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# The Hidden Harms of CPR

*The brutal procedure can save lives, but only in particular cases. Why has it become a default treatment?*

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Photograph by Ashlee Rezin Garcia / Chicago Sun-Times / AP

Shortly after his sixty-seventh birthday, Ernesto Chavez retired from his job at a Los Angeles food warehouse. Sara, his wife of forty-five years, told me that he meticulously took his medications for high blood pressure and cholesterol, hoping to enjoy his time with his grandchildren. But one morning in January, 2021, Ernesto burned with fever, his chest heaving as though he were once again lifting heavy boxes. At the hospital, he tested positive for COVID-19. His oxygen levels plummeted, and he was quickly intubated. Ten days later, his lungs were failing, his face was bloated from litres of intravenous fluid, and his hands and feet had begun to cool. As his chances of survival waned, I arranged to speak with his family about a subject inseparable from death itself: cardiopulmonary resuscitation, or CPR.

For decades, physicians have debated whether CPR should be offered to people who suffer from the final blows of incurable illness, be it heart failure, advanced cancer, or dementia. Although CPR has become synonymous with medical heroism, nearly eighty-five per cent of those who receive it in a hospital die, their last moments marked by pain and chaos. The pandemic only deepened the risks: every chest compression spewed contagious particles into the air, and intubation, which often follows compressions, exposed doctors to virus-laden saliva. Hospitals in Michigan and Georgia reported that no COVID patient survived the procedure. An old question acquired new urgency: Why was CPR a default treatment, even for people as sick as Ernesto?

As a palliative-care physician, I help people with serious, often terminal, illness consider a path forward. During the pandemic, this involved weekly Zoom meetings with each family whose loved one was in the I.C.U. with COVID. We discussed how the virus could damage the lungs irreversibly, how we gauged a patient's condition, and what we would do if, despite being on life support, that patient died.

On a gray afternoon, I logged on to Zoom to speak with Ernesto's family. I would be joined by Sara, her daughter Nancy, and Neal, an internal-medicine resident covering the I.C.U. Before the meeting, I asked Neal whether he'd been taught how to have these conversations. "Nope," he said. I asked him what he might say to Ernesto's family. "Unfortunately, he still needs the ventilator for his lungs, and he's not showing signs of improvement. We want you to know that he is *very sick*," he said, his expression solemn. "Because he is so sick, his heart could stop. If that happened, would you want us to do CPR to revive him?" He used his hands to simulate chest compressions on a phantom body.

In my own residency, I'd been taught to ask patients whether they wanted CPR, and to go along with their decisions. But an *informed* decision, I learned, required more from me. One night, I cared for Andrew, a man with incurable colon cancer who'd stopped urinating and become disoriented, unable to hold a conversation. He needed immediate dialysis, so I admitted him to the I.C.U. When I discussed CPR with his wife, I didn't explain that Andrew's cancer had caused his heart and kidneys to fail—that he was dying, and that CPR wouldn't change that. I placed the entire burden of the decision on her shoulders, reducing what should have been a conversation into highly consequential yes-or-no questions: "If Andrew stops breathing, do you want a ventilator?" "If his heart stops, do you want us to do CPR?" To Andrew's wife, and to most people, these questions mean, "Do you want us to try to save him?" I offered CPR as though it were a choice between life and death.

On the Zoom call, my screen split into three rectangles. Sara and Nancy were huddled on a bed. Dark circles ringed Sara's eyes, and she told me that Ernesto's last words to her echoed in her mind. "He said he wants everything done to save his life," she said. "If he's going to die anyway, why not try the heroics?" She disappeared, her rectangle suddenly dark. "Sorry, I just don't want you to see me cry again."

In residency, I would have assumed that, because Ernesto wanted "everything done," he would want CPR. But this conversation was about more than resuscitation; it was about death, and how Ernesto would want to be cared for as he approached it. Speaking with Sara, I tried to be frank about a procedure that symbolized—both to doctors and to patients—something other than its reality.

CPR has a life of its own. Training for the public is ubiquitous; in thirty-eight states, students are required to learn the procedure before graduating high school. Unlike colonoscopies, gastric bypass surgery, and cardiac angiograms, CPR has also been glamorized, for decades, on television and in movies. Medical dramas portray it as a daring rescue, a symbol of doctors' moral resolve. Onscreen, the vast majority of patients survive these charades and return, unscathed, to their regular lives.

But it is an open secret in medicine that CPR is both brutal and rarely effective. The procedure begins at death, when someone loses a pulse. This can happen because of heart problems—a blockage in a coronary artery, say—or when other organs cause cardiac arrest: lung failure depriving the heart of oxygen, kidney failure causing a buildup of toxins. CPR is designed to keep blood flowing to the brain in these situations. It requires a hundred chest compressions per minute, two inches deep, to the beat of the song "Stayin' Alive," and using a defibrillator to deliver an electric shock to the chest. In hospitals, it also includes I.V. medications to help the heartbeat, and a ventilator to help the patient breathe. The result, done correctly, is akin to assault. The force of compressions can shatter ribs and breastbones, puncture lungs, bruise the heart, and cause major blood vessels to rupture. Repeated electrical

shocks can burn flesh. Even if the procedure restores a heartbeat, brain damage—whether mild memory loss or a vegetative state—occurs in forty per cent of hospitalized patients.

There are times when these risks are worth taking. CPR can save lives when patients are relatively healthy, and when the cause of their death is reversible or unclear. Damar Hamlin, the Buffalo Bills player whose heart stopped during a nationally televised game in January, typifies the person for whom CPR was invented: young and fit, and the victim of a sudden, treatable injury rather than a progressive disease. Still, less than ten per cent of people who receive CPR outside a hospital survive. Inside hospitals, where CPR begins quickly, the odds are slightly better, but only for those who aren't in the last stages of life. A mere two per cent of adults over sixty-seven with severe chronic disease, including cancer, are alive six months after CPR, and they often deal with pain, physical debility, and post-traumatic stress disorder. Reversing a death is not the same as restoring a life.

Nonetheless, CPR has become an expectation rather than an exception, a treatment meant for a few but applied to all. Any patient admitted to a hospital is automatically considered to be “full code,” meaning they'll receive CPR if their heart stops. It's the rare medical procedure for which consent is assumed; you have to sign a form for a blood transfusion, but not for a treatment that can deprive you of a peaceful death. The alternative to CPR, usually called a do-not-resuscitate (D.N.R.) order, tends to inspire fear rather than trust. Although it goes into effect only when a person dies, people worry that it encourages a general neglect: that doctors won't offer their best care, forgoing options such as antibiotics, chemotherapy, and CT scans. (A newer phrase, “allow natural death” (A.N.D.), avoids the suggestion that other treatments are being withheld.)

It is one thing to understand these distinctions, and another to talk about them. In residency, I couldn't place invasive catheters unless my supervisors had frequently observed me in action. Yet nobody oversaw

me when I spoke to people about how they hoped to live and to die. I learned about the importance of patient autonomy—the right to make informed decisions about one’s care, without being coerced. But I had also taken an oath to prevent harm. Autonomy couldn’t mean deferring entirely to patients; doing so would be like going to a mechanic and being asked to decide, without guidance, how he should fix my car. I needed to explain when a treatment would cause more harm than good, but recommending a D.N.R. often seemed harsh, insensitive.

As a result, I performed CPR on patients I knew it wouldn’t help. When Andrew’s heart stopped, just hours after I’d met him, my team and I did forty minutes of CPR. I felt his breastbone give way beneath my hands with a sickening crack, like the sound of a branch snapping in two. I imagined that my waist was the fulcrum of an oil pump, my hands pressing into soft earth instead of his broken, bleeding body. I watched his monitor instead of his face, ashamed of what I was doing. After he died, I vomited in the bathroom, my scrubs streaked with crimson, a ribbon of his EKG strip stuck to the sole of my shoe.

For many physicians, these experiences constitute a grisly rite of passage. Patricio Riquelme, who practices hospital medicine in Oregon, told me about caring for a man with lung cancer as an intern. After a chemotherapy session, the patient collapsed on the street, cracking open his head on the curb. “He couldn’t move or talk, and our team talked about how he wasn’t going to live long,” Riquelme said. “But my attending and senior resident didn’t bring it up with his daughter. I hadn’t learned how to talk about CPR, and didn’t feel comfortable trying.” A few days later, the patient’s heart stopped. “I started compressions and his chest just collapsed,” Riquelme said. “I kept going because that’s what I was told to do. I was crushing him, and eventually I had to close my eyes because blood was spurting from his mouth onto my face.” Thirty minutes later, the senior resident finally spoke with the man’s daughter, who asked the team to stop. “I thought to myself, I need to leave medicine right away,” Riquelme said.

The trauma of these situations goes beyond causing physical harm: there's the recognition of death's approach, the shame of saying nothing, and the inability to discuss how culture, religion, and experience shape a patient's views of life support. When families insist on CPR, I've seen doctors oblige with strange, watered-down variations. There's the slow code, when a team ambles to a patient's room and does very light compressions. There's the short code, when teams do just one or two rounds of CPR. And there are "Burger King" codes, a "have it your way" approach that allows people to customize the procedure: defibrillation but no compressions, compressions but no intubation. Resuscitation requires all of the above, but it has somehow become easier to offer a false choice, a cruel choice, than to not offer CPR at all.

The first known revival of a dead person took place on December 3, 1732. James Blair, a coal miner in Scotland, collapsed while on duty. After his colleagues extracted him, a local surgeon named William Tossach noted that he was cool to the touch, pulseless, and not breathing. Tossach held Blair's nostrils and blew into his mouth. "Immediately I felt six or seven very quick beats of the heart," he wrote. Blair awoke about an hour later and took a sip of water. Four hours after that, he walked home. The Society for the Recovery of Persons Apparently Drowned soon endorsed a variety of methods for resuscitation: warming the body, bloodletting, compressing the abdomen, and using bellows to force tobacco smoke into the mouth or anus. (The latter method is the origin of the phrase "blowing smoke up your ass.")

Not everybody who died underwent resuscitation. In 1792, the British physician James Curry distinguished between "recoverable" deaths, which were caused mostly by accidents, and "absolute" deaths, which were the result of chronic illness or debility. Resuscitation was meant for the former—as was CPR, which was officially introduced in 1960. That year, William Kouwenhoven, the inventor of the defibrillator, published a paper that studied the effect of the procedure on twenty patients in cardiac arrest. Seventy per cent of them survived—a rate that is unheard

of today. That's because the patients were young, otherwise healthy people whose hearts stopped for treatable reasons: electrocution or the side effects of surgery or anesthesia.

But CPR was simple, and soon hospitals were performing it on any patient, regardless of their condition. (As Kouwenhoven wrote, "All that is needed are two hands.") Life after life-saving could be tougher than expected. In the memoir "The Diving Bell and the Butterfly," Jean-Dominique Bauby described surviving a stroke that left him paralyzed, communicating only through his left eyelid: "In the past, it was known as a 'massive stroke,' and you simply died. But improved resuscitation techniques have now prolonged and refined the agony." As the line between suffering and survival began to blur, new questions emerged. Was the purpose of medicine to keep people alive, or to insure a certain quality of life? Could people legally refuse life support? And would doctors face charges if they honored such decisions?

In the nineteen-seventies and eighties, this debate burst into the courts. The flash points were the cases of Karen Ann Quinlan and Nancy Cruzan—two women, in their early twenties, who suffered cardiac arrests, were resuscitated by paramedics, and fell into permanent vegetative states. Their parents begged doctors to cease life support, but the doctors refused, fearing a charge of homicide. The Supreme Courts of New Jersey (in the Quinlan case) and the United States (in the Cruzan case) concluded that patients had the so-called "right to die"—the freedom to refuse medical treatment, provided their wishes were conveyed either in writing or by a designated surrogate. Both women were eventually allowed to die naturally.

Still, the right to refuse treatments can quickly transform into the perceived right to insist on them. Physicians have struggled to reconcile the demands of patients, who often desire futile interventions, with their own sense of judgment. In 1989, Catherine Gilgunn, a seventy-two-year-old with a number of medical issues, was admitted to Massachusetts General Hospital for a broken hip. After surgery, she had a seizure,

lapsed into a coma, and was placed on a ventilator. Gilgunn had told her daughter, Joan, that she wanted “everything medically possible” done if she became incapacitated. Her doctors, though, deemed CPR futile and inhumane, and entered a D.N.R. order with the support of the hospital’s ethics committee. Joan filed a lawsuit, but the jury ruled against her. If the case confirmed that doctors couldn’t be forced to provide treatment, the headlines that followed—“Doctors Who Ignore Living Wills,” “Court Ruling Limits Rights of Patients”—reflected a deep concern that patient autonomy was being eroded by medical paternalism.

This uneasy history, and its legacy of mistrust, still pits patients against physicians. Colleagues often ask me whether they can be sued for not offering CPR to patients with incurable disease. But this isn’t a legal problem; it’s a linguistic one. As the bioethicist Mildred Solomon has written, the physician’s dilemma “comes not simply from the pressure to provide burdensome treatment, but also from an inability to find the right language and conceptual framework for talking about the problem.” Words have always been the basis of the relationship between doctors and patients. If our language is failing us, it’s because our training has.

Emergencies tend to sharpen our sense of stakes. When COVID arrived, most hospitalized patients recovered with oxygen and medication. Sometimes, though, the disease set off an extreme inflammatory response, causing the lungs to stiffen, as though lined with cement. Ventilators could buy time for the lungs to heal, but if they were irretrievably damaged no amount of life support would help: cardiac arrest was inevitable. One of the virus’s crueller tricks was that a person who appeared to be improving might suddenly deteriorate.

This kind of uncertainty is the most wrenching part of medical decision-making. Doctors base their prognoses on data and their best judgment, but they’re still human; both they and patients know of improbable success stories, terribly sick people who somehow thrived after CPR. It’s hard not to wonder whether the patient in the I.C.U. is the next



heartwarming exception. In these situations, widening the lens of the conversation, partly by asking people what quality of life they hope CPR will restore, may offer clarity. A person who would never risk brain damage might choose differently than one who believes a heartbeat is evidence of a life worth living.

Throughout the pandemic, doctors considering CPR had to weigh the mysteries of COVID against the risk of contagion and CPR's low odds of success. Some hospitals proposed D.N.R. orders for all COVID patients. Others offered just one attempt at CPR. Yet others allowed two doctors to make a joint decision to forgo the procedure, and to inform the patient without asking for their consent. In New York, where there was an especially marked lack of guidance, Tia Powell, the director of bioethics at Albert Einstein College of Medicine, and Elizabeth Chuang, a palliative-care physician at Einstein, argued that the insistence on a "medically futile" procedure harmed both doctors and patients. "This was a way to make a tragedy worse," they wrote.

The issue wasn't just CPR's lack of effectiveness; the pandemic revealed the deeper, trickier problem of what it symbolized. The bioethicist Nancy Jecker has written that "reflexively using CPR" suggests a fear of failure, of "losing the war we wage against disease." Over the years, patients and families have told me that CPR represents a human right, a decision to go down fighting, a show of advocacy for their loved one, and a sign that everything possible has been tried. For doctors, too, it's a ritual, a talisman of care. I've seen colleagues not offer surgery to patients who are too sick to survive an operation; kidney specialists will stop dialysis for patients whose hearts can't handle the side effects. Yet these same physicians struggle to recommend against resuscitation, despite knowing that death is certain and near.

COVID dispelled some of this aura. Neal told me that the sheer number of COVID patients helped him learn how to suggest a D.N.R. order. "Before COVID, I'd talk to people about CPR maybe a few times a week and let them make the decision. But suddenly I had to talk about it

multiple times a day,” he said. “I was kind of forced to learn how to say that CPR won’t help if you’ve been on a ventilator for a long time.”

This candor modelled a new form of care, with lessons far beyond COVID. “I’ve seen a number of families actually being O.K. with no CPR, because they understand that it is not a good thing to need CPR with COVID,” Felicia Cohn, the director of bioethics at Kaiser Permanente, Orange County, told me. “The problem is that both doctors and patients have trouble applying that same logic to heart failure, dementia, and cancer. But if we had the same sort of coverage about these diseases—what dying looks like, and why we shouldn’t do things to prolong suffering—then maybe we’d have a more humane medical system.”

Dying, like illness, has many faces. It doesn’t always look like someone tethered to a ventilator, unable to open his eyes. It can look like a gentleman in hospice, stricken by lung cancer but drinking coffee and reading the morning paper. It can look like a woman with Lou Gehrig’s disease who has just started to lose her ability to swallow. If we wait to talk about dying until patients fit our flawed perception of what death looks like, it may be too late to help them face it on their own terms.

Much of this starts with education. In anatomy lab during my first week of medical school, we marvelled at the heart’s spongy valves and dense musculature, and held a memorial to thank those who had donated their bodies. After that, death vanished from the curriculum. We weren’t taught how to care for patients when treatment failed. Our teachers stressed the importance of compassion, but we didn’t learn that honest and clear communication *was* compassion. During my residency, I told Andrew’s wife that he had “multisystem organ failure” and a “poor prognosis.” I said that he might need a ventilator if he couldn’t “protect his airway.” Even though I knew that Andrew’s kidneys shutting down was a dire sign, he was “declining,” not “dying.” I hid behind my words.

I know now that these conversations are procedures, demanding the same precision of everything else in medicine. Doctors must learn to say what is true.

Guilt gripped me every time I had to tell families wrenching news over Zoom, and I developed strange habits to cope. Underneath my desk, I'd clench and unclench my fists, unaware of the reflex until my team nurse pointed it out. As I waited for Sara's video to return, rain began to streak the windowpane. My right fist relaxed only when her face appeared again.

Sara wiped her eyes and asked how a virus had made her husband so sick. I explained how COVID had damaged the architecture of Ernesto's lungs. The ventilator might help them recover, but there was no guarantee that his heart, which had been damaged in turn, would follow. Neal answered questions about lab results and X-rays. Ernesto's kidneys had started to falter, which was particularly troubling. "I'm worried that, even with all of the help we're giving him, there's a chance he may not survive," he said.

I asked Sara to tell me a bit about Ernesto. She smiled weakly and said that Ernesto was a proud man. He'd never want to live on machines; he'd want to be at home with his family. She pointed to a row of photos behind her: their wedding day, family portraits, decades of their life together.

"I hope that everything we are doing for Ernesto will help him to go home eventually," I said. "But I also want to talk about a Plan B, just in case." Even if a person is on a ventilator, I continued, sometimes their lungs can get so sick that their heart can't get enough oxygen. "When that happens, the heart can stop, which means they have died. At that point, sometimes we start a procedure called CPR. Have you heard of CPR?"

“Oh, yes,” Sara said. “It’s when you push on the chest to revive someone.” She had even taken a CPR class.

I described the process, stressing Ernesto’s condition. “CPR wouldn’t fix the fact that his lungs, even on the ventilator, can’t give his body enough oxygen to survive,” I said. Nancy nodded, jotting down notes. “We can continue the ventilator, blood-pressure medications, and antibiotics, but, if our treatments fail and he dies, CPR would not fix the reasons that his heart stopped, and wouldn’t help him to go home. At that point, we would give him medications to keep him free of pain, but wouldn’t want to put him through CPR.”

“So you wouldn’t even try to save him? I know that he’s a fighter,” Nancy said.

“We are trying everything we can to save him,” Neal said. I added, gently, that despite Ernesto’s will to live, his body was nearing its limits.

“So this is not our decision?” Nancy said.

There is no consensus, in medical circles, about how to answer that question. This was a decision I wanted to make *with* Nancy. In the past, I would have taken her response as a confrontation, but now I viewed it with curiosity—as a chance to learn more about what she hoped CPR would accomplish. When I asked her, she didn’t insist on her right to make the decision. Instead, she told me that she wasn’t ready to lose her father, and talking about CPR made his condition frighteningly real.

“He wouldn’t want CPR based, on what you are saying,” Sara said. She looked at Nancy, who nodded.

“I am so sorry that we have to talk about such deeply painful issues,” I said. I emphasized that the D.N.R. order wouldn’t restrict the other treatments that Ernesto needed. A few days later, when I called Nancy to see how she was doing, she told me that she had no idea how unsuccessful CPR was. “I would say most people think that you need

CPR to survive,” she said. “But the way you explained it made a lot of sense. And it spared us the guilt of making that decision.”

A week later, Ernesto’s kidneys failed. His oxygen levels dipped, and his eyes became glassy. Sara wept as Neal and I told her, over Zoom, that her husband was dying. She and Nancy came to see Ernesto that day. When he took his last breath, the I.C.U. room was quiet, peaceful. ♦