‘Wisdom in the time of COVID-19’

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The year 2020 will be a year for the ages in the annals of medicine. A pandemic of historic proportion not seen in 100 years led to tremendous upheavals and challenges for the medical community. The avalanche of patients storming the emergency rooms and wards in New York City early in the pandemic was observed with horror and trepidation by the rest of the medical field in what were at the time less affected regions of the country. We all hoped that the contagion could be contained, we hoped to ‘flatten’ the curve to prevent widespread dissemination and return to normal. This was unfortunately not to be the case. Within months the country was overrun with active cases, while massive changes in how we care for patients and operate on a daily basis became the norm. On September 11 and with the World Trade Center collapse, many instantly sensed that the world as we knew would never be the same. While we lost nearly 3000 innocent lives that day, we have to date lost over 100 times that number due to the COVID-19 pandemic. Once again, it has become clear that healthcare as we knew it would likewise never be the same. All the more reason to appreciate that the changes we are making, the lessons we are learning and will learn will shape our profession for decades. This pandemic will affect medical education, clinical practice, hospital operations, preventive medicine, and medical research.

As a result of a tsunami of infections, we canceled elective surgeries, halted medical student teaching, closed research laboratories, faced incredible daily ethical challenges, ran out of personal protective equipment, faced the possibility of personal danger, and watched not only our patients die helplessly but at times even our co-workers succumb to the illness. There is no other illness in over a century that has caused so much chaos so quickly in our profession. No region of the world was spared and what we have experienced is a shared trauma that we as physicians have in common. As hard as it has been for our medical system and medical community in this country, we can only imagine what it must be like for our colleagues in resource-poor and underdeveloped regions.

However, out of every crisis there is an opportunity for growth, to look at issues with a different lens, adapting and adjusting, and in fact re-focusing on the way we operate our daily routine. We can re-learn to appreciate what we should have known all along but previously neglected. Crisis can serve as an opportunity to experience our surrounding reality and ourselves differently, to live more truthfully, to adjust, and to see our profession and world around us with fresh eyes. We herein describe several changes that have occurred and perhaps may be seen in a positive light out of what has been a historic although tragic year.

The COVID-19 pandemic has forced us to come to terms with contagions. Prior to 2020 we struggled, physicians especially, in infection control measures such as hand washing, grooming properly, and use of masks. Infection control measures to deal with *Clostridium difficile* and methicillin-resistant *Staphylococcus aureus* were at times underappreciated. SARS, MERS, H1N1, Ebola, and ZIKA were something that from our perspective happened ‘over there’ but did not disrupt our daily routine. Now, we find ourselves functioning as an army of infection control officers and policing each other at every opportunity. This can only be positive.

The COVID-19 pandemic has highlighted deficits in our public health control measures. Public health local offices were previously silent, often ignored, underfunded, and underutilized. The pandemic has re-educated us in its important role in the education and in control of epidemics, pandemics, chronic disease, and how connected they are to our inpatient facilities.

COVID-19 underscored how chronic disease and lifestyle are interconnected via something as simple as a virus. We witnessed thousands of patients with obesity as the only medical issue deteriorate within days to the virus. Poorly controlled patients with prediabetes, diabetes, smoking, and poorly controlled hypertension who had never been hospitalized now accounted for a large proportion of the affected. Many of our frontline workers, teachers, ambulance workers, nurses, techs, and grocery workers were in this category and when they fell ill it only exacerbated the crisis. The pandemic will hopefully emphasize how critical excellent outpatient primary care will be in limiting future viral outbreaks’ human toll.

Health disparities, social and structural determinants of health, and structural racism were exposed for all to see. The pandemic spread like a fire out of control in communities of color and underserved regions of the country who were devastated in its wake. These disparities ultimately affect everyone in one way or another. Our profession needs to discuss them.
openly, frequently, and should be considered as part of our daily education of medical professional trainees and students. Our medical research initiatives, both basic and clinical, need to focus in this space much more than ever.

The speed of dissemination of medical interventions such as remdesivir, dexamethasone, and the unprecedented rapid development of safe and effective COVID-19 vaccines should make us appreciate basic science research and our clinical scientists who, prior to this pandemic, in many ways have been struggling to survive and flourish. Their role and work in conducting the various phase trials to bring state of the art care from the bench to the bedside is one of the heroic triumphs to come from this pandemic. We as clinicians need to recognize ourselves and educate the public of the critical importance of biomedical research and why we constantly need to invest in these endeavors. As clinicians, we need to support and advocate for our clinical research scientist brothers and sisters.

The value and importance of evidenced-based medicine were also accentuated by the pandemic. We all recall at the beginning of the pandemic how rumors, anecdotes, and hearsay of how to treat patients with medications like hydroxychloroquine proliferated via medical press and social media. As reassuring and informative as this was, it was never going to replace the fact that we needed strong evidence-based medicine born out of rigorously conducted clinical studies to affirm or refute the safety and efficacy of any given intervention. Again, our clinical researchers rose to the occasion and provided us with scientifically proven measures to use.

A trust in science by the public and our government officials complemented by a return to basic science concepts by clinicians: mRNA, genome, ACE-2 receptors, epidemiology, statistics, and careful review of published studies, and so on will facilitate a practice of medicine where sound scientific principles are foundational and balance the art with the science of medicine.

The pandemic has resulted in a flood of young people applying to medical schools and other health professions. We have witnessed the altruism of our young medical students and residents stepping forth and manning the front lines knowing they put themselves at risk. Our students volunteered to man phones, educate the public, and advocated for a chance to contribute clinically. We can only conclude that our future profession is in good hands.

Immediately on becoming aware of the magnitude of the pandemic, we limited and at times halted our medical education efforts and had to re-think how to provide medical education. The use of virtual technology, virtual education, and distance learning was quickly adopted. We are learning when bedside presence is mandatory and when we can connect with our patients virtually. We struggle with how to interact with our patients not just electronically but with empathy via a screen. Specifically we do not think that distance can ever replace the special relationship and rapport formed by a physician and patient interacting and communicating verbally and non-verbally in the confines of an exam room or at the bedside. We will learn how to adjust the in-person visit after a period where virtual visits have become more enriching to us and our patients. We previously took them for granted.

The use of technology was advanced and incorporated into our medical practice, research, and education. Virtual conferences, meetings, patient visits, lectures, and laboratory research meetings have become the norm. The increased use of the simulation center and laboratories has been indispensable in allowing us to teach and hone our skills while we were limited and unable to gather in large numbers.

At local hospitals and medical schools where in the past were operated in silos, the pandemic forced us to collaborate and develop teamwork across disciplines as institutions developed COVID-19 Task Force teams to combat the vast array of rapidly developing issues. This is an example that legacy is not only what we have accomplished but what we have set in motion.

The crisis has also taught us the value of leadership and how it is an important trait of physicians to develop alongside clinical excellence. We witnessed leadership by example, servant leadership and executive leadership at all levels in medical schools, hospitals, clinics, laboratories, and public health settings. Suddenly, institutions across communities were holding interdisciplinary advisory groups to decide on new policies and standards of care for their institutions. Professional medical ethicists were collaborating with healthcare teams to determine a process for allocation of scarce resources. In contrast, we saw some failures of strategic leadership by world leaders and authorities; yet, we also saw towering and legendary medical leaders such as Dr Anthony Fauci provide us a roadmap of how we should navigate this pandemic.

Gabriel Garcia Marquez’s ‘Love in the Time of Cholera’ is a timeless novel with rich symbolism of life and change in the background of a cholera epidemic, which causes us to reflect on a wide range of human events and emotions. Likewise, hopefully ‘Wisdom in the Time of COVID-19’ can leave us with valuable lessons to move forward and in the words of Jim Valvano a more recent beloved sports figure fighting cancer—‘Never Give Up’.

Contributors EC, GG, and RM wrote the editorial and contributed equally.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.

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