Guns, Germs And Health Care

Lessons Observed and Learned

ALEXANDER GARZA, MD

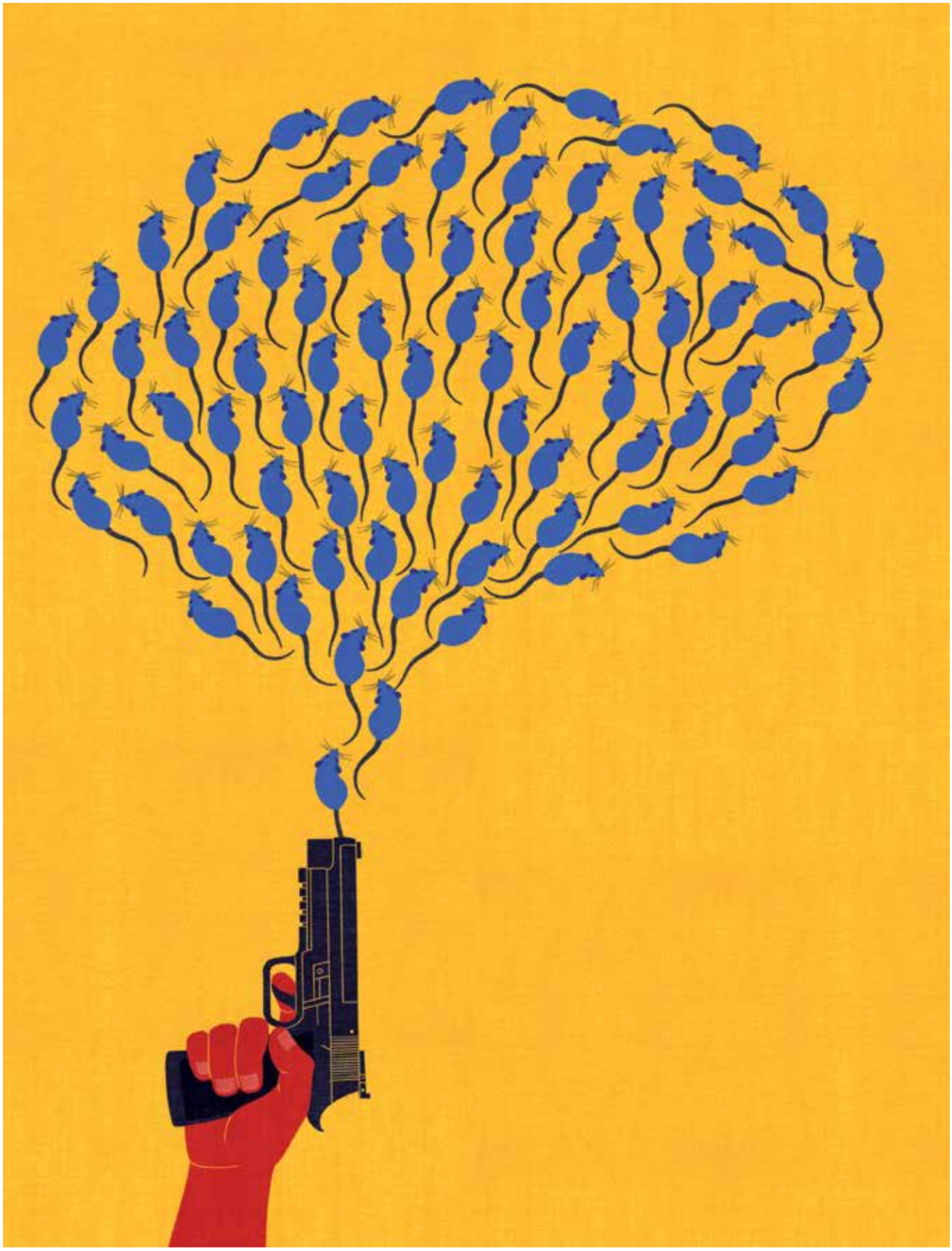
In his classic book *Guns, Germs, and Steel*, Jared Diamond argues that the development of civilizations and their ascendency in the world was mostly influenced by geography, climate and access to natural resources, which gave greater protection from disease and improved the probability of succeeding. It was not by accident that Diamond included "guns" and "germs" as main characters in his book.

Although civilization has progressed on many fronts, particularly in the treatment of trauma and infectious diseases, guns, violence and germs continue to plague our communities. Harm inflicted on individuals from guns or germs can be random; however, in both cases there are unequal burdens on different populations and they are heavily influenced by social determinants. Health care, in particular Catholic health care with its mission to care for the poor and vulnerable, must continue to plan responses to small outbreaks of violence and disease, as well as larger scale disasters caused by them. In addition, we must mitigate the issues that place the vulnerable and marginalized at increased risk of suffering from guns and germs in the first place.

I have been in a position to observe and interact with guns, violence and germs throughout my career in medicine. From a paramedic, to an emergency medicine physician, a soldier deployed in conflict, a government executive at the U.S. Department of Homeland Security, a faculty member at a college for public health, and now as an executive in a large Catholic health care ministry. In each of these roles, the environments were different, but the underlying principles the same. Guns, violence, and germs are formidable threats to be understood and countered. Understanding environment, risk and response are important for any population, government or health care system in dealing with these different yet similar threats.

GUNS AND VIOLENCE

Gunshot wounds and other acts of violence were not uncommon calls when I was a paramedic. The clinical side of taking care of trauma patients is fairly well established. As paramedics, the best medicine we could offer was getting them to the trauma center as quickly as possible. Many studies have shown that this alone can be a major determinant of survival. As a medical director for emergency medical services in Kansas City, Mo., my directive was that I did not care whether the crews started IV's or not, but I did care if they took too much time on the scene. As an emergency physician, improving the odds for survival depended on clinical and systems training as well as being consistent with the delivery of trauma care. Everyone in the trauma bay has a role to play, from the trauma surgeon to the ER technician,



and the success of the outcome depends on each person executing their part with rigor. If everyone caring for the trauma patient understands the system, and it is practiced and drilled and refined, then the system can respond even in the face of a mass shooting.

Gun violence can be short and intense as in urban trauma, to overwhelming and prolonged, as in warfare. The victims can be indiscriminate in both. An outbreak of gun violence in the St. Louis region in 2019 has taken a particularly hard toll on children, with at least 17 killed as of Sept. 1. The likelihood of suffering from the disease of violence, particularly gun violence, is more strongly associated with communities impacted by negative socioeconomic conditions, environment, poor education and poverty rather than genetics, diet or lifestyle. While a popular refrain is that zip codes can determine people's risk of health issues or longevity, the point is sometimes lost that zip codes are a surrogate marker for socioeconomic conditions. As much as we can reduce the risk of heart disease by proper diet, exercise and preventative treatment, violence needs to be addressed in a similar fashion, through risk reduction and proper response.

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Although I have taken care of thousands of patients as a care provider, two victims of gun violence particularly stick with me. While working as a paramedic, my partner and I were dispatched to a shooting. The scene was chaotic, and the police were waving us in frantically. A high velocity bullet had penetrated the front window of a home, striking a small girl in the head. She had been asleep on the couch. With an expression of panic and staring intensely at the girl's face, an officer asked: "Is there anything you can do?," but he already knew the answer.

The second happened while I was working as an attending emergency physician. EMS had called ahead about a pair of children who were victims of a drive-by shooting. The paramedics who arrived were performing CPR. Though valiant, it didn't matter because both children suffered fatal wounds to the head. Many things bothered me about this, for different reasons. One, of course, was because these were innocent children, still in their pajamas; the second was the surgery resident's apparent ambivalence to the fact that these were children and victims. Although they clearly had nonsurvivable wounds, he proceeded to perform other medical procedures as if using their bodies for training. It was grossly disrespectful to them as human beings. I then left the trauma room to speak with the mother of the children only to find her heavily inebriated. I couldn't sleep when I got home just thinking about what had just happened.

I am not exactly sure why these patients have stuck with me over the years. Perhaps it was because in looking at that child on the couch in her living room and seeing the devastation it brought to the family and the crowd that had gathered outside, I realized that gun violence does not start and stop with the victim. It impacts families and communities in ways we don't see in the sterility of the hospital. The second was because of our ability as caregivers to become callous to the human element of trauma. Perhaps this is a coping mechanism, or perhaps bravado. Either way, we need to constantly remind ourselves of the special relationship we hold as caregivers to our patients, particularly those in dire need of our abilities, and that all people are first humans created in God's image. And last, caregivers are not immune to the toll that these experiences take on them. We must recognize and take care of the second victims, the caregivers.

Guns, violence and to a lesser extent, germs, followed me to Iraq where I deployed as a Civil Affairs team chief and battalion surgeon with the U.S. Army in 2003. A sad byproduct of warfare is improvement in trauma care, which was certainly true in the Iraq and Afghanistan theaters. This included improved surgical techniques, equip-

ment and evacuation processes to get the injured to definitive care more quickly. Although I was a physician, my job wasn't to take care of the soldiers, but rather to rebuild health care throughout three provinces in central Iraq. Resurrecting a functioning health care system would, in turn, help the community return to some degree of normalcy and hopefully show that coalition forces were committed to the people, commonly referred to as "winning the hearts and minds."

During this time, injuries from firearms were constant and devastating since most were caused by high velocity, military weapons. As the war continued, an insurgency developed. Along with this, tactics changed from conventional to asymmetric warfare and the use of improvised explosive devices (IEDs). The military reacted by developing a strategy of countering IEDs around the singular event of the explosion, colloquially called "the boom." If you think of this as a continuum, then "left of boom" were things that prevented an IED attack, such as deterrence, detection and mitigation, and "right of boom" were response, tracking the perpetrator, care for wounded and more.

The IED, however, is merely a tool of the insurgency — that is to say, you can't declare victory by defeating the IED, you have to defeat the insurgency. This led to developing the doctrine of counterinsurgency or COIN, which teaches that when a population is stable, able to operate freely as a society and provide for its citizens, it is much less likely to resort to violence against the population and coalition forces. The whole purpose of COIN is to eliminate people's desire to be engaged in violence and/or counterinsurgencies. Mine was just one of many teams deployed with the goal to improve the society's infrastructure, which would, in turn, deny the insurgency its needed narrative and, consequently, decrease the probability of the insurgency recruiting from the population.

There are striking differences in how the U.S. military develops strategies to combat violence and insurgencies in war zones, and how the domestic U.S. government responds to societal violence in America — although both are threats to stable societies. Just as the military considered the explosion from the IED as "the boom," and built strategies around it, we should think of gun violence in the same way. Although we have become very good at treating the injured on the battlefield, just as we have become very advanced in treating victims of gun violence, victory is when an IED is never placed to begin with. The same is true of gun violence: Victory is when we can prevent it in the first place.

COIN strategy extends beyond the conventional use of force against the enemy and focuses equally on economic and societal approaches to defeat violence and counterinsurgency as it does on combat and security operations. Domestic environments with poverty and social injustice also create environments similar to those in insurgencies that increase the probability to "recruit" people into violence, and similarly should be examined in the same light as an insurgency. If they were, then attention wouldn't be just focused on law enforcement activities or gun control, but also on the foundational issues that create an environment for "recruitment" to violence. The U.S. government spent billions of dollars in reconstruction due to war, with the goal of preventing a failed state. Perhaps these same tactics can be used domestically in our communities to counter a gun violence insurgency.

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GERMS

While I was working as an emergency medical technician in Kansas City, Mo., a reporter and photographer from the *Kansas City Star Magazine* rode along with my partner and me for a week to do a story about emergency medical services. During that time, they saw what we saw, took notes and pictures, and interviewed us for the Sunday maga-

zine. During the week, we were dispatched to a house where parents had called 911 due to a rash contracted by their young son. Upon arriving, we observed that the family lived a spartan existence: their stove's door open because it was used to heat a ramshackle apartment, they had only piecemeal furniture and little or no food in their refrigerator. It was clear they had no access to primary care, otherwise why call an ambulance? By 911 standards, this was hardly an emergency, however, whether I knew it or not, it was an introduction to the social determinants of health. The article came out under the banner of "Life, Death and the Paramedic." Within the article, in large bold print was a quote from me stating, "If more physicians saw what we see every day, medicine would be practiced differently." I still remember saying that to the reporter while we were driving the boy to the children's hospital. I caught quite a bit of flak from the emergency physicians about that quote. I had to explain that they didn't see what we saw out in the community. They only saw a kid with chickenpox who needed care in the ER. They didn't see the apartment or the stove or the refrigerator with little food. Most agreed with my assessment, but they felt powerless to do anything.

Infectious agents, although a different threat than gun violence, still cause significant morbidity and mortality. Throughout history, disease and pandemics such as the "Black Plague" and the Spanish flu of 1918 that killed nearly one-third of the earth's population have proved formidable threats. Attempts to deliberately use infectious agents as offensive weapons also have occurred throughout history, from the catapulting of plague infected bodies at the siege of Caffa in 1346, through the anthrax mail attacks of 2001.

In many ways, however, infectious diseases are similar to gun violence. They affect the poor and vulnerable disproportionately and can span from small intense episodes, such as a case of meningitis or sepsis, to full-blown disasters, such as the H1N1 pandemic or recent Ebola virus outbreaks.

Just as it should be with trauma, health care should be as prepared to handle infectious disease, whether it's a single-event infectious disease or a large-scale biological event.

Health care carries much more of the load for strategies against infectious disease than does gun violence and can significantly mitigate the threat of infectious disease. Such strategies include active surveillance, effective vaccination programs, antibiotic stewardship and reduction of hospital acquired infections.

While serving as the chief medical officer at the Department of Homeland Security, I was involved in many national and international crises. However, the largest part of my work surrounded the impact that infectious agents, whether deliberate or natural occurrences, had on the nation's security. The most opportunistic biological weapon generally is what makes a pathogen also difficult to combat in the field. This includes easy dissemination, effective transmission, difficulty in detection and no vaccine or effective therapy. From a global perspective, if this is combined with an ineffective public health response, or a weak government, it becomes a catastrophe.

The anthrax attacks came on the heels of the 9-11 terrorist attack and were deliberate, directed attempts to disseminate high-grade anthrax. Five people were killed and at least 17 people were injured as a result of these attacks. As a result, significant work was directed toward planning for biological weapons. To get "left of boom," we developed sophisticated programs to surveil areas of high population density for suspicious pathogens. But more important than the technology was planning for how to prepare and respond, or what we called the "concept of operations" or CONOPS. When considering a wide-area dissemination, it is no longer just a health event, but a security event with public health consequences. We held tabletop exercises, bringing together multidisciplinary teams including the police, EMS, health care, and public health, as well as elected leaders, to discuss the response to potential events. These same tactics also can be used within health care systems when dealing with significant infectious disease issues. During the particularly virulent influenza season of 2018-2019, SSM Health in the St. Louis region set up a multidisciplinary incident command structure. This was important because everyone needed to be at the table—from doctors to nurses and from microbiology lab technicians to supply chain staff. We all knew what was happening and what the

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priorities were. This kept our health care system organized and directed efforts to keep our system operating with minimal disruptions.

However scary a deliberate biological attack seems, nature is a much more prolific at developing and spreading serious infectious disasters than any nefarious state actor. The 2004 Severe Acute Respiratory Syndrome (SARS) pandemic provides a good example of how disease is no longer isolated by geography and how serious illnesses can rapidly travel worldwide due to air travel. The Ebola crisis in Sierra Leone and Guinea in 2013 offers a similar lesson on how fragile states, local culture and environmental issues, when combined with a highly transmissible and lethal infectious agent, can bring about devastating effects.

Guns, violence and germs are present in society every day and pose a significant burden on both our communities and our health care systems. They disproportionately afflict the poor and vulnerable and, just as suggested in *Guns, Germs and Steel*, they frequently impact the ecological environment where people live, as well as access to health resources that are predictive of who will and will not be susceptible. As Catholic health care providers, we must be both prepared to care for the victims and patients, but, just as important, our ministries also call us to work far left of the "boom" by mitigating negative influences and determinants for those our mission calls us to serve. It is through this approach that we can reduce the effects of guns and germs on societal success.

ALEXANDER GARZA is chief medical officer for St. Louis-based SSM Health, which has care delivery sites and clinical staff in Illinois, Missouri, Oklahoma and Wisconsin, including 23 hospitals, more than 290 physician offices, 11,000 providers and nearly 40,000 employees.

QUESTIONS FOR DISCUSSION

Alexander Garza, MD, brings his experience from the military and medical work in poor urban areas to bear on what health care can do to reduce the incidence and consequences of disasters. He thinks Catholic health care has a special role to play not only in caring for victims and patients, but also in doing much more to mitigate negative influences and social determinants that contribute to those situations.

1. Has your ministry had to respond to a disaster – extreme weather, industrial accident, ongoing violence in the community or pandemic disease – that called for different levels of care, communication, stress on employees or anxiety? If so, please talk about what happened and how your organization or team responded. If not, discuss what protocols you have in place should a large-scale disaster strike your community.

2. Garza relies on tactical parlance to exhort health care to work "far left of boom." What does that mean for your ministry in terms of strategy and operations, mission, pastoral care and community benefit? Be specific about what is already in place and what still needs to be done.

3. When he talks about disasters of disease and violence, Garza emphasizes the need for prevention as well as preparation. How does that play out in the communities your ministry serves? What resources do you need in terms of information, community relationships, financial investments and staff expertise to maximize your opportunities for prevention?

4. Extreme weather events, gun violence and infectious diseases don't always land in communities that are particularly poor or vulnerable, yet the fallout of those events tends to affect people unequally. Please talk about how your ministry builds that recognition into its disaster preparedness plans and how a preferential option for the poor might shape the priorities of response when a disaster occurs.

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