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HIV SPECIALIST

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BACK to the

FUTURE

How lessons from one pandemic may save lives in another

BY JOSEPH S. CERVIA, MD, AAHIVS

RELEASED IN 1985, the same year as HIV antibody testing, the sci-fi classic, *Back to the Future*, is the story of small-town California teen Marty McFly (Michael J. Fox) who is thrown back 30 years into the past when an experiment by his eccentric scientist friend Doc Brown (Christopher Lloyd) goes awry. Marty recognizes that he must ultimately return to his own time, using what has been learned and achieved in order to save a life.

As I observe the current global SARS-CoV-2/COVID-19 pandemic, I feel as though I have been thrown back three decades, my heart racing like Marty's, eager to capture some lessons learned from our early struggles with the ongoing HIV/AIDS pandemic, which may better inform our response and save lives today.

Reflecting upon the unspeakable suffering experienced by HIV-infected patients, their loved ones and caregivers in the early years, it is difficult to miss a striking parallel to the anguish borne by those battling the current pandemic of COVID-19. For certain, the two pandemics have a number of important similarities as well as differences. Both are due to novel viruses with zoonotic origins. However, their modes of transmission are very different. Both HIV-1 and SARS-CoV-2 can be deadly and attack indiscriminately, while disproportionately impacting communities struggling with poverty; however, the latter has advanced through the population with much greater facility and alacrity, resulting in more sudden and widespread disruption of life across the globe.

Finally, both viruses emerged, at first, rather poorly understood, with limited diagnostic testing and no known treatment; whereas, today's more advanced molecular tools have vastly facilitated the development of targeted diagnostics, and offer the promise of swifter development of vaccines and therapeutics. Modern electronic media offer means for more efficient communication and data sharing.

Acknowledging these important similarities and differences, the following 10 lessons learned three decades ago in the early response to the HIV/AIDS pandemic can enlighten the current journey for patients, caregivers and clinicians battling SARS-CoV-2/COVID-19.

Silence = Death: Denial can be Deadly

Denial, a very human initial defense mechanism when coping with a new and frightening reality, can become extremely dangerous when it hampers a prompt and effective response to that reality. Although early reports of what ultimately became known as AIDS were published in June 1981, it was not until 1985 that President Ronald Reagan first mentioned it publicly. Subsequently, global HIV/AIDS denialism, which ignored clear scientific evidence of HIV as the etiology of AIDS, discouraged HIV-positive individuals from using proven treatments. It also justified the policies of some nations which would not sustain the cost and effort to make treatment available, resulting in countless additional infections and lives lost. Recognizing the critical importance of truth and transparency, AIDS activists embraced the slogan, "Silence = Death."

Dr. Li Wenliang, a Chinese ophthalmologist who worked as a physician at Wuhan Central Hospital, warned his colleagues in December 2019 about a possible outbreak of an illness that resembled severe acute respiratory syndrome (SARS), later acknowledged as COVID-19. Dr. Li, who subsequently contracted and died of the infection, was initially discredited by his government. Meanwhile, closer to home, as COVID-19 began to spread across the United States, President Donald Trump repeatedly insisted that it was nothing to worry about. Two months later, the United States became the first country in the world with more than 100,000 cases, the

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economy had ground to a near standstill, and the virus had killed more than 104,000 in the US alone.

Refuse to Play the Blame Game: Fight the Stigma

As observed in society's early response to HIV/AIDS, inadequate scientifically-driven understanding of pandemic illnesses contributes to stigma, and promotes the tendency to lay blame upon victims, which in turn, delays definitive efforts directed toward enhancing diagnostic testing, research and appropriate care. Community support and activism by groups such as Gay Men's Health Crisis (GMHC) and AIDS Coalition to Unleash Power (ACT UP), and by professional societies such as the American Academy of HIV Medicine (AAHIVM) have demonstrated the critical role of advocacy. Today, individuals affected by the current pandemic and those who care for them must lend their voices to rally continuing support for better understanding and scientifically sound, effective preventive strategies and treatments for COVID-19 illness. This may take the form of public advocacy, by means of financial and/or volunteer support for healthcare organizations, political activism (e.g. lobbying efforts), research involvement (e.g. volunteering as collaborators or subjects), and active participation in community-wide educational efforts in the press, and electronic media.

It's a Small World After All

Pandemics have a way of reminding society that it's one human family, inhabiting a predominantly microbial world. With its origins in Africa, blood and body fluid-borne HIV silently crept across continents in the 1970s, before becoming evident in the succeeding decades. Abetted by its very efficient respiratory transmission, SARS-CoV-2 raced much more rapidly across the globe following its early identification in Wuhan, China in December 2019. Respecting no geopolitical boundaries, deadly viruses illustrate that the world is a small after all. We must remain vigilant and concerned about emerging infections and the underlying socioeconomic and cultural challenges faced by neighbors across the globe.

Individuals and families grappling with serious COVID-19 illnesses and their loved ones often face cruel separations wrought by the nature of the affliction, which are only exacerbated by the nature of care delivery in the setting of an acute public health crisis. Courageous and compassionate cooperation with and among embattled care providers is inspiringly reminiscent of the early days of HIV/AIDS.

Team Up: Collaboration is Critical

An optimal model of multidisciplinary primary care with integrated HIV subspecialty services has been offered for decades by teams optimally consisting of physicians, physician assistants, nurse practitioners, nurses, pharmacists, social-work case managers, mental health professionals, nutritionists, chaplains and other dedicated caregivers. These team members have often developed long-standing and intimate bonds with patients and family members. The very strength of these bonds, forged by shared struggles against demons such as poverty and its associated calamities, social stigmatization, substance use, and all too often, the concurrent illnesses and deaths of multiple family members, has made it possible to compassionately and systematically address the needs of individuals and families battling HIV. Similarly, individuals and families grappling with serious COVID-19 illnesses and their loved ones often face cruel separations wrought by the nature of the affliction, which are only exacerbated by the nature of care delivery in the setting of an acute public health crisis. Courageous and compassionate cooperation with and among embattled care providers is inspiringly reminiscent of the early days of HIV/AIDS.

The value of team effort also extends to clinical research infrastructure. The pace of developments in the fight against HIV/AIDS could never have been attained without strong industry, academic, community and government collaboration. Multi-centered clinical trials networks, such as the AIDS Clinical Trials Group (ACTG) and International Maternal Pediatric Adolescent AIDS Clinical Trials (IMPAACT) Network have learned and demonstrated the synergies accruing to organizing themselves into research agenda committees and working groups, comprised of physicians, basic scientists, pharmacologists, biostatisticians, nurses, mental health professionals, and community advisory board members infected with and/or affected by HIV. The research community has certainly appreciated the critical role of collaboration, and has rapidly rallied to accelerate the development of COVID-19 treatments, with for example, the World Health Organizations' (WHO) March 20th launch of the "Solidarity" trial, an unprecedented collaborative study intended to simplify enrollment and follow-up of thousands of patients in dozens of countries amidst the onslaught of the pandemic. The WHO's website will randomize patients to local standards of care or with one of four drug regimens, utilizing the ones available in the patients' hospitals.

Screen Widely

Shortly after the viral etiology of AIDS was identified, reliable screening tests became available. Nevertheless, their widespread implementation lagged despairingly. There was little enthusiasm for identifying individuals afflicted by a stigmatizing illness for which effective treatment appeared to be lacking. With attention to fighting stigma and establishing operational care and research networks, screening has continued to become much more widely accepted. In addition, success in generating more efficacious and better-tolerated therapeutic options has

further bolstered support for widespread screening.

Reliable screening for SARS-CoV-2 and associated antibodies has proven critical in early identification of those at risk and affected. Efforts to more rapidly roll out widespread, community-based screening will facilitate the effort to fully comprehend the extent and nature of this pandemic, and to better direct evidence-based public health efforts. However, more effective screening cannot await optimal therapeutic options, since as was learned in battling HIV, research advances toward safer, more efficacious treatments await the participation of those at risk and infected. If better solutions are to be uncovered in the lifetimes of those infected, they and those who care for them must be a part of that effort.

Let Science Take the Lead

The early years of the HIV/AIDS pandemic were marked by a very real sense of fear and foreboding. This fear sometimes found expression in irrational and cruel responses, such as the avoidance of infected individuals. The ultimate antidote to fear proved to be science and education. Advances in the understanding of the virus promoted more rationale, effective, and humane responses.

Fear of COVID-19 today is palpable, and has found expression in isolation, hoarding and shortages of much needed items such as personal protective equipment. Unfortunately, in the early weeks of this pandemic, limited community-based testing has resulted in incomplete information and inconsistent messaging, which has only exacerbated public anxiety. The ultimate solution lies in allowing science to once again lead. With the benefit of myriad advances in molecular virology, immunology, pharmacology, and information technology over the past three decades, the tools to better comprehend and address the challenges presented by SARS-CoV-2 and the means to communicate about them are well within grasp.

Sometimes Old Drugs can Learn New Tricks

The first weapon against HIV, zidovudine or azidothymidine (AZT), was originally developed in the 1960s as an anti-neoplastic agent; however, it was set aside after having been found ineffective for that purpose in animal models. Two decades later, Burroughs Wellcome, already known for its antiviral drugs, included AZT in its screen for possible anti-retroviral agents and uncovered its efficacy. At this early stage in COVID-19 research, repurposed older drugs such as the anti-malarial immunomodulatory agent hydroxychloroquine with or without the acid-reducing histamine 2 receptor blocker famotidine, the nucleotide analogue anti-Ebola viral drug remdesivir, and immunomodulators tocilizumab and sarilumab, both approved for rheumatoid arthritis are among the early objects of clinical trials.

Share the Wealth

Translating promising basic and clinical research findings into standards of care requires attention to regular communication among experts, and between those experts and front-line providers, patients and caregivers. For many years, comprehensive HIV care guidelines have been widely available and regularly updated with each version prominently marked with a freshness, 'last updated' date. This practice becomes all the more relevant as the pace of research progress accelerates.

Novel basic science and clinical research advances in the diagnosis, prevention, and treatment of COVID-19 must be regularly vetted by experts, and best practices disseminated in the form of comprehensive and current clinical practice guidelines. Armed with modern electronic media, the integral collaboration of government, industry, and the community as part of the larger research team will facilitate this ongoing process of communication.

It's a Marathon, not a Sprint

The HIV/AIDS pandemic is now in its fourth decade, and despite all of the advances in prevention, diagnosis, and therapy, some 38 million individuals remain infected, with as many as 1.7 million new infections each year globally. Clearly, patient and persistent efforts must continue in order to finally put an end to it. With it being only months into the SARS-CoV-2/COVID-19 pandemic, it is already deeply impacting lives throughout the world. Many are expressing great impatience with the public health efforts directed at controlling it, but it is key to remain steadfast and diligent in the efforts.

Keep the Faith

In what might arguably have been the darkest days of the HIV pandemic, I shared a vision with my pediatric HIV team of a time in the not too distant future that we would be able to hang a "Gone Fishin" sign on the clinic door. It seemed laughable at the time, but we kept smiling, and worked to ultimately bring reality to that vision.

All who would venture to undertake the goal of better outcomes for those battling COVID-19 must share a steadfast belief that it can and will be achieved. In the words of Francis of Assisi, "Start by doing what's necessary, then do what's possible, and suddenly you are doing the impossible." Fortified by lessons learned three decades back, with ardent advocacy, relentless research, compassionate care, and limitless love, this is another battle worth fighting to win. **HIV**

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