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All contributions in this issue are original articles written by clinicians at Volunteers in Medicine Clinic of Hilton Head Island.

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A Letter from the VIM Clinic Executive Director

John B. Newman, MD, FACS

The VIM Journal has a long legacy of leveraging our volunteer physicians and advanced practitioners to bring forth a journal that is pragmatic, and relevant to the topics that we are all seeing in the clinic every day. Each article is meant to have a perspective of practicing in the free clinic environment while reaching beyond the standard of care.

There is a perception that the care delivered in a free clinic is different. In reality, it is – and is often better. Better, because egos have long been left at the door and collaboration is king. Better because feedback on performance is sought out and welcome, and improvement is continuous. Better because we have the opportunity to develop an influential relationship with our patients to understand where they are, and what will motivate them in their health journey. The one constraint that we often elevate within our free clinics is that of time. We have the time to read, the time to write, the time to communicate, and the time to care. Thanks to all those who continue to give their precious gift of time.

We hope this edition of the VIM Journal brings forth discussion, shares a few pearls and contributes to the cause of people helping people.

Food as Medicine

John B. Newman, MD, FACS

Over the years, I have become more and more impressed that food can be both medicinal and deleterious. I should probably start by confessing that I am a bariatric surgeon who has performed thousands of gastric bypasses, sleeve gastrectomies and duodenal switches. I could never be persuaded to place a Lap Band, but I have removed many. As a practicing bariatric surgeon, I have become fascinated with the science of obesity and who seems most susceptible as well as resistant. While I continue the search for a non-surgical, long-term solution for our patients, I realize that bariatric surgery has proven to be the only successful intervention for long-term weight loss (10 years). The more I study the effects of bariatric surgery, the more I am convinced that over the years, all I have ever done is trick people into not eating carbohydrates.

How does one trick someone into not eating carbs? Let's start by making their stomach the size of a 5 grape pouch and tell them to prioritize proteins and try to get 60 grams (3 chicken breast) of protein in a day. Even if you eat four meals a day, the 5 grape pouch only offers 20 bites of food a day. I do not know about you, but I would be challenged to eat three chicken breast in 20 bites, and if I was successful, it was because I ate nothing else, such as carbs.

The second trick is the dumping syndrome. Dumping syndrome is an upper and lower gastrointestinal response to sugar that occurs post operatively in our bariatric patients. It is more prominent in the gastric bypass patients but the sleeve gastrectomy patients also have a significant amount of dumping syndrome. The syndrome is a constellation of vasomotor processes that follows eating sugars and can include cramps, sweating, shakiness, fatigue, and an occasional uncontrolled bowel movement. Some call it a complication of bariatric surgery, and others call it a therapeutic side effect of bariatric surgery. Either way, it provides rather immediate negative feedback on the ingestion of processed sugars and is felt to create an avoidance behavior towards sugars/carbohydrates.

The third trick is an interesting one. After surgery, there is a rather profound reduction in ghrelin (the "hunger hormone") and therefore hunger. This is more pronounced in our sleeve gastrectomy patients as the majority of the ghrelin is produced in the antrum of the stomach, which is resected. The gastric bypass patients also have a relative denervation to the distal stomach after creating a divided gastric pouch, which decreases ghrelin production for up to 18 months. Both patient populations appreciate

the fact they have significantly decreased hunger as they continue the effort to lose weight. While intuitively obvious, it seems much easier to stay engaged in a weight loss program when you are not hungry. The weight loss community continues to learn about the endocrine effects of vasoactive intestinal peptide, serotonin, substance P and neurotensin after bariatric surgeries. We are also learning more and more about the microbiome and how antibiotics are creating a microbiome prone to obesity.

So back to the carbohydrates. Many years ago, I had a patient who was just barely 5 feet tall and had maxed out her weight at 500 lbs. Clearly she needed some help as the comorbidities of arthralgia, diabetes, HTN, etc. were about to overwhelm her. We discussed the bariatric program and how the surgery gets too much credit, as the credit needs to go to behavior changes. To be honest, she was not really buying it, but since the insurance company mandated a 3-month, supervised weight loss trial, she really committed to a life of low carb. She kept her carbs to around 15 gm a meal and low and behold, she started losing weight. She actually was losing around 25 pounds a month. At the end of her 3-month, supervised weight loss trial (now 400 lbs.), she began to believe in the importance of her behavior but still wanted to pursue surgery. We were able to proceed with surgery (she chose a sleeve gastrectomy). I kept praising her behavior changes and told her that I did not think the weight loss would change much after surgery even though she would have some serious restrictions with a 5 grape pouch. Fascinating that she continued to lose exactly 25 pounds a month even with this added calorie restriction. This was a recurring epiphany for me realizing that our bodies are capable of burning fat for the sake of burning fat as opposed to Energy in = Energy out, as clearly she wasn't burning 4000 calories a day doing exercise.

We were celebrating her approaching the 300-pound mark at 8 months when she came to me saying she was just feeling blah. Often, with this much weight loss the keto and butyric acids build up and unless maximally hydrated, can give you that baseline nausea feeling. She just wished this blah feeling would go away for a few weeks. In my opinion, she did look a little "puny" even though her labs were normal. I told her I thought we could shut off her ability to burn fat but it would mean activating her endogenous insulin. So, she took a few shots of sweet tea a week and over the following month, she lost 3 pounds and did indeed feel better.

Now recharged to resume weight loss, she stopped sipping sweet tea and away she went, but only to burn around 15 pounds a month. Never in my career have I been so impressed by the power of insulin

and its ability to impede our ability to burn fat. I have certainly read that after an insulin spike, we were incapable of burning fat for 3 days, but always had a hope that the duration of this impedence to burn fat was variable. I have repeated this experiment many times over the years and sadly, there does not seem to be much variability in the power of insulin in this patient population (admittedly, there is a selection bias in my patient population).

I have yet to find a way to treat obesity without addressing the powerful anabolic effects of insulin. Each of my patients eventually tries to define what their carbohydrate (i.e. insulin) threshold is that triggers the inhibition of lipolysis (fat burn). Checking insulin levels is quite expensive but ketone strips are cheap. Once in the mildest state of ketosis, we can track what in the diet (food journal) is causing them to stop burning fat as their primary fuel source (ketone strips). Some patients have a 25 carbs per meal threshold while many more have a threshold of less than 10 grams per meal. Since joining Volunteers in Medicine Clinic, I have somewhat rebranded myself into the work of our primary care team. Let me say the level of respect that I now hold for our primary care colleagues is enormous. I have yet to see a patient and address all the preventative care needs they should probably be engaging. More importantly, my view of diabetes has greatly expanded and how that disease seems to make every other comorbidity worse. I truly rejoice when I see a Hg A1C less than 7 because I know it took essentially everyone's help to get there. I give the most credit to the patients as they have taken ownership of the food they eat and drink.

I have a concern for our food insecure diabetic patients and their families. When I peer into the food donation bags we provide for these patients, I often see rice, cereal, pasta and flour as well as some canned vegetables and canned meats. Recently, we have been so bold to reach out to our food sustainability partners in the community to “Change the Ask in Food Donations” and ask our community for nuts, beans, eggs, milk, more canned meats and find a way to accept donations (and then distribute) fresh veggies from our as gardens well as the supermarket. There are several low carb tortillas and breads, which are emerging as tasty replacements for many of our patients who are trying to avoid processed sugars and carbohydrates. I have been very pleasantly surprised that we did not get the response that “beggars shouldn't be choosy.” Instead I was asked – “What does a diabetic friendly food donation look like?” Let me know when and if the day comes when we are at church or at our community support meetings and we get the call for diabetic friendly food donations such as beans, olive oil, canned meat, eggs, milk. That would certainly call for cheers with a low carb beverage.

I am also excited about the explosion of hydroponics that has occurred as a positive response to COVID. Many folks have taken to growing fresh vegetables indoors and school systems have been able to stop ordering leafy vegetables. We are seriously looking at how we can convert some of our dormant real estate into a hydroponics system that can offer perhaps the best medicine to our patients – fresh leafy vegetables harvested in the morning for them to serve their families tonight. Talk about a unique pharmacy expansion!

I realize that few things are as polarizing as the low carb discussion. I also realize, I have spent my career in the business of treating obesity as opposed to arguably the more important business of preventing obesity. I often tell our masters prepared nutritionist that we should have listened to them all along, and we could have prevented obesity. Unfortunately, the diet to prevent obesity is not the same diet to treat obesity. I am also eager to see one prospective randomized double blind trial comparing weight loss between low carb and other diets where low carb is not victorious. To date, low carb seems to remain undefeated. Let us continue to seek ways to decrease dietary sugars, educate on carbohydrate understanding, and try for another year to keep insulin from impeding our ability to utilize fat as a fuel source. My proudest moments in medicine have been when someone has lost too much weight to qualify for bariatric surgery. I still can hear the wisdom of our mentors telling us that, “No disease that can be treated by diet should be treated with any other means.” And so we press on...

Caring for Culturally Diverse Clients

Diane Riff, APRN

I have been fortunate to be a volunteer nurse practitioner at Volunteers in Medicine Clinic (VIM Clinic) for the past year. There have been many welcoming volunteers, staff, and clients. It truly feels like home. I have been a nurse for over 35 years and have worked the last 9 years as a nurse practitioner in Kentucky in clinics, like VIM Clinic, care for culturally diverse clients who have no health insurance.

While caring for culturally diverse clients, mostly Latino, I became curious about best ways to break through cultural barriers and provide optimal patient care. After some research on this topic here is what I learned.

The population in the United States is increasing in diversity. The total minority population in the U.S. will increase by 108% from 116.2 million people in 2016 to 241.3 million people in 2060. As the population becomes more diverse, it is increasingly important for healthcare workers to address health disparities by improving cultural empathy and understanding. Disparities in health and health care not only affect the groups facing disparities, but also limit the quality of care and health for the broader population and result in unnecessary costs.

It is significant to note that Hispanics (from Mexico, Puerto Rico, Cuba, Central and South America) have the highest uninsured rates of any racial or ethnic group within the United States. Many of our clients at VIM Clinic are from these countries.

When looking at strategies that would improve the healthcare of culturally diverse clients, I read about an anthropologist, Dr. Kleinman, who developed a model of care in caring for culturally diverse populations. Although I usually find most models and theories a bit boring, I found Kleinman's Explanatory Model to be quite helpful. This model encourages health care providers to consider using these questions in seeking to better understand the client's culture and provide appropriate care:

1. What do you call your problem? What name does it have?
2. What do you think has caused this problem? Why do you think it started when it did?
3. What do you think your sickness does to you? How does it work?
4. How severe is it? Will it have a short or long course?

5. What do you fear the most about your illness?
6. What are the chief problems your sickness has caused you?
7. What kind of treatment do you think you should receive?
8. What are the most important results you hope to achieve from this treatment?

When I had these questions translated to Spanish and started using them with clients, I found that I was able to better understand the person, disease, and treatment from the perspective of the patient. For example, when a 17-year-old male came to the clinic with complaints of low back pain, my first thought was it was he had muscle strain from his daily heavy labor. Boy, was I off! After asking him the probing questions above, I learned that he was afraid he was in kidney failure because his father in Central America was on long term dialysis. I learned the young man had come to the clinic to get reassurance that he did not have kidney failure, so he would be able to keep working to provide for his family. This changed the care that I planned to give in a dramatic way.

Seeking to better understand our client's culture is an effective recognized approach to improving the provision of health care to racial/ethnic minority groups in our communities with the aim of reducing health disparities. It is so important that we stay curious about those in our care. I encourage you to seek to improve cultural understanding by using Dr. Kleinman's questions.

VIM Clinic Medical Records Update

Demetra Ladson, MBA

Athena has been live for almost two years, and we have seen a major improvement from about 20% to 90% of doctors documenting electronically. The patient portal is a feature we have recently pushed; it allows patients to request appointments and refills, view encounter summaries including lab results, and send messages to their providers. Athena has also given us the capability to integrate with the pharmacy and a new inventory management system set in place. With this system, providers can send their prescriptions to the pharmacy, and the pharmacist/pharmacy technician can gather the items and have them ready. This saves the provider a lot of time by not having to handwrite labels and document on the formulary, everything is entered and processed through Athena.

As we are moving closer to our goal of eliminating paper and paper charts, we are continually adding new integrations and creating new workflows. During the intake process, the nursing staff will frequently perform point of care tests, specifically A1C and glucose, so we automated the results to enter the patients' chart without having to do it manually. This also reduces human error of manual entry. We changed lab vendors for pap smears and pathology reports to Quest Diagnostic so they can automate those results, the previous vendor did not have the ability to do so. We have also added patient nametags to the check-in process because in the past, patients have been mixed up between check-in and going into the exam room. Our radiology physicians have come together to update our ultrasound/echo machine, we are looking to have that in place soon. Our outside referral team started using Athena to fax requests, which really came in handy when they were out of the office for extended times, they were still able to complete these tasks remotely.

Staff in the medical records department are working diligently to correct patient data in Athena. A lot of information that came over during the data migration from eMDs needed to be fixed as well as going through the active list of patients to ensure they are marked appropriately. This is an important step to create accurate reports.

Periodontal Disease and Heart Disease – The Connection

John Vargo, DDS, MS

Diplomat of the American Board of Periodontology

Periodontal disease, (i.e. gum disease, pyorrhea) is a chronic inflammatory disease initiated by a microbial associated biofilm (plaque) that if left untreated can lead to tooth loss. Many local factors can contribute to the severity of the disease. It may be associated with other chronic inflammatory diseases including diabetes, heart disease and others we will mention.

Atherosclerosis is primarily caused by a fatty plaque (primarily fat, cholesterol, calcium). So, do the bacteria that form the biofilm on teeth lead the fatty plaques in our blood vessels to a greater chance of a heart attack? Many believe so but the theory needs to be answered!

It must be stated that a causal relationship of periodontal disease and heart disease has not been proven, but research shows the increase risk.

Treating and/or controlling chronic inflammation may be helpful. Factors that contribute to periodontal disease are also factors contributing to heart disease. These include but are not limited to diabetes, smoking, alcohol, stress, age, medications, poor nutrition, obesity, and stress.

People with periodontal disease have 2 to 3 times the risk of having heart problems. Several scientific studies have shown that periodontal disease is associated with heart disease. The inflammation associated with periodontal disease may be responsible for the association with heart disease. We know periodontal disease can exacerbate existing heart conditions. For example, patients at risk for endocarditis (heart valve repaired with prosthetic material) require antibiotics prior to dental procedures. Stroke victims are more likely to have an oral infection when compared to control in scientific studies.

For years, it was thought bacteria was the factor that linked periodontal disease to other diseases in the body. More recent studies show inflammation may be the responsible link. Treating inflammation may help in managing periodontal disease along with managing other chronic inflammatory conditions. Periodontal disease in its earliest stages, called gingivitis, is

reversible without surgical therapy. Some of the signs and symptoms may include but not always present are:

1. Bleeding gums when eating, brushing, or flossing and sometimes spontaneously
2. Bad breath
3. Red, swollen inflamed gums
4. Receding gums
5. Changes in the bite
6. Loose teeth

Daily brushing and flossing can prevent the early stages of periodontal disease. Brushing correctly should take at least 2 minutes twice a day. Flossing daily takes much longer. See your dentist twice a year and be sure to ask your dental hygienist how to brush and floss properly. If periodontal disease is diagnosed, see your local board certified Periodontist as soon as possible!

Unfortunately, periodontal disease does not hurt until it's too late! As with most human diseases, early detection is imperative. The CDC estimates that 47% of Americans over age 30 and 70% over age 65 have some form of periodontal disease. In most cases it can be more prevalent than tooth decay. At VIM Clinic Dental, we are able to diagnose and give patients options as to how to treat their disease. Many times this may include learning how to brush and floss properly, thorough dental cleanings above and below the gum line, selective periodontal surgery, and tooth extractions where indicated. All in an effort to create a patient with improved esthetics and function for a happy, healthy life!

VIM Clinic Nursing Update

Jennifer Gatlin, RN, BSN, MHA

Even though we were still working under the “cloud” of COVID, the clinic continued to make wonderful strides towards improving our patient experience in 2021. As the physical renovation of the clinic concluded in early 2021, we were fortunate to have an improved patient intake area to facilitate the flow of patients during check-in. We transitioned from “hallway triage” in years past to a more patient friendly and efficient workflow.

Cubicles installed in our new intake room established five designated areas for patients to complete the intake process prior to seeing the doctor. The cubicles were completely upgraded with new vital sign equipment, laptops, desks and visitor chairs. During the year, additional technology was added allowing all of our diagnostic equipment to wirelessly integrate with the Athena EMR. As soon as a patient receives a blood pressure reading or steps on a digital scale, it is uploaded directly into the patient’s electronic chart. Additional diagnostic equipment and software systems were added throughout the year allowing all of our point of care lab equipment to wirelessly transmit results into Athena as well. Doctors now have immediate access to labs such as urinalysis, pregnancy test, hemoglobin, blood sugar and diabetic A1C test results which flow directly into the patient’s electronic chart. These enhancements have been a tremendous help in improving the accuracy and completeness of our medical record documentation.

As we waited (impatiently) for COVID vaccines to be distributed by our state in early 2021, we were very fortunate to develop a collaboration between Dr. Ray Cox, former executive director of VIM Clinic, Senator Tom Davis, and Dr. Patrick Cawley of MUSC. MUSC generously donated 1,400 precious doses of Pfizer vaccines to our clinic between March and May of 2021. The challenging storage requirements of the Pfizer vaccine meant that we could only store the vaccines in VIM Clinic refrigerators for a maximum of 5 days. MUSC arranged to have the vaccines delivered via courier from MUSC in Charleston to our clinic each Monday morning so that we could safely administer them to our patients each week. It was wonderful to see the entire clinic come together to offer vaccine clinics to our patients. An army of interpreters, lay volunteers, nurses, doctors and clinic staff worked together to vaccinate hundreds of VIM Clinic patients each week.

In late June 2021, we began receiving Moderna vaccines on a regular schedule from the State of South Carolina. This allowed us to offer vaccines to our patients on a daily basis. We are continuing to offer Moderna vaccines each day in the clinic and expect our focus to shift from administering first and second COVID doses towards booster shot clinics in the near future.

As the year comes to a close, I am thankful for the progress made this year to improve the efficiency of the patient workflow and the quality of our documentation. I continue to be amazed and thankful for the generosity, resilience dedication of our VIM Clinic volunteers and staff.

VIM Clinic Pharmacy Update

R. Keith Goss, R.Ph.

I have been a registered pharmacist for 33 years. I have practiced pharmacy in a variety of settings including hospital, long-term care and retail pharmacies. Most recently, I owned and operated an independent retail pharmacy for almost 20 years. I have been hired as the clinic's Director of Pharmacy and have been working in that role since mid-July of 2021. My wife, Linda and I are from a small town in northeast Georgia and have owned property in Hilton Head for over 15 years. We are proud to soon call the island our permanent home.

One of my initial responsibilities is the implementation of a computerized pharmacy management program. A generous grant from Direct Relief was approved shortly after my arrival. The grant application was started before my hire by the great team of staff at the clinic. The grant covers the cost of the software and hardware for the QS/1 pharmacy management system. I am also proud to announce an agreement with Direct Relief's Bulk Replenishment Program. This agreement will give the clinic pharmacy and subsequently your patients' access to a substantial assortment of high quality brand name medications that will be readily available for dispensing. These medications will require extensive record keeping.

The QS/1 system will be utilized to maintain these records. Not only will the system maintain these records, but also establishes a pharmacy system to produce patient specific prescription labels and medication monographs. In addition to English, the system also allows for Spanish instructions and monographs. The started using the QS/1 system in October. Several prescribers are currently utilizing the pharmacy for preparation of the medications for dispensing by the prescriber. The prescriber enters an electronic prescription in the Athena medical record during the exam, which transmits the prescription to the pharmacy into QS/1. The pharmacy staff then prepares the label and medication to then be dispensed by the prescriber or the nursing staff. This process relieves the prescriber from the process of hand writing a label, labeling the medication and documenting on the log with stickers. Any prescribers who have not yet utilized the new system and would like to be added can contact Cherie Hellman, Jennifer Gatlin or myself. We will happily assist with any questions about the process.

The attached list of medications will be initially available during the month of December with full implementation during soon. These medications will have a variety of requirements, including:

1. Patients must be qualified for participation within the previous 12 months. (Screening staff are aware of the qualification requirement.)
2. Prescriptions must be electronically prescribed by a licensed provider. (The volunteer license is acceptable.)
3. The quantity dispensed may not exceed 100-day supply. (Typically, 90 – 100 day supply will be available.)
4. Medication must be assigned a prescription number and the documentation must include NDC, quantity, date, day supply, patient DOB and gender, etc.

Basaglar KwikPen U100
Humalog KwikPen U100
Humalog Mix 75/25 KwikPen U100
Humalog U100
Humulin 70/30 U100
Humulin NPH U100
Humulin R U100
Trulicity 0.75 mg
Trulicity 1.5 mg
Invokana 100 mg
Invokana 300 mg
Invokamet 50/1000 mg
Xarelto 10 mg
Xarelto 15 mg
Xarelto 20 mg
CiproDex 0.3/0.1% susp
Entresto 24mg/26mg
Entresto 49mg/51mg
Entresto 97mg/103mg

Direct Oral Anticoagulants (DOAC)

Patrick Burns, MD, MACP, FVIM

ABIM Certified in Hematology, Medical Oncology and Internal Medicine

Direct Oral Anticoagulants (DOAC) Table*

(Aka NOAC non-vitamin K oral anticoagulants) 12/7/2021

Oral Anticoagulant	Indications	Cautions	Mechanism of Action	Days for 5 Half-lives to elapse after last dose; Anticoagulation fully resolved	Urgent Specific Reversal Agent
Eliquis (apixaban)	a) DVT or PE treatment often after ~5 days parenteral anticoagulant stroke b) prophylaxis with non-valvular atrial fibrillation c) prophylaxis with hip and knee replacement	Increased bleeding risk for epidural/spinal procedures, avoid concurrent CYP3A3 and P-gp inhibitors, and use in PE with hemodynamic instability and with planned thrombolysis or pulmonary embolectomy, do not use during active bleeding, <u>relatively</u> contraindicated in <u>severe</u> hepatic and renal impairment.	Factor Xa inhibitor	1.5-3 days	andexanet alfa (AndexXa)
Xarelto (rivaroxaban)	Same as apixaban	Similar to Apixaban	Factor Xa inhibitor	1-2	andexanet alfa (AndexXa)
Pradaxa (dabigatran)	Same as apixaban	Reduce dose with renal impairment, also with P-gp inhibitors use, discontinue for surgery	Direct thrombin (factor IIa) inhibitor	2.5-3.5	Idarucizumab
Savaysa (edoxaban)	Same as apixaban	Reduce dose with renal impairment	Factor Xa inhibitor	1.3-2	andexanet alfa (AndexXa)
Bevyxxa (betrixaban)	Prevention of thrombo-embolism	Reduce dose if co-administered with P-gp inhibitor, or with severe renal or hepatic impairment	Factor Xa inhibitor		andexanet alfa (AndexXa)

*Parenteral anticoagulants such as enoxaparin (Lovenox), argatroban (Acova), dalteparin (Fragmin), fondaparinux (Anxtra), bivalirudin (Angiomax) are not covered in this review.

Treatment of acute DVT/PE (Treatment depends on cause)

Provoked DVT: Give initial parenteral anticoagulation (low molecular weight heparin or unfractionated heparin for ~2-5 days. If thrombotic event was provoked by surgery, trauma or inactivity, consider stopping anticoagulation after 3 months if the causative factor was removed. But continue somewhat longer if there was concurrent pulmonary embolus or thrombophilia genetic defects are present (e.g., antiphospholipid antibodies, Factor V Leiden, prothrombin 2021A gene mutation or other rarer ones).

Non-provoked DVT: If event is non-provoked with no inciting event identified, give initial 2-5 days of parenteral anticoagulation as above and continue DOCA “indefinitely” if risk of bleeding acceptable. However, current practice depends heavily on decision of treating physician and patient choice.

Management of anticoagulation of calf vein DVT

Individualize. Asymptomatic patients do not require anticoagulation and surveillance including ultrasound studies ever 1-2 weeks or so to detect proximal extension. If asymptomatic, consider ASA or NSADS. There is a low incidence of pulmonary embolus (near zero). If symptomatic or extend during surveillance, consider short-term anticoagulation for 3 months and some recommend full anticoagulation therapy of all calf vein DVTs.

Benefits of DOACs over warfarin

Faster onset, fewer drug interactions, lack of effect of vitamin K in foods, no need for INR monitoring, improved patient acceptance. Large numbers of patients in clinical trials have shown favorable effects in prevention of strokes in AF and in prevention of venous thrombo-embolism they have a favorable risk benefit vs warfarin and lower risk of serious bleeding including intracranial bleeding. Also recurrent of venous thromboembolism is equal or lower in most studies. Also, they have fixed doses. However, DOACs are not approved for patients with prosthetic heart valves so warfarin is preferred.

Blood tests to monitor degree of DOAC anticoagulation

Normal easily available coagulation tests are not useful in determining residual anticoagulant activity. The time of last dose of dose of DOAC and degree of bleeding are often a better method of assessing anticoagulant activity remaining after DOAC agent especially FXa inhibitors.

For FXa inhibitors: A specific chromogenic Anti-Factor Xa activity assay for apixaban, rivaroxaban and edoxanban is available in larger institutions, but must be calibrated for the specific drug in question and has the limitation of a delayed turnaround time. Use of the easily available prothrombin time is extremely limited and normal results do not exclude clinically significant plasma levels. Also, this test is less sensitive for apixaban.

For dabigatran: Dilute thrombin time or ecarin clotting are useful. A normal thrombin time usually excludes significant dabigatran concentration, and a dilute thrombin time can indicate actual level of dabigatran concentrations. An activated prothrombin time (aPTT) is a reasonable alternative sometimes. A prolonged aPTT indicates persistent anticoagulant effect of dabigatran.

Bleeding and reversal antidotes for DOACs

Major bleeding in one study of patients on DOACs was 1.2 per 100 person years or 2.3% in another study. Risk of major bleeding is most commonly from gastrointestinal track, but intracranial most feared. Minor bleeding can usually be managed by withholding dose(s), local hemostatic measures and supportive care. For major bleeding supportive care and transfusions are often helpful.

Specific reversal agents can be considered for patients requiring emergency surgery, life-threatening uncontrolled major bleeding and intracranial bleeding. The FDA has approved two reversal agents idarucizumab (a humanized monoclonal antibody fragments) for reversal of dabigatran and the-factor Xa decoy andexanet alfa for reversal of apixaban, rivaroxaban and other factor X inhibiting agents.

Nonspecific agents can be used for all anticoagulants, and these include prothrombin complex concentrates, which contain clotting factors, but studies are limited. Activated charcoal can be given orally for dabigatran if given in 2-4 hours after ingesting but rarely useful. The antifibrinolytic agent tranexamic acid has been used but not widely. Recombinant Activated Factor VII and fresh frozen plasma can be used but are not uniformly recommended. Hemodialysis can be used in patients on dabigatran who have life-threatening bleeding in the setting of renal failure. It is not an option for the FXa inhibitors because they are highly protein bound. RBC transfusion or platelet transfusion occasionally are needed. In summary, these non-specific agents and approaches are not often needed.

Miscellaneous General Comments

1. Coumadin (warfarin) is an important oral anticoagulant but it is not a DOAC. It decreases multiple vitamin K dependent coagulant factor production by the liver. Its indications are same as apixaban in chart. In treatment of thromboembolism, it is especially important to give heparin parenterally initially for a few days to prevent thrombosis as with all DOCA since anticoagulants protein C and S are cleared first while vitamin K dependent procoagulants continue to circulate. With warfarin target INR 2-3, higher values give no consistent improvement. It can be reversed with IV or oral vitamin K or prothrombin complex concentrates.
2. The efficacy and safety of DOACs is not recommended in patients with prosthetic heart valves since not studied sufficiently at this time.
3. Bleeding risk: No anticoagulant can help reduce thrombosis risk without increasing bleeding risk. The risk of bleeding is 1.1-8.7 bleeds per 100 patient years as a rough estimate based on these factors which increase risk: age >75, hypertension, recent major bleeding, previous stroke, creatinine clearance (<30 ml/min), abnormal hepatic function, aspirin or any antiplatelet drug, excess alcohol use and metastatic cancer to name a few. See risk calculator in *UpToDate*.¹
4. Limitations of any anticoagulation prevents propagation, it does not *per se* remove the thrombus, but the body's thrombolytic effect does.
5. 4% of DVTs progress to PE and 8% have recurrences despite anticoagulation. The ACC AHA have released an updated guideline for management of patient with atrial fibrillation and use of reversal agents (see *UpToDate*). Anticoagulation does not prevent post-thrombotic syndrome which or removal of existing thrombus without damaging venous valves. The body's fibrinolytic agents are important for these.
6. DOACs are usually given twice daily except edoxaban, rivaroxaban and warfarin. DOACs are relatively contraindicated in pregnancy and breast feeding.
7. All anticoagulants should generally be discontinued 24-48 hours before surgery and longer duration is required for patients on dabigatran with significant renal dysfunction (dabigatran has 80% renal clearance). For coumadin, hold anticoagulant 5 days and resume 12-24 after surgery and bridge with heparin if high thromboembolism risk. Occasionally only dose reduction is necessary for minor low risk surgery.
8. Thromboprophylaxis in pregnancy depends on personal hx of thrombotic event and high vs low risk genetic thrombophilia.

9. Avoidance of DOACs is recommended by some experts for use in patients with triple-positive antiphospholipid syndrome (lupus anticoagulant, anticardiolipin antibody and anti-beta2 glycoprotein antibodies). In this instance consider warfarin.
10. Concomitant administration of antiplatelet drugs and nonsteroidal anti-inflammatory drugs with DOACs should be avoided when possible. Antiplatelet agents not included in this review although have antithrombotic activity
11. Parenteral anticoagulants and antiplatelet agents are important, but not covered in this review.
12. Transition between agents: See Medscape or other apps on smartphone or other source.
13. A large retrospective study published in the Dec ,2021, *Annals of Internal Medicine* found apixaban had a lower rate of recurrence as well as less intracranial and GI bleeding as compared to rivaroxaban.
14. An anticoagulant reversing drug, Ciraparantag, is under review and not yet fully approved to reverse Factor Xa anticoagulants.
15. Cancer: DOACs have been shown to be effective and the preferred choice in decreasing thromboembolic event in patients with cancer. However, they should not be used in cancer patients with high stage kidney disease and discussed when used for patients with gastrointestinal cancers because of a higher risk of GI bleeding
16. The ACC AHA have released an updated guideline for management of patient with atrial fibrillation and use of reversal agents.
17. Obesity: A major problem at VIM Clinic. Standard treatment doses of DOACs can be used with thromboembolism and AF except after bariatric surgery (do not use pending studies) as long as shared decision making is done.

References:

1. Calculator: Cardiovascular risk assessment (10-year, men: Patient education). UpToDate. (n.d.). Retrieved from <https://www.uptodate.com/contents/calculator-cardiovascular-risk-assessment-10-year-men-patient-education>

Nonalcoholic Fatty Liver Disease (NAFLD)

Steven P. Siegelbaum, MD, FACC

Nonalcoholic Fatty Liver Disease (NAFLD) refers to the accumulation of fat within the liver, or hepatic steatosis when there is no excessive alcohol ingestion. NAFLD is associated with a spectrum of clinical abnormalities including obesity, hypertension, hyperlipidemia, insulin resistance and diabetes. These medical problems are common in our patient population and are considered to be part of the “metabolic” syndrome. Newly accepted terminology for this combination is MAFLD or the metabolic (dysfunction) associated with fatty liver disease. In the United States, the incidence of NAFLD is probably greater than 100 million and has been increasing over the past few decades. Most patients are in their 40s or 50s, and there appears to be no difference, in frequency, between men and women. The disorder is more common in Hispanic Americans as compared to Caucasian or African Americans.

At VIM Clinic, fatty liver disease is the most common cause of abnormal liver enzymes, and most cases are discovered with routine labs. The transaminases can be 2-4 times elevated, with the ALT often greater than the AST. Most patients are asymptomatic. Some may have right upper quadrant discomfort or pain due to stretching of the liver capsule and these patients may have hepatomegaly on physical exam.

The evaluation of NAFLD starts with the evaluation of elevated ALT/AST that was encountered on routine lab testing. An ultrasound will often reveal increased echogenicity of fat and hepatomegaly. Equally important, ultrasound can screen for other causes of chemical abnormality: neoplasm involving the biliary tract and liver, plus gallbladder disease. Laboratory screening for Hepatitis A, B, and C are important. Typically Hepatitis A Ab, Hepatitis B surface Ab and Ag, B core Ab, and Hepatitis C Ab. The more expensive Hepatitis B DNA, and Hepatitis C RNA studies are not ordered unless indicated. Liver biopsy is rarely necessary.

While fatty liver is often thought to be a benign liver condition, there is a potential of progression to lobular inflammation, cell drop out and fibrosis and in its extreme cirrhosis. This condition is called Nonalcoholic Steatohepatitis (NASH). It is estimated that 20-30% of patients will progress to mild/moderate fibrosis and 2-3% to cirrhosis. It is difficult to predict which patients are at risk of developing NASH. While liver biopsy is diagnostic it is difficult to obtain. Ultrasound may show

progression to a larger and denser liver, but is not a sensitive indicator. Where available, vibration controlled elastography (a specialized ultrasound technique) can be used to assess fibrosis or cirrhosis based on liver stiffness. This ultrasound technique is now available in our community. CT and MRI are not useful.

Weight loss is the primary therapy for overweight and obese patients with fatty liver disease. It is felt that by pulling fat out of the body, fat will also be reduced in the liver. Patients are advised lose 5-7% of their body weight at a rate of 1-2 pounds a week. Counseling is important to achieve the lifestyle modifications in diet and exercise. Patients are advised to avoid alcohol. Treatment of diabetes, hyperlipidemia and hypertension should be intensified as these adults are at increased risk of cardiovascular disease. Most patients with NAFLD are able to tolerate statins. Improvement of liver enzymes with significant weight loss is often confirmation of this condition. If patients do not improve with significant weight loss or if they are unable to achieve weight loss, bariatric surgery is an excellent option in a morbidly obese patient with NASH. There are no medications yet proven to successfully treat NASH.

COVID-19 and a Brief History of Healthcare on Hilton Head Island

Patrick Snowman, MD, FAAEM

Part I – Background: The Healthcare Trinity

This is the story of one emergency physician's experience of COVID-19 on Hilton Head Island. To understand how we got here, one needs to know the recent history of healthcare on Hilton Head Island. The tale begins in 1993 and 1994 when the coalescence of free market forces, smart municipal governance and just plain good will, created what I think of as the island's healthcare trinity – Hilton Head Hospital (HHH), Hilton Head Fire Rescue (HHFR) and Volunteers in Medicine Clinic.

Each of these organizations have unique structures and missions, but together they form a powerful alliance that has benefited countless lives. Never has the strength of this relationship been better demonstrated than over the past 2 years, fighting the complex war that is COVID-19.

Pandemics are not new, but our species has never experienced a scourge spread so quickly and thoroughly around the world. Notwithstanding the benefits, global trade and travel facilitated COVID-19's proliferation, and for two years we have suffered the unimaginable consequences of both Mother Nature and human nature. Only international cooperation will solve this crisis. Ultimately though, as in other matters of life and death, all healthcare is local. I think it's important to pause and proudly reflect on how we came together as a community and healthcare alliance to weather these stresses.

I've been practicing emergency medicine here for almost 20 years, but more than 50 years ago Hilton Head Hospital opened its doors and changed Hilton Head Island forever. Dr. Peter LaMotte (a retired New York Mets orthopedic surgeon) moved to the island with his wife, Beryl, and two small daughters. His vision resulted in the construction of the hospital which began with a staff of 15 doctors and 40 beds. The hospital became a major influence in the growth and development of the island, and most would agree that the existence of a quality hospital on Hilton Head attracted many retirees and their families.

By the 1990's the hospital was struggling alongside many other not-for-profit hospitals around the country. They were facing growing competition spurred by the growth of managed care and the need for capital investment. In 1994, Hilton Head Hospital (HHH) was acquired by Tenet Healthcare

Corporation. Proceeds from this acquisition provided the funding for the creation of Hilton Head Island Foundation Inc. In 2001, the foundation expanded its service area to include northern Beaufort, Colleton, Hampton, and Jasper Counties. To reflect this major development, the name was changed to Community Foundation of the Lowcountry.

In July of 1993, just one-year before Tenet purchased the hospital, HHFR started operations as a consolidation of the Hilton Head Island Fire District, Sea Pines – Forest Beach Department, and the Hilton Head Island Rescue Squad which had one advanced life support ambulance! Through the town’s Department of Public Safety, HHFR began protecting life and property on the island and continues today, with 7 stations and scores of paramedics, as a nationally recognized fire/EMS service. As an example, over the past 5 years HHFR has maintained one of the highest witnessed out-of-hospital cardiac arrest survival rates in the nation. As their medical director, I regularly train and interact with these dedicated first responders. They don’t like to be called heroes, but we all know they are.

Also in 1993, Volunteers in Medicine Clinic opened and provided vaccinations. In 1994, VIM Clinic expanded to include a full range of patient services: primary care and prevention, pharmacy, dentistry, mental health counseling and more. In 2019, Dr. Raymond Cox invited me to sit on VIM Clinic’s Board of Directors. Recently, I had the privilege to sit down with Dr. Joe Black, his wife Kaye and Mary Ellen McConnell, wife of VIM Clinic’s founder Dr. Jack McConnell. Dr. Black, a retired HHH pathologist, was an original supporter of the clinic. Sitting around the Christmas tree, they told stories about the early days of VIM Clinic and the Island. Dr. Black recounted conversations with Dr. Jack during the holiday season exactly 30 years ago. Mary Ellen pointed out that Steve Caywood, then CEO of the hospital, was an early VIM Clinic supporter. She also brought up, however, that at that time several HHH board members and local physicians were opposed to the idea of another medical clinic on Hilton Head.

Mary Ellen chuckled when retelling a story from Dr. McConnell’s book, *Circle of Caring, The Story of the Volunteers in Medicine Clinic*, “Jack was speaking to a group of local physicians when one of them spoke up against the clinic. Jack let him speak and then asked him how many of VIM Clinic’s non-paying patients he wanted, and that Jack would see to it that he got every one of them.” We laughed, and she confirmed that the laughing doctors in that room put an end to the naysayers. Kaye told stories of how word of VIM Clinic’s vision spread through the “dinner party circuit” which was the

social network of the day. Over the past 30 years, the Blacks have remained steadfast supporters of VIM Clinic, and as an honorary member of the VIM Clinic Board of Directors, Mary Ellen remains very engaged. My wife Lisa and I were honored to have them as our guests.

And so, in 1993 and 1994, seminal events occurred in the formation of the island's current healthcare system: local government started providing high quality EMS, a national healthcare corporation revitalized the hospital, and philanthropists created a free clinic providing healthcare to the medically under-served with a vision to "see those rendered invisible and excluded." Hilton Head residents and visitors have benefited from this alliance for decades. Now, let's explore how the synergies of this "healthcare trinity" saved an untold number of lives through this once-in-a-lifetime pandemic.

Part II – The COVID-19 Pandemic through the Lens of Grieving

In 1996, Swiss-American psychiatrist Elisabeth Kübler-Ross first introduced her well-known model of grieving in her book, *On Death and Dying*. Inspired by her work with terminally ill patients, the 5 stages include denial, anger, bargaining, depression, and acceptance. I have experienced the COVID-19 pandemic play out in a similar fashion with a slightly different order: denial, bargaining, anger, depression and acceptance with the last three in an ongoing loop.

Phase 1 – Denial

This might become a pandemic, but as with other modern threats (SARS, MERS, swine flu, Ebola) modern public health strategies will quash it before it gets out of control.

- December 12, 2019 – A cluster of patients in Wuhan, China develops respiratory symptoms and fever.
- December 31, 2019 – The Wuhan government confirms that health workers are treating dozens of pneumonia cases caused by a novel coronavirus.
- January 20th, 2020 – The World Health Organization declares a Global Health Emergency.
- January 21st the U.S. confirms first case in Washington State of a man in his late 30s who developed symptoms after returning from a trip to Wuhan.
- March 11th, 2020 – W.H.O. declares a global pandemic.
- Shortly after W.H.O. declaration – Former President Trump declares a national emergency and the CDC recommends for the next 8 weeks no gatherings of 50 or more people. Many states in the U.S. order some form of lockdown.

We all know that pandemics have caused incalculable suffering and death throughout history. By the spring of 2020, I was becoming very concerned. But, I and many others were still in denial. The collective “we” were not able to imagine in a few short months a virus would spread to nearly every country on earth, upend life, derail the global economy, and in less than 2 years kill over 850,000 Americans and 5.5 million human beings worldwide.

Phase 2 – Bargaining

Follow the plan: Let’s get through the first wave and the winter surge of 2020.

By March 2020, it was clear we were facing a true crisis that was likely going to get much worse, but that’s why we prepare, right? We have “bargained” for this. We all have protocols to deal with public health emergencies from infectious disease. The hospital, HHFR, and VIM Clinic dusted-off our pandemic protocols preparing for the anticipated first surge. Materials managers worked tirelessly procuring and stockpiling PPE and other medical equipment and supplies. We developed procedures for patient flow and visitor access. The hospital restricted elective procedures and had contingencies for expanding critical care capacity by using surgical ventilators, surgical staff and recovery room space. Starting with the 911-dispatch center, HHFR enacted emergency protocols for accessing patients in the safest and most expedient manner.

We all experienced PPE shortages, but with CDC guidance we adapted procedures to allow re-use and recycling of PPE (N-95 respirators). While this added apprehension to the growing sea of unknowns, when properly implemented the procedures proved to be a safe and effective. This extended our PPE supply, and with careful conservation, we have all been able to work safely.

As it happened, state lockdowns prevented the huge wave of cases on Hilton Head that we initially feared. Our tourist industry came to a halt. The hospital was not overrun. We had enough ICU beds, ventilators, and staff. We were communicating with our less fortunate colleagues battling the regional surges in New York and elsewhere, expecting we were next, and trying to share best practices in treating this brand-new disease.

The town of Hilton Head acted proactively. On March 27th, 2020, I petitioned the Town to contract with an experienced nurse practitioner, Kelly Bouthillet, DNP, APRN, to manage the COVID-19 medical response for the town staff and their families. This included the critical task of working with

Fire/EMS to maintain mission readiness. By mid-April, Dr. Bouthillet was testing, contact tracing and providing real time medical guidance and treatment for all Town employees and their families. This was especially helpful when information from public health authorities was changing rapidly and sometimes difficult to interpret.

Dr. Bouthillet was a steadfast COVID-19 resource for Hilton Head Island during the critical phases of the pandemic, and in June 2021, Hilton Head Mayor John McCann presented Dr. Bouthillet a commendation honoring her service to the Town during the COVID-19 Pandemic.

Not what we bargained for:

Then the unexpected happened. In the late spring of 2020, ED volumes crashed. I worked many nights in May through July 2020 seeing only a handful of patients in a 12-hour shift, including almost no children. Children with fevers, sore throats, earaches, barking coughs and rashes are a staple of nighttime emergency medicine. They were nowhere to be found. My colleagues and I from all over the nation were baffled by where all the patient's had gone – were people not having strokes and heart attacks and kidney stones? What about knives in the kitchen and slips in the bathroom?

In June of 2020, the CDC reported that emergency department visits declined 42% during the early months of the COVID-19 pandemic, from a mean of 2.1 million per week (March - April 2019) to 1.2 million (March - April 2020), with the steepest decreases in persons aged ≤ 14 years. The reasons behind this drop in volume are complex, but there are many case reports that delays in medical care resulted in increased morbidity and mortality. This likely disproportionately affected the poor and medically underserved. It also put a tremendous financial strain on the emergency department safety net that, in our current system, is driven by patient volumes.

As the weeks went by, travel and activity increased. ER volumes started to recover, and island visitors had returned. By the time the winter surge hit in October of 2020, the hospital, HHFR and VIM Clinic were well rehearsed. PPE supplies were holding. We had adequate staff. Our surveillance and screening tools seemed to be working.

The hospital provided community drive-through testing, supported by HHFR with special coordination for VIM Clinic patients. We all supported local DHEC community testing drives. The hospital provided rapid PCR testing in emergency situations to first responders as needed. The

hospital and Town employees generally fared well through the winter surge with no serious operational failures. Unfortunately, VIM Clinic was not so fortunate. During the winter surge in December 2020, VIM Clinic had to temporarily close in-person services due to an outbreak. Tragically, on December 9th, 2020, Stan Stolarczyk, VIM Clinic's beloved 13-year Director of Volunteers, died of COVID-19 impacting thousands in our community.

Phase 3 – Anger

The solutions are now within our reach: Masks, vaccines and testing – we're going to make it...

The coalescence of decades of research and development in mRNA technology allowed scientists to develop two mRNA based COVID-19 vaccines in an unprecedentedly short time. This was facilitated by the public-private partnership initiated in May of 2020 by the U.S. Government known as Operation Warp Speed. By December 2020, just 11 months after the SARS-CoV-2 genetic sequence was released, two separate companies had engineered, developed, and undertaken sufficient clinical trials such that the FDA authorized emergency use of these very safe and highly effective vaccines.

Hundreds of millions of Americans have availed themselves of this life-saving treatment.

Unfortunately, misinformation, ignorance, politics, and fear have led too many others to believe that the vaccines are bad or even evil. In some minds, at best the vaccines are "big Pharma's grand conspiracy to get rich." and at worst "an insidious contamination of our bodies that could allow electronic tracking or modify our DNA or make us sterile." All of this makes me angry.

Despite repeated and rational public education efforts and the administration of billions of doses of these vaccines, tens of millions of Americans choose not to be vaccinated and many believe vaccine myths that have no scientific basis. We know from the study of mythology that with time and nurturance, magical beliefs become stronger and deeper. Despite robust science and an international pandemic, vaccine rates vary widely across the country from less than 50% in some states like Alabama, Mississippi and Wyoming, to over 75% in others including Maine, Massachusetts and Connecticut. All of this makes me angry.

Phase 4 – Depression

The solutions are available but too many people are magical thinking. The disease of the unvaccinated continues. Nurses and support staff are abandoning ship.

As the 2020-2021 winter surge subsided, tourist visits and ER volumes returned to near normal. In the spring and early summer, some of us hoped COVID-19 might be in the rear-view mirror. Unfortunately, as non-COVID ER volumes recovered, nurses and technicians were continuing to leave in mass. The past year convinced many to retire early, leave healthcare entirely, or at least take a break until the dust settled.

At first, health systems accommodated because COVID was in a lull. Then Delta happened. Now we faced a new crisis; a serious surge in the setting of critical staff shortages. For those of us fully vaccinated (and soon to be boosted), we were not too worried about ourselves. We were worried about our patients. How were going to take care of patients without nurses? Healthcare systems require a team of doctors, nurses, and technicians each playing an essential role.

Many nurses migrated to travel agencies that sometimes could offer two or three times the hourly salary of a staff nurse. Hospitals were not able to match these wages. Many nurses left only to return to the same hospital as agency (travel) nurses under a 13-week contract. The hospital had no option but to hire them, paying unprecedented agency fees, just to keep the doors open. Even with agency nurses, the staffing crisis continues to this day. This translates to a crisis in bed availability, not because we don't have the beds, but because we don't have the nurses to take care of the patients.

This has resulted in many challenges. One of the most serious is needing to keep admitted patients in the ER when there are no nurses to care for them in the wards. This creates enormous pressure on ER nurses to perform the duties of inpatient nurses, while continuing to provide critical care treatment to ER patients. This also severely restricts the number of ER beds. Regularly more than half of the beds in our ER are occupied by "inpatients." Therefore, patients presenting to the ER for illness and injury may wait many, many hours before being seen by a doctor. This is failing patients and is frankly depressing.

Phase 5 – Acceptance

I have a chance to make a difference, but only if I remain kind and compassionate.

I've come to accept that everyone has the right to choose to be vaccinated against COVID-19, but not everyone will. Some will have reasons that make sense to me, and some won't. I will continue as a physician, fulfilling my oath in a non-judgmental and as authentic manner possible.

I expect to feel anger when I endure the pain of a loved one's preventable death. I expect regular intervals of sadness and even hopelessness as I reflect on those who continue to die and those that will suffer "long-COVID" symptoms, perhaps forever, when their illness was entirely preventable. And although I will continue to accept and care for those around me who are ignorant or misled by the powerfully ill-informed, I will not stand silent when they are spreading misinformation.

As of this writing, we are currently in the exponential growth phase of the fourth wave of COVID: Omicron. I have hope that the transmission efficiency of this variant combined with less severe disease in the immunized population, may be the scenario that causes the pandemic to flame out. Unfortunately, the paucity of vaccinations worldwide will give Mother Nature ample opportunity to try and engineer a more successful variant, possibly one that escapes natural, and vaccine induced immunity. We will find out together.

I would like to close with some concerns I have about the deeper failures the pandemic has exposed. In short, I am more worried about human nature than Mother Nature.

1. Societal dysfunction and nationalism have led many to make decisions based on ideology rather than science. Historically, Americans have viewed scientific authorities as legitimate purveyors of the truth. We understood and practiced the principle that individual liberty must sometimes be carefully limited, to achieve a higher societal good. I worry about the damage caused by this shift away from truth and fact-based reality. I shudder to think about how this may impact our democracy and the so-called inalienable rights on which it is based.
2. Staffing crises in healthcare and other industries is having an enormous negative impact on healthcare delivery in this country. Many enterprises are in jeopardy of failing, or worse, providing unsafe care.
3. The psychological toll on healthcare workers who characteristically want to "root" for their patients is mounting. Many of us practicing today struggle with loss of compassion, especially for those people who chose not to get vaccinated. For a healthcare provider, being shaken by a patient's death comes with the territory but becoming numb to this is worse.

I have great hope in human kindness and ingenuity. I believe we will make it through these incredible challenges. I call on everyone reading this to commit to love, the golden rule, rational thought, and the courage to spread this message.