember that once I noticed her, I couldn't get her out of my mind. We were athletes on our high school swim team and for the first year we were together we swam in adjacent lanes. I remember she wore a Speedo one-piece that looked like a pastel stained glass window, and a yellow swim cap that never seemed to be able to contain all of her hair. When I was a Junior and she was a Sophomore, she tried to ask me out, and in my infinite stupidity, I said no. I was scared and wasn't sure I was ready for a relationship then, but in the spring of the next year I saw her dancing with another guy at Prom and all fear and rationality rushed out of my mind. She had a particular way she used curl her hair, and when she spun, those tight blond curls would fly out and settle over her face when she stopped. I had long before stopped dancing to better watch her spin, and when she brushed that hair out of her face and looked at me something shifted in my stomach and I felt like I was going to vomit. I think it was in that moment that I first realized that I loved her.

This article isn't about her; it's about us. Every relationship is different, and there is no right way to be in a relationship in medical school. In this article and the one that will follow, I'll describe some of our personal challenges and how we overcame them. At the end of the day, it's about knowing your priorities and where your significant other stands in them.

We got married on May 27th, 2017, in the summer before I started medical school. In the time we had been together she had tolerated my constant worries about being accepted to med school, listened to my grievances about MCAT studying, and helped me with my coursework (she is much smarter than I am). Now we were starting on a new phase of our relationship—the med school phase—and as everyone would have us believe, it would test the very foundations of our relationship. At my school they had a special orientation event for the parents and spouses of incoming students, and in it they warned them that we would be very absent, and that we would be under a lot of pressure and we would need all the support we could get. Form their presentation it seemed that an attitude that "the med student comes first' prevailed, and it implied that it was the family's' duty to just accept this.

To be honest, I think the strain that medical school puts on a relationship is largely a function of the student's ability to adapt rather than the significant other's ability to endure. One of the significant things that I have realized in my first year of med school, was that school was not an excuse to treat her poorly. We might not be able to go on many dates, and I didn't have time to help with much of the housework, but when we were together, I had an obligation to be fully present and to show her that I loved her. Eventually we settled into a pattern of spending about an hour a day just being with each other. It didn't matter what we did, only that we were together while we did it. This attitude that school was not the end-all, be-all was what helped our relationship flourish.

There were times when I was under a lot of pressure and took it out on Hannah, but I tried to never fall into the trap of thinking it was justified. I viewed it as my responsibility to deal with my stress so that I could be a good partner to her, and if I couldn’t handle whatever I was dealing with, I needed to ask her for help in a constructive way. I will be the first to admit, however, that my ideals do not always line up with reality. We have fought more in this past year than at any other point in our relationship, and I’ve played the “I’m in medical school” card a few too many times for it to actually mean anything. But this conflict isn’t necessarily a sign of a troubled relationship, and I might even go as far to say that this is a natural part of medical school and of marriage. Despite these tribulations, it remains critical to recognize the validity of your partner’s experiences and to realize that any amount of suffering you endure doesn’t negate any stresses that your significant other might be feeling. This was another vital realization during my first year: that if Hannah needed support I would give it, regardless of situation and regardless of my own mental To Do list. It might have resulted in a few more late nights and a few points lower on some tests, but ultimately I think it proved both to Hannah and to myself that she was truly the most important thing in my life.

When Pestilence Prevails

"When pestilence prevails, it is their duty to face the danger, and to continue their labors for the alleviation of the suffering people, even at the risk of their own lives." -- American Medical Association, *Principles of Medical Ethics*, 1903

I found this quote in a biomedical ethics textbook. It was presented as an example of how medicine had changed over the years and how this change had been reflected in their code of ethics. Physicians, the author contended, were no longer expected to die in the line of duty because the line, "even at the risk of their own lives" was removed from their official code in 1949. And in a practical sense this was true. After the Great Influenza of 1918, our knowledge of infection control and sanitation gained enough headway that it was able to curb the rate of infections among doctors, and with the advent of antibiotics the doctors of the time must have felt invincible, or at least gained an understanding that they might not *need* to die in order to serve the public. After all, there are no anti-handwashing martyrs; no heroes who live above the use of personal protective equipment.

When I realized that this sentiment had been stricken from the American Medical Association's code of ethics I was disappointed. It may no longer be codified, but I told myself I would stop at nothing to treat my patients, even if it cost me my life. To me, medicine was a hero's profession and as such required great personal sacrifice. When I got to medical school I was surprised how wide reaching this idea actually remained. Personal sacrifice, delayed gratification, and self-denial were unofficial pillars of the profession and the practices of not taking sick days, sleep deprivation, emotional repression, and skipping meals the implicit virtues. At first I was relieved, the profession that I had idolized retained its central mantra and it seemed that it had lost none of its vigor. But after a while I began to see the cracks in this mythology. I felt the specter of burnout that hung over my classmates and professors, and we all developed an understanding that we were entering a profession with a recognized risk—no longer from external invaders, but from a pandemic of a different character. The rates of physician suicide are 1.41 times higher among men and 2.27 times higher among females than the general population according to a metanalysis by Schernhammer and Colditz, and this rate has increased so drastically that once again Medicine is recognized as a deadly profession and a significant aspect of this problem is the rate of burnout among physicians.

Some of the causes of this epidemic are inherent to the profession, but many, if not most of these risk factors are modifiable. Practices like mindfulness, meditation, and a positive disposition have all been showed to reduce rates of burnout as well as decrease the incidence of suicidal depression, but the implicit virtues of medicine that I mentioned seem to have the opposite effect. The evidence stacked against this philosophy has been mounting for decades and in my nascent experience with medicine I feel the stirrings for change. Sleep deprivation can result in states of inebriation that have been shown time after time to result in more medical errors (the 3rd leading cause of death in the United States). Skipping meals is known to impact decision making ability. For example, in one study reported by Kahneman, Israeli judges blood glucose level was found to be directly related to the harshness of sentences that they passed. Refraining from staying home when ill results in the direct inoculation of vulnerable patients with potentially fatal diseases, adding to the risk for hospital acquired infections. And emotional detachment, whether it be in the form of closing off from friends and colleagues or in refusing to recognize the need and seek mental health care caused a decrease in the physician's quality of life. All of these so-called virtues conspire to dive up the rate of physician suicide, and overall decrease the quality of patient care. These issues have been addressed by restrictions on resident hours, increasing the availability of healthy foods, mandatory masking of sick personnel, and increased availability of counseling and other mental health services. These have all contributed to the resolution of this problem, but the implementation has been haphazard and has been met with much resistance.

The common notion is that good doctors work through sickness, tiredness, hunger and sadness and are still able to take care of patients so therefore why waste valuable time and money with a focus on wellness? But the reality is precisely the opposite. Sick, tired, hungry and sad physicians are *not* good physicians, and in the long term these states may be unsustainable. Burnout directly contributes to the number of medical errors according to the "Minimizing Error, Maximizing Outcome" (MEMO) study by Williams et al., and in order internalize this report and improve patient outcomes, medicine needs a new culture shift.

Again, the temptation is to claim that this is unreasonable. The economics of healthcare would seem to conspire to create an unfavorable environment for such a change, but in fact a heavy investment in physician wellness actually saves money in the long run. The increases in efficiency brought about by an increased focus on physician wellness would eventually allow these programs to pay for themselves. According to an article by Shanafelt et al., physicians who report higher rates of burnout have a lower self-perception of efficiency, and rates of physician burnout are correlated with higher rates of turnover. This is significant because in the process of hiring training a new physician the hospital will incur a cost that is on average 2-3 times the annual salary of that physician. Other studies have shown the loss of an employee puts their former colleagues at higher risk of burnout as well, multiplying the cost to the institution. By devoting resources to wellness programs, hospitals could stand to save a significant amount of money by investing in their employee's wellbeing and reducing the rates of burnout among physicians.

A pestilence is prevailing, but the conventional wisdom would have us refuse to wash our hands. Some hospitals across the country have begun instituting wellness programs that focus on physician burnout, but despite their good intentions, most programs lack the resources and administrative commitment to be successful. Often this wellness effort is led by a handful of psychiatrists or psychologists against resistance and representing administrations that have historically been more interested in the theory of these practices rather than in the actual implementation. This epidemic will not be solved with a few yoga classes and a tentative embrace of positive psychology, but these are emblems of a culture shift that must drive medicine forward into a new age where the mental health of the physician is paramount and in so doing, the patient is put into the optimum position to be cared for.

Our First Patient

Every doctor that I have ever talked to can recall their first patient in vivid detail. Probably a result of the adrenaline wave that accompanied it, they remembered the trivial facts, the conversation, and the diagnosis as clear as if they had just walked, sweating, out of the room. At our institution we did things a bit differently, and had the unique distinction of sharing our first patient within the first few months of medical school.

As a part of our Musculoskeletal and Integument block, our professors recruited a number of their patients to come in to the med school and let us examine them. They spread themselves between our dozen or so 'interaction rooms' and we proceeded in small groups from room to room. It felt strange, almost like we were moving between staged animatronic scenes in a Disney World ride. One room held a young amputee and her orthopedic surgeon. The next, an over-enthusiastic rheumatologist displaying polarized slides of synovial fluid. Another, a dermatologist and his recently cancer-free patient. It was all a bit overwhelming and I found myself distracted by the novelty of it all. By the time we had rotated a few times, the patients and the doctors began to sound mechanical, having repeated their stories again and again, but even so we were so buzzed about the idea of seeing real patients that we hung on every word.

These were our first patients. This was the first time that the material jumped off of our annotated PowerPoint slides and into our lives. One patient in particular stands out--one of the last that my group saw. He was a heavyset, middle-aged man, dressed in a dull flannel shirt and jeans that were rolled up to mid-calf to better expose his bare feet. They had situated him on a high chair, and more than any of the other patients, he resembled a specimen on display. Something he seemed acutely aware of.

If the other patients seemed animatronic in their delivery, then he was a disgruntled back-room worker caught up in the display. My initial impression was that he was some kind of construction worker with knobby, calloused hands, but as I reached out to greet him I realized that his hands were soft and swollen with burning rheumatoid nodules. He had Rheumatoid Arthritis, and as his doctor explained to us, he had the most extreme form of RA that we were likely to see. He perked up at this and nodded at this as if it were a morbid point of pride. “I’m at a 7 out of 10 pain just about every day, and now after I’ve been touched over and over again it’s probably a 9. Especially in my feet,” he said curtly.

“Show them your feet” the doctor prompted soothingly, and he obliged, holding out a red, tense foot, with mangled toes that twisted outward like knobby branches that were warped by some unseen force.

There was a collective cringe as we all observed the way he grimaced as the doctor demonstrated his pathology. We were all silent, stifled by an oppressive feeling of pity that we were then unequipped to manage. Eventually, the conversation turned to his treatment and we all perked up. Cold clinical facts where what we knew best, and divorced from the discomfort we felt in the presence of suffering, we asked our questions.

> “How long have you had RA?”
> “Do symptoms usually stay this severe when patients are being treated?”
> “Aren’t combination therapies more effective than monotherapy?”
> “Could he try a biologic?”
> “Are there shoes that would ease his symptoms”
> “Is there anything?”

It took us a while to realize that what we were asking was impossible. We had seen the treatment algorithms, but we lacked experience with medicine in the real world. In our naiveté, we failed to consider the insidious factors that cause good treatments to fail. Non-compliance, lack of access, and above all, cost, all combined to leave this man before us, clenched in pain that would not cease.

We were silent, and remained so. Somewhere an alarm sounded and we were moved on to our next patient experience, but even as new patents told new stories, a part of the innocence that we had felt just minutes before, remained in that room with the 9 out of 10 pain of poverty.

We found out later that this was a new initiative--to expose us to patients at an early phase of our education. The powers that be, worried that we would be too hung up on studying for our exams and that we would resent the intrusion onto so much of our time. But rather than coast through these encounters, we took them as our first honest invitation into peoples’ lives. They became our first patients, and we struggled to make ourselves worthy.

Maybe every physician feels a gnawing sense of responsibility over their first patient that exceeds the normal call of duty, or maybe we were just so green that we hadn’t learned where to draw the line. Whatever the reason, as a class we decided to step up. We went into medical school to help people regardless of what that entailed, so when one of our classmates posted in our class Facebook group that she was collecting donations for orthopedic inserts for that patient’s shoes, we all jumped at the idea. We determined that we could buy a new pair of shoes with orthopedic insoles for about $200, so we set that as our initial goal.

We reached our mark in about half an hour.

With the combined effort of the 130 student-doctors, we raised over a thousand dollars in the next two days, and with it we were able to buy two pairs of shoes, orthopedic insoles, winter clothes, bus passes, and an appointment to a podiatrist. Maybe every patient can’t have a fundraiser, but in this experience we learned that there is more to medicine than pills and procedures. With our first patients we glimpsed the fullness of the doctor-patient relationship, and the intrinsic reward of helping someone in need.

As the months of medical school wound on, we were able to look back fondly on these experiences, and take comfort in the fact that one day all of our struggle would be worth it. The warmth we felt from our first patients was addicting, and we all have come to crave it.

Interview Day

The first thing you should know about interview day is that for every opportunity, you take ownership. You got a B+ instead of an A—your fault. Scuff on your shoe—your mistake. And god forbid you misspelt something on your resume—you failed to proofread well enough. It doesn't matter why or what the infraction was, they're not looking for a perfect human being, they're looking for a responsible one.

The second rule of interview day is to not make any mistakes. Failing to plan is planning to fail, and this is a time where the slightest infraction will mean your banishment to the wait list.

This is a high stakes game, perhaps the highest—or at least this is what I thought at the time. Looking back, these rules I had created for myself seem ridiculous, but in the anxiety of the moment, I believed every horror story about medical school interviews. It was in this head space that I arrived an hour early to my future institution.

In my mind, every misstep and ever imperfect episode of my life was going to be drawn out and examined, and unless I conformed to their ideal mold I would be out. But that morning I was groggy and felt like I was in a fog. I had arrived late the previous night after driving the 50 odd miles across Nebraska farmland from my college town to Omaha. I was tense as a mousetrap and I felt like I would snap just as easily. But sticking to my long considered plan, I was trying to project confidence. I walked up to a group of people and sat right next to them. No one commented the bags under my eyes, but with each person I talked to I became more convinced that I didn't belong. Every single body in that room had a Type A personality with a backlog of accomplishments that would dwarf that of the general population, and yet I knew that about half of us wouldn't make it on to the next phase.

They had broken us up into 4 groups and while one of the groups was being interviewed, the other three were rushed off onto a tour of the campus or seminars on financial aid. My group was being interviewed after lunch and in the meantime we followed a 4th year medical student as she showed us to all her favorite study spots. I tried to keep up with all the names and to build a general map in my head, but after the second or third stairwell I was completely disoriented. I was docile and friendly, but my mind was elsewhere. I had since noticed that my shoes were stained with droplets of dried mud and I had taken every halt as an opportunity to scrape off what little I could.

Lunch came and went and with it, all thoughts of conversation. Only the incredibly brave or cocky members of our group had the mental energy to carry on a conversation and I was not among them. I begged my body to stop sweating.

My name was next on the list and I had not succeeded in stopping my sweating. I took a few deep breaths and looked down at my shoes again. I had been able to remove most of the mud but in places it was obvious that I had not done a very thorough job. I reviewed my reductionist 'rules of the interview'. I would embrace each of my flaws but I would present myself with all the confidence and poise that I could muster.

Someone called my name and I rose.

I was guided along a narrow hallway past glass-walled rooms that contained my peers and future classmates. "We're taking you to the back where no one can hear you scream" a man said. I laughed in spite of myself and we sat down. “So, why do you want to become a doctor?”

This was a question I had expected and prepared for. I had practiced a half dozen iterations depending on the context I found myself in and knew that my answer to this first question would make or break my interview. I spun through my mental rolodex but after a moment I realized lamely that all my practiced answered felt inadequate and hollow. I swallowed. “Well, I really just want to help people”.

Message In a Bottle

To whom it may concern,

You’re doing the best you can. I know things are tough right now, but if it means anything, as I write this message, I am proud of you. This isn’t an easy thing you are doing, whatever it may be, and the stressors involved are all conspiring to bring you down. No one can truly understand all that goes into shaping this unique experience that you live, but through it all you have persevered. I have faith in you, and I have confidence that though these times may be hard, you will rise stronger and more capable for having survived this. There is some meaning in suffering, and there is some joy in even the briefest moments of calm. I’m casting out this message in a bottle in the hope that it reaches you well, and happy, and calm. I’m not sure what you will be doing when this message reaches you, or even if you will truly appreciate that I wrote it just for you, but whatever time and place you may find yourself in, know that in this moment you are treasured. Much love, and many blessings.

Sincerely,

A fellow traveler

Step 1 and the Stress-Analysis Feedback Loop

I was recently hanging out with my study group, when someone brought up their worries about Step 1. We all eagerly pitched in our own study plans and theories about how we could maximize our gains. This is one of the great things about my study group. They are always eager to help each other out and are willing to share the things they have learned. But when it comes to Step 1, I feel like our efforts are counterproductive.

This is by no means unique to my friend group, in fact I feel that all second year medical students could hold their own in a debate about the relative merits of First Aid or Pathoma, with equally scant information on how that will prepare them for the actual test. Med students like to plan and discuss, so in the absence of any tangible information, it is no wonder that we intensify these efforts to try to allay our fears. The ironic thing is that for all of our well-meaning discussion, all my group succeeded in doing was stress each other out. Each of us had decided on a different strategy, and even though virtually all of our plans were based in a gestalt feeling, or in anecdotal evidence, we all clung to our ideas as if they were received truth. Lately I've been of the opinion that after you have acquired a certain amount of information about how to study for Step 1, you should make a plan and (barring any drastic new information) stick to it. Discussion is great, but when it achieves nothing but more aimless stress, it is time to rethink whether you are actually trying to seek knowledge, or just being drawn into your own stress-analysis feedback loop.

Reflections on my Anatomical Donor

Ever since I was a little kid, I think I've been obsessed with words. I loved the idea of capturing a feeling in a sentence, or describing a person so completely that you could see them right there in your mind. The perfect words in the perfect order, or at least that's what I strove for. It was like an incantation to me. A spell that if assembled just right could let me take on the pain of someone else, or let me see the world, for that carefully constructed moment, through the eyes of another. It was a comforting idea—that I could drain away suffering with a pen and a few quiet moments—but it ultimately felt inadequate. I needed to do something more.

I carried this idea along with me as I strove toward medical school but over time I started to lose this obsession with beauty and art. As I gained the skills of my profession my mind grew more and more grounded in the concrete. Numbers, graphs, and achromatic images filled my imagination and the vocabulary of medicine codified the suffering of others into a bland 'History of Present Illness'.

I think at first I was so enamored with these new words that I began to forget the older ones like harmony, clarity, peace. For some reason I figured they didn't apply. I was in a new world. This was medical school, and here I had to push all else aside so that I could learn every scrap of information that I could.

Throughout my time in anatomy, I spent most of my time searching for these clinical words. The right coronary artery gives two branches, the posterior interventricular and the marginal. The right lung holds 3 lobar bronchi. The head bone is connected to the neck bone. Stuff like that. But despite the volume of information, for the first time in med school, I began to find moments of beauty in the hours I spent with these donors.

In the lecture hall, it was so easy to depersonalize the images pasted into a PowerPoint, but in the anatomy lab, every structure took on a whole new depth of meaning. A heart was never just a collection of muscle and vasculature, it was the quiet reminder of a life lived for love and laughter. And when I looked into a Donor's face I see the worn smile lines that time has etched so carefully.

As days wound on the mass of these brief moments weighed on me and demanded to be felt. Words like sacrifice and honor were always lingering on the tip of my tongue, and when I held a scalpel in my hand I froze for an instant each time to listen to beating of my own heart as if it were praying for me.

One of the most poignant of these moments came a day before our first practical exam. It was morning, early as usual, before the sun had risen and before even the last of the night staff had left the hospital. I walked into the anatomy lab and the lights flickered on to greet me. Row upon row of silent beds were positioned sleepily in lines and I moved to my station towards the back. I opened up the canvas fitted sheet and pulled back the blanket that covered my donor. The blanket was soft, almost comforting, and though I had repeated this preparatory ritual dozens of times before, on this morning when I lifted off that sheet, I felt like I saw our donor anew.

I remember looking down at her hand. The nails were painted and, in the fluorescent light, they were sparkling. A few words popped into my head that I hadn't used for a while—serine, tender, beautiful—and in the silence of the empty lab, for the first time in med school, I started to cry. I backed away from the table, afraid for a moment that my tears were somehow inappropriate. That morning, for the first time, I understood the gift that she had given me. I saw her as a patient in that moment. Lying on her plastic bed and wrapped in that strangely soft white blanket. I wondered if she had ever pictured herself here, with me, some kid trying to become a doctor, and I thought about all that she might have wanted in her life, and about the path that lead her here. The clinical words that I had begun to cling to failed me in that moment. They couldn't capture the grief of a loss, or the loneliness of death, or even the latent joy of waking up to another healthy morning. Alone in that sprawling room I understood that the gift she had given could not be taken for granted. She gave of her body so that I could learn--in a way that was impossible to capture in any other way--and so that I could be given a chance to use that knowledge to help alleviate suffering in the future.

As I think back on my feelings that morning, I realize that in the glow of her soft martyrdom I finally found clarity. Though the specter of exams and burnout still hung over my head, I knew that the gift that these donors had given was not just a resource for learning, it was a torch that had been passed. They gave of body, so that one day when we cared for patients, we could give of our souls.

Phase II

Why Clinicians Hate Glycolysis

As a second year medical student at an institution that has recently introduced a new curriculum, I have become fascinated with the question of what ought to be taught in medical school. With the roll out of this new curriculum, which focuses on a systems-based approach to learning as well as integrating clinical experiences early on in education, the whole medical school has been abuzz with the enthusiasm of change. As a result of this new atmosphere, it has become acceptable for the faculty and even the students to question just about everything. When is the best time to hold a test? Is it better to stagger tests so you are tested over 'A' even as you have just begun to learn about 'B', or should you compartmentalize? What is the role of case-based learning, and how is it best implemented? But above all the question that is most pervasive is how best to allocate time.

I have got into the habit of asking a simple question to any clinician I meet; "what do you wish was taught in medical school?" The answers vary significantly depending on who I ask, but strangely in many cases, glycolysis comes out as the example of something to cut in order to fit in their pet project or interest. "If they cut out an hour of glycolysis you could easily teach the basics of weight loss" or "if they spent less time on glycolysis they would be able to fit in more time on substance use". Pain management, sex trafficking, social determents of health, Spanish, CBT, resiliency training, suturing, nutrition, research skills, financial management, community service—the suggestions were as varied as the people I asked, but in almost every case they shared a strange commonality. Why does everyone hate glycolysis?

Now more than ever it had become apparent that the administration of medical schools seeks to find a balance between preparing their students for the USMLE as well as for the real world. One might expect this to be relatively easy, but in my interactions with physicians it has become clear that these are very distinct entities. As one of my mentors put it, the USMLE only tests about zebras. There is an old adage used throughout clinical medicine, "when you hear hoofbeats, think horses not zebras". This is solid advice. Common things are common, so that is what you are likely to encounter, but s one of my mentors put it, the USMLE has a zebra fettish. It has almost become comical the amount of times that our instructors have said, "you will never see this in practice, but the boards like to ask about it." And I now believe, that this divide no better exemplified than with glycolysis.

Clinicians hate glycolysis because it represents something to them that is mostly theoretical and therefore is wasting time that could otherwise be allocated to something more practical. Though they are rare, disorders of glycolysis certainly exist and cause diseases that are vital to understand and treat, but I think it is often held up as an example of the folly of medical education 1) because it is perhaps the one area of biochemistry that everyone remembers, and 2) because disorders of glycolysis are the ultimate zebra. This is not to say that learning about glycolysis is unimportant—because it certainly is—the point is that *everything* is important and in the end the time allotted to medical education creates a bit of a zero sum game. Into this game step the clinicians, each with their unique agenda but their common enemy. The next few years will be an exciting time to be involved in medical education. The changes that have brought this to the fore have been building for years and in this unique environment of change, not only in my institution, but around the country, people are beginning to ask fundamental questions about what we ought to learn. There are no easy answers, and I expect there will be no final resolutions, but either way this debate reaches to the core of what it means to be a doctor in our society and the final result will tell us a lot about what we value.

The Manager of Folding Towels

I have a business card that I have carried in my pockets for a week. It’s a simple design. Card stock, eggshell white, and not a hint of matte or gloss. The picture on the left is warped and yellowed by an errant drop of coffee, making the words that fill the body of the card seem like they were cast in boldface. This card has been through a hectic week. It's been alternately shoved in a wallet or admixed with keys. It's been slipped in with a notebook in a short white coat, tucked in the back pocket of a handful of pants, and now rests, folded, in the breast pocket of a pair of light blue scrubs. The card was handed to me by the Manager of Folding Towels, and every time I read it, I see it for the first time.

Blazoned across the top, “Jordan – Self-Advocate”.

Every time I read this I want to cry. Today I am sad, yesterday I was angry. The tears seem the same. I didn’t cry when he handed it to me. The immediacy of the moment demanded that I only glance down out of politeness and tuck it into the first of many pockets. I was at a seminar and he was one of the panelists. I took my seat in the audience.

Under the unambiguous title, the card read, “I have skills and value…”

The seminar was a discussion, “Disability and Healthcare,” and featured the director of the largest center for physical and intellectual disability in the region, a department head, a parent, and Jordan--a person with Down Syndrome, self-advocate and manager of folding towels.

“…I contribute to my community…”

The tone of the discussion was bleak. The panelists spoke about programs designed to provide critically needed support services that are killed in their infancy. Reach that shows promise to elevate the standard of care that is suffocated for want of funds. Parents of children with intellectual disabilities that must fight a zero-sum game amongst themselves for funding for their child’s diagnosis.

“…I am more like you than different…”

Jordan, however, was a bright spot. I learned during the discussion, that Jordan folds towels at a Prairie Life Fitness Center, and that he has held this job for the past nine years. I learned that he lives independently with a roommate, and that he likes to watch football and drink beer.

“…I have hopes and dreams.”

I carried the card with me because I couldn’t bear to put it away. He gave it to everyone he passed. He gave it to all who attended the seminar. But for all this week I couldn’t fathom why he had these made. I don’t have any of my own business cards, but if I did, mine could be printed exactly the same, “Max—Self-Advocate. I have skills and value. I contribute to my community. I am more like you than different. I have hopes and dreams.”

He is a human being yet lives in a world where he feels he must remind us. This isn’t right, but maybe not for the reasons you would expect. Being a human being isn’t just his business, its everyone’s. If his humanity is diminished, then so is mine. It’s not right because business cards aren’t to justify our sameness, they are to exhibit our character. So, after the first day of carrying it around, I decided to make a change.

The card is still sitting in my pocket, where it has become at home. The bent corners. The coffee stain. The shaking note I made to give the card a new title: “Jordan—Self-Advocate, Manager of Folding Towels”.

Maybe it’s not a lot, but I see it as a reminder that he deserves the opportunity to stand up and be counted. Not just because he exists, and not just because he has a disability, but because he contributes to society therefore deserves recognition. Like anyone who might hand out a business card, he is owed the dignity of credit for his accomplishments. No one wants to use a dirty towel after they shower, and as small as it may seem, this is not a job that will do itself. The world needs a person to be in charge of folding towels, perhaps more than it needs another doctor. This simple title reminds me that he is unique, he is qualified, he has an important place in this world. He is the manager of folding towels, until, of course, he chooses to do something else.

Something We Don't Talk About

Everybody in medical school has the same secret. It's something we never talk about. Something so intensely personal that we can barely even tell our closest friends. It eats at us like a purulent mass—we feel the pressure of it daily and somehow we know that the only way to be free of it is to drain out the pus and corruption, but no one dares. The consequences of release are two disastrous, too close to the core of all that we fear.

The secret is our grades.

This needn't be a problem and it's no single person's fault. It is something innate to the self-selection of medical school applicants. As a whole we exhibit the traits of perfectionism, competitiveness, and self-criticism to an almost pathologic degree, and in school we are forced to be artificially compared to each other constantly.

This has long been a reality of medical education and while significant strides have been made in transforming cutthroat campuses into pass/fail curricula that are—in theory—lower pressure, this does little to ease the incessant self-comparisons that we all make. Over the first two years of our education, the main boogieman is test scores; these can partly be rationalized by your level of interest in that particular subject or how you felt on that particular week. In the past, many of my classmates were willing to share their experiences and impressions of their scores in order to receive support from or provide support to their peers. But as second year transitioned into third, this became harder. All US medical students take the USMLE Step 1 and are forced into direct comparison. Suddenly, many students feel like they now have a foolproof way to compare themselves to our peers and it makes us uncomfortable. This is not an question we really want to know the answer to, so we stay silent. We worry that once people know our scores they will realize just how much we don't belong – how terrible of a doctor we will become.

Suddenly it becomes exponentially more taboo to discuss grades, even to our closest friends. Whether with excitement or disappointment, the number begins to gnaw at us; however, we feel like we cannot share because we worry about the reaction we will get. If our confidant scored lower than us we worry that we will make them feel excluded, and if they scored higher we worry that we will be judged.

Imposter syndrome is the difficult to shake feeling that somehow you have succeeded on accident and at any moment your secret will be discovered and you will be rejected. This is a classic cognitive distortion, but when you actually do have a secret it becomes so much more toxic. Caught between a rock and a hard place, we stay silent and the imposter syndrome grows. Secrets always fester and the only solution is to tell someone and get it off your chest.

I am not at the point where I am ready to post my score on a forum such as this, but as I realized how deeply the secret was affecting me, I reached out to a few of my friends with the truth and they were universally appreciative. Some scored higher and some were lower, but each was thankful to be freed of their burden. In the end I realized that if someone were to tell me their scores it would not change my opinion of them, and the vast majority of my classmates feel the same. In this arena I often think back to the old saying that, “those that matter don’t mind, and those that mind don’t matter”.

Nights at the Police Academy

When assessing a situation, a detective is trained to answer the "5 W's". These 5 questions--who, what, when, where, and why—are the first principles from which all the other facts of the case can be derived.

Imagine you're presented with a murder—*the what*. Let's say it was of Colonel Mustard. To solve the case, you must follow where the questions take you. *When*? It was late at night, only a few people could have been around at that time. *Where*? In the ballroom—suspicious because only one person had a key. *Who*? Of course, Miss Scarlet! But *why*? Perhaps the motive was revenge!

I always had a fascination with becoming a detective. This shone through in my love of *Clue* and *Law and Order SVU*, and for a while in elementary school, this was my leading career path. Obviously, this did not come to pass, but writing this now, I think ironically a part of this fascination actually helped to propel me into a career in medicine. I always liked puzzles, and although police TV shows held my attention as a child, as an adult this morphed into an interest in the diagnosis of disease. Doctors and detectives have a lot in common; they both seek a few key answers to solve a much larger mystery, but as it happens these superficial similarities quickly dry up when the two are forced to interact in the real world.

It was this uncomfortable realization that landed me in a police academy lecture hall for night classes during my first year of medical school…But maybe this is going to need a bit of context. Let's start with a few key questions—I can think of 5.

Who:
A team of instructors, me (age 23), and an even split of busybodies (age 55+) who seemed to be there in an elaborate effort to snitch on their neighbors for being too loud, and police academy hopefuls (age 13-17) who were trying to get an *in* for the next round of academy selections. Despite the wide range of ages, it reminded me uncomfortably of high school, and just as in high school, I quickly found my clique and gradually migrated from the front rows to the back.

What:
The Omaha Police Citizen's Academy was conceived as a way to get the community more engaged in the work the police department did and (so the theory goes) prevent crime by raising awareness in the community. The 'Academy' itself was a series of lectures from every major department and a handful of tours and activities. During my time there, we toured the county jail and got the opportunity to go on a ride along in a police car. We learned how to escape an active killer and met the police helicopter in a field near the station, but above all, I learned how the knowledge and attitudes of members of the community and the police department affected how they interacted with the mentally ill.

When:
Thursday nights, 6-9pm for two months.

Where:
In the sparsely decorated belly of the southeast precinct police station.

Why:
“Radical Curiosity” has become a bit of a mantra for me during this past semester of medical school. To me, it means that if I am even remotely interested in something, I’ll try it, and if I think I can make a meaningful connection, I’ll go to great lengths to attain it. One of my major career goals is to improve care for the mentally ill in my city. Achieving this goal requires knowledge of the justice system for three reasons: 1) the majority of people with severe mental illnesses are treated in prisons, 2) a disproportionate number of individuals with mental illnesses are killed in interactions with the police, and 3) police officers are at drastically higher risk of PTSD than the general population. Therefore, the opportunity to enroll in the Police Citizen’s Academy was a research opportunity too good to miss. This was my chance to gain firsthand experience so that I could understand the weak points in a system that could harm my future patients and, more importantly, to build my own connections to address these problems.

I learned a lot in these two months, most of which is difficult to put into words. I went in looking for novel answers to my questions, but was met with complexity that I did not expect. Overall there was a feeling of striving to do what was right under the constraints of an uncertain world and a certain though insufficient budget. I saw the results of well-meaning reforms and trainings that quickly were limited by significant impracticalities. I saw varying degrees of understanding of the science of mental illness and drug abuse, but I also saw perspectives that were perhaps more valuable than my own. In the end I came away with more questions than answers, but the ‘radical curiosity’ that landed me there will continue to drive me onward.

The Soul of Medicine

I found the soul of medicine in a clinic in the north of Jamaica. Two years into medical school, I was beginning to forget the feel of the light, but the soul of medicine found me when I was deepest in the dark. Its soul is a flickering bulb that lights a rusted exam room. It's a whispering you hear while listening to breath sounds over the pattering of rain on a tin roof. The soul of medicine is embracing a stricken patient in the midst of an exam, and in the race-car noises that follow the children out of the clinic and into the yard.

On the trip where I discovered the soul, we lived simply. We slept in a church dormitory covered in scratchy blankets and talked and sang until the night wore on into early morning. Our days were full and we worked through our lunches. Without a lab or an x-ray machine, the senses became attuned to the sights, smells, and feels of the soul. This was medicine at its purest. Transported back a century to a time when there was still much healing to be found in a touch and a compassionate smile.

This was everything I hoped that medicine would be. There was no administrative pressure. No hoops. No insurance. Patients came to our clinic for help and we gave it to them without question. Everything, from medicines to braces and from vitamins to children's books. The soul of medicine is a beautiful and fleeting thing, but once found it seldom is lost. Even though I only spent a week inhabiting the soul of medicine in that clinic in northern Jamaica, the memory of it has sustained me through the grime and ink that has sometimes obscured it. Now, back at home, I can't help but notice the shining soul, visible even under the fluorescent lights, and audible even over the sound of machinery. I hope it never leaves me.

A Changing Tide: Wellness at UNMC

A hush spread over the lecture hall, followed by a suppressed wave of laughter. Our lecturer had suddenly burst through the door carrying a guitar and clad in a green, full-body dinosaur costume. It was unexpected, but no one was surprised. This was the kind of antic we had come to expect from Dr. Sikorski, the Director of Wellness Education at UNMC. It was an all-out and constant effort to raise a smile and on this, and many other occasions, he came through. The lecture began with one of Dr. Sikorski's trademark parody singalongs but the jovial atmosphere soon descended into the meat of the topic at hand--burnout. This session was in the form of a discussion, and when the question was asked, "Who here has felt burnt out or depressed in the last year?", nearly every single hand went up. We were then given an opportunity to share our experiences, and throughout the ensuing discussion the common themes were of exhaustion, discouragement, and isolation.

Though it will come as no surprise to the reader, the stress of medical school is legendary. The pressure to perform, long hours, and nearly inconceivable amount of information to learn conspire to create an atmosphere of anxiety. Though this is by no means a new phenomenon, it is highlighted by an increasing prevalence and awareness of the effects of burnout. All over the country rates of burnout have swelled, joined by a corresponding rise in physician and medical student suicide, such that for the first time since the pre-antibiotic era, being a doctor might rightly be considered a dangerous profession. The problem of burnout has become national news, and at a certain point it is easy to be swept away by the predominant pessimism that seems to have gripped the profession. UNMC has not been insulated from these rough seas, but through the work of many, I believe it has actually started to make good headway against the prevailing currents.

In the past several years, as UNMC geared up to face this problem, it understood from the beginning that a shared language integrated fully into the curriculum was essential for laying the groundwork for a robust system for building resiliency and mitigating burnout. However, this had to be more than lip service to a shared ideal; this was a programmatic approach to teaching medical students that accompanies each phase of our medical education. Our curriculum was integrated with a series of lectures that made use of a flipped classroom model, providing students with a comprehensive e-module describing the evidence and practice behind a particular topic. Then, in our classroom time, we participated in interactive discussions, engaged in reflective writing, practiced yoga, or participated in exercises designed to expose us to cognitive behavioral therapy. Where other attempts at incorporating 'wellness' lectures into a curriculum may have fallen flat, this largely succeeded because it was tied to a commensurate increase in the institution-side services that were intended to strengthen and reinforce the concepts we learned. Student counseling services, which had always been free and accessible to students, expanded its footprint to include a network of student senators trained in crisis intervention. Dr. Wengel was appointed the Assistant Vice Chancellor for Campus Wellness to bring to bear the full weight of the university administration as well as to lend necessary time and expertise to the evangelism of wellness and resiliency.

There has been a palpable sense of a momentum building in my years at UNMC. Topics that might have been taboo years ago have become common topics of conversation. Our professors talked honestly to us about the stressors of the career we shared, and a number of faculty went out of their way to bring a touch of humanity back into our education through art, music, and writing.

However, what has been most encouraging is the response from the students themselves. They have not passively accepted the state of affairs, nor have they meekly demanded more services. They have been active participants in designing and building the structures that support such endeavors. When services deemed necessary are not forthcoming, groups of students have gathered funds and organized them by themselves. Pet therapy, massages, educational seminars, art classes, volunteerism, social outings, and mentorship opportunities are just a few of the student run initiatives enacted in the last year alone. Many of the programs above are groundbreaking and clearly steps in the right direction; nonetheless, the pervasive stressors of medical school are relentless while many services are episodic.

That being the case, how does this translate to the day to day lives of students? The daily support we receive is found in the comfort of our friends and the plush furnishings of Marcia Shadle-Cusic's office. Marcia is UNMC's Student Wellness Advocate and she lives up to her job title; her office has gained a reputation for warmth and compassion. Each and every student can go there and sip coffee from a personalized mug that she keeps for each student that wants one. On many occasions I have walked in to hear students drinking coffee and talking with her about the stresses of anatomy lab, their frustrations about a patient not able to receive the best care because of costs, or the anguish of seeing their first patient die. These are the perennial pains of medicine, but day by day UNMC is discovering that by carving out a space and giving students and faculty the common language to discuss these stressors, the university has gone a long way toward building resiliency and mitigating burnout. The tide is turning and faced with a national epidemic of burnout, the very culture of UNMC is changing slowly, but as a unit.

These encouraging developments have done a lot to improve the quality of life of students, but it is important to stress that despite these many admirable efforts, the problem is far from solved. Indeed, medical students and physicians at large have one of the highest suicide rates of any profession and in my experience in discussing depression and burnout with my colleagues, there is no indication that UNMC is anomalous. This is a cause for pause, but not for despair. While none of the programs mentioned above can change the fundamental realities of the profession, they can go a long way towards creating a framework that cushions the blows and creates a space to appreciate the joy of healing.

Fundamentally, the epidemic of burnout in medicine is not just a question of increasing creature comforts to a degree that can offset the trials and tribulations of professional school, but addressing fundamental questions of what *ought* to be part of medical school. What does it take to challenge such a pervasive national trend? It starts with a shared language and ultimately prevails as a shift in culture. These trends described above, as well as the people and programs who promote them at UNMC, are emblematic of a larger culture shift that emphasizes the wholeness of an individual and promotes an active approach to preventing and mitigating burnout.

The Cost of Care

A few weeks ago, my wife and I spent our Friday night waiting for test results in a cold exam room that reeked of ammonia. In a kennel at our feet, Jixie, our oldest cat, meowed pitifully and licked the wounds of a fresh blood draw. We were both worried and neither of us felt like speaking. Between us, Jixie meowed again. She had been sick for a few days, barely eating, and vomiting up copious amounts of mucus. She looked like a skeleton with hair pasted to the bones, and when she walked, she stumbled around as if she were drunk, and paused every few steps to catch her breath. She had been sick before, and we had taken different approaches to the level of care we thought she needed. But this time, there could be no doubt—we needed help.

The vet entered the room with a smile and a packet of papers. These, she explained, were the results of the tests they had done thus far, and a breakdown of the costs of all the interventions and diagnostics that might be necessary. The sticker shock was immense, and as we looked through the itemized list, a lump began to rise in my throat.

We couldn't afford it and hard decisions had to be made. The diagnostics she had requested were all logical, and if Jixie were a human they would already be underway without consultation. But because she was an elderly, uninsured cat, we were forced to actually grapple with how much money and effort we were willing to expend. It was gut wrenching, but our financial situation left us with no choice—her care needed to be rationed, and we had to decide how much risk we were willing to tolerate.

To a non-medical person this choice would have been insultingly futile. How could a lay person be expected to know enough about medicine to make a truly rational choice? With my medical background I was able to ask the right questions and together, me, Hannah, and the vet decided on a plan. We would give empiric antibiotics, but we refused culture and susceptibility testing. We refused ultrasounds of the kidneys and gut, with the understanding that we couldn't afford to do anything about these problems if they were found.

Thankfully, our gamble paid off and she recovered completely with the antibiotics, but the episode left its mark on me. Even under a perfect system where patients are educated enough to make informed decisions, have complete control of what is ordered, and have enough money to cover the minimum costs that might arise, we still struggled to make the right choices and ended up spending much more money than was necessary. This was frustrating to us as individuals, but even more frustrating when I projected it on to society at large. Too often patients and doctors are unaware of the costs of the medications and diagnostics they prescribe, and a simple 'peace of mind' exam may wind up costing a patient thousands.

Some have argued that the solution to this problem is transparency, and that if patients could see the price tag they would shop around and let the free market sort it out. I am sure this might work in some arenas, but a BMP and a CBC are not like Nike and Sketchers. They have specific indications and the information they provide matters depending on context. Even set up with the ideal scenario that night at the vet, I still made choices that resulted in inefficient and over-expensive care, and if expanded to medicine at large I don't see how this would improve the state of healthcare.

The transparency that allowed us a modicum of control over our situation nearly drown us in choices. This model of healthcare, where patients are presented with the costs up front and chose each test as if it were a menu, is impractical and is likely to lead to inefficient and lower quality care. However, this experience has taught me the value of well informed, doctor-patient communication. The most critical component of this interaction was a honest discussion of our goals and the lengths we would be willing to go to achieve them. As team we had to decide how much risk we were willing to accept, and what degree of certainty that we could find tolerable, and from these first principles, someone with medical expertise is required to translate these wishes into action. Therefore this transactional model of healthcare is unlikely to replace the traditional doctor-patient relationship anytime soon. Patients need to depend on their doctors to make informed decisions on their behalf so as the future of healthcare unfolds, new solutions will need to focus on making doctors more aware of the costs to the care they provide.

The Hand of God

The only time I have ever prayed, was at the foot of a hospital bed. Medicine has its roots in religion, and even now for some patients, spirituality is such an important aspect of their lives that a treatment without prayer would be unthinkable. In my brief time in the hospital, I have seen what some might call miracles, but I have also seen unconscionable suffering.

For some, perhaps even most, a religious community provides support and resources that can sustain people through even the most challenging times. A person with a strong faith can often whether any storm and find hope even in the bleakest of situations. Yet this may also have a dark side. Though many have benefited from their faith community, I have also seen patients cast out and betrayed because of their sexuality or tortured by the idea of ludicrous sins. For every one patient visited by angels, I have seen a dozen haunted by visions of demons. I have often heard religion described as an exoskeleton. It is a scaffold that can either support a being whose essence has been dissolved, or a suffocating cage.

This dichotomy is also reflected in the use of religion as a tool in the hands of providers. Is it our place as physicians to disabuse a patient of a toxic idea rooted in their religion? Should a provider offer their faith, unbidden, as a means of support? These questions I will continue to grapple with as I grow into a doctor.

How To Tell a True War Story

What is truth?

When I as an ED volunteer in college, I once had a conversation with a patient about the best place to buy a burrito in town. The words were utterly unremarkable,
“What do you think about Chipotle?”
“Not enough flavor.”
“really? I’m a huge fan”
“I don’t mind their fajitas, but the rest…”
“I get the same thing every time so I guess I couldn’t compare”
Just boring small talk in the middle of the night in a crowded ER. The speech was totally hollow, and the back-and-forth was repetitive. These words are reported accurately, yet are they *true*?

The *true* conversation is separate from the mundanity of the 3 hour conversation about Mexican food. The *truth* is that he was shackled to the bed on suicide watch, and I was the watchman. The conversation was never about burritos, it was about life and happiness and purpose, but chained to the notion of accuracy over truth that could never be conveyed in writing. My philosophy when telling stories about my experiences is to bend the details to fit the deeper narrative, and it is to this deeper narrative that I hold myself to a high degree of precision.

In other words then, I might say that I entered the room awkwardly (it was not awkward, I had entered hundreds of rooms before) and sat with him in silence, exchanging a few aimless words as the time wound on 1, 2 and finally 3 hours beyond the end of my shift. We said nothing of consequence (we talked nearly the whole 3 hours), yet with our eyes we discussed the nature of his visit and all the heavy details beyond (Neither I nor he, can read eyes—but we can understand intentions). He had been brought in by a friend after attempting suicide (the friend was also there most of the time, but that detail doesn’t affect the narrative), and I tried, with my presence, to show him that I was glad that he had not succeeded. I have no idea if he understood what I was trying to say (I didn’t say anything directly—I treated him as a person).

Over my literate years, I’ve been influenced by many writers. I’ve adopted bits and pieces of each of their styles and folded it, largely subconsciously, into my own prose. Most aspects of my writing I couldn’t possible trace back to a single source, but for one area I can actually put a finger on it, and that is how to tell a true war story. In *The Things They Carried,* Tim O’Brien writes about his experience in Vietnam and tells the story of a friend who stepped on a landmine in a shady area with some light poking through the trees. But he insists this is not true, and retells and retells this story, refolding the facts and intertwining aspects of other stories until you get a sense of what this event really means. Because his friend didn’t die to a landmine, when O’Brien looked away, he ascended into a pillar of light. Although the facts would not hold up to scrutiny, I would argue that this story is more *true*, and in my writing I always strive to be true to the emotional complexity of a situation, because that is ultimately what is most important.

Phase III

Historical Pandemics and How We Can Learn from Them

As SARS-CoV2 sweeps across the world, communities, governments, and healthcare systems race to find solutions to novel problems that evolve daily. People in positions of responsibility are increasingly desperate for a framework to predict the manifold changes that may develop in the coming weeks, months, and years. No one has a crystal ball, but to the degree that predictions are possible, they stem from an appreciation of historical pandemics and the ways that societies have dealt with them. This process is not foolproof, as the specifics of each epoch do not map perfectly to modern society but as Mark Twain once said, "History doesn't repeat itself, but often rhymes". As such, I believe that an in-depth analysis of past pandemics may shed light on the challenges that face us as a society and give us a chance to avoid repeating historical mistakes. In this paper I will describe the historical context, course, and consequences of three of the world's most devastating pandemics—the Plague of Justinian (541-700), the Black Death (1346-1353), and the Spanish Flu (1918-1919)—and discuss their most salient connections to our current pandemic.

The Plague of Justinian

The Western world in the 6th century centered on the Mediterranean, with trading routes stretching across the known world and in the year 541 CE, the world was more connected than perhaps any point yet in history. Chinese silk was for sale in the markets of Constantinople (modern day Istanbul), West African traders accepted roman coins, and dozens of Mediterranean tribes and empires fed mostly on imported Egyptian grain. In this world the major power brokers were the Byzantine (Eastern Roman) Empire, the Persian Empire, and the various Barbarian tribes that occupied much of the land formerly controlled by the Western Roman Empire including most notably the Ostrogoths (Italy), the Franks (France), and the Vandals and Berbers (North Africa) (Horgan, 2020). Among this world of competing factions, Justinian, the last great roman emperor, was engaged in a massive military campaign to reconquer huge swaths of barbarian territory that the empire had lost over the prior centuries. It was into this highly interconnected world that *Yersinia pestis*, carried by the rat flea *Xenophsylla cheopsis* (Rosen, 2010, p. 190) emerged to begin the world's first plague pandemic (Harbeck et al., 2013) that would ravage the Mediterranean world intermittently for the following two centuries (Horgan 2020).

It is unknown whether the pathogen originated in India or East Africa, but regardless of its initial origins, once it arrived at the ports of Egypt in 541 CE, it exploded across the fragments of the Roman empire (Rosen, 2010, p. 194-196). Reaching Constantinople in the spring of 542, it killed upwards of 40% of its inhabitants in the space of a few months (Rosen, 2010, p. 210). There, the pathogen encountered a new public health innovation—the hospital. The largest of which, the state funded St. Pantalaimon was almost immediately overwhelmed, and the doctors, schooled in the Galenic tradition of the four bodily humors, struggled valiantly against the disease before being consumed by it themselves. "Constantinople was a window onto Hell. Every day, one, two, sometimes five thousand of the city's residents…would become infected" and of which between 40% and 70% would die within weeks (Rosen, 2010, p. 210-211). John of Ephesus, a witness, wrote that during this time nobody, "would go out of doors without a tag upon which his name was written and which hung on his neck or his arm," (Rosen, 2010, p. 223) in case of their sudden death. As the epidemic progressed in the city, the cemeteries quickly overflowed. Contemporaries describe the horrifying visuals of people stomping on bodies in mass graves in order to compact them and the awful stench that was emitted after Justinian's order to begin burying the dead within the walls of the city (Rosen, 2010, p 216).

This glut of death was further compounded as the plague swept across the Mediterranean, resulting in outbreaks in a large number of coastal cities from the years 541-543 with similarly grisly results. At least 4 million died in this initial wave of the plague (Rosen, 2010, p. 261), but over subsequent outbreaks between 541 and 700 that reached as far west as Ireland and as far east as China, it is estimated that 25% of the population died--between 25 and 50 million people (Horgan 2020). Seeking some explanation, contemporary historian Procopious wrote somberly:

> During these times, there was a pestilence, by which the whole human race came near to being annihilated. Now in the case of all other scourges sent from heaven some explanation of a cause might be given by daring men, such as the many theories propounded by those who are clever in these matters, for they love to conjure up causes which are absolutely incomprehensible to man…but for this calamity it is quite impossible either to express in words or to conceive in thought any explanation, except indeed to refer it to God. (Rosen, 2010, p. 217)

The consequences of the 541-543 outbreak, as well as the subsequent waves--most notably in 558, 590, 597, and 618--pulled back on the reins of a resurgent Roman Empire. Justinian is almost universally recognized as the last consequential Roman Emperor, and though his conquests temporarily recaptured some of the glory of an already distant past, his armies began to flag in the face of a significantly diminished recruiting pool, and after his death in 565 the territory he had regained gradually splintered away. Though many forces amassed to bring the Roman Empire to its knees, many scholars consider the Plague of Justinian to be one of the major factors that contributed to its fall[1] (Rosen, 2010).

Despite the magnitude of the changes that the Plague of Justinian wrought in the short-term, its long-term consequences continue to shape the makeup of the modern world. With the fall of the Roman Empire, Europe was plunged into the Dark Ages and in many parts of the continent, standards of living dropped and levels of violence increased. The Persian Empire was also considered to be so significantly weakened by the plague that it was soon ripe for dissolution at the hands of Muhammad and his armies, paving the way for the rise of Islam (Rosen, 2010, p. 322). Finally, the demographic changes brought on by the plague decreased the need for food, causing large tracts of land to be left fallow. When the population eventually rebounded and required much more food, the farmers of Northwestern Europe became open

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[1] There is academic debate as to the date of the "fall" of the Roman Empire. There are basically two schools of thought, 1) the Roman Empire fell when the city of Rome was captured by Odoacer in 476 2) the empire never "fell" but gradually deteriorated with its last significant high point being the reign of Justinian, and then continuously declined until 1453 when Constantinople was finally captured by the Turks

to new innovations such as the horse-drawn moldboard plow. This led to a cascade of consequences that forever shifted population growth rates, which increased most significantly in Northern Europe, eventually transferring the seat of power from the Eastern Mediterranean to regions such as France and England (Rosen, 2010, p. 264).

The Black Death

If one were to paint a map of modern Europe on a glass pane and drop it, one would have a good approximation of a map of Europe during the 14th century. What are today regions of each particular country were in many cases independent states with fluctuating allegiances to neighboring powers, each nominally responsive to the dictates of the Pope. The governments of the time were almost exclusively feudal with a monarch at their head and in a state of nearly constant war. The lowest social class, the serfs, were essentially slaves by another name, and though a burgeoning merchant class was becoming prosperous, the vast majority of society would have been accustomed to a standard of living well below that of the people in the time of Justinian. Despite these material setbacks, the population of Europe had actually risen substantially in the intervening centuries, and inter-European trade was again flourishing. These were the conditions that set the stage for perhaps the greatest period of human suffering in history, what would then be known as *The Great Mortality* and later as *The Black Death.*

The variety of *Yersinia pestis*[2] that would cause the black death made its first tentative appearance in the Chagatai Khanate (modern day Kazakhstan, Kyrgyzstan, and Uzbekistan) in 1339, probably jumping from an endemic plague reservoir in marmots (Orent, 2004, p. 104). *Y. Pestis* claimed several dozen lives before disappearing for a few years and reemerging with full force in the Khanate of the Golden Horde (Western Kazakhstan and Southern Russia) in the year 1346 (Kelly, 2005, p. 8). Here, it enters the historical record with the dramatic siege of the Genoese outpost city of Caffa in the Crimean Peninsula. Capable of resupply by sea but surrounded on the landward side by the forces of Khan Janibeg, the enemies were locked in a stalemate until the plague began to rip through Janibeg's encampment, weakening his forces and convincing him to break off the siege in 1347. The Genoese rejoiced, and considered this an act of god. However, not one to easily accept defeat, the Khan catapulted the corpses of his

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[2] The infection rate and virulence of the Black Death far outstrips that of later plague outbreaks, despite recent genomic data that shows it is in fact closely related to modern strains of plague. Several theories have been proposed for this though none have much empirical support. 1) during the black death yersinia pestis was also spread by human fleas—a theoretical possibility but not directly observed in modern plague 2) this strain had an propensity for spreading via respiratory droplets (pneumonic plague) that is significantly higher than modern plague—the mechanisms of which have not been elucidated 3) the allele CCR5-Δ32 confers some protection against plague and maybe the outbreaks of the 14th century created a bottle neck that increased its prevalence enough that modern plague is not as virulent as a result – though the counterpoint is that it still isn't *that* prevalent 4) Soviet scientists have a different classification system of yersinia pestis by host organism and they contended that the “marmot plague” had significant tropism for the lungs and is particularly virulent while “rat plague” and “prairie dog plague” are not particularly deadly—this theory is undercut by A) the fact that soviet scientists did not (officially) believe in natural selection or genetics but a state-approved version of Lamarckism called Lysenkoism until at least the mid 60s which casts their explanations into doubt, and B) the relative paucity of published evidence as much of these scientists' assertions derived from their work on plague as a biological weapon

plague-dead into the city before withdrawing. Soon, whether by this first act of biological warfare[3], or by the insidious spread of rats into the city, the inhabitants of Caffa began to die in droves (Kelly, 2005, p 9).

The siege broken, many of the residents of Caffa fled and carried the plague with them across Europe infecting first the coastal cities and then gradually inland until the whole of Europe had been enveloped. As each city fell under the shadow of the plague, a remarkable number of citizens began recording their experiences. Agnolo di Tura, a cobbler, who wrote extensively about his family, his wife, Nicoluccia, and about civil life in Siena before the plague, continued to write after the plague reached his city:

> In many parts of Siena, very wide trenches were made and in these they placed the bodies, throwing them and covering them with but a little dirt. After that they put in the same trench many other bodies and covered them also with earth and so they laid them layer upon layer, until the trench was full. Members of a household brought their dead to a ditch as best they could without a priest, without divine offices. Some of the dead were…so ill covered that the dogs dragged them forth and devoured many bodies throughout the city. (Kelly, 2005, p. 118)

He continued "No bells tolled, and nobody wept no matter what his loss because almost everyone expected death… and people said and believed, 'this is the end of the world'," (Tuchman 1978, p. 95). He wrote about the effects of the plague until the end of the year 1348 where he ended his chronicle with the brief but crushing line, "And I, Agnolo di Tura, … buried my wife and five children with my own hands" (Kelly 2005, p. 119).

The terror felt in Siena was compounded by the many hundreds of tragic stories laid down in personal accounts across the continent. In Ireland, John Clynn wrote in despair, "waiting among the dead for death to come… [I] have committed to writing what I have truly heard and examined… in case anyone should still be alive in the future," (Kelly, 2005, p. 186). In Florence, Giovanni Boccachio wrote:

> It was not merely a question of one citizen avoiding another;…this scourge had implanted such a terror in the hearts of men and women that brothers abandon brothers, uncles their nephews, sisters their brothers, and in many cases, wives deserted husbands. But even worse, and almost incredible was the fact that fathers and mothers refused to nurse and assist their own children as though they did not belong to them… a great many people died who would perhaps have survived had they received some assistance. (Kelly, 2005, p. 106)

But not all who experienced the horrors of the plague turned so callous. In Avignon, papal physician Gui de Chauliac stayed, "to avoid infamy," even after the pope and many of the rich had left the city for the safety of the countryside. He tended to his patients until he became sick himself and, ever the consummate scientist, documented the course of his own illness (Kelly, 2005, p. 160). In Paris, the nuns of the Hotel Dieu (hospital) continued working to care for the sick "with all sweetness and humility," even while they died at a rate so alarming that they had difficulty replacing them (Tuchman, 1978, p. 97).

However, despite the valiant efforts of a few, the plague raged on, and in desperation the survivors looked for someone that they could blame. The French blamed the English, the

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[3] Khan Janibeg is widely considered to be the father of biological warfare

Florentines blamed the Genoese, and the Genoese blamed the Mongols, but by far the most common scapegoat of every European society were the Jews. Antisemitism was by no means new to the continent, but under the stress of the plague it reached a furor that would not be recapitulated until the advent of Nazi death camps. A conspiracy theory of the time held that Jews across Europe had been poisoning wells at the instruction of a mythical Rabbi, Jacob of Toledo, and despite a firm statement from the Pope against it, many cities began murdering their Jewish population as a reaction to, and in some cases a prophylactic against, the plague (Kelly, 2005, p 231-233). In Basel, on January 9, 1349, the townspeople erected a wooden structure on an island, locked the Jewish men, women, and children inside, and set it on fire (Kelly, 2005, p. 255-256). Similarly, in Strasburg, one chronicler wrote that the Jews were, "stripped almost naked by the crowd" and were marched "to their own cemetery into a house prepared for burning," (Kelly, 2005, p. 256).

As the initial plague outbreaks wore on into decades of endemic disease, it also became widely recognized that the poor suffered disproportionately compared to the rich. Scottish chronicler John of Fordun noted that the plague "attacked especially the meaner sort and common people—seldom the magnates," (Tuchman, 1978, p. 98). This was attributed to the aristocracy's ability to flee plague infested cities and retire to their country estates, but likely also involved the stresses of starvation and extreme poverty that beset many of the peasants. Women also seemed to be more vulnerable than men, perhaps owing to their increased time at home and thereby in greater contact with fleas; similarly, members of the clergy as well as doctors were particularly hard hit (Tuchman, 1978, p. 99). This burgeoning understanding of the role of active intervention in public health also lead to the invention of the quarantine. The word "quarantine" derives from the Italian words "quaranta giorni" meaning "40 days" (History of Quarantine, 2012)—a number chosen for its religious significance, but with the fortunate side effect of being longer than the incubation period of plague.

Between 1346 and 1353, it has been estimated that 25 million people died–a full third of the population of Europe (Orent, 2004, p. 136) In the century that followed, Europe experienced a population decline of up to 60-75% (Kelly, 2005, p. 281)[4] bringing the death toll to perhaps as high as 100 million. This holocaust created the preconditions that catalyzed massive social and economic changes that would shape the modern world. With such a large decrease in population, labor became a scarce resource and the lower classes began to demand higher wages (Tuchman, 1978, p. 120). This spurred a counter reaction to attempt to maintain the status quo. In England, Edward III froze wages at pre-plague levels and parliament passed the Statute of Laborers, a law that limited collective bargaining rights and was still on the books centuries later when it was used as the partial justification for breaking up factory unions in the progressive era (Tuchman, 1978, p. 119-120).

However, despite the aristocracy's efforts to put the cat back into the bag, their efforts were ultimately doomed to failure. With peasant demands being met with only heavy-handed suppression, revolts erupted frequently across the continent. In France, the Jacquerie created a smoldering fear of unrest, and in England, The Peasants Revolt planted the seeds of lasting

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[4] Similarly between 1200 and 1400 the population of China decreased by 50% (60 million) though it is unclear what percentage of this was due to disease

social change that would lead to the end of serfdom and the beginning of a free market (Tuchman, 1978).

The Spanish Flu

In February of 1918, the world was embroiled in the bloodiest conflict in the history of civilization. Soldiers from around the globe were mobilized and sent to the front lines of the first world war, fighting battles so terrible that they believed that its conclusion would bring a lasting peace and an end to all future wars. This was a mechanized world, more similar to our own than to the world of a century before, and despite the destruction of the Great War, it was a time of optimism for the medical community. Doctors were well on their way to a scientific understanding of disease, and for the first time in the history of humanity they had the power to not only treat but *cure* infectious disease. One by one, humanity's greatest killers were coming under the power of man—vaccines, antisera, and new laboratory techniques led some to believe that the microscopic world was on the verge of being conquered. Perhaps it was because of this hubris that few took note of a report of "influenza of severe type" that appeared in the weekly journal *Public Health Reports* in early 1918 (Barry, 2004, p. 94-95).

Though it is difficult to know with certainty, it is likely that the outbreak that became the "Spanish Flu" originated from a pig farm somewhere in Haskell County, Kansas (Barry, 2004, p. 98). From there it spread to Europe via troop transport and from Europe to the rest of the world. This Spring wave was widespread but not particularly deadly, killing mainly the very young and very old, but sickening enough of the young German military that General Erich von Ludendorff blamed it for the failure of his spring offensive (Barry, 2004, p. 171). The Spring wave also gave the pandemic its name. Because all of the belligerent nations censored their press, it was only neutral Spain that reported openly of the new epidemic and thus it became the "Spanish Flu" (Barry, 2004, p. 171). The death toll fluctuated throughout the spring and summer, provoking sporadic concern and containment efforts across the affected nations but overall, little attention was paid outside of medical circles. Attention to this new virus was intermittent until late summer, in France, when a random mutation resulted in an increase in virulence that prefigured the single deadliest event in all of human history (Barry, 2004, p. 182).

France, the nexus of the allies and central powers war effort and manpower, erupted with influenza and as some of these soldiers were removed to their homes across the world, they carried the new strain of influenza with them. In the United States, some of these soldiers disembarked in Boston and were immediately quarantined by military officials, but despite their best efforts, on September 3, a civilian was admitted to the hospital. Around the same time, the disease reached the nearby and severely overcrowded Camp Devens (Barry, 2004, p. 184-186). Within weeks the Camp was entirely overrun. Barry wrote, "In a single day 1,543 Camp Devens soldiers reported ill with influenza. On September 22, 19.6 percent of the camp was on sick report, and almost 75 percent of those on sick reports had been hospitalized," (2004, p. 187). Dr. Roy Grist, an army physician at the camp wrote to a colleague:

> These men start with what appears to be an attack of la grippe or influenza, and when brought to the hospital they very rapidly develop the most viscous type of pneumonia that has ever been seen. Two hours after admission they have the mahogany spots over the cheek bones, and a few hours later you can begin to see the cyanosis extending from their ears and spreading all over the face, until it is hard to distinguish the coloured

> men from the white. It is only a matter of a few hours then until death comes, and it is simply a struggle for air until they suffocate. It is horrible. One can stand it to see one, two or twenty men die, but to see these poor devils dropping like flies sort of gets on your nerves…We have been averaging about 100 deaths per day… pneumonia means in about all cases death…We have lost an outrageous number of Nurses and Drs., and the little town of Ayer is a sight. It takes special trains to carry away the dead. For several days there were no coffins and the bodies piled up something fierce… It beats any sight they ever had in France after a battle. An extra-long barrack has been vacated for the use of the Morgue, and it would make any man sit up and take notice to walk down the long lines of dead soldiers all dressed and laid out in double rows… Good By old Pal, God be with you till we meet again. (Ross, 2004, p. 187-188)

The hospital at Camp Devens, designed to hold twelve hundred patients, was crammed with more than six thousand, and when medical officers arrived to investigate the cause of the outbreak, they noted that 35% of the nurses were already among the sick (Barry, 2004, p. 187).

Meanwhile, cities across the eastern seaboard were experiencing their first cases of influenza. Some cities, like New York, reacted quickly by imposing social distancing measures early in the outbreak, but others were not so prescient (Strochlic & Champine, 2020). In Philadelphia, city public health director Wilmer Krusen not only did not stockpile supplies at the advice of doctors, but opposed banning public meetings, closing schools, or imposing quarantines on hotspot areas because he feared that this would cause panic or interfere with the war effort (Barry, 2004, p. 203). The newspapers, barred by *The Espionage Act* under pain of 20 years imprisonment from printing “any disloyal, profane, scurrilous, or abusive language about the government of the United States,” (Barry, 2004, p. 123-124) downplayed the severity of the outbreak. One reported that influenza posed no danger and printed a quote from a public health official that doctors would easily “confine this disease to its present limits” and that “no concern whatever is felt by either the military and naval physicians or by the civil authorities” (Barry, 2004, p. 204). Then, after the deaths began to mount, a paper again quoted, “This disease has about reached its crest. We believe the situation is well in hand. From now on the disease will decrease” (Barry 2004, p. 204).

But the disease did not abate, and in fact was only just beginning to take root in the city. Just a week later, Krusen went ahead with the scheduled Liberty Loan parade against the now desperate advice of other medical officials, drawing thousands into the streets. Within 3 days of the parade, “every single bed in each of the city’s thirty-one hospitals was filled. And people began dying,” (Barry, 2004, p. 220). Yet despite the panic that was now gripping the city, the papers continued printing Krusen’s reassurances, “the peak of the influenza epidemic has been reached;” when more than 300 people died the next day they reported, “these deaths mark the high water mark in the fatalities;” then, after over 400 had died in one day, “Don’t get frightened or panic stricken over exaggerated reports, (Barry, 2004, p. 221-222). Soon the public lost all trust in the papers and in the city government, and even when they started to print logical guidance, few trusted them enough to listen.

On a national level, the response was not much different. While President Wilson extolled the nation to continue the war in Europe, he completely ignored the outbreak of disease. There is no record of Wilson ever making any public statement about influenza, and according to Barry, “From neither the White House nor any other senior administration post would there come any leadership, any attempt to set priorities, any attempt to coordinate activities, any attempt to deliver resources," (2004, p. 302).

Across the nation, scenes played out that were reminiscent of pandemics of ages long past. Coffins everywhere were in short supply, and in Philadelphia an undertaker noted that seminary students volunteered to dig graves, recalling, "they brought in a steam shovel to Holy Cross Cemetery and actually excavated… they would begin brining caskets in and doing the committal prayers right in the trench," (Barry 2004, p. 327). As in prior pandemics, the poor died at greater rates than the rich (Barry, 2004, p. 408-409), and where there was fear, soon followed conspiracy theories. There was a persistent rumor that the influenza outbreak was the result of a German biowarfare attack. A Mississippi paper printed, "The Hun resorts to unwanted murder of innocent noncombatants… He has been tempted to spread sickness and death thru germs, and has done so in authenticated cases," (Barry, 2004, p. 341). And though it didn't result in major atrocities, racism was prevalent throughout the pandemic, particularly against immigrant groups such as Italians and against native people (Spinney, 2017, p. 106).

But in the midst of all this suffering there was a bright spot—in the years during and surrounding the 1918-19 influenza pandemic, it is not hyperbole to say that the doctors and scientists who cared for the sick did so while inventing modern medicine. For several years prior to the pandemic, new scientific practices had been enshrined in medical and nursing education, among which were an understanding of the germ theory of disease, epidemiology, and the reliance on clinical trials to prove the effectiveness of interventions. These precepts resulted in the testing and adoption of the use of cloth masks to prevent infection, the development of a pneumococcal antiserum and eventual vaccine that would be administered during the pandemic, and an awareness of the potential that a filterable virus was causing the disease. The work that began as a race to save lives during the epidemic would later directly lead to the discovery of penicillin by Alexander Fleming, and the discovery of DNA as heritable material by Oswald Avery (Barry, 2004).

The transition to modernity was not always smooth. In many places, people viewed the massive death toll of the 1918-1919 influenza as a repudiation of science, and instead turned to homeopathy and superstition. The New York Times declared "Science has failed to guard us" (Spinney, 2017, p. 235) and in a similar vein, the New York commissioner was removed for political reasons and replaced with homeopath Royal Copeland who would later go on to the senate and ensure that homeopathic remedies were recognized as "drugs" by the FDA (Barry, 2004, p. 267). And while medical journals such as JAMA or The New England Journal of Medicine presented accurate assessments of the death toll and printed negative results of studies of influenza treatments such as quinine or typhoid vaccine as an immune adjuvant (Barry, 2004, p. 353), other magazines were not so beholden to fact. In Philadelphia, a Christian science magazine proclaimed that prayer alone had been more effective than conventional treatment (Spinney, 2017, p. 236), and a national homeopathic journal claimed that the mortality of conventional medical treatment was 28.2% and that the mortality among homeopathic treatment was 1.05% (Barry, 2004, p. 353). Further, there was a backlash against the compulsory wearing of masks, and in San Francisco, an Anti-Mask League was founded (Canales, 2020) though they did not gain much traction.

In all, the 1918-1919 influenza pandemic killed an estimated 50 million people, including 675,000 Americans (History of 1918 Flu Pandemic, 2018), more Americans than have been killed in all the wars of the 20th century combined. There was a trimodal death curve, peaking for those under 5 and over 65, but also uncharacteristically peaking among those 20-40 (History of 1918 Flu Pandemic, 2018) with one autopsy study revealing that almost half of those died of what would today be considered ARDS (Barry, 2004, p. 252). This pandemic strained the global healthcare system to its breaking point and highlighted both the hubris and the promise of medical science at the dawn of the 20th century. In the years since the pandemic, the Spanish Flu has become the case study from which most of our pandemic preparedness has been based, and from its ashes grew the seeds of a rigorous, scientific, medical field with the tools to more effectively cure disease and relieve suffering. Nevertheless, the Spanish Flu has often been called the forgotten pandemic, and given the granularity of recent past along with its confounding proximity to WWI, it is hard to draw more firm societal trends from the chaos of recent history than we could with more ancient events. Thus, beyond its immediate consequences, it remains to be seen what the effects of ‘flu in the 20th century’ will be.

Conclusion

When reading history, I am always struck by the similarities with the present, but most of all, by the constancy of human emotion. The story of disease is intimately tied to the story of humanity and the grief, heroism, and horror run through this story as an unbroken thread. Our shared humanity does not change, but our societies do, and with each successive pandemic we have the opportunity to learn from the past and to avoid meeting the same fate. To that end and with the lessons of the past in mind, we will turn back to the present.

The common themes that run through the history of the world’s worst pandemics are 1) the understanding that pandemics shape world history in ways that are difficult to predict, 2) the dangers of xenophobia and racism that may arise, 3) the importance of social determinants of health in shaping population outcomes, 4) the efficacy of early public health interventions 5) the prevalence of superstition and conspiracy theories, and 6) The social and economic changes that result.

Drawing on an appreciation of historical pandemics, we can predict that the current COVID-19 pandemic will indeed have a profound effect on the future of our country and our world. The geopolitical consequences of the pandemic have already begun to manifest, including strained relations between the US and China and the uncertain future of international organizations such as the WHO. However, it is difficult to anticipate what the secondary and tertiary effects of these trends will be. Further, the recession brought on by the pandemic is beginning to highlight economic inequalities that have long been present and will likely soon be exacerbated. History shows us that pandemics have the power to topple empires and lead to massive economic disruption. This should prompt us to expect the inevitability of change, and to lean into these changes and try to shape them, rather than trying to fight the tides of history.

In the more immediate future, comparisons of past pandemics illustrate the infernal influence of racism, as well as the likelihood that conspiracy theories will arise. Taken together, these highlight the importance of recognizing both trends early and addressing them before they become a more serious issue. The stigmatization of Asian Americans highlights the former. Thankfully, our society has largely reacted against this and confined this belief to a prejudiced few, but among these actors there still lurks the potential for harm that we should remain aware of given historical precedent. Additionally, just like those who imagined an international

Jewish conspiracy or a German Biowarfare Attack in the previous pandemics, conspiracy theories have arisen during our current one. These conspiracy theories not only undermine rational and reasonable public health measures, but create the potential for physical harm to targeted groups. Videos like "Plandemic" or the vitriol surrounding the WHO and Anthony Fauci excite hatred and simultaneously smother the truth. Again, history is not sanguine about the destination that these paths lead and it is imperative that this be addressed in the light of day with compassion and education before it festers further.

Finally, and perhaps most depressingly, a knowledge of historical pandemics reminds us that we have continued to repeat the mistakes of the past. History has shown that platitudes about the mildness of disease and delusions of control not only delay actions that could have saved lives, but actively undermine public trust in vital institutions that are most needed during these times. Further, countless examples exist to underline the importance of preparation and of early and decisive intervention in order to save lives. A recent study projected that 36,000 lives could have been saved by an earlier intervention in the US (Glanz & Robertson, 2020), but ultimately the greatest tragedy of this is not only the thousands who died this year, but that the millions who died in centuries past died in vain. But history is still being written—as we move forward through this pandemic we can continue to look to the past as example and counterexample of the paths that we might tread, and we can redouble our efforts to ensure we are prepared for the inevitable next pandemic.

References:

Barry, J. M. (2004). *The great influenza: the epic story of the deadliest pandemic in history*. New York: Penguin Books.

Canales, K. (2020, May 21). Photos show how San Francisco had to convince its 'mask slackers' to wear masks after many defied the law while the 1918 Spanish flu pandemic seized the city. Retrieved from https://www.businessinsider.com/san-francisco-anti-mask-league-1918-spanish-flu-pandemic-2020-5

Glanz, J., & Robertson, C. (2020, May 21). Lockdown Delays Cost at Least 36,000 Lives, Data Show. Retrieved from https://www.nytimes.com/2020/05/20/us/coronavirus-distancing-deaths.html

Harbeck, M., Seifert, L., Hänsch, S., Wagner, D. M., Birdsell, D., Parise, K. L., Wiechmann, I., Grupe, G., Thomas, A., Keim, P., Zöller, L., Bramanti, B., Riehm, J. M., & Scholz, H. C. (2013). Yersinia pestis DNA from skeletal remains from the 6(th) century AD reveals insights into Justinianic Plague. *PLoS pathogens*, *9*(5), e1003349. https://doi.org/10.1371/journal.ppat.1003349

History of 1918 Flu Pandemic. (2018, March 21). Retrieved from https://www.cdc.gov/flu/pandemic-resources/1918-commemoration/1918-pandemic-history.htm

History of Quarantine. (2012, January 10). Retrieved from https://www.cdc.gov/quarantine/historyquarantine.html

Horgan, J. (2020, April 20). Justinian's Plague (541-542 CE). Retrieved April 22, 2020, from https://www.ancient.eu/article/782/justinians-plague-541-542-ce/

Kelly, J. (2005). *The great mortality*. New York: HarperCollins.

Orent, W. (2004). *Plague: the mysterious past and terrifying future of the worlds most dangerous disease*. New York: Free Press.

Rosen, W. (2010). *Justinians Flea: Plague, Empire and the Birth of Europe*. London: Vintage Digital.

Spinney, L. (2017). *Pale rider: the Spanish flu of 1918 and how it changed the world*. London: Vintage.

Strochlic, N., & Champine, R. D. (2020, April 7). How some cities 'flattened the curve' during the 1918 flu pandemic. Retrieved from https://www.nationalgeographic.com/history/2020/03/how-cities-flattened-curve-1918-spanish-flu-pandemic-coronavirus/

Tuchman, B. W. (1978). *A distant mirror: the calamitous 14th century*. New York: Alfred A. Knopf.

Is Anybody There?

Few things bother me more than when I see someone talking past a patient as if they are not there. Some of the most profound conversations I've ever had took place with a person who lacked the capacity to respond. When my girlfriend's father was comatose, I knelt at his deathbed and asked for his daughters hand in marriage. When I informed a patient with dementia about a critical medical decision, I looked her in the eyes as I spoke. And every morning when I pre-rounded on unresponsive patients in the ICU, I greeted them warmly and told them what I was doing.

I believe a fundamental aspect of being a doctor is recognizing and appreciating every patient's unique humanity and treating them with respect. This extends especially to patients who may not be able to respond. If you are meeting a patient for the first time, it is pure arrogance to assume you can guess their level of awareness accurately enough to discount their potential fears, and even for patients in whom you have a high degree of certainty about their capacity, it is better to err on the side of kindness than indifference. In practice this means that no matter what the situation is, you always ask (or inform if the situations warrants it) the patient when you would like to ask their caregiver questions, and you always speak to them respectfully no matter the situation. It also means that when appropriate you explain what you are doing to their body (telling them you are about to insert an IV, or that you are taking them down to surgery) rather than just subjecting them to it.

When treating patients who seem to lack the capacity to respond, I always imagine what it would be like to have perfect awareness yet lack the ability to express myself, and then I ask myself how I would like to be treated in that situation and try to make that the way in which I behave.

Volunteering as a Treatment for Depression?

Victor Frankel, a psychiatrist and holocaust survivor, once wrote, “Those who have a 'why' to live, can bear with almost any 'how’”. He believed that meaning was central to a fulfilling life, and that consequently the search of meaning was a fundamental component of the treatment of psychopathology like depression.

Most providers understand this intuitively—that patients with purpose and avenues for joy tend to be less likely to develop major depression. And while this is not a perfect correlation, in almost all cases it is a worthwhile treatment goal. But though the role of meaning is often implicitly acknowledged in patient/provider interactions, it actually rarely rises to the level of active intervention. What if we could bring this to the forefront? What if we could prescribe “meaning” as a therapeutic intervention?

Maybe we can.

A growing body of literature is showing that volunteering may be an effective intervention to help adress depression. And while the exact mechanism of this effect is not known, incubating a sense of meaning and purpose through service seem to be strong contenders. A number of qualitative and cohort studies have looked at this relationship and found that across a number of populations, volunteerism has been associated with lower feelings of depression, higher life satisfaction, and in some studies, better health overall. Additionally, the aggregate of these studies sketch the beginnings of a defined dose-response relationship, with greater number of volunteer hours equating to better outcomes, up to a certain point. The vast majority of this research centers around elderly adults where the relationship has been fairly well characterized, but studies of younger patients also show a significant, if slightly less robust impact.

The few randomized controlled trials that have been conducted on this phenomenon have shown mixed results, with several likely not achieving a high enough “dose” of volunteerism. However, the direction of effect across the aggregate of the literature highlights this concept as one worthy of further study.

As a longtime volunteer, this has long been a passion project of mine. What if clinics could have the infrastructure in place (in a post-pandemic world) to prescribe a volunteer opportunity as easily as one might prescribe physical therapy or a medication? Provided the data backs up the effectiveness of such an intervention, this could have a force multiplying effect on the health of a community. Not only would the patient/volunteers reap the benefits of greater mental and physical health, but they would go out into the world and continue to help others. I think this is a very worthwhile goal.

My Blood on the Floor

Each time I visit the Red Cross, I surrender two units of packed red blood cells and am met with the assurance that with each donation, lives are saved. The cynic in me had pictured a freezer-burned bag of my cells tossed in a biohazard garbage, but despite my pessimism, or perhaps directly because of it, the Red Cross accepts each unit with much fanfare. T-shirts, gift cards, and trinkets are presented as rewards, but faced with a critical shortage, they seem to have focused in on the notion of confronting the cynics like me with the reality of the need.

Last year, as a part of this initiative, the Red Cross sent a notification via email of the arrival of my blood at the same hospital where the rest of my cells were recently employed as a medical student on a trauma surgery rotation. At first I thought little of it—I had donated with the hopes that it would be used, and I told myself that I would treat it with the same indifference that I would give to any other medication—but on rounds that day when one of my patient's CBC revealed an asymptomatic anemia, a unit of blood was to be ordered and I suddenly felt uncomfortable.

The moment passed and the blood was ordered, but as the hours and days wore on, I viewed each infusion with an increasingly profound significance. With each unit I felt a sudden ownership that was thrust upon me. A degree of responsibility that I seldom felt as a medical student. That was my blood that hung at the bedpost of a hemophiliac, my blood that was slammed through a rapid transfuser in the heat of a trauma activation, and my blood on the floor as I surveyed the wreckage of a cold body.

Over the coming days I acutely felt the haunting dread that followed each decision I recommended. How would I feel if one of these patients had an adverse reaction to my blood—to the piece of myself that I gave only in good faith. I had tacitly relinquished the control of the blood I donated, but when it came to the final act, I was unsure of the implications. This was far from my norm where I would put in my time and blithely fulfil my duties. In the space of an infusion, I would cede a piece of myself and gain a tangible stake in the fate of another that would transcend duty hours and receive no tangible recompence.

To be responsible for their fate in ways more direct than any I had yet experienced tormented me at first, but in the eye of this storm I realized that it was not a sensation that was totally foreign to me. This was the same sensation I felt when I woke up in the middle of the night worrying about how a patient was faring post-operatively, or returned to a bedside long after my shift had ended. As I grew as a student-doctor I saw past the tangible part of myself I had given, and began to see the ever more substantial stains of blood that invisibly covered the hearts of so many in that hospital.

I looked around at the physicians I was with and finally realized that my pain was also their pain. I saw for the first time the reality of their continuous sacrifice. I saw in that moment, the emotional scars they bore from the pieces they had given of themselves. Some were as old as their medical school training, and many more were fresher still. Since that experience, not a day has gone by where I don’t try to recapture the essence of that feeling. For each patient I try to heal, there is a cost to be borne, but with that comes an incomparable connection. I see clearly now how continuously tapping this reservoir can leave one immobilized by compassion fatigue, but I also begin to appreciate the true nobility of building a body of work that exists solely of the pieces that you give of yourself. There is meaning in this pain, and with the appreciation of connection my blood brought me, I have begun to believe that the tragic beauty of medicine is measured not in the volume of care that we give, but the pain we feel for each drop of blood that we leave on the floor.

The Other Viral Threat

In the tail end of September, an email attachment was forwarded to an unknown employee in the United Health Services network. It would have been innocuous. Disguised in the form of a trusted source or gift—a trojan horse. The attachment—once opened—would have run an extension, that instantaneously wormed its way into the computer network. It would have spread laterally through the nodes of the UHS network, dredging out its contents and harvesting their data. Then, once it was sated, the virus would deploy its killer payload: Ryuk. A play on the death spirit from the manga, "Death Note", the malware encrypts all the files and backups that it can get its claws around until the entire network is frozen, bound in digital chains. Then in the stillness of a dead screen it delivers a message demanding its ransom in Bitcoin.

The message varies from attack to attack, but in each case it is signed: "Ryuk. No system is safe."

This attack, possibly orchestrated by Russian or North Korean based hacking groups, brought the facilities operated by UHS across 37 states to a grinding halt, forcing over 90,000 employees to care for patients with pen and paper until the code was broken, or more likely, until the ransom was paid.

This attack was unique only in the fact that it was widely reported; in fact, in August of 2020 alone, 2,167,179 medical records were stolen or improperly exposed[1], and in previous years it has been estimated that 25% of healthcare organizations experienced *very* or *extremely disruptive* cyber attacks[2]. Each attack presents an opportunity for hackers to abscond with valuable data and rake in a ransom that could number in the millions of dollars. In the peculiar landscape of cyberspace, these attacks allow state actors like Russia and North Korea to brazenly plunder the infrastructure of foreign countries, causing so much monetary damage that if it occurred in any other domain it would likely be considered an act of war. In this new interconnected world, hospitals have become outposts on the frontlines of an ongoing conflict. Combining a trove of valuable information, a desperate intolerance of network outages, and the money to cover any ransom, hospitals represent the perfect targets for a potential attack.

However, while the system-wide costs are substantial, the real immediacy of these attacks reaches you at the individual level. Thousands of critically delayed treatments. Orders and critical lab work lost to filing errors at the hands of staff unfamiliar with paper charts. And finally, ambulances rerouted away from blighted hospitals causing patients to die while in transit.

The latter case was from cyberattack on a German university hospital, and is widely regarded as the first death attributable to a cyberattack[3]. However, despite the low death count, network outages from cyberattacks doubtless incur a substantial morbidity that is difficult to calculate.

Around the same time as the UHS attack, my hospital system experienced a similar event. Thus far the cause of their network outage in my hospital has been unconfirmed, but during the week when many of their computer systems were down, the hospital was in chaos. Not only were medical records inaccessible, but the pneumatic tube system that ran through the hospital transporting specimens and medication were halted, compounding delays in care. In an instant, every individual member of the hospital staff was cast adrift and in many cases had to reinvent their workflow and protocols on the spot. Young residents and nurses who had never used a paper chart suddenly found themselves writing critical orders on scraps of paper because the old paper charts had not been maintained. Throughout the hospital, the pager system, which was operated on a computer network, devolved into a series of cold calls and hurried messengers. Outpatient visits were canceled, cancer treatments were postponed, and EMS was diverted to other hospitals.

Thankfully, there were no adverse events reported during the outage, but given the prevailing chaos I shudder to think of what could have been. This disruption, multiplied hundreds of times across the healthcare facilities throughout the US, amounts to a clear and present danger to the health of the country. Hospitals need to prepare for cyberattacks like they plan for any other disaster. Not only do they need to take the necessary steps of investing in secure networks, training employees on good cyber-hygiene, and hiring dedicated IT security staff, but they need to prepare for the eventuality of a total network collapse. This includes running drills that simulate an outage, having blank paper charts at the ready, and instituting protocols for staff to follow in the first minutes and hours after an outage. Beyond this, there needs to be a national call to action to protect American cyber-infrastructure. This represents a vital security interest to the nation and includes not only the vulnerability of American hospitals, but of utilities, banking, and retail.

The US has virtually no national standards for cybersecurity and provides little funding to cover the cost of what is essentially a national defense issue. Hospitals have found themselves on the frontlines of a multifront war, but have thus far been fighting alone. We need governmental support to continue to optimize health system security because while many large systems are able to cover the cost of substantial security operations, it ultimately increases the hospitals bottom line and filters down into ever increasing healthcare costs for patients. This is an emerging, critical issue that will only intensify in the coming years. My hope is that we can take the necessary steps to safeguard the health of our people before an even more destructive cyberattack brings our healthcare system to its knees.

1. https://www.hipaajournal.com/august-2020-healthcare-data-breach-report/
2. https://www.securitymagazine.com/articles/93482-uhs-hospitals-hit-by-ryuk-ransomware-forced-to-shut-down-systems
3. https://www.nytimes.com/2020/09/18/world/europe/cyber-attack-germany-ransomeware-death.html

Human Trafficking and Medicine

Omaha is a relatively young city. Raised on the banks of the Missouri river before Nebraska was inducted as a state, it positioned itself as the "gateway to the west," and within decades of its founding, it drew the eye of the Union Pacific Railroad company looking to construct the radical new transcontinental railroad. This injected a vitality into the city that allowed it to grow at an amazing rate. Prospectors and businessmen flooded into the city on their way to the California goldfields and became caught up in the youth and enthusiasm of the new city. It was around this time that the Union Stockyards were founded in 1883, and quickly became a major industry in the region. The cattle trade and meatpacking industry exploded and by 1955 Omaha had become the largest livestock market and meatpacking center in the United States. Omaha continued to grow and positioned itself as the hub that linked the east and west.

This history is important because it explains the state of the city now. Omaha has gained notoriety for a new kind of flesh market and its evolution and distribution are intricately tied to the city's growth. In any city, the movement of large amounts of people causes the population to fluctuate, and with it comes an increase in the demand for sex workers. This fluctuating demand requires the movement and victimization of larger than average numbers of men and women being sold for sex. In pre-pandemic times, events like the college world series brought an influx of fans, and with it a wave of trafficked men and women.

Omaha is not unique in this; in fact, on a list of cities ranked by per capita cases of sex trafficking it ranks only 60th at less than 15% of the leader, Washington D.C.[1]. And like most cities in the US, Omaha has only recently come around to the idea that the criminals in human trafficking are the buyers (johns) and the pimps—not the victims. Because of the adoption of this new philosophy, victim advocates and police have begun to work closely with each other, and FBI-lead taskforces have begun making the news for pioneering what has been called the "Omaha Model" of dismantling national sex trafficking rings[2]. Unfortunately, the city and the nation have been relatively new to this approach and a certain amount of feet dragging and growing pains have been a natural consequence.

Nowhere has this painfully slow rate of change been more detrimental than in medicine. Medicine is a naturally conservative profession and as a result, changes in policy often require a long time to take hold. In an international survey of medical students in 2014, it was shown that increased knowledge about the barriers to care experienced by female sex workers was correlated with a more positive attitude toward them[3]. and previous studies have shown that it is this perceived stigma by healthcare that is an important driver of a victim's decision to seek care[4]. But even a significant change in the attitudes of the next generation of physicians might not be sufficient to stem the tide of this modern-day slavery. In one study, 88% of individuals reported encountering a healthcare professional during the time that they were being trafficked[5], but according to the Nebraska Human Trafficking Task Force, 70% of Nebraska physicians do not screen for human trafficking and 84% believe they are not able to meet the needs of survivors[6].

These data collected at the state and municipal level make Omaha a microcosm of the systemic problems that exist across the nation. While the trending #SaveOurChildren hashtag has brought the issue of human trafficking into the public consciousness once again, this movement has largely been all smoke and no fire. Armchair activism has its value, but the interventions that actually make a difference in the lives of individuals who are being trafficked are breaking the cycle of victimization—whether by identifying and providing help to those who need it (the role of healthcare) or by prosecuting the traffickers (the role of law enforcement). Healthcare workers need training in order to better identify victims of human trafficking and once recognized, they need to have the right skill set to respond appropriately. This directive should be twofold: didactic instruction on the realities of human trafficking and practical experience.

Several patients/victims whom I have interacted with have been wary of police involvement, but have often been willing to accept other avenues of help. This speaks to the necessity of having multiple avenues of assistance available at the point of contact—an approach that has proven difficult due to both time and monetary constraints. Therefore, the next important step in developing a systematic response to human trafficking is greater investment in developing and promoting a repertoire of resources that healthcare workers are able to provide including safe shelters, counseling, and material assistance. In Omaha this mostly comes in the form of the excellent work done by hospital and community social workers, as well as a number of NGOs such as the Women's Center for Advancement and Heartland Family Services, among several others. However, despite the good work these organizations do, they are fighting an uphill battle and significant cracks exist in the system through which many victims of trafficking are falling through. Closing these gaps will require a multifaceted approach that involves optimizing systems and personnel already in place and further work in develop collaborative and comprehensive systems that are able to support these individuals in the short and long term. There is much work to be done and the barriers may seem nearly insurmountable, but as the old saying goes "The best time to plant a tree was 20 years ago. The second best time is now." We had better get started.

1. https://humantraffickinghotline.org/sites/default/files/100%20Most%20Populous%20Cities%20Report.pdf
2. http://www.ketv.com/article/omaha-leads-the-way-in-year-long-nationwide-human-trafficking-operation/20640508
3. https://digitalcommons.odu.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1018&context=commhealth_fac_pubs
4. Baldwin S, Eisenman DP, Sayles JN, Ryan G, Chuang KS. Identification of Human Trafficking Victims in Health Care Settings. Health Hum Rights. 2011 Jul 14;13(1):1-14.
5. Boatright, A. (2018). *Human Trafficking*. Lecture presented at 2018 Webinar Series in Omaha, NE.
6. https://ago.nebraska.gov/sites/ago.nebraska.gov/files/doc/2016-02-10%20SexTrafficking%20Background%20Summary.pdf

Understanding Mortality

In high school I worked as a lifeguard. I still remember my first rescue—the suddenness of the event, the chill of the water over my head, and the lingering adrenaline refusing to abate after we reached the pool deck. After the event, my mind whirred on with anxious fury. What if he had aspirated? What if his heart had stopped? What would I do next? And after that?

I used to think that if only I knew enough, I could keep everyone alive. There was always a recourse, and always a new idea. Maybe it was this idea that carried me into med school, or maybe it was just a convenient story for an interview.

However it happened, in time I ended up in a medical school lecture hall learning about the mechanisms of disease and the manifold ways we could subvert them. In my mind I was drawing battle lines, conscious of the fight I would soon be waging against each manifestation of illness and of the high stakes of failure. By this time, I still thought of life and death as unmitigated good and evil respectively. It seemed clear to me that every day, minute, and second of life gained was a victory to be celebrated, and that each ailment deserved an automatic response. A cancer was to be eradicated, a flopping heart called out for a LVAD, and troubled lungs were to proceed naturally to a ventilator and then to ECMO.

Yet when I began to care for patients directly, my perspective rapidly began to shift. In the hospital I witnessed the harm occasionally caused by our own interventions and witnessed sleeping bodies tortured relentlessly to eke out a few more silent days. I saw also the tranquility some found in facing death and meeting it on their own terms. Over the months in which I cared for critically ill patients, I came to realize that to rage against the dying of the light was a noble act only if it occurred on behalf of the patient, rather than on behalf of the medical staff. This is not to say that all drastic life saving measures are misguided, but rather to consider their use within the broader context of a patient’s goals.

I believe that there is such a thing as a good death, and after long experience in the hospital I also believe that there is such a thing as a bad one. I think most healthcare workers intuitively understand this and it is evidenced by the different ways they choose to die. When compared to the general population, more healthcare workers opt for Do Not Resuscitate orders and larger proportions choose to die at home. But why do we not achieve the same for our patients? I think this difference stems from the innate posture towards death which drove us to medicine—namely, that we were drawn to this field to save lives, not to let them slip away. This also is a residue of our culture, not just in medicine, but across the western world. It is through this cultural aversion to the topic of death that we seek to push away any discussion of the subject, and thus are unprepared to give up the fight when the appropriate time comes. In healthcare we are forced to confront not only the topic of death, but also the very real limits of our ability to hold it at bay. This gives us the advantage of long introspection about our own mortality, but within the greater cultural milieu also makes it difficult to provide the same perspective when caring for our patients.

The urge to fight is so strong that it can easily overwhelm our more considered judgement and lead us to cause more harm than good. In order to better advocate for patients, I have learned that I have to moderate my own inclinations and approach the questions of end of life care with humility and with compassion. This includes being willing to have frank and occasionally uncomfortable conversations but in the end, I believe this equates to better care and in a more holistic sense, better outcomes.

First Day on the COVID Ward

I pressed the dome of my N95 solidly onto my face and stretched the tight yellow straps over my head. Next came the face shield—hurriedly 3D printed at a local university when demand had far outpaced the supply—which was hung vigilantly in front of my mask and glasses. I was now ready to enter the unit, bedecked in the smothering equipment that would not leave my body for hours to come.

For the months prior to a few days before my first shift, our institution had restrictions in place on medical students' responsibilities regarding COVID positive patients. At first this reflected the severe PPE shortages that threatened the whole nation, but as time wore on it was maintained by inertia and some vague mumblings about 'risk management' on the part of medical school administration. In the past weeks, the number of cases in my community exploded, and with it, the local hospitals expanded to meet the demand. At the hospital with which my medical school was affiliated, the "COVID rooms" gave way to "COVID Floors" and in the past 3 weeks the "COVID Floors" subsumed the hospital towers they occupied, until it became more convenient to identify where the isolated non-COVID floors were located. With the exponential increase of COVID positive patients came the need for more bodies and more help on the wards. Thus, the medical school reversed their earlier decision and established a rotation for M4 volunteers

It was in one of these hospital towers converted to an isolation ward that I began my COVID rotation. I applied my mask in what was once a patients' room but now served as a staging area for donning PPE. I stepped from the room into the bustle of a busy hospital floor—nurses rushing from computers, deftly slipping into their gowns and gloves and entering the rooms to tend to patients. The swishing of plastic gowns was ubiquitous, and every hour a saccharine voice would announce on the hospital intercom that "For the safety of all, everyone must wear a mask at all times".

I took a deep breath, which lingered within my N95, and began to seek out my patients for my first day on the COVID ward. The process of entering each new room was carefully scripted by infection control. Each precaution—gown, gloves, and hand hygiene—I had done thousands of times before, but somehow, in the uniqueness of the setting, I fumbled haplessly through each step. Finally, after much difficulty, I was able to enter the room and greet each patient. As the most junior member of the team, the attending had been careful to give me the least critical patients but even so, with every new patient, my casual, "how ya doin'?" was invariably answered with, "terrible," rasped over the ever-present hiss of oxygen.

After I had seen my patients and pended my orders, rounds proceeded with an eerie normalcy that was interrupted only by the tedium of donning and doffing PPE at every door. Rounds occupied most of the morning, but once they were done, I was able to finally remove my N95—which by that point felt like it had melted onto my skin. Despite having to immediately apply a procedure mask, the freedom to breathe cool air was rapturous, and for a moment I stood alone in the clean room, eyes closed and breathing. I thought of my patients' ravenous need for oxygen, and in my minds eye I multiplied those gasps across the dozens of rooms that spanned almost the entirety of the hospital, and took one more indulgent breath.

It will be a long month.

The Language of Addiction

Words matter, and even more so in medicine. There has been a movement in the last several years to adopt a person-first language of disease that emphasizes the humanity of each individual and divests them from any diseases they might have. Thus, someone is not a diabetic or schizophrenic, they are a person with diabetes or schizophrenia. This is a kinder and more humane, not to mention more precise, way of speaking about patients, and discourages the cynicism and distance that is poisonous to the doctor-patient relationship. This is especially important in medicine because there is a high correlation between disease states as adjectives and social stigmatization, and the line between the two can easily become blurred. For example, you would be hard pressed to find someone with leukemia described as "a cancer" but encountering a manic depressive or psychotic is relatively common. This of course is not always true, as is the case with "hemophiliac," but still, by referring to a person with hemophilia only as their disease state you reduce them from a person with a ailment to a gene mutation with a face.

Person-first language has been gradually adopted throughout medicine but the language used to describe addiction has notably lagged behind. I frequently hear junkie, crackhead, meth head and stoner, among many other adjectives, dropped casually in conversation among health professionals, often with no awareness of how dehumanizing it is to patients. This perpetuates stigma which, at best, is counterproductive to care goals as it tends to discourage people from being truthful and seeking treatment, and at worst, signals to a patient with a substance use disorder that their provider does not care about them. This is reflected in the robust finding that negative attitudes toward people with substance use disorders among healthcare professionals leads to poorer outcomes for their patients. Numerous studies have also demonstrated that describing patients as a "substance abuser" vs a "person with a substance use disorder" in written vignettes leads to more punitive behavior, and lead providers to be less likely to report that those individuals deserved treatment. The way healthcare providers describe individuals with substance use disorders directly contributes to worse care, and therefore it is incumbent on all of us to do our part to alleviate this stigma and provide better care to our patients.

With the importance of this endeavor in mind, the DSM-5 did away with the categories of substance abuse and substance dependence and replaced it with a single category of substance use disorder with a mild, moderate, or severe designation. Furthermore, numerous specialty groups like the American medical association have called upon practitioners to eliminate stigmatizing language surrounding addictions. *Abuse* of a substance has exited the official medical lexicon because it is pejorative and fairly unhelpful clinically. Other examples of this trend are to refer to urine drug screens as "positive" or "negative", rather than "clean" or "dirty," respectively, and to apply person-first language to other substance use related conditions such as alcohol related cardiomyopathy (as opposed to alcoholic cardiomyopathy). The terms "addict" and "alcoholic" are in a grey area because they are being somewhat reclaimed by substance users much in the same way that "queer" was reclaimed by gay people, but as a general rule, providers should not use these terms unless the patient prefers them.

In all, by making a commitment to use person-first language, providers can help to improve care for this especially vulnerable and stigmatized population. I believe this is a worthy goal that is worth a few brief words to correct your colleagues.

The Dunning-Kruger Effect

The Dunning-Kruger effect is a cognitive bias that was first described in a 1999 paper by David Dunning and Justin Kruger. In it, they described the results of several studies where individuals who scored low on various measures of cognitive ability tended to overestimate their knowledge or skill in a particular domain, while those who scored higher on these cognitive tasks actual tended to estimate a much lower knowledge or skill level. The authors noted that "this overestimation occurs, in part, because people who are unskilled in these domains suffer a dual burden: Not only do these people reach erroneous conclusions and make unfortunate choices, but their incompetence robs them of the metacognitive ability to realize it" (1999). Thus, the more you know, the more you realize you don't know.

This observation has been challenged somewhat in the scientific literature, but their idea has resonated in popular culture and has been applied across a multitude of domains. The most common way to see this represented is as a U-shaped graph with 'confidence' on the X-axis and 'Knowledge' on the Y-axis—a relationship that is so potent that once you are aware of it, you start to see it everywhere from climate change denialists to anti-vaxxers.

Nowhere is this effect more prevalent than in issues regarding health. I have often been astonished by some of the statements that I have seen on Facebook or on certain fringe news sites that exude an abundance of confidence but represent a fundamental misunderstanding of even the most basic aspects of the science. The issue is then self-reinforcing because viewers with low health literacy subsequently regurgitate this information with equal zeal, while people with significantly more scientific knowledge are forced to couch their rebuttals with citations and caveats because they have an understanding of how complicated the topic actually is. Anyone who has ever been sucked into a social media flame war or been called on to correct a family member's misinformation has experienced the marked difference between the energy required to explain a complicated topic and the ease of someone who can reject that conclusion with their 'gut'.

This cognitive bias towards oversimplicity leading to overconfidence is especially dangerous in the time of COVID-19. Discussions about masks reducing inhaled oxygen or hydroxychloroquine as a panacea that seem to refuse to die on the internet actually cause tangible harm if left unaddressed. It is part of the duty of healthcare professionals to correct misinformation that could lead to harm despite how exhausting it may be. It's the responsibility of those on the right side of the Dunning-Kruger graph to educate those on the left.

References:

Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of Personality and Social Psychology, 77*(6), 1121–1134. https://doi.org/10.1037/0022-3514.77.6.1121

To Kiss the Banana Trunk: Using the lessons of Ebola in the fight against COVID-19

In December of 2013, an 18-month-old boy fell ill in a small village in Guinea. Although it was not initially apparent, he had been infected—most likely from a bat reservoir—with *Zaire ebolavirus*. Within months, the outbreak had spread to the major cities of neighboring countries and in August of 2014, the WHO declared the West African Ebola outbreak a Public Health Emergency of International Concern.

In total, the outbreak would span two and a half years, involve 28,600 cases and 11,325 deaths, a number that would have been significantly higher without the heroic interventions of communities and health workers. This outbreak was complicated by unprecedented spread in urban areas, conflict between infection control practices and local customs and beliefs—particularly those surrounding death and burial—and distrust of medical authorities.

These barriers necessitated creative solutions, and in Sierra Leone, one of the groups that stepped up was Commit and Act. A group that was founded in 2010 to support healthcare professionals treating individuals suffering from the after-effects of trauma, as well as other mental health issues including domestic and gender-based violence. The group specializes in administering and training others in Acceptance and Commitment Therapy (ACT), a psychotherapeutic modality that emphasizes psychological flexibility and living according to one's values. When the Ebola epidemic began in force, local director of Commit and Act, Hannah Bockarie, realized that that the organization's skill set was uniquely suited to assist healthcare workers in interfacing with local communities.

Through their work they were able to provide therapy to hundreds of people whether individually, in groups, or in workshops. Their mission was twofold: first, to provide basic information about Ebola and its prevention and second, to work with their clients to encourage acceptance of their feelings and encourage behavior change that was adaptive.

For example, in Sierra Leone, burial rights involve prolonged contact with the bodies of dead loved ones, including often hugging and kissing the departed. This was an extremely problematic practice in the context of the Ebola outbreak and as a result, medical authorities were quick to discourage such activities. However, in populations with low medical literacy, this was anathema and quickly engendered hostility and distrust. Noting this tension, workers with Commit and Act provided education in a non-judgmental fashion and worked with communities to brainstorm ways in which they could employ psychological flexibility to continue honoring the dead while modifying their behavior to be safer. The solution that one group came up with was to substitute the corpse of a loved one with a banana trunk that could be blessed, touched, and kissed before being lowered into the grave.

Asking a family to imperil their loved ones journey to the afterlife is a hard thing to ask in any culture, but in these communities, individuals were able to alter the symbolism of actions like washing or laying upon a loved one with similar enough mechanisms that they were able to act both according to their values and in accordance with medical advice. With this new cognitive frame, families were able to honor their dead in traditional ways while halting the spread of Ebola.

Kissing the banana trunk was a truly beautiful solution, and notably one that ACT (as opposed to CBT or Psychodynamic Psychotherapy) was particularly adept at reaching. This solution provides a model for addressing the culture wars surrounding COVID-19 restrictions in the US. Using the principles of ACT, healthcare providers could help to decrease vaccine hesitancy or anti-mask sentiment by starting with empathy, seeking to understand the patient's concerns, and figuring out how the issue might be reframed to allow the patient actions to be more consonant with medical facts. For example, both masking and vaccinating could easily be reframed as patriotic, by protecting others in the community and emphasizing the feelings that accompany different actions and whether those are consistent with the patient's values (i.e. wearing a mask to show you are a caring person rather than not wearing a mask because no one can force them to).

Obviously, engaging in full blown therapy in a 10-minute clinic appointment is impractical from the standpoint of training and time, but invoking the principles involved in ACT could go a long way towards achieving a safer community and may prove to be a useful tool in the fight against COVD-19. We all should reflect and decide if we would be willing to kiss the banana trunk.

References:

https://www.psychologytoday.com/us/blog/get-out-your-mind/201409/kissing-the-banana-trunk

https://www.commitandact.org

Acoustic Shadows

During the battle of Gettysburg, military observers encountered a strange phenomenon. Perched at one vantage, some watchers saw the flash of muzzles and rising smoke but could not perceive the sound of battle. While others, situated miles behind the front lines, were deafened by the thunder of cannons. This phenomenon, which was widely reported at the time, is related to the deflection of sound waves and leads to islands of silence that insulate pockets of the world from the chaos swirling around. Beyond becoming a nuisance for battlefield communication, these acoustic shadows helped to elucidate the nature of sound and instigated a new domain of science.

When I first heard about this phenomenon, I realized it was a potent metaphor for life in the orbit of a disaster. Nowhere is this more apt than in the context of COVID. There are points where the immediacy of death and pain are so concussive that they demand to be heard, and others at a greater distance where the quantity of painful noise has a quality all its own. Yet despite the spectrum of volume, there remain points of insulated calm. In Civil War, these acoustic shadows were cast by heavy snowfall or the slopes of valleys, but during the time of COVID our shadows are cast by a bulwark of compassion and science.

I experienced this effect for the first time two weeks ago in an event hall filled with a well-spaced crowd. For the past few months, I had been inundated with the steady clangor of sickness—both proximally, in overflowing COVID wards and social isolation, and distally, in the din of rising death counts and sundry examples of social irresponsibility. But as I was guided to a seat and told to roll up my sleeve, I experienced a new kind of quiet. Not silence, but a reprieve from the noise of the world and a sense that I had crossed some kind of threshold. In this new world there was music playing, and as I looked around, the cacophony of the unending weeks dissolved into a soft glow of something hopeful.

This was the acoustic shadow cast by my COVID vaccination. Much like the hills and valleys of generations before, the omnipresent suffering deflected and diffracted around this single point of solidity and created a space for a newly crooning joy. The example of acoustic shadows show that even tragedy has a trajectory and just as sound seems too pervasive to be altered, suffering has a physics that can run it to ground. Basking in this first, and now second dose, I've experienced a level of joy that I have not experienced in a long time. Here's to the newly found silence, and here's to hoping it lasts.

Diet as a Treatment for Depression?

Around the turn of the fourth century BCE, Hippocrates wrote, “let food be thy medicine, and medicine be thy food,” and with this same frame of mind, pondered the nature of mental illness. He believed that depression was caused by an overabundance of black bile and that insanity (hysteria) was, at least in females, due to the position of a woman’s uterus. His concept of the ‘four humors’ left much to be desired but is valuable today in its emphasis of the interplay between lifestyle and health, and consequently on the holistic treatment of disease. Furthermore, in his conception of disease, Hippocrates recognized that the mind and the body were not separate entities, but equally beholden to the health of the whole organism. Therefore, to treat diseases of the mind it made sense to consider the multitude of physical factors that could influence a person’s overall health. In that vein, I decided to dig into the idea that dietary interventions might be used as a strategy to augment the treatment of major depressive disorder (MDD).

The idea that what you eat can affect your mood is appealing on an intuitive level. Just about everyone has experienced the sensation of feeling ‘gross’ after several days consuming junk food or reached for comfort food to temporarily boost our mood. A wide variety of diets have been linked to an improved mood to varying degrees[1]. However, nutrition studies are notoriously hard to design and implement, so conclusions based on these studies usually require a lot of corresponding evidence across the literature to buttress these findings.

One of the best studied dietary patterns is the Mediterranean diet, which emphasizes whole fruits and vegetables, whole grains, and olive oil as the primary fat source, has been shown to have positive effect on cardiovascular health, diabetes, and cognitive decline[2]. Likely as a result of these successes, the diet features prominently in studies examining the effect of diet on depression. A systematic review and meta-analysis conducted in 2018 examined 41 observational studies of diet and mood and found the most support for the Mediterranean diet decreasing feelings of depression[3]. Another diet that rose to the top was the anti-inflammatory diet, which minimizes processed foods and emphasizes whole grains, fruits, and vegetables.

Unfortunately, another systematic review and meta-analysis conducted in 2019 examining 14 observational studies showed no effect of the Mediterranean diet on mood. In fact, a subgroup analysis of several of these studies actually found the Mediterranean diet to have a deleterious effect[4]. Thus, the evidence for the effect of the Mediterranean diet on feelings of depression is mixed but likely shows a somewhat positive relationship with the heterogeneity of findings implying that the effect size is small if indeed present.

After addressing the question of whether diet effects mood, the next idea to be tested is whether or not an intervention to *change* diet is efficacious. For this we turn to randomized controlled trials (RCTs). To this end, a 2014 systematic review of RCTs found that out of 17 studies examined, 8 (47%) exhibited an effect on mood while the other 9 demonstrated no significant effect[5]. Notably, interventions specifically utilizing the Mediterranean diet fell equally in each camp. Additionally, the majority of studies overall were non-dogmatic about their dietary approach and gave individualized advice to each participant.

Finally, given some demonstration of limited efficacy as an intervention, the next question is generalizability. I began this investigation with the hypothesis that physicians could use diet to augment treatment for major depressive disorder, and while the previously mentioned studies lend credence to that general idea, only one of the studies discussed actually involved a population with MDD. This study randomly distributed a leaflet to 80 patients in a psychiatric clinic either containing actionable recommendations for improving diet, sleep, exercise, and sun exposure, or a leaflet that recommended only 'doing what felt right' for each of the four lifestyle domains. At 6-month follow up, those in the treatment group were significantly more likely to achieve remission of their depression, significantly more likely to experience a positive response to treatment (<50% decrease in symptoms) than those in the control[6]. This is an exciting finding but is tempered by the relatively small sample size and would need to be replicated before much stock was placed in it.

Overall, is there a role for dietary change in the treatment of depression? Maybe.

This seems almost infuriatingly vague but in science, even negative results are valuable and taken in the context of the limited literature linking diet with mood, I believe this is the strongest statement that can be made. The overall direction of the literature is positive and probably represents at least a weak relationship, and though studies of dietary interventions produced mixed results, there is some support for the idea that instituting a dietary change could help to improve mood in patients with MDD. Further, there is not consistent support for any one dietary pattern—though the Mediterranean diet probably warrants further study—and the aggregate of evidence seems to support the idea that other lifestyle recommendations made concurrently are also important in the treatment of depression.

In all, there is not sufficient evidence to recommend dietary interventions solely for the treatment of major depressive disorder. However, considering the holistic treatment of a person there is still significant value in encouraging dietary change to benefit a patient's overall health. An intervention for this reason is certainly worthwhile, so, notwithstanding the questionable effects on depression, it is still incumbent upon healthcare providers to ask about diet and to help to set people on the path towards health. This involves not only knowing what is true, but also what is not. A scientific outlook involves not only openness to new ideas, but a skepticism to unverified information. The landscape of popular media on nutrition is replete with examples of overreaching and overpromising, and though adopting these new trends generally doesn't cause patients harm (with a few very notable exceptions), it ultimately undermines trust in the scientific method, and if unverified claims are parroted by physicians, the profession as well. Thus, while I encourage my colleagues to evangelize about the many benefits of good nutrition, I also believe it is important to preach humility and continuous learning.

In the end, when a patient asks me if there is something they can eat to help with their depression, I will respond with an enthusiastic “maybe,” but then spend my time directing them towards evidence-based dietary patterns to improve cardiovascular health or diabetes with the hope that their mood might improve as a side benefit.

References:

1. Opie, R., Itsiopoulos, C., Parletta, N., Sanchez-Villegas, A., Akbaraly, T., Ruusunen, A., & Jacka, F. (2016). Dietary recommendations for the prevention of depression. *Nutritional Neuroscience*, *20*(3), 161-171. doi:10.1179/1476830515y.0000000043
2. https://www.medicalnewstoday.com/articles/149090#benefits
3. Lassale, C., Batty, G.D., Baghdadli, A., Jacka, F., Sanchez-Ville- gas, A., Kivimaki, M., Akbaraly, T., 2018. Healthy dietary indices and risk of depressive outcomes: a systematic review and meta– analysis of observational studies. Mol. Psychiatry.
4. Shafiei, F., Salari-Moghaddam, A., Larijani, B., Esmaillzadeh, A., 2019. Adherence to the Mediterranean diet and risk of depres- sion: a systematic review and updated meta-analysis of obser- vational studies. Nutr. Rev. 77, 230–239.
5. Opie, R. S., O’Neil, A., Itsiopoulos, C., & Jacka, F. N. (2015). The impact of whole-of-diet interventions on depression and anxiety: A systematic review of randomised controlled trials. *Public Health Nutrition, 18*(11), 2074-2093. doi:10.1017/s1368980014002614
6. Garcia-Toro, M. (2012). Hygienic-dietary recommendations in patients with depression. *Http://isrctn.org/*. doi:10.1186/isrctn59506583
7. Adan, R. A., Van der Beek, E. M., Buitelaar, J. K., Cryan, J. F., Hebebrand, J., Higgs, S., . . . Dickson, S. L. (2019). Nutritional psychiatry: Towards improving mental health by what you eat. *European Neuropsychopharmacology,29*(12), 1321-1332. doi:10.1016/j.euroneuro.2019.10.011