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aft.org/hc

Protecting Our Patients and Communities

Fighting for a Better Future

Education | Healthcare | Public Services

Facts about measles and the measles vaccine to share with your patients and community

Measles is highly contagious and deadly. With outbreaks spreading in Texas and several other states, it is important to separate fact from fiction about measles and the vaccine.

Measles is not just a rash. It is an extremely serious disease.
About 20% of unvaccinated people who are infected end up in the hospital. Severe measles can lead to severe pneumonia and brain swelling, causing lasting damage, including blindness, deafness and intellectual disabilities. For every 1,000 children who are infected, one or two will die. Measles was common before 1963, when the vaccine was approved. In the decade before that, roughly 1,000 people suffered brain damage and 400-500 people died from measles each year. **go.aft.org/iqi**

Measles destroys immunity.
New research shows that measles destroys immune cells. People who recover from measles lose their immunity to other illnesses from prior infections or from vaccinations. Measles survivors are left more vulnerable. This discovery indicates that the true death toll from measles before 1963 is much higher than we thought. **go.aft.org/btg**

There is no treatment for measles infection.
There is no antiviral medication for measles that will prevent severe disease. Once a person is infected, the only thing that can be done for them is supportive care. Vitamins and cod liver oil do not treat the illness.

Measles is one of the most contagious diseases.
In a community with low vaccination rates, measles spreads quickly. One infected person can infect nine out of ten people who have not been vaccinated. This is why outbreaks spread when vaccination rates fall. We need 93-95% of the population to be vaccinated for herd immunity to protect people who cannot get the vaccine.

The vaccine is effective.
Even one dose can work quickly to provide protection for people who have not been vaccinated. The first dose is more than 93% effective. The second dose provides more than 97% protection.

Widespread vaccination against measles was so effective that the US could declare the disease eliminated in 2000—rare cases were usually the result of infection acquired in other countries.

The vaccine is safe.
The MMR and MMRV vaccines (measles, mumps, rubella and varicella) have been exhaustively studied. The medical community, including the American Academy of Pediatrics, stands behind the safety and benefits of these vaccines. No link to autism has been found in extensive, unbiased scientific research. The Centers for Disease Control and Prevention has been tracking vaccines reactions since 1990. **go.aft.org/lc4**

For more information, including occupational health guidance about measles, see **go.aft.org/u43**. For questions, contact **4healthandsafety@aft.org**.

March 2025

Fighting Harm

RANDI WEINGARTEN, AFT President

SINCE HIS RETURN to the White House, President Donald Trump has been all the things those who voted against him feared, and he's done little if any of the things to improve people's lives that those who voted for him hoped. Indeed, instead of fulfilling his promises to make life more affordable, Trump's tariffs sent the country and the world into an economic crisis.

Look at one issue that affects virtually all families—including people who work in healthcare and those who are dependent on healthcare—Medicaid. To pay for tax cuts that will heavily favor the well-off, Republicans in Congress are trying to cut $880 billion from Medicaid.

Medicaid is a foundational anchor of the American healthcare system. It covers 40 percent of births, 60 percent of nursing facility residents, and 19 percent of payments to hospitals. It's critical for safety-net and rural hospitals—and for our schools, where it funds everything from nurses and occupational therapists to catheterization, audiology, and wheelchairs. By eliminating their healthcare coverage and access, Medicaid cuts would disproportionately hurt older adults, children, and people with disabilities.

Now, Trump and his sidekick Elon Musk are plundering programs that help the hungry, the poor, students, veterans, the sick, the elderly, and the disabled. Of course government should be more efficient, but this is taking a wrecking ball to the federal government and the services Americans rely on. And healthcare workers will be left to deal with the consequences, all on top of the moral injury they suffered during the COVID-19 pandemic.

Because the president refused to maintain the sensitive locations ban on Immigration and Customs Enforcement (ICE), healthcare workers now have to learn how to deal with ICE raids in their facilities (see page 3). His rollback of environmental protections means they have to prepare for worsening climate disasters (see page 26). And his elimination of artificial intelligence (AI) guardrails forces clinicians to devote more time to protecting patients from biased AI healthcare tools (see page 20).

In the short term, healthcare workers will face even more overloaded emergency departments: the US Department of Health and Human Services (HHS) gutted its own core functions in reproductive health, tuberculosis elimination, violence prevention, asthma and air quality, and health equity. Long term, clinicians will struggle to provide cutting-edge care because Trump has broken the long-standing compact through which the government funds universities to conduct research. That research made the country stronger and healthier, and made our universities the best in the world—but it was cut to coerce colleges to restrict speech and academic freedom.

On top of all this, the Trump administration is undermining well-established science by lifting up science deniers, including HHS Secretary Robert F. Kennedy Jr. Because Kennedy is a vaccine skeptic who promotes misinformation, children are getting not only measles but also liver damage from being given too much vitamin A.

Our union is stepping up. We are fighting back in the courts against the harms the Trump administration is causing and in the court of public opinion, which we need to sway members of Congress to care more about their constituents than bowing to Trump. We are part of a lawsuit challenging the administration's cuts to federal funding for crucial public health research at Columbia University. We are also sharing what we understand to be the best science available. That's why we have pediatrician and public health expert Dr. Irwin Redlener in this issue (see page 8) calling on health professionals to stand up for science and their patients, and why we have partnered with Dr. Vin Gupta, a pulmonologist and health policy expert, to offer "Vital Lessons," a yearlong series of free webinars (see go.aft.org/o9p).

In his last book, *Where Do We Go from Here: Chaos or Community?*, Martin Luther King Jr. told us: The arc of the moral universe bends toward justice. Yes, we have suffered some terrible setbacks, and there are forces trying to snap that arc. But when we organize, mobilize, build community, and win elections, we will shift the arc toward opportunity and justice for all.

That is why we have taken to the streets in these last two months to protect Medicaid, Medicare, Social Security, Veterans Affairs, and public education. We must elect people who will stand with working people, fighting for excellent healthcare as a human right, safe working conditions, higher wages, lower costs, great public schools, a secure retirement, and a voice at work.

We can't be silent. We can protect our patients and alert our communities to how healthcare, public health, health research, and trust in science are being decimated. We can stand shoulder to shoulder and do what's right if we seize this moment and build this movement. +

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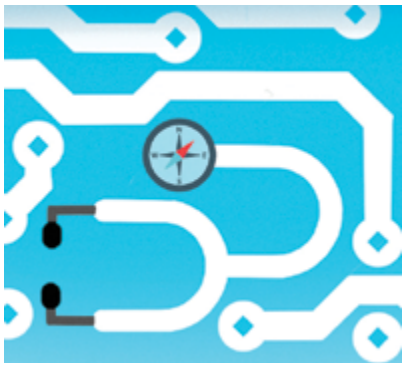
Protecting Our Patients and Communities



aft Education Healthcare Public Services

Our Mission

The AFT is a union of professionals that champions fairness; democracy; economic opportunity; and high-quality public education, healthcare and public services for our students, their families and our communities. We are committed to advancing these principles through community engagement, organizing, collective bargaining and political activism, and especially through the work our members do.

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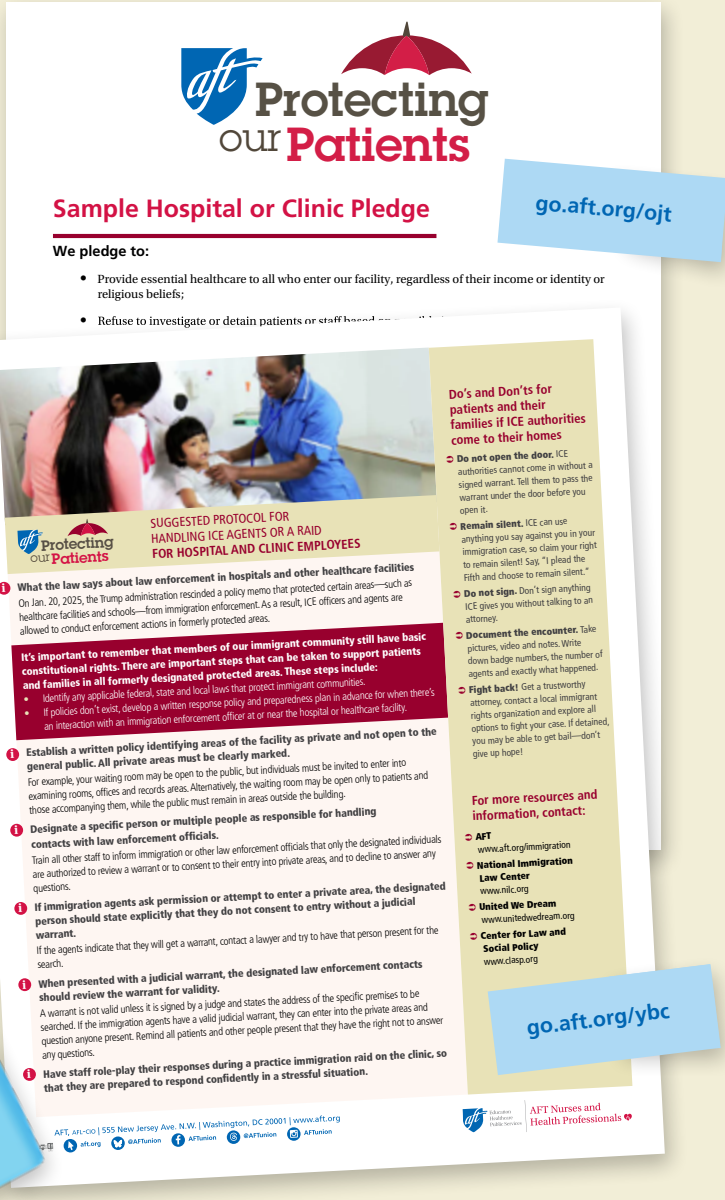
Cover photo: STEVE SANCHEZ / SIPA USA VIA AP IMAGES

Protecting Immigrants and Refugees in Our Facilities

As part of a plan for mass deportations, one of the Trump administration's first moves in January was to allow Immigration and Customs Enforcement (ICE) raids at hospitals (and schools, churches, and other sensitive locations). In response, AFT President Randi Weingarten called out the "un-American" policy and asked President Trump to reconsider (see go.aft.org/4h2), noting that: "Hospitals are supposed to be safe and welcoming places. A policy that allows law enforcement to destroy that environment will cause irreparable harm, indelibly scarring not only immigrant families, but all families."

Weingarten also ensured that AFT members have resources to try to protect patients. The enhanced Immigration (go.aft.org/dms) section of the AFT's website provides critical information and toolkits in English and Spanish. Here, we show some highlights.

go.aft.org/ca4



Have you witnessed or experienced an immigration enforcement action in your community?

The AFT is working with community partners on a rapid response to help our immigrant communities. Please go to go.aft.org/hwg and report enforcement actions in your hospital or community to help us mobilize resources and provide support to those impacted. All reports are confidential.

PAUL BECKER / WIKIMEDIA COMMONS

Fighting for a Better Future

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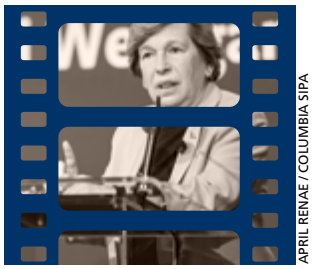
By **Randi Weingarten**

Randi Weingarten is the president of the AFT. Prior to her election in 2008, she served for 11 years as president of the United Federation of Teachers, AFT Local 2. A teacher of history at Clara Barton High School in Brooklyn from 1991 to 1997, Weingarten helped her students win several state and national awards debating constitutional issues. Widely recognized as a champion of public schools and a better life for all people, her commendations include being named to *Washingtonian*'s 2023 Most Influential People in Washington and *City & State New York*'s 2021 New York City Labor Power 100.

On December 4, 2024, Randi Weingarten gave the keynote address for the 25th Annual David N. Dinkins Leadership and Public Policy Forum at Columbia University's Institute of Global Politics. Dinkins, the first African American mayor of New York City, was known for celebrating his city's diversity and for supporting families through initiatives such as keeping schools open in the evenings. Serving as mayor from 1990 to 1993, when crime was high across the country, Dinkins had to contend with widespread fear. But his initiatives were effective and crime fell. Most importantly, he restored hope and gave New Yorkers a path forward. With this keynote, Weingarten is following in his footsteps, showing how we can build a better life for all.

Along with reading this excerpt of Weingarten's remarks, watch the full forum by going to go.aft.org/sty.

–EDITORS


APRIL RENAE / COLUMBIA SIPA

I want to start by talking about two fellow New Yorkers, first the man for whom this forum is named, Mayor David Dinkins. Mayor Dinkins was elected with a swell of hope amid a sea of fear. Dire challenges—the crack epidemic, homelessness, fractured city services—were all made worse by a deep fiscal crisis. Mayor Dinkins addressed them with humility and humanity. His policies centered on helping children, families, and communities—from afterschool programs to community policing.

I was the counsel to the United Federation of Teachers at the time, and had started teaching in Crown Heights, Brooklyn, in September 1991, just weeks after the Crown Heights riot—the incident that was the turning point in his mayoralty.

David Dinkins loved the city he called the "gorgeous mosaic."[1] He believed New York could prosper if we respected our diversity, if we found common ground and pursued mutual goals—each of us important and distinct pieces of the gorgeous mosaic.

I am honored to deliver a lecture named for him. Etched in me from that turbulent time is an understanding that, in public policy and politics, we are always in a race between hope and fear, aspiration and anger.

We are in another turbulent time. My remarks are an attempt to chart a path forward—a path that leans, as Mayor Dinkins did, on hope, not fear, recognizing full well that fear, anger, and a sense of powerlessness in many ways fueled the results of the 2024 election.

Which brings me to another New Yorker who looms large today—actually a *former* New Yorker, Donald Trump. It's fair to say that his approach is quite differ-

ent than Mayor Dinkins's, and that the United States is at a turning point with his reelection.

My primary purpose today is not to analyze the election—this esteemed university has plenty of intellectual firepower to do that. But I think incumbency, inflation, immigration, and identity were at play. (Yes, I love alliteration.)

- When people feel powerless to improve their lives, they often vote to punish the incumbent. Indeed, incumbents are being voted out across the globe.[2]
- Inflation. In our fractured society, Americans had at least one thing in common: the cost of housing, gas, and eggs is too high.[3]
- Then, as the Wizard says to Elphaba in *Wicked*, you must have a scapegoat to blame, which in this election became immigrants.[4]
- Finally, identity. Of course, race and gender played a role. But so did class, big time, as evidenced by Trump's gains among non-college-educated voters of all races.[5]

With all these factors interacting in this election, how do we begin to understand what happened? I start with people's economic well-being. We know that millions of Americans share deep fears and doubts about being able to support themselves, let alone supporting their families. Two charts speak volumes to me.

One (above right): the trajectory of wages since 1979 for men with a high school degree. Those workers make 17 percent less than they did 45 years ago.[6] This is downward mobility, and it has real economic consequences, but it also inflicts psychic wounds on a country that has long believed each generation would do better than the last.

The second chart (on page 6): for the first time, Democrats won the richest third of Americans while losing low-income and middle-class Americans.[7] *The party of working people lost working people.*

These trends began after the 2008 financial crisis, when people perceived their government was doing more to bail out big banks than help families recover. And while Democrats tempered those trends in 2018 and 2020, it swung back hard this year. Indeed, in 9 of the last 10 federal elections, one party or the other has lost control of the House, Senate, or White House.[8]

People suffering economically and feeling powerless to change their condition expressed their dissatisfaction through their vote. But other sources of agency and opportunity exist. Americans don't need a strongman promising to "fix" their lives. Education, good jobs, and the labor movement are ways people are able to empower themselves. My union works to strengthen these engines of opportunity. And in this election, voters overwhelmingly supported both public schools and workers' rights when they were on the ballot, including where Trump won.[9]

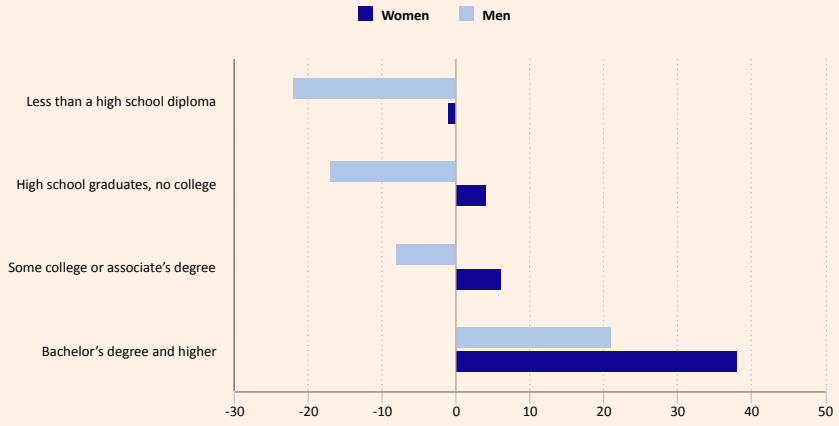
So yes, I am worried about our democracy, and whether we are headed toward autocracy and fascism. I am worried about our fundamental rights. But, as Cas Mudde, a political scientist who specializes in extremism and democracy, recently posted on Bluesky, "The fight against the far right is secondary to the fight to strengthen liberal democracy."[10]

Pathways to Opportunity

Public education and growing the labor movement are vehicles for creating agency among Americans. They are requisites for Americans to prosper and for democracy to not just be salvaged but strengthened. These pathways to opportunity require fair public policy. And our test for policy is twofold: Will it help make people's lives better? And does it respect people's humanity?

It's why, for example, Bernie Sanders, Elizabeth Warren, and Pramila Jayapal have all said that if Trump

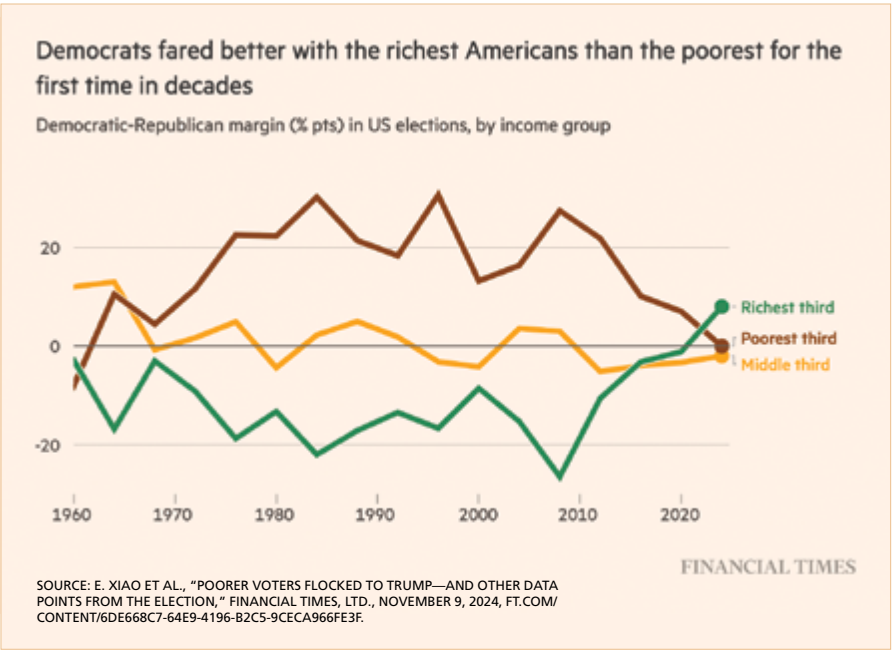
Percentage change in inflation-adjusted median usual weekly earnings of women and men, by educational attainment, 1979–2019



SOURCE: US BUREAU OF LABOR STATISTICS, CURRENT POPULATION SURVEY, "HIGHLIGHTS OF WOMEN'S EARNINGS IN 2019," DECEMBER 2020, BLS.GOV/OPUB/REPORTS/WOMENS-EARNINGS/2019.

Americans don't need a strongman promising to "fix" their lives.

ERIC BARADAT / CONTRIBUTOR / AFP / GETTY IMAGES



SOURCE: E. XIAO ET AL., "POORER VOTERS FLOCKED TO TRUMP—AND OTHER DATA POINTS FROM THE ELECTION," FINANCIAL TIMES, LTD., NOVEMBER 9, 2024, FT.COM/CONTENT/6DE668C7-64E9-4196-B2C5-9CECA966FE3F.

means what he has said about enforcing antitrust laws, protecting Social Security and Medicare, and capping consumer credit rates, they will support it.[11]

But if Trump does the bidding of Big Tech, Big Oil, and the billionaires who bankrolled his campaign, as early signs suggest,[12] we must expose this monumental betrayal of the working people who voted for him seeking lower costs and a better living standard. And we can reconnect with these voters by fighting for policies that help working- and middle-class Americans have a better life.

Whatever Trump does as president, Americans who care about our democracy have to recognize the needs of and respect the agency of low-income and middle-class Americans. This means breaking with decades of neoliberal, trickle-down economic policies.[13] Policies that have disempowered and disconnected us from each other and hollowed out communities and the American dream while consolidating power for billionaires.

That means learning from another New Yorker, Franklin Roosevelt, who enacted policies that gave all Americans a fighting chance to succeed.[14] And strengthening the two best pathways to opportunity—public schools and unions, through which all Americans can attain a better life. Where we fight for dignity and respect for all.

In a world of great distrust, of great unease, AFT members—who work in preK–12 education, higher education, healthcare, and public services—are trusted. We are trusted because we make a difference every day in the lives of others. While we may punch above our weight, the AFT's 1.8 million members make up just 0.5 percent of the country's population. None of us can do everything, but each of us can do something to reclaim the promise of America.

Organizing Workers

I am going to throw down a gauntlet. If Trump wants to make good on his populist promises to working-class voters, he will support all workers' right to organize and join unions. Which, by the way, his new secretary of the Department of Labor has supported.

The economic advantages of union membership are clear. Union members enjoy higher wages and better benefits.[15] Union households have nearly four times the wealth of nonunion households, and they are more likely to own a home and have a retirement plan.[16]

Support for unions is at the highest level since 1965.[17] Almost 90 percent of Americans under age 30 support unions[18]—a group that swung toward Trump in the election. Nearly half of nonunion workers say they would vote to join a union if they could.[19] Yet only 1 in 10 workers in America is in a union. In fact, Americans are 13 times more likely to have an Amazon Prime membership than to have a union card.

One cause is five decades of efforts by billionaires and big businesses to decimate unions, speaking of Amazon. De-unionization is a significant factor in the surge in inequality and the decline of the middle class over the last 40 years.[20]

No wonder so many working people feel hopeless. Feelings of loneliness and hopelessness and lack of agency are especially acute for young men.[21] Just take a listen to the manosphere podcasts.

Unions—and safe, welcoming, and engaging public schools—are antidotes to the anxiety and isolation that so many feel. Yes, people form and join unions to have agency—to control their own destiny. And unions, like public schools, allow people across races, backgrounds, and political beliefs to connect, see they have common interests and values, and build solidarity.

Conversely, the downward mobility and anxiety facing working people today are the result of a trickle-

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down economy enabled by our political leaders. Over the last 40 years, a new set of economic rules have prioritized wealth over work, corporate profits over worker pay, shareholder returns over societal value, and the bogus claim that, in a plutocracy, economic benefits somehow will trickle down to the rest of us. This system concentrated power in the hands of billionaires and big corporations, giving them wealth and influence at levels exceeding even the 19th-century Gilded Age. It's no coincidence that as worker power has diminished, wealth has been consolidated at the top, inequality has grown, and public confidence in democracy has weakened.[22]

Yes, of course, we need to grow the economy—which is always the pretext for neoliberalism. The myth goes like this: unregulated and unbridled markets, with no guardrails, will solve everything. This neoliberal trickle-down philosophy doesn't work, hasn't worked, and will never work for anyone but the rich. Yet it keeps getting repackaged and resold to the American people with promises that this time it will be different. It's like an ex claiming that this time they've really changed. It's time to break up with trickle-down neoliberalism once and for all.

As a teacher of history, I have looked back to an earlier time of economic crisis and turmoil—the Great Depression—for inspiration on a path forward.

Think about 100 years ago—the 1920s—not just flappers, speakeasies, and *The Great Gatsby*. It was a time of immense economic inequality and unprecedented wealth at the top, racism and lynchings, immigration crackdowns, tariffs and trade wars, isolationism, a president who first coined the America First movement, and policies that led to the Great Depression. It was also the time of the original progressive movement, which advocated for social and political reforms to help the working class, to fight against political corruption, and to reduce the political and economic influence of the ultra-wealthy and big corporations. Progressives and politicians like New York Governors Al Smith and Franklin Roosevelt were focused on solutions that made life better for people, ideas and policies that later became the New Deal.[23]

Once FDR was elected president in 1932, these progressive policies led the country out of the depths of the crisis, especially for the least advantaged Americans. One of my sheroes and a Progressive Era reformer herself, Frances Perkins, served as FDR's secretary of labor. Perkins pressed for the landmark Wagner Act, giving workers the right to organize unions and bargain collectively. She fought for the first federal minimum wage and maximum workweek and chaired the commission which developed legislation that became the Social Security Act. Roosevelt and Perkins believed in reforms that would propel opportunity for generations and fundamentally restructure America's economy to benefit working people.[24]

The decades that followed saw union membership in America surge, and with it the creation of the greatest middle class in the history of the world. But starting in the 1970s, neoliberals and corporate interests coordinated to weaken or dismantle these policies, which has led to our current inequality, economic insecurity, and crisis of democracy.[25]

So let's gather inspiration from those progressive reformers who showed us that we must match times of great anxiety and hopelessness with great ambition. Laws and policies and institutions must meet the moment. Congress must pass the Protecting the Right to Organize Act. Increase the minimum wage. Rewrite economic rules to stop big corporations and billionaires from rigging capitalism further in their favor. Let's keep building upon the Affordable Care Act and guarantee Social Security for generations to come. And finally invest adequately in public education.

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And if the powers that be in this country fight against this agenda, we fight back. We must create an economic movement for all families to be better off—and that takes organizing in our communities and the halls of power. Whether it's transforming a high school, organizing a community literacy event, participating in a local election, supporting a local union, cleaning up a park, or any civic participation that builds agency, trust, and community.

My union will do our part. AFT members are making a difference in the lives of others every day, paving pathways to opportunity and fighting for respect and dignity for all Americans.

We are in a race between hope and fear. For hope to win, this requires all of us. The simple truth is that we all do better when we all do better. We must fight for the promise of America for all of us—for our freedoms, for our democracy, and for working folks and kids to have real agency and opportunity. +

None of us can do everything, but each of us can do something to reclaim the promise of America.

For the endnotes, see aft.org/hc/spring2025/weingarten.

Fighting for Our Patients

Clinicians' Voices Matter in the Assault on Public Health

By **Irwin Redlener**

Irwin Redlener, MD, is a pediatrician and adjunct senior research scholar in the School of International and Public Affairs at Columbia University. He is also a senior advisor to the Clinton Global Initiative's Ukraine Action Network, a cofounder of the Ukraine Children's Action Project, and an adjunct professor of pediatrics at Albert Einstein College of Medicine in New York City. This article is adapted from "Public Health Is Under Assault. Here's How Doctors Can Fight Back," which he published on *MedPage Today*: go.aft.org/9cn.

Former President Barack Obama once said, "elections have consequences."[1] But historically, the consequences tend to be less dramatic than supporters of the winning candidate hoped for—and less than opponents feared. That's because the American system of government, driven by the principles laid out in the US Constitution, explicitly establishes checks and balances designed to shield us from the domination of extremists of any political stripe.

For well over 200 years, those principles have held. But since the second inauguration of President Donald Trump, our country is facing an existential crisis of constitutional fragility[2] across every aspect of government and governing in the United States.

For doctors and for public and global health, the Trump administration's executive orders and plans are beyond worrisome, as is the confirmation of Robert F. Kennedy Jr.[3] as Health and Human Services (HHS) secretary. Proposed disruptions or elimination of vital healthcare access for vulnerable populations,[4] massive cuts in critical medical research,[5] and withdrawal from long-standing commitments to global health[6] will affect all of us.

But with major medical organizations standing by rather than leveraging their influence to intervene, many physicians and other healthcare professionals are left wondering, "What can I do?"

An Attack on Public and Global Health

The impacts of these new policies regarding patient care and public health are neither accidental nor shambolic. The plans are organized and intentional, just as spelled out in Project 2025,[7] the radical roadmap designed to upend the way the federal government prioritizes and functions (despite Trump's claims that he had "nothing to do with"[8] it).

Some of you may be thinking, "Well, good! The health 'system' is broken; it needs a wholesale shakeup." Maybe you're focused on the negative impact of bureaucrats on your practice, or the influence of health insurers on clinical decision-making, or how pharmaceutical companies may be exploiting you and the public. Maybe you think we're spending too much money on the health and well-being of people outside the United States or on programs that appear wasteful.

There is some legitimacy to many of these concerns. We absolutely need positive reforms, more

ILLUSTRATIONS BY NICOLE XU

accountability for health-related expenditures, and the return of more control over medical practice to doctors. But that's a far cry from what the new administration has in mind.

Here's a sampling of health-related changes that are or could be on the table:

- Repealing key provisions of the Affordable Care Act, like Medicaid expansion,[9] or removing protections for patients with preexisting medical conditions.[10]
- Reductions in Medicaid benefits,[11] like nursing home care and the Early and Periodic Screening, Diagnostic, and Treatment benefit for children living in low-income families.
- Cutting billions of dollars of funding[12] from National Institutes of Health–funded studies, including cancer, heart disease, and infectious disease research.
- Potentially drastic reductions in the Children's Health Insurance Program,[13] which has provided otherwise unattainable coverage for millions of children.
- A potentially dangerous overhaul of the Food and Drug Administration,[14] as well as nonevidence-based messaging on vaccines, from known anti-vaccine advocate—and now HHS secretary—Kennedy.[15]
- Withdrawing from the World Health Organization, which has enabled beneficial collaboration with international colleagues on prevention and management of pandemics and a wide range of infectious diseases.[16]
- Eliminating the US Agency for International Development,[17] which provides massive amounts of direct care for some of the poorest people in the world and conducts research to fight a host of chronic diseases.

Many of these proposals are already in play, and almost all of them are part of the Project 2025 playbook. In fact, one of the senior authors of that radical 900-page document, Russell Vought,[18] is now the powerful head of the Office of Management and Budget.

Worried yet? You should be.

Taking a Stand

But what can be done? What is the proper role for health professionals to play in preventing or responding to some of these draconian "fixes"?

Let's agree that what we *don't* need are solutions that come from extremist ideologues on the political right *or* the political left.

It's a matter of knowing when you need a scalpel, not a sledgehammer. This is a concept that seems to have eluded the new administration and most Republican members of Congress.

But now is not the time for us to feel overwhelmed and helpless. Now is precisely the time for health professionals to actively resist drastic, damaging changes heading our way.

Here are two specific ideas:

First, clinicians should be writing letters and op-eds in local and state newspapers, posting blogs and comments on social media, and calling the offices of your representatives and senators.* We need to strenuously object to every one of the health-related proposals that undermine our work, reduce access to care for vulnerable populations, and damage our well-deserved international reputation for compassion, innovation, and collaboration. Communications from actual constituents are taken very seriously.

Second, I realize that a number of doctor-led petitions and communications from relatively small or powerless organizations have been sent to the White House and Congress. This is a start, but what is really needed are powerful messages from the major organizations that have influence, lobbyists, and campaign contributions for members of Congress.

As I have written previously of the American Medical Association (AMA), "the AMA is inexplicably MIA."[19] Even the American Academy of Pediatrics (AAP) has not said a word about how HHS Secretary Kennedy's anti-vaccine rhetoric and views threaten the lives of children everywhere. In fact, AAP President Susan Kressly was quoted in *Roll Call* saying, "We are pediatricians, not politicians,"[20] to explain why my pediatric colleagues in the AAP did not demand Kennedy's nomination be withdrawn.

That argument just doesn't cut it in 2025. In fact, the opposite is true! Physicians and all health professionals *must* now be political activists to protect what we know is right for our patients. The idea that vaccines are optional, as Kennedy proposes, reflects a deep misunderstanding of how population health works.[21]

Health professionals must not hesitate in confronting unqualified politicians and appointees who threaten the well-being of our patients, reduce equitable access to affordable care, or undermine the integrity of our profession.

As for major organizations, like the AMA and the many specialty associations with real influence in Washington, they must put aside their own special interests and do what's right for our patients and the public good. To date, most have been silent, and look where that's gotten us. Until then, health professionals should immediately resign their memberships to show them we mean business.

It's now or never. +

For the endnotes, see aft.org/hc/spring2025/redlener.

*To find their contact information, visit congress.gov/members/find-your-member.

All health professionals must now be political activists to protect what we know is right for our patients.

The Future of Public Health

Laying the Foundation for an Integrated, Equitable System

By **Jonathan M. Samet**

Jonathan M. Samet, MD, MS, a pulmonary physician and epidemiologist, is a professor of epidemiology and occupational and environmental health with the Colorado School of Public Health, where he previously served as dean. He was elected to the National Academy of Medicine (Institute of Medicine) of the National Academies of Sciences in 1997 and received the David Rall Medal for his contributions in 2015.

We all share a common goal: to live as long as possible in the best health possible. Public health is what we do as a society to meet that goal while contending with many challenges, including birth complications, infections, injuries, genetics, environmental agents, and aging itself. Healthcare and public health overlap—the former focusing on individuals and the latter on "all people and their communities"[1]—and the two are partners in achieving the goals of an optimum quality of life and a long life expectancy.

Much of what is done in public health is routine and invisible. Restaurants are inspected, water and air quality are measured, vaccines are administered, population health is monitored, and preparedness is maintained. But inevitably, upsets at local, national, and global scales bring attention to what public health agencies do and why they are important. Here are just a few critical issues—both acute and long-term—that public health workers have contended with recently: environmental pollution by the East Palestine, Ohio, train derailment;[2] widespread water contamination by the "forever chemicals" (PFAS);[3] the E. coli outbreak from contaminated onions served at McDonald's;[4] and the ever-rising prevalence of chronic inflammation–related health issues such as diabetes and heart disease.[5] With such events, rapid and effective public health action is expected, making preparedness a priority for public health agencies. When solutions are found and the problem is ended, public health quickly fades back into the background.

But this somewhat idealized schema of how public health operates may have been permanently altered by the COVID-19 pandemic in the United States and perhaps in other countries. Public health's invisibility is gone; it has become intensely politicized, and its evidence-based approaches are being questioned by critics (including politicians) and challenged by misinformation. With the start of the second Trump administration, changes in public health at the national level are certain, and spillover from the national to the state and local levels is likely.

This article provides a broad perspective on public health in the United States, moving from its historical origins to the present and anticipating how public health may be altered by the new Trump administration. I will address the transformative consequences of the COVID-19 pandemic and the call for reimagining public health in its aftermath.

Drivers of Health and Disease

In order to consider the role of public health, we need to start with how we understand health itself. Today, we view health across the life course as determined by myriad factors operating across levels—ranging from the molecular, such as genetics, to the global, such as multinational food corporations. It can be helpful to think about these determinants on an axis of organization from within the individual, building upward to the family, neighborhood, and community, on to the state and national levels, and ultimately to the global level. These myriad factors change across the life course and have greater effects during periods of susceptibility,

ILLUSTRATIONS BY MIKE AUSTIN

including gestation and early life, adolescence, and older ages.[6] (For a figure that illustrates these levels and adds some details, see go.aft.org/ist.)

Thinking about the factors that affect health as having multiple levels helps us to better understand the social determinants of health (SDOH), a term used to refer to factors causing health disparities among population subgroups. According to the Centers for Disease Control and Prevention (CDC), SDOH are "the nonmedical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, worship, and age. These conditions include a wide set of forces and systems that shape daily life such as economic policies and systems, development agendas, social norms, social policies, and political systems."[7] For example, exposure to environmental pollutants may occur within the home, from nearby polluting industry, or from long-range transport (e.g., wildfire smoke). Food deserts affect neighborhoods, while the reach of structural racism affects people at every level. The SDOH are a prominent target of public health, as embraced in an influential paper calling for a Public Health 3.0 model.[8] In this new model, local governments pioneer an approach in which public health leaders are empowered to "serve as Chief Health Strategists, partnering across multiple sectors and leveraging data and resources to address social, environmental, and economic conditions that affect health and health equity."[9]

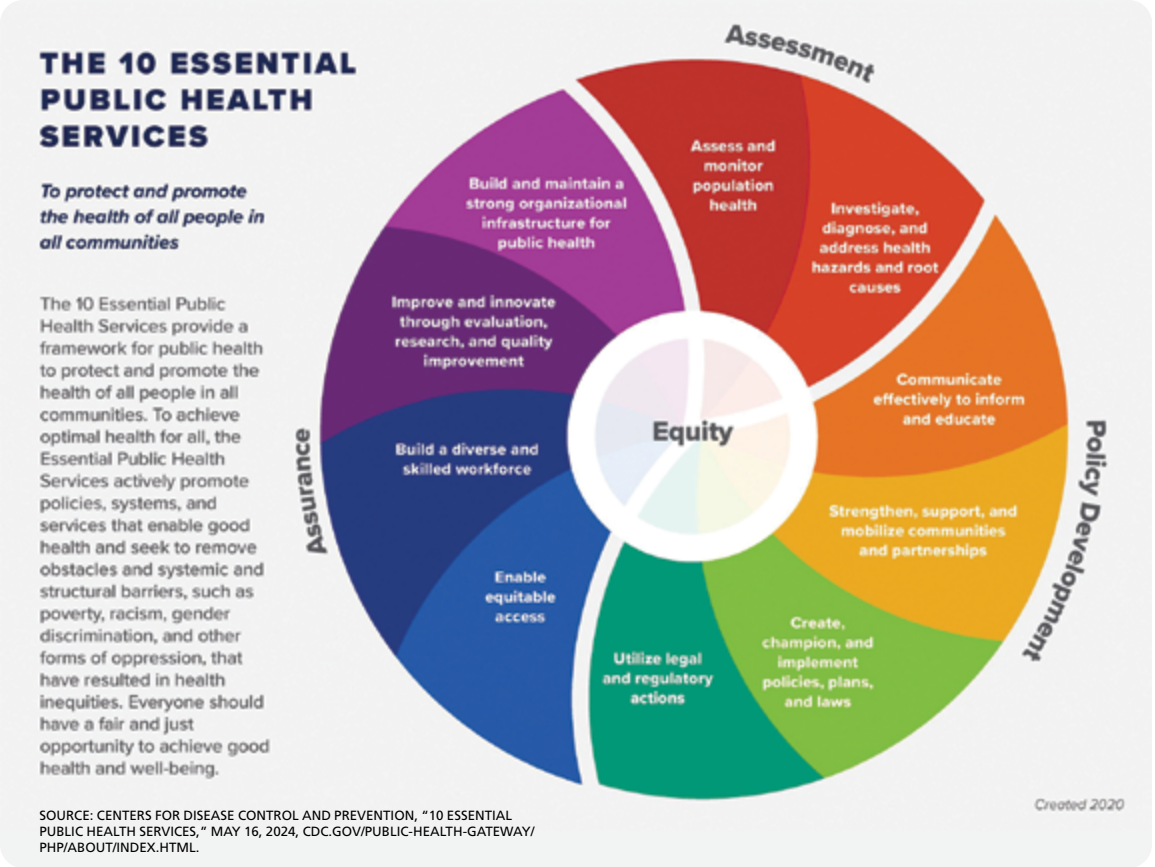
The impact of the SDOH on life expectancy is profound. An analysis of life expectancy trends in the United States from 2000 through 2021 identified 10 distinct race-geography groups within the United States, termed "the 10 Americas." It found a life expectancy gap of 20.4 years between the lowest and the highest groups in 2021—an astounding 7.8 years *more* than in 2000.[10] While COVID-19 widened the gap, it has been increasing since long before the pandemic. Where you were born and who you are matters—a lot.

What Does the Public Health System Do?

As shown in the figure below, the work of public health has been described as comprising three core functions: (1) *assessment*—gathering and analyzing data to identify problems and paths to solving them; (2) *policy development*—developing and implementing policies to mitigate problems; and (3) *assurance*—making certain that what needs to happen does happen.[11] Underlying these functions are 10 essential services that together support health equity, giving everyone "a fair and just opportunity to achieve good health and well-being."[12] This paradigm (adopted in 1994 and updated in 2020) underlies the public health approach generally at the local, state, and national levels.*

*For a more detailed look at how public health operates, see "The Tobacco Epidemic: An Example of Public Health in Action" at aft.org/hc/spring2025/samet_sb.

Public health's evidence-based approaches are being questioned by critics and challenged by misinformation.



SOURCE: CENTERS FOR DISEASE CONTROL AND PREVENTION, "10 ESSENTIAL PUBLIC HEALTH SERVICES," MAY 16, 2024, CDC.GOV/PUBLIC-HEALTH-GATEWAY/PHP/ABOUT/INDEX.HTML.

Assessment

Assessment includes surveillance (the gathering, analysis, and communication of information on the health of populations) and research (the generation of new knowledge) about health hazards and root causes. In the United States and globally, numerous surveillance systems are in place, some for tracking cases of disease and others for tracking the health of populations.* Public health research is largely supported and funded by the National Institutes of Health and the CDC and carried out in the academic and public health sectors. The research reaches from molecular (e.g., identifying vaccine targets) to population levels (e.g., evaluating large-scale interventions to advance health).

Policy Development

COVID-19 exposed how fragmented and unprepared for emergencies the US public health system is—and public health is now more politicized than ever.

Policy development contains four services, with a starting point being creating, championing, and implementing policies, plans, and laws. The other three services set the foundation for success: communicating about the policies, gaining support for them, and enforcing them through laws and regulations. Many factors influence policy development, and many stakeholders influence directions taken. Unions are a powerful stakeholder in policy direction; through collective bargaining and advocacy for policies that promote economic and health equity, they help create healthier workforces, workplaces, and communities.[13] Their impact may be amplified by collaborative action with healthcare and public health professionals and organizations.

Assurance

Assurance includes services to make certain that public health can do its job—having a skilled workforce and having the needed infrastructure in place—and do so equitably. It includes the critical service of ongoing evaluation and improvement as policies are implemented and as research and innovation bring new approaches. Assurance is dynamic, intended to continually make public health more effective as feedback is gathered and lessons are learned through surveillance. By its very nature, assurance could be enhanced through union activism, particularly to fight for adequate resources—including staffing.

10 Essential Services, More Than 3,000 Entities

Per the CDC, the 10 essential services comprise activities that "all communities should undertake,"[14] but there is no clear system to ensure good faith efforts, much less strict compliance. A host of entities are involved, including federal agencies, around 3,000 local and regional public health departments, 59 state and territorial health departments, and tribal health departments.[15] At the community level, social services organizations, law enforcement, healthcare organizations and professionals, and community organizations also have roles. But for the public, and even for many healthcare professionals, the roles of these various entities are opaque and not well understood. One complicating factor is that there is no hierarchy of authorities. In my home state of Colorado, for example, there are 56 autonomous county health departments and the Colorado Department of Public Health and Environment, which coordinates with the counties. The CDC has specific national regulatory authorities but does not have specific authorities over the states.[16] At the global level, the World Health Organization (from which the United States is now withdrawing[17]) is in a similar position. It lacks authority over nations but has a critical role in providing guidance to and coordinating among nations around global public health matters.

Thus, while we in the United States refer to the "public health system," the term is an optimistic misnomer for a fragmented and loosely connected set of entities that do not integrate across the diverse agencies charged with maintaining and advancing public health. The lack of structure has long been recognized, as has the impact of that lack of structure when we face challenges that reach beyond local and state boundaries. In 2022, the Commonwealth Fund Commission on a National Public Health System called for greater coordination, including establishing a high-level position within the US Department of Health and Human Services to oversee the development of the national public health system.[18] Such sweeping reorganization is needed, but it is unlikely to occur in the short term because of two factors I'll discuss in more detail: the aftermath of the COVID-19 pandemic and the Trump administration.

The COVID-19 Stress Test

My favorite book about pandemics is John Barry's *The Great Influenza*, first published in 2004 almost nine decades after the end of the Spanish flu, which killed 50 to 100 million persons worldwide.[19] With the lens of a historian, Barry offers a remarkably insightful review of what happened with one of the world's worst pandemics. In an afterword, he describes one of its most critical lessons: the need for informed leadership.

The COVID-19 pandemic, now largely controlled with effective vaccines, posed a memorable stress test for public health and healthcare. Lessons learned are accumulating, and the pandemic may have indelibly marked public health, positively and negatively. Numerous accounts and analyses of the pandemic have now been published; some are memoirs that retell the pandemic's events with the biases of those involved in trying to control it,[20] while others offer factual descriptions.[21] However, the equivalent of *The Great Influenza* has yet to be written.

*Surveillance using artificial intelligence (AI) tools is anticipated but has not yet proved successful in practice.

Here, I offer my thoughts about lessons learned from COVID-19. Deficiencies of public health were exposed under the stress of the pandemic: inadequate numbers of personnel, some lacking adequate training; antiquated data systems in many jurisdictions, leading to tardy and incomplete epidemic tracking; and inadequate expertise or capacity for using contemporary communications channels, slowing responses to the tsunami of misinformation.

The three core functions shown in the figure on page 11 are useful for a retrospective look at what happened during 2020–2022, the crisis years of the pandemic. Assessment functioned as it should. Case reporting captured the entry of the SARS-CoV-2 virus and COVID-19 rapidly after the pandemic emerged in China, although the CDC did falter in its initial efforts to provide diagnostics for identification of the virus. Research took place at a staggering pace, with thousands of papers placed in preprint archives, and countless lives were saved by having efficacious vaccines within a year of the pandemic's start.

Policy development was initially challenged by limited evidence on SARS-CoV-2, particularly around the mode of transmission from person to person and by the need for swift action with a rapidly spreading and lethal virus. The measures taken were enforced with various legal authorities. Communication and education were challenging throughout the pandemic, and the public was sometimes confused by seemingly inconsistent messaging, such as the initial calls not to use respiratory protection (so that it would be available to healthcare personnel) that were eventually replaced by mandates to wear masks. Over time, community support was eroded by the consequences of epidemic control measures, such as schools transitioning to remote and hybrid learning, and the influence of misinformation.

Assurance had a rocky start because the public health workforce, inadequate even for the everyday challenges before the pandemic, was initially overwhelmed. Although policies were continually refined as more was learned about SARS-CoV-2, rising and politically inspired opposition to public health measures limited their efficacy. Public health did not and perhaps could not provide equal protection to all against the risks of COVID-19. While much of the population was able to shelter at home and continue to work, many essential workers could not, including healthcare workers, service workers, and grocery store employees.[22] Reflecting the SDOH, mortality was generally higher in those with lower incomes, among whom Black, Latinx, and Native American people are disproportionately represented in the United States.[23] The elderly were at high risk for more severe disease, particularly those in assisted-care facilities.[24] These inequities were sadly reflected in mortality statistics.[25]

The politicization of public health during the pandemic was unprecedented and may be lasting. The

appearance of Dr. Anthony Fauci before the House Select Subcommittee on the Coronavirus Pandemic in 2024 presented a caricature of the political divide around science and public health that widened because of the pandemic.[26] As the pandemic progressed, political affiliation became a determinant of what some public health agencies did and how they were supported (or not) by local officials. It also affected the public's response to disease control measures, including use of respiratory protection and adherence to vaccination recommendations. Politicization had measurable consequences. For example, one study examined excess mortality in Ohio and Florida between March 2020 and December 2021 by political affiliation. From May 2021 on, when vaccination was available, the excess death rate among Republican voters was 43 percent higher than among Democratic voters.[27]

Reimagining Public Health

In response to lessons learned from the COVID-19 pandemic, there have now been many calls for the transformation and reimagination of public health.[28] With colleagues from Johns Hopkins University and Washington University in St. Louis, I coauthored one of the first of these papers, published in the fall of 2020.[29] Although the paper was published only 11 months into the pandemic, the vulnerabilities and failings of public health were already evident and offered a strong imperative for reimagination. We called for the careful assessment of lessons learned and for broad deliberations that would provide a blueprint for transforming our public health system.

With public health professor Ross Brownson at Washington University in St. Louis, I revisited the reimagining of public health in 2024 with three more years of lessons learned from the pandemic.[30] We identified seven areas, shown in the table on page 14, that should guide public health transformation. These seven areas are not new public health matters but need heightened attention with the insights from the COVID-19 pandemic.

In considering priorities, Brownson and I saw urgency around the complementary matters of

Through collective bargaining and advocacy, unions help create healthier workforces, workplaces, and communities.

accountability and politicization and polarization. There needs to be heightened understanding of the importance of public health and what it does. Politicization may be reduced by more effective communications to decision-makers, politicians, and the public generally, but new and more powerful messaging is needed for that purpose. Success in delivering messages on public health will require careful tuning to the political ears of the recipients—and to the most effective venues and methods by which to make those messages heard. We fear that the politics of the COVID-19 pandemic will spill over into fundamental public health measures, including vaccination. Consider the arrival of another pandemic caused by an infectious agent in a politicized public health environment; political forces might drive strategies away from a grounding in evidence, with potentially disastrous consequences.

We also prioritized modernization of data systems, a need made clear by the COVID-19 pandemic. In Colorado, there were challenges in bringing together data from healthcare systems to track cases of COVID-19. For contact tracing, Colorado lacked a system that could be used by all of its 56 public health agencies, leaving some to resort to cumbersome manual systems. National reporting was similarly limited, leaving the CDC with lagging data. Fortunately, an innovative team at Johns Hopkins University implemented a system that scoured the country for the data needed to track the pandemic and made it available on a nearly real-time basis.[31] Our call for data modernization is made at a transformative moment with the emergence of artificial intelligence (AI) as a tool for sorting through massive quantities of data to find the signals that will drive actions.

Public health agencies need the systems and tools to capture and analyze data and sufficient personnel with the skills of cutting-edge data scientists. The public health workforce was battered by the COVID-19 pandemic: it had already declined by 40,000 jobs in the aftermath of the Great Recession, and it further shrank by tens of thousands of workers during the pandemic. Additionally, only 14 percent of the public health workforce holds a public health degree.[32] There is an urgent need to restore the workforce and to enhance its skills.

Brownson and I also prioritized adding climate change and health to the scope of public health. The consequences of climate change for public health are already evident: more severe and frequent heat waves and storms, wildfires and worsening ozone air pollution, drought and food insecurity, coastal flooding, and forced migration. These are not new issues, but their severity and immediacy are new, as is the need for effective adaptation strategies. Responsibility for some adaptation measures lies with government and within public health agencies, such as disaster preparedness, heat wave warnings and provision of venues for cooling, and guidance on protection against air pollution and airborne infectious agents.

Finally, achieving health equity remains the central goal. Given the complementary nature of public health and healthcare, and given healthcare's individ-

Areas of Focus and Related Actions Necessary to Move Public Health Forward

Areas of focus	Actions to address
CONTEXTUAL	
Accountability	• Provide as much transparency as possible in governmental actions • Empower community member and partner voice in governmental decision making • Share power in decision making and budgeting • Document and communicate about the successes and impact of public health
Politicization and polarization	• Identify areas where there may be consensus and common ground across political ideologies (for example, opioid addiction) • Make better use of local data and local messengers (including nonpartisan organizations) • Establish legal protections for, and reporting systems for incidents of violence against, public health workers
TOPICAL	
Climate change	• Make climate change a core priority of public health practice, with dedicated resources and staff • More fully develop surveillance systems for tracking the direct and indirect effects of climate change • Advocate for policies to address the root causes of climate change, including emissions reduction and sustainable city planning
Equity	• Make health equity a core value of public health agencies, develop tracking systems, build skills among staff, and develop new partnerships • Shift language about equity to more fully engage the general public and policy makers • More fully address both health needs and social needs in marginalized populations
TECHNICAL	
Data sciences	• Actively support the harmonization of data sets and study repositories • Enhance capacity in data sciences • Engage communities in the data science process • Develop real-time surveillance systems that detect and monitor public health threats
Workforce	• Place a greater emphasis on training the existing workforce • Develop training in new areas, including skills in resilience, communication, systems thinking, and entrepreneurship
Communication	• Apply marketing and mass communication tactics to identify distinct audience segments • Identify message frames that are positive and show benefits • Translate empirical evidence into easily understood and relevant stories • Identify "superspreaders" of misinformation • Enlist trusted community members to address misinformation

SOURCE: AUTHORS' ANALYSIS. USED WITH PERMISSION FROM J. SAMET AND R. BROWNSON, "REIMAGINING PUBLIC HEALTH: MAPPING A PATH FORWARD," *HEALTH AFFAIRS* 43, NO. 6 (JUNE 2024): 750–58.

ual focus, striving for health equity is arguably public health's most important function. After all, "no one is safe until we are all safe."[33]

The Trump Administration and Public Health

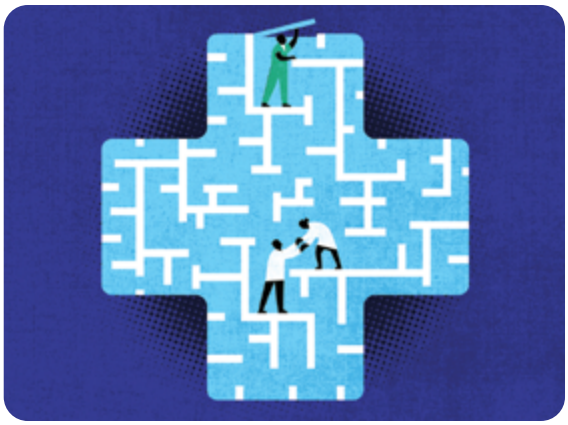
As this paper was finalized in March 2025, the second Trump administration's teams in public health and healthcare (US Department of Health and Human Services Secretary Robert F. Kennedy Jr., a to-be-determined CDC director, and US Food and Drug Administration Commissioner Dr. Martin Makary) and in environmental protection (US Environmental Protection Agency Administrator Lee Zeldin) were almost assembled. The picks made clear the future administration's stance on science and its role in the coming years, with records of doubting well-established scientific findings, including climate change from greenhouse gas emissions and the necessity of vaccination, while advancing discredited ideas, such as the long-debunked assertion that vaccines cause autism. At the start of the first Trump administration, I coauthored a paper titled "The Trump Administration and the Environment—Heed the Science."[34] My coauthors were two former EPA assistant administrators from the Reagan and Obama administrations. Our warnings, of course, went unheeded, and the second Trump administration will likely deviate even further from science-based approaches than the first. Unfortunately, our first recommendation remains on-target:

> We believe that evidence-based decision making on the environment should not be abandoned. Reasoned action and acknowledgment of scientific truth are fundamental to democracy, public health, and economic growth. Scientific evidence does not change when the administration changes.

As Trump's second administration begins with making dramatic cuts to the federal government and to federal funding for research, the nation's public health capabilities are being diminished, leaving the country unprepared for crises. Erosion of evidence-based and lifesaving public health measures—vaccination is the exemplar—will lead to avoidable disease and deaths. The anticipated emphasis on fossil fuel extraction and utilization, now summarized by the call to "drill, baby, drill," will cause predictable environmental damage, especially since commitments to reduction of greenhouse gases made under the Paris Agreement have already been abandoned.[35] The consequences of climate change are no longer theoretical—they are visible and palpable.

What's Next?

"Making predictions is difficult, particularly about the future," as the old saying goes. But some things about the future of public health are certain: (1) public health is and will continue to be a critical societal activity; (2) crisis preparedness is essential because "stuff happens"; (3) public health needs to be reimagined and rebuilt after the COVID-19 pandemic; (4) communication strategies are needed to counter the misinformation and disinformation threatening health; and (5) the cynical politicization of public health must be stopped. Continued transformation of public health was needed before the COVID-19 pandemic; that need is more acute now.



We must work together to reimagine public health so that we can build a better, longer, healthier life for all.

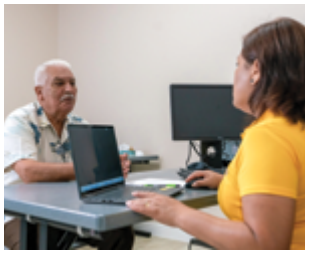
Who will lead this transformation, and how? Given anticipated biases against public health at the national level throughout the Trump administration, tackling the seven challenges Brownson and I outlined will have to happen primarily at the local and state levels, where trust may be built with less encumbrance by politicization. Here, healthcare and public health professionals and their unions have particularly important roles to play—first and foremost by building alliances to advance individual and community health. While legislative and policy changes at the state and local levels are not easy, they can be driven by smaller coalitions and progress faster than at the federal level. Healthcare and public health professionals and their unions can be powerful advocates—especially when they extend their alliances to include community groups. And even though we'd like to reimagine public health with a sweeping overhaul, the table on page 14 is full of small actions we can all take now. For example, storytelling by trusted figures—especially nurses, who are the top-ranked professionals for honesty and ethical standards[36]—can make a difference by both calling for investments by policymakers and opening the minds of those who have been drawn in by misinformation.

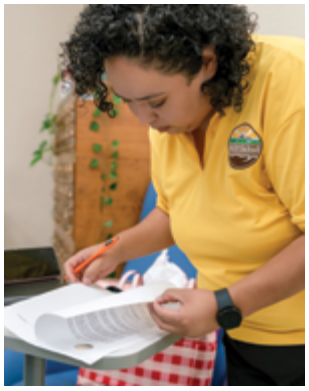
Healthcare professionals are natural allies because they have firsthand knowledge of the consequences when public health efforts are less than robust. And working together to advocate for and establish a reimagined public health system—and the funding to support it—reflects the shared goal of healthcare and public health professionals: building a better, longer, healthier life for all. ✚

For the endnotes, see aft.org/hc/spring2025/samet.

Building Bridges

Community Health Workers Advance Healthcare





Community health workers (CHWs) are critical members of the public health workforce, connecting communities with health and social resources and improving the quality and cultural competence of service delivery. To learn more about how CHWs increase access to care among vulnerable populations and improve public health and well-being, we spoke with Magaly "Maggie" Dante, PhD, LMHC, who is the CEO of MHP Salud, a nonprofit that works nationally to increase access to healthcare and social services. For a longer version of this Q&A with details on how organizations can partner with CHWs, please visit go.aft.org/2on.

–EDITORS

EDITORS: Let's start with a definition. What is a community health worker?

MAGGIE DANTE: A community health worker (CHW) is a public health professional who is trusted by and knowledgeable about the communities they serve—typically marginalized communities that experience significant health challenges. At MHP Salud, we work primarily with Hispanic clients in Texas and Florida; the majority of our clients have at most a high school education and earn less than $14,000 per year.

CHWs often have grown up in the communities they serve, sharing the same ethnicity, culture, language, and experiences. They understand the social drivers of health at play for their neighbors, from housing instability to food insecurity or economic struggle, and the best ways to reach and educate them. They have the trust of their community, so they are often the bridge to health and social services and can act as cultural mediators.

CHWs provide a range of services, including outreach, home visits, health education, and person-centered counseling and care management. They support clients in accessing high-quality health and social services. They facilitate support groups and help communities organize and advocate for social change to advance the community's health and welfare. They also advocate for their clients and help them understand the health information they receive, including why they should take their medications and the benefits of taking care of themselves, such as eating well and engaging in physical activity.

EDITORS: How did you get involved with community health work, and why is it so important to you?

MAGGIE: I'm a licensed mental health counselor; when I first got started, I was sent to rural, primarily Spanish-speaking communities in Florida where I was the only Spanish-speaking clinician. My job was to make sure pregnant women were doing their follow-ups and taking care of themselves, but I soon realized the depths of my patients' needs. I once had a client who was 21, HIV-positive, pregnant, and living on public assistance. I had come to help with prenatal care, but she couldn't keep the lights on or pay the rent, had no one to help care for her child, and didn't know what to do. Getting her regular checkups wouldn't address any of those problems. I learned a lot in those early years about education and advocacy, and about the need for more services.

Another experience that drew me to community health work was serving as a hospital administrator. I was very frustrated with the revolving door of patients who kept ending up back in the hospital because they didn't know how to follow up with care after discharge. I would have given anything for a CHW back then. The clinicians had their jobs to do, and I didn't have anyone I could ask to follow up with a patient who had been to the hospital six times in six months to figure out what we could do to help, whether it was medication education, transportation to appointments, or something else. I would have really appreciated having someone who knew enough about the community to make those connections.

I never lose sight of where I came from, as a Latina who grew up not knowing that we were poor but seeing that everyone didn't have what they needed. Now, I have the ability to make change. I understand the benefits of CHWs and work to educate others about why they're needed. It's not just about a return on investment—it's about investing in people so we can build healthy communities.

EDITORS: How do CHWs promote wellness and increase access to healthcare?

MAGGIE: Health disparities and access challenges are particularly evident among vulnerable and underserved communities. At MHP Salud, we define "vulner-

PHOTOS BY RGV PHOTO + VIDEO, COURTESY OF MHP SALUD

able populations" as those at higher risk for poor health outcomes due to socioeconomic status, disability, age, gender, ethnicity, race, or geographic location.

Among the 67 counties we serve in Texas, there are rural areas with little to no access to healthcare. That may be because there is only one health center in the area or because there is no public transportation. We also have serious concerns about our older adults. We want to see them successfully age in their homes with proper support, but many older adults are isolated and unaware of what assistance may be available to them. That's where CHWs come in.

The availability of care—the geographic proximity of healthcare providers and facilities capable of meeting the needs of a local population[1]—makes a significant difference in health outcomes. In Florida, almost every county has a health professional shortage area designation for primary care by the Health Resources and Services Administration (HRSA);[2] the shortages for dental care and mental health are nearly as dismal.[3] In Texas, the shortages are even worse for rural and border communities, where there are longer travel times to reach clinicians, few public transportation options, and higher numbers of elderly residents with complex health needs.

While CHWs can't replace clinicians, they can strategically respond to these challenges and make vital contributions to healthcare teams by enhancing quality, facilitating care coordination, alleviating clinicians' burdens, and fostering trust among patients. We work closely with the National Association of Community Health Centers (NACHC) and with HRSA to identify opportunities to add CHWs to multidisciplinary teams so we can address key gaps and burdens in public health and improve outcomes overall.

Another, perhaps less talked about, access challenge is trust in the healthcare system. Often, vulnerable populations are uncomfortable seeking care because they have had an unfortunate experience in the past or because language and cultural differences cause uneasiness and perpetuate distrust. We all know how complex healthcare can be—imagine trying to navigate it in a different language. Because CHWs are part of and trusted by their communities, they are instrumental in helping underserved populations proactively seek necessary healthcare, including preventive care. Moreover, CHWs have an intricate understanding of the resources in their communities, and they have an uncanny ability to navigate them. If transportation is an access challenge, for instance, they will advocate and network and find a solution.

As a result of the contributions of CHWs, clients and communities receive vital health education and skills, and they increase confidence in their ability to manage health conditions and advocate for themselves. In addition to being the trusted connector in communities, CHWs can deliver direct services—ensuring culturally competent approaches, which leads to better outcomes. Most importantly, the work of CHWs reduces persistent health inequities among different communities.[4]

EDITORS: What makes CHWs so effective?

MAGGIE: CHWs' lived experiences greatly enrich the quality and impact of their work. They allow for a deeper connection with the community and facilitate culturally competent care, which contributes to the overall effectiveness of public health initiatives, like dissemination of information about COVID-19,[5] vaccines,[6] and diabetes education and prevention.[7] CHWs accomplish this in part by embracing their roles as storytellers, advisors, and community partners, bringing a special understanding and empathy to their work.

Let me give you an example. We had one young man who reached out for help with applying for food stamps. Our CHW spent time getting to know him and learned he didn't have health insurance—he couldn't afford it and thought that he didn't really need it because he was young and healthy. Our CHW kept the conversation open, and several months later she caught him as he was leaving to take his dog to the vet for an annual checkup. She told him, "Your health is just as important. If you don't take care of your health, who will be there to take care of your dog?" Believe it or not, that's what resonated. He finally agreed to accept help to obtain insurance. Within days of receiving it, he found out his blood sugar level was off the charts, and he was eventually diagnosed with diabetes. That wouldn't have happened without that CHW building trust and really knowing that client and his community so she could educate him about what was available to him.

CHWs are instrumental in helping underserved populations seek healthcare, including preventive care.

EDITORS: What are the benefits of implementing CHWs as a model for community wellness promotion?

MAGGIE: In hospitals and clinics, CHWs can alleviate some of the burden of overworked clinicians. We worked with an organization that hired two CHWs (from a college with an HRSA grant for CHW training) to help in their dental practice. The CHWs met with clients and explained certain procedures and treatments to them. That's a benefit for both patients and staff—the patients don't feel like they've gotten shortchanged by an overbooked clinician and can get their questions answered, and the clinicians can offload some of the work they don't have time to do, knowing patients are in good hands.

The financial benefits for the organization and for public health are a natural outgrowth of CHWs' work. As they build relationships and help meet clients' needs, CHWs can begin conversations about health insurance and help them enroll in the right plan so they can access healthcare. They can also educate clients about being proactive with preventive care and taking screenings seriously. These things can have dramatic effects on the financial return on investment for a health system.[8]

What's more, CHWs help sustain the business of a health system. If you operate a health center, your business model depends on people showing up to receive

services. If you invest in CHWs, then they're out in the community talking about the services you provide, touting your excellent customer service, and extending the personal trust they've earned into organizational trust. They are the start of that chain reaction that leads happy clients to tell others in the community about you.

EDITORS: What about challenges to implementation?

MAGGIE: The biggest challenge is funding. Much of the funding for CHW positions is temporary. For example, many hospitals and clinics hired CHWs to help with vaccination uptake and community outreach during COVID-19. But when that money was gone, the positions disappeared. So while we're advocating for persistent funding, we also have to be creative about what kinds of roles CHWs can perform. MHP Salud has an evidence-based model called Parents as Teachers that we implement in several counties in Texas. It's led by trained parent educators who make referrals, do outreach and case management, and help connect clients to services. We found a way to apply for contracts that aren't CHW-specific but are still aligned with our work and our values.

When it comes to direct hiring, the challenges are twofold. First, we have to demonstrate to hospitals and clinics that CHWs are a terrific investment. Employers often cite a lack of funding for new positions, but chronic understaffing affects workplace safety and staff well-being. Replacing people who leave because of overwork and burnout takes a lot of time and money—and it certainly affects patient outcomes.[9] That money could be invested in salaries and support—like CHWs—so staff don't leave in the first place. If hospital administrators just looked at the numbers, they'd realize it's a lot less expensive to hire CHWs (not to mention clinicians and other understaffed roles).

That leads to the second challenge: organizations need to be trustworthy. Before a CHW can advocate for you, they need to trust you—and that comes from organizational culture, starting with an intentional focus on hiring, retention, and support.

Let me give you an example from MHP Salud. About five years ago, our turnover was 47 percent annually. When I came in, I knew something had to change. As

The Value of Partnering with Community Health Workers

Community health workers (CHWs) provide a wide range of services and advocacy that help increase access to healthcare and promote health and well-being. We spoke to MHP Salud's Venita Perales, CHW, and Amy Moncion, LCSW and community liaison director, about how partnering with CHWs can help clinicians improve patient outcomes. To read the full Q&A, please visit go.aft.org/ajf.

–EDITORS

EDITORS: Why did you become a community health worker?

VENITA PERALES: I've had the title "community health worker" (CHW) for about six years, but I was doing this work long before I knew the term. After college, I was a home aide and helped clients with their daily needs, whether it was getting their medications, arranging transportation to doctors' appointments, or helping them enroll in Medicaid. Later, as a registered medical assistant in a cancer clinic, I helped patients who couldn't do much independently and often had no one to bring them a bag of groceries or a hot meal. Then I worked with Texas home- and community-based service programs helping elderly clients, children, people with disabilities, and families who needed support caring for their loved ones with special needs. Whether it's sitting down with them to make an appointment or find assistance or resources, I've always wanted to help and make sure my community is taken care of. Now I bring it all together by helping my community access health insurance, find healthcare and services, and connect to resources and support for basic needs.

AMY MONCION: I've been a practicing clinical social worker for nearly 17 years, but I started working as a health educator with the University of Central Florida 20 years ago—and back then, "community health worker" wasn't a well-known term. I didn't know I'd been a CHW all along until being introduced to the work of MHP Salud. Now I support CHWs and help expand the profession across Florida through MHP Salud's CHW training program, and it's one of the most fulfilling roles of my career.

As an individual who identifies as Hispanic/Latina, I really appreciate MHP Salud's legacy of supporting Latino communities. But more than that, we are doing true preventive work and impacting community health from the inside out, which is far more impactful than playing a reactive role in addressing the concerns of underrepresented and underserved communities.

I feel pride in this work because I really do believe CHWs at their core change the communities they live in. I spent a long time in the child welfare space, an environment where you don't always get to see big outcomes. But I've really gotten to see the massive impact of the CHW model.

EDITORS: Why are community health workers so essential?

VENITA: Many times, clinicians don't have time to sit down and give patients all their options—where they can go for services or who can help them complete applications they've never seen before—or even to sit down with them and ask, "How are you today? What do you need and how can I help you?," and really listen to the answer. That's what a CHW does. We follow up to make sure patients understand those long lists of medications they were prescribed and why they need to take them. We also help clients who have been incapacitated after a serious illness. Life changes so quickly, and many times people don't know who to turn to for help or to get questions about their new reality answered.

CHWs coordinate with clinicians to get answers to questions like "Do any of my medicines interact with those that another

I dug in and talked to people, it quickly became clear that we had a culture issue. We conducted our first-ever employee survey, and the responses were overwhelming. We received pages and pages of feedback. Our staff at all levels expressed their distrust of management and the organization because they felt unsupported and disposable. Many staff members told us they didn't have a good work-life balance, and it was leading to health issues, mental health concerns, and physical ailments. They felt management didn't understand their workload or the toll it took on them, as they experienced secondary trauma—almost internalizing the deep challenges of our clients. So, for the first two years, we focused heavily on workplace culture and our hiring and retention practices. MHP Salud now implements a trauma-informed approach to supporting and retaining CHWs. In practice, that means we foster a learning and growth environment with reflective practice in our supervision. We create individualized development plans and prioritize meaningful one-on-one meetings with our team members. And we listen. While it sounds simple, that's one of the hardest elements to put into practice day in and day out.

Today, MHP Salud has an 11 percent turnover rate, which is saving us nearly $1 million a year—money that can continue to go right into services. But what's especially telling is that the quality of work has improved. Our CHWs are excited to be out there, and clients feel the difference. More than 90 percent of our clients come to us through word of mouth—recommendation of a friend or family member, a referral by a partner organization, or because they met a CHW out in the community. That financial and social return on investment can lead to significant public health return on investment too.

All of this takes work and intentionality, and that can be a big ask in the profit-driven healthcare industry. But to truly focus on the bottom line, employers must prioritize culture and staff support. The return on investment that's possible with CHWs is second to none; in addition to improving employee retention and health outcomes, the financial return on investment will be evident in the bottom line. It works together, and CHWs are the bridge connecting it all. ✚

For the endnotes, see aft.org/hc/spring2025/dante.

In hospitals and clinics, CHWs can alleviate some of the burden of overworked clinicians.

doctor prescribed? Does my pharmacy carry them? Does my insurance cover them as written, or do I need to get generics?" If patients are prescribed something they can't afford or that their insurance doesn't cover, many will just go without—and it may be weeks or months before the clinician discovers it at their next appointment.

Another issue is that some patients are discharged from the hospital with equipment they don't fully understand how to use, or they need follow-up care and resources that they don't know how to get. Without help, they often end up right back in the emergency room. CHWs bridge these gaps to get patients what they need.

What really sets CHWs apart as well is that we share and deeply understand the culture and language of those we serve. Imagine trying to understand a new diagnosis when you don't speak the same language as your doctor. We are instrumental in providing culturally competent care and support to our communities.

AMY: Charge nurses and discharge planners would love to sit and go line by line through the care plan with each patient, but they don't have much time. The CHW can directly intervene in patient care to find solutions as new issues arise. That frees up nurses to continue doing their day-to-day activities.

VENITA: I recently helped a gentleman who was unhoused and had no place to go after being discharged following a foot amputation. I told him, "We'll figure it out." We filled out his Medicaid and Supplemental Nutrition Assistance Program application together, and then I helped him find a program that would give him a place to stay.

CHWs are passionate about their communities, and they've experienced some of the same issues they're helping with. I had a family who needed to get a loved one into hospice but didn't know how to do it or what to expect. I shared that I went through a similar situation with my dad. Sharing those experiences creates connection and trust. We know what it's like to navigate the healthcare system to get services—or to choose between healthcare and keeping the lights on or the rent paid. We come alongside clients, connect them to nearby resources, and empower them to advocate for themselves. People don't want someone to come in and talk down to them, telling them what they need to do. They want someone to see them as a person who may be hurting and who needs help and to take the time to help them figure out the next steps.

EDITORS: How do CHWs facilitate change in their communities?

AMY: Community-based organizations and large healthcare facilities across Florida are starting to see what can happen when you let the community lead. Our CHW trainees go into their communities to obtain feedback and assess needs, and they use this information to inform change. We also partner with other CHW organizations to share resources and best practices. In truly listening to their communities, CHWs have developed resources to address summertime food insecurity for youth and embedded healthy nutrition and eating practices education for children, including family outreach, to reinforce healthy practices and lifestyle changes at home. Some CHWs also identified a need for additional support for unhoused individuals and families and worked with a local organization that has since expanded support services to four sites across Central Florida. These sites provide lockers, mobile showers, and hygiene areas so unhoused individuals have dignity and a safe place for their belongings.

CHW trainees in one very rural area identified that several of their diabetic patients weren't taking their insulin because they didn't have access to cooling lockers, so trainees rallied organizations to donate lockers to the community. In another area, CHWs working with clients who had mobility issues learned their clients didn't have the right shoes to complete their occupational or physical therapy without pain. The trainees had therapeutic shoes donated to meet that need.

That's what CHWs do: they figure out how to eliminate barriers to care. No challenge is too big or too small. CHWs are always looking for opportunities to improve their clients' health outcomes. ✚

Addressing Bias in Clinical Algorithms to Advance Health Equity

By Clara M. Bosco, Marshall H. Chin, and William F. Parker

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Clinicians share a common goal of doing what is best for our patients, and this obligation extends to critically evaluating the tools we adopt into our practice. Clinical algorithms, which we define as "mathematical models that aid decision-making,"[1] are ubiquitous tools in healthcare, influencing everything from diagnosis to treatment. These algorithms can enhance decision-making by providing insights that surpass the limits of individual human memory and cognition. Now, with the integration of artificial intelligence (AI), algorithms are becoming increasingly tailored to individual patients through the incorporation of nuanced data, like genetic profiles, social drivers of health, and real-time physiological metrics.

While algorithms are foundational to clinical reasoning and may become more beneficial as technology advances, they can also fail our patients. Carelessly designed algorithms or those explicitly designed to increase the profits of healthcare companies can exacerbate existing biases and increase health disparities. Algorithms should serve patients, not profits. To provide the highest standard of care, we must demand best practices in algorithm design through transparency and accountability so that healthcare technologies work in the service of patients and advance health equity. This article will explore the evolution of algorithms in healthcare, highlight examples of both their benefits and biases, and propose actionable strategies to ensure their ethical and equitable use in clinical practice.

Algorithms Are Foundational to Healthcare

The use of what we would recognize today as an algorithm in healthcare first appeared in the 19th century, when advances in probabilistic reasoning began influencing medical practice.[2] During the 20th century, algorithms advanced from simple scoring systems (like the Apgar score for infant health) to computer-based algorithms that relied on hundreds of programmed rules to complement physician expertise and aid clinical decision-making. By the 1990s, algorithms had become integral to electronic medical records, enabling real-time decision support with tools like automated drug-interaction alerts.[3] These algorithms, relying on rule-based systems and "if-then" directives, are a part of the first epoch of AI, which focused on encoding human knowledge into machines to improve efficiency and accuracy.[4] Though a major advancement, this type of AI still had a "constant risk of human logic errors in its construction and bias encoded in its rules."[5] Additionally, these systems were less adaptable to real-world situations.

Models in the second epoch of AI, beginning in the 2000s, could now "learn" from errors, making

ILLUSTRATIONS BY EVA VÁZQUEZ

them more accurate and adaptable. With technical advances in computers, AI became capable of processing vast datasets to discover patterns in data rather than relying on pre-programmed patterns. But significant limitations remained; for example, the model's performance decreased if the real-time data differed significantly from the training data. Additionally, models of this era were "task specific," meaning they could only do one thing.[6]

The third epoch of AI, which began around 2018, marks a transformative leap with new systems that can perform a wide variety of functions when given simple instructions.[7] While these capabilities could improve healthcare communication and reduce administrative burdens, they also come with challenges, such as potentially generating "hallucinations" that are plausible but incorrect. Hallucinations are a byproduct of how these advanced models are trained. Experts describe the training process as showing the model a document and having it guess at the next word in the text until it guesses correctly. With each error, the model must adapt its "internal representation of how words fit together."[8] After showing the model many documents, it learns patterns in language and can predict the next word in the sequence. Hallucinations occur because the model is trained to be a language predictor—not a reality predictor. So perhaps it is not surprising that this new AI can perpetuate historical biases that underlie our language, worsening health equity. For example, researchers have demonstrated that AI language models can perpetuate covert racism through dialect prejudice, disproportionately associating African American English (AAE) with negative stereotypes and less prestigious jobs and assigning harsher judicial outcomes to AAE speakers compared to those using Standard American English.[9]

Examples of Clinical Algorithms

Clinical algorithms can be categorized into four buckets based on their purpose: assisting clinicians in making decisions, screening for high-risk or early disease, allocating resources, and evaluating physiologic function.

1. Clinical Decision Support Tools (CDSTs): Prompting Action

CDSTs are algorithms that prompt clinicians to act. These tools use patient data, like vital signs or lab results, to provide real-time recommendations. Widely used CDSTs include the National Early Warning Score and the Systemic Inflammatory Response Syndrome. These algorithms flag when a patient's condition might be worsening. The algorithms calculate a score, and high scores alert the care team to take action, like calling the rapid response team.[10] Antimicrobial stewardship algorithms are another example of CDSTs. These tools identify cases where antibiotics may not be appropriate or where adjustments to dosage or type are needed, reducing the spread of antibiotic resistance and improving patient outcomes.[11]

2. Screening Algorithms: Identifying High-Risk Individuals and Early Disease

Screening algorithms identify individuals at higher risk of developing disease or having poor outcomes and can help detect diseases in their early stages. These tools often use data from patient historical records, lab results, or imaging studies. Advanced algorithms, including those powered by AI, analyze subtle patterns in mammograms to detect breast cancer. These algorithms help radiologists reduce the likelihood of missed diagnoses and identify cases earlier, when treatment may be more effective.[12] The Atherosclerotic Cardiovascular Disease Risk Estimator Plus (go.aft.org/l9j) is an example of a widely used screening tool. Used to predict 10-year and lifetime risk of cardiovascular disease, the algorithm incorporates social factors like smoking status and race alongside clinical variables like cholesterol levels and blood pressure.[13]

3. Resource Allocation Algorithms: Optimizing Healthcare Delivery

Resource allocation algorithms are tools for distributing resources, and they can be tailored to prioritize various factors, including maximizing overall benefit, addressing needs, ensuring fairness, enhancing efficiency, and optimizing profitability. An example of a resource allocation algorithm is the Model for End-Stage Liver Disease (MELD) score, which is used to rank patients on the waiting list for liver transplants. This algorithm calculates a score based on lab values like bilirubin, creatinine, and international normalized ratio to estimate how urgently a patient needs a transplant. Patients with higher scores are prioritized, ensuring that organs are allocated to those who are most critically ill (particularly if score changes over time are considered).[14] Another allocation example is the Sequential Organ Failure Assessment (SOFA) score, which is commonly used in ICUs to track the severity of a patient's illness. This algorithm evaluates how well a patient's organs are functioning based on various clinical measurements, including blood pressure and oxygen levels. During crises like the COVID-19 pandemic, the SOFA score was used to help allocate resources like ventilators when demand exceeded supply.[15]

4. Equations That Estimate Physiologic Functions

Some medical algorithms estimate how well different parts of the body are functioning, providing quick and practical measurements to guide clinicians in diagnosing and treating various conditions. For example, the estimated glomerular filtration rate (eGFR) is an algorithm used to assess kidney function. This tool helps diagnose and monitor chronic kidney disease and has impacted referrals for kidney transplants and patients' position on the waitlist.[16] Other examples include the

Algorithms help clinicians make decisions, screen for risk or disease, allocate resources, and evaluate physiologic function.

Fibrosis-4 Index,[17] which estimates liver damage in people with chronic liver disease, and the Montreal Cognitive Assessment,[18] which evaluates motor and cognitive functions.

The Problem: Algorithmic Bias

Unfortunately, algorithms can also fail us. We highlight examples of biased algorithms to illustrate the scope of the problem and then examine the algorithmic life cycle to understand why biases arise and are perpetuated.

The eGFR, noted above, is a canonical example of a race-inclusive algorithm that has potentially harmed Black patients. Race-inclusive eGFR calculators estimate a higher eGFR for Black patients than white patients with the same serum creatinine level.[19] This adjustment was historically justified by higher average serum creatinine levels among Black individuals, which was attributed to increased muscle mass without supporting evidence. By reporting higher eGFR values for Black patients, the algorithm delayed referrals to kidney specialists or transplantation, worsening outcomes for a group already disproportionately affected by end-stage renal disease.[20]

Treatment decisions about interventions for lung conditions are made based on percentile values rather than absolute values. This is because lung function varies greatly with factors like height, age, and sex. Historically, pulmonary function test (PFT) algorithms have also been race-normalized due to observed population-level differences between Black patients and patients of other races. This adjustment, which falsely assumes race to be a reliable proxy for genetic variation, leads to inaccurate assessments, delays in diagnosis, and worse outcomes for Black individuals.[21] The tool provides faulty information for important clinical decisions, such as determining eligibility for lung cancer resection or the choice of options such as pneumonectomy versus wedge resection or palliative care. PFTs—and all algorithms that include race as a variable—should be critically reevaluated. Race is a social construct, not a biological determinant. Thus, efforts to improve PFTs should avoid normalizing population-level differences and instead seek to understand how social drivers of health—like environmental pollution, occupational exposures, housing quality, and access to healthcare—contribute to disparities in lung function.

Algorithms designed to increase profits can exacerbate existing biases and increase health disparities.

A striking example of a biased resource-allocation algorithm that harmed Black patients is one of the commercial risk-prediction tools that influence the care of nearly 200 million people in the United States each year.[22] These tools, which are integral to high-risk care management programs, estimate how sick a patient is likely to become in the future.[23] Patients predicted to be sicker are allocated more healthcare resources to prevent morbidity. This particular biased algorithm included past healthcare utilization, as measured by insurance claims data, as a proxy for severity of illness to predict future healthcare need and select patients for enrollment in a care management program.[24] However, healthcare utilization is a poor proxy for severity of illness because Black patients are more likely than white patients to face barriers to accessing and utilizing healthcare in the United States. On average, Black patients generate lower costs in administrative claims databases despite having comparable or greater levels of illness as compared to white patients. Thus, Black patients had to be sicker than white patients to be selected for enrollment in the program. Restating this quantitatively, Black patients who met the enrollment criteria had 26.3 percent more chronic illnesses than white patients.[25] This highlights how a poorly designed algorithm can embed and amplify health disparities.

The Algorithmic Life Cycle

There are five sequential phases of the life cycle an algorithm undergoes from inception to decommissioning: (1) problem formulation; (2) data selection, assessment, and management; (3) algorithm development, training, and validation; (4) deployment and integration of algorithms in intended settings; and (5) algorithm monitoring, maintenance, updating, or deimplementation.[26] Others have comprehensively described types of biases that arise in different parts of the algorithm life cycle.[27] In this article, we give representative examples.

Phase one (problem formulation) is the reason the algorithm is built in the first place. The underlying purpose of algorithms can vary widely, ranging from optimizing health outcomes to maximizing profits.[28] Important considerations at this beginning phase include: What is the problem the algorithm seeks to address? What is the desired outcome? Who are the key actors? Explicitly outlining these aspects is foundational for later phases.[29] An example of bias in phase one is a resource-allocation tool designed to minimize costs over other objectives. By prioritizing profits, this tool could decrease care for underserved populations who may require more resources (like transportation assistance to distant tertiary care centers), embedding systemic inequities into the system from the start.

In phase two (data selection, assessment, and management), data are chosen and prepared to "teach" the algorithm how to perform a task through proxy selection (assigning measurable variables to represent complex concepts).[30] A simple comparison would be an expert physician compiling a representative set of example patient presentations of appendicitis and cholecystitis to teach an intern how to discern between the two conditions. Data vary in completeness, depth, and relevance, so developers should be aware of and

transparent about the limits of the data used to create an algorithm.[31] For example, the Gail Model is a screening algorithm that predicts a woman's risk of developing breast cancer. This widely used tool was developed primarily with data from white women. Its predictions are less accurate for other groups, overestimating breast cancer risk by nearly twofold in Asian women.[32]

Data selected in phase two are fed to the model in phase three (algorithm development, training, and validation) to learn patterns and be "trained" to produce the output. An example of bias in development is the American Heart Association's Get With the Guidelines–Heart Failure Risk Score, a support tool designed to guide decisions such as which patients with symptoms of heart failure should be referred to a cardiologist. This algorithm assigns additional risk points—without any scientific justification—to patients identified as non-Black, systematically categorizing Black patients as having lower risk.[33] Thus, this biased algorithm would prompt clinicians to under-refer Black patients to cardiologists, which is particularly troublesome given significant disparities in mortality and readmission rates among Black patients with heart failure.[34]

Validation is the process of testing a model to ensure it performs well on new data and produces accurate, fair, and consistent output across groups.[35] An example of bias in validation is failure to fix an algorithm designed to predict surgical outcomes if it consistently performed well for men but poorly for women. To mitigate such bias, experts employ "counterfactual fairness" as a useful framework. The idea is rooted in a thought experiment: if we could imagine a counterfactual world where everything about each individual that impacts surgical outcomes is the same except for a specific demographic attribute, like race or gender, a fair algorithm would have the same accuracy in both the actual and counterfactual worlds.[36] Let's go back to our resource-allocation example: If a Black patient is denied enrollment in a care management program, counterfactual fairness asks, Would the decision change if this same patient, with identical health conditions and needs, were white? If the answer is yes, the algorithm is unfair and needs to be corrected.

The final two phases of the algorithmic life cycle center on integration into clinical workflow (phase four) and continuous algorithm monitoring in real-world settings (phase five). Here it is important to consider how clinicians interpret and use the output from the algorithm. One critical issue in phase four is "automation bias," where clinicians over-trust models and inappropriately act on their outputs, even when they are less accurate for certain groups.[37] Uncritical reliance on flawed algorithms that systematically disadvantage certain groups risks perpetuating harm through misdiagnoses, delays in care, and worse health outcomes.[38] Accessibility considerations are also crucial to these final phases. Deployment and monitoring require technical resources, training, and expertise primarily available in resource-rich settings, disadvantaging low-resource environments such as rural healthcare facilities. Tools that require advanced sensors or smartphone apps might not be accessible to patients in all communities, thereby limiting their potential benefits.

Ultimately, mitigating algorithmic bias requires an intentional approach at every stage of an algorithm's life cycle. Due to its interconnected nature, biases introduced in one phase can ripple through subsequent phases. Further, a deployed algorithm can become a creator of clinical data; biased data could then be selected and used to train future algorithms, thereby amplifying inequities over time. Ethical issues,* including fairness and equity, should be explicitly discussed and addressed at each phase of the life cycle to ensure that algorithms that are integrated into our everyday clinical workflows help everyone.[40]

Mitigating algorithmic bias requires an intentional approach at every stage of an algorithm's life cycle.

What Can Institutions and Policymakers Do?

Addressing algorithmic bias begins with targeted, actionable strategies from all stakeholders in the healthcare ecosystem. We agree with fellow clinicians and researchers who advocate for a shared responsibility framework† that involves developers, healthcare facilities, and legislative and regulatory bodies.[43] Each of these groups plays a pivotal role in mitigating algorithmic bias and promoting health equity.

AI developers have a critical responsibility to ensure transparency to combat biases. They must use diverse datasets during development, rigorously test for bias, and disclose any limitations. Report cards for machine learning models can help ensure transparency and usability for end users. Examples include the TRIPOD+AI‡ checklist, which offers structured guidelines for reporting on prediction models in healthcare, and the "Model Facts" label, which consolidates action-

*AI technologies pose environmental justice concerns, disproportionately harming the health of low-income and racial and ethnic minority communities.[39] Energy-intensive data centers, often reliant on fossil fuels, contribute to greenhouse gas emissions, local pollution, and climate change, all of which disproportionately burden marginalized communities. If AI is to be implemented ethically to improve patients' health, it is also crucial to address its environmental impacts.

†Organizations like the American Medical Association (AMA) and the National Academy of Medicine (NAM) are addressing the governance of AI in healthcare. The NAM's draft AI Code of Conduct Framework emphasizes ethical, safe, and equitable use of AI through clearly defined principles and commitments.[41] Similarly, the AMA advocates for transparency, safety, and effective integration of AI into clinical workflows.[42]

‡TRIPOD stands for Transparent Reporting of a multivariable prediction model for Individual Prognosis Or Diagnosis.

able information for clinicians, such as appropriate use cases and limitations.[44] Developers should provide clear documentation and accessible repositories detailing their methodologies and training data, enabling healthcare facilities to assess and monitor the algorithms they implement.[45] Further, a centralized, open-access repository enables researchers from diverse disciplines—such as computer science, ethics, medicine, law, and economics—to collaboratively investigate algorithms, fostering interdisciplinary innovation and developing novel solutions to optimize outcomes and minimize bias. Transparency of the algorithm developer was crucial to fixing one resource-allocation algorithm. Researchers were able to examine all aspects of the algorithm, including the training data, to discover the root issue. The researchers then contacted the developers, who independently reevaluated their product and confirmed the results from the research team. Both parties then investigated solutions collaboratively to create a better, more nuanced proxy variable that combined health prediction with cost prediction.[46] The success of such collaborative investigation to prevent and mitigate bias hinges on transparency from those creating and distributing algorithms.

Healthcare institutions, particularly those with limited resources, face significant challenges in adopting and evaluating AI technologies. Standardized guidelines and affordable tools are needed. Establishing federal standards for algorithm testing, alongside low-cost or free bias-detection tools, can allow under-resourced facilities to benefit from algorithmic tools without exacerbating inequities.[47] Furthermore, accreditation and certification programs should offer independent evaluations of clinical algorithms, providing healthcare facilities with assurance that the tools they adopt meet rigorous standards for safety and equity.[48]

Regulatory and legislative bodies also have crucial roles to play. President Biden's 2023 Executive Order 14110, "Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence," explicitly recognized the risks AI poses in exacerbating discrimination and bias, particularly in "critical fields like healthcare, financial services, education, housing, law, and transportation" where mistakes or misuse directly harm citizens.[49] The order emphasized the federal government's commitment to ensuring AI serves the public good by advancing equity and civil rights, preventing new types of discrimination, and holding those developing and deploying AI accountable through rigorous regulations.

However, President Trump has revoked Executive Order 14110, prioritizing rapid development and deployment of AI over its responsible governance. The Trump administration claims that Biden's order imposed "onerous and unnecessary government control" and constrained private sector innovation, ignoring the substantial risks that unchecked AI poses to patients and society.[50] This policy shift revokes accountability measures and safeguards against bias, undermining public safety and health equity in favor of unfettered development.

By contrast, the European Union balances AI innovation with public protection through its Artificial Intelligence Act (AI Act). This legislation establishes a risk-based regulatory framework that imposes stricter rules on high-risk AI systems and prohibits AI systems that pose an "unacceptable risk." For example, prohibited unacceptable risks include:

- deploying subliminal, manipulative, or deceptive techniques to distort behaviour and impair informed decision-making, causing significant harm.
- exploiting vulnerabilities related to age, disability, or socio-economic circumstances to distort behaviour, causing significant harm.…
- social scoring, i.e., evaluating or classifying individuals or groups based on social behaviour or personal traits, causing detrimental or unfavourable treatment of those people.[51]

The EU's AI Act states that a high-risk AI system "profiles individuals, i.e. automated processing of personal data to

Clinical Algorithms, Bias Threats, and Key Considerations

Algorithm Type	Example Algorithm	Bias Threat	Key Considerations
Clinical decision support tool	Get With the Guidelines–Heart Failure Risk Score	Faulty algorithm development incorporating race as biological determinant not supported by scientific evidence	Reevaluate race-based adjustments and transition to models that incorporate social drivers of health.
Screening algorithm	Gail Model for breast cancer	Underrepresentative data: Developed using data from primarily white women in the United States	Expand datasets to include diverse populations; validate models in nonwhite populations to ensure accurate predictions.
Resource allocation algorithm	High-risk care management program	Biased proxy variable (previous costs as measured by insurance data) for severity of illness that was confounded by poor access to care	Developers must ensure transparency by documenting methodologies and providing accessible repositories detailing training data. Transparency allows healthcare facilities and researchers to assess and monitor algorithms, and fosters collaborative efforts to identify and mitigate bias.
Estimates of physiologic function	Estimated glomerular filtration rate; pulmonary function tests	Faulty algorithm development incorporating race as biological determinant not supported by scientific evidence	Transition to race-neutral models and address social drivers of health, like environmental factors and healthcare access.

assess various aspects of a person's life, such as work performance, economic situation, health, preferences, interests, reliability, behaviour, location or movement." For AI systems determined to be high-risk, the developers assume the most responsibilities, and they must adhere to stringent requirements to ensure compliance and safety. These responsibilities include managing risks at different stages of an AI system's development, such as ensuring data are relevant, representative, and free of errors for their intended purpose; designing AI systems to be appropriately accurate; keeping detailed records so mistakes are traceable; and enabling AI deployers to implement human oversight.[52] The EU's AI Act provides a regulatory framework that could guide other nations in developing responsible AI governance.

What Can Clinicians, Unions, and Activists Do?

Addressing algorithmic bias requires a multifaceted approach that leverages our roles as clinicians, union members, and political activists. Each person has unique opportunities to mitigate bias and foster equity within their specific context.

Clinicians should critically evaluate algorithms' outputs and understand their limitations.* As the end users of algorithms, clinicians share responsibility for ensuring these tools improve care and advance health equity. We must demand transparency regarding why and how the tools were developed. Further, we should always supplement an algorithm with human judgment, including forgoing the algorithm altogether if our questions reveal careless development or uncertain validity. The following questions can serve as a framework for clinicians to ensure they are using ethical and equitable tools for their patients:

1. What problem does the algorithm address?
2. Is the goal of the algorithm to make patients healthier?
3. Are patient characteristics in the datasets used for development similar to those of the patients you care for and are applying the algorithm to?
4. Were biases tested for and mitigated?
5. How will the algorithm be monitored, maintained, and updated?

Union members can mitigate algorithmic bias by advocating for transparency, accountability, and equitable practices in their workplaces. They can push for oversight committees to evaluate algorithms for bias, negotiate for third-party audits of algorithms used in their workplaces, and demand access to information and training on algorithmic limitations. Through advocacy, union members can drive systemic changes, influencing both workplace policies and broader industry standards to prioritize equity and safety in algorithmic implementation.

Improving the health and well-being of all people, including the most marginalized, should be the goal of all healthcare workers and the healthcare system. In a political climate increasingly hostile to diversity, equity, and inclusion (DEI) initiatives, mitigating bias and advancing health equity requires persistent advocacy. With recent and anticipated attacks on DEI programs, advocates must ensure that health equity and improving the health of all remain central to public policy. Transparency is essential; advocates can push for regulations that require clear communication about how algorithms are designed, the data they use, and their potential impacts. If we want to address bias effectively, it is crucial that we engage our communities. Advocates should require the inclusion of marginalized voices in the development, deployment, and monitoring of algorithms, ensuring their needs and concerns are reflected in healthcare solutions. Accountability is also vital; advocates can help ensure mechanisms for redress to affected communities. Raising public awareness about algorithmic decisions and advocating for equitable access to technology can also reduce systemic inequities. Lastly, advocates can demand continuous oversight and deactivation of biased algorithms to ensure fairness, equity, and the ethical use of algorithms in healthcare.

We can leverage our roles as clinicians, union members, and political activists to address algorithmic bias and foster equity.

Algorithms are foundational to healthcare, and now, with the increasing integration of AI, they are becoming more powerful and patient-centered as they incorporate large amounts of data to make tailored recommendations. However, algorithms are not inherently neutral instruments; their design and use can perpetuate systemic inequities, exacerbating health disparities. Ethical concerns arise when algorithms reflect biased assumptions or fail to consider marginalized populations. As technology advances, we have an ethical obligation to leverage these tools to improve patient care. At the same time, we must ensure fairness by critically evaluating their development at every stage. Only through this dual commitment can we build a healthcare system that is equitable, inclusive, and accessible to all. ✚

*We understand that clinicians are already pressed for time. Unions should demand algorithm oversight committees as part of ongoing patient safety and equity work to help clinicians acquire this essential information about algorithms that is critical for patient care.

For the endnotes, see aft.org/hc/spring2025/bosco_chin_parker.

Protecting Patients and Hospital Systems from the Devastation of Climate Change

By Hannah N. W. Weinstein, Cassandra Thiel, and Cecilia Sorensen

Hannah N. W. Weinstein, BA, is a fourth-year medical student at Columbia University Vagelos College of Physicians and Surgeons and a Global Consortium on Climate and Health Education (GCCHE) student fellow. Cassandra Thiel, PhD, is an assistant professor in population health and ophthalmology at NYU Langone Health and the founder of Clinically Sustainable Consulting. Cecilia Sorensen, MD, is the director of the GCCHE, an associate professor of environmental health sciences in the Mailman School of Public Health, and an associate professor of emergency medicine at the Columbia Irving Medical Center.

On September 27, 2024, the United States watched as 54 patients, their families, clinicians, and staff were airlifted off the roof of Unicoi County Hospital in Erwin, Tennessee. In this mountain town on the eastern edge of the state, at an elevation of 1,600 feet above sea level, extreme precipitation from Hurricane Helene had caused the Nolichucky River to swell to unprecedented levels, rapidly surrounding the hospital with a swift current. Hospital staff evacuated seven individuals using rescue boats, while the remaining patients, visitors, and staff waded through floodwaters to reach a ladder, which they climbed to safety on the roof. When the final evacuee left by helicopter, the floodwaters were only 10 feet below their perch.

Angel Mitchell was visiting her 83-year-old mother when the evacuation order came. She described nearly being swept away by the rough currents while making her way to the roof ladder. She recounted looking down at her mother in a rescue boat—next to an oxygen tank for her pneumonia. This was far from the expected visit. A few days later, videos would show many cars, rescue boats, and ambulances still stuck in the mud and debris from the flooding.[1] The hospital remains closed as of the writing of this article, leaving the community to seek care from other facilities more than 20 miles away.

Helene produced 10 to 15 inches of rainfall across the Southeast before it even made landfall, and in some locations, landfall brought another 15 inches. Preliminary research found that climate change made this Category 4 storm 40 to 70 percent more likely,[2] so perhaps it should not be a surprise that Unicoi County Hospital was not the only healthcare facility impacted by the storm. Across a nearly 800-mile region, dozens of healthcare facilities were evacuated, including 39 patients from Sycamore Shoals Hospital in Elizabethton, Tennessee, and 31 facilities in Florida. Many other hospitals lost water and power, with four still lacking water and 11 depending on generators days after the storm. Hospitals closed their doors to nonemergent cases because of limited capacity to respond to anything else. Countless pharmacies were unable to provide lifesaving medications due to damage to their facilities and to the roads required for new deliveries.[3]

Two weeks later, on October 9, 2024, Hurricane Milton similarly barreled its way toward the coast of Florida. HCA Florida Largo Hospital evacuated close to 240 patients because of basement flooding.[4] Across the state, 352 healthcare facilities were evacuated, with many losing electricity and water, as had happened only weeks before.[5]

Evacuations due to extreme weather events, including hurricanes, floods, and wildfires, have become increasingly common;[6] between 2018 and 2021, 52.8 percent of clinic staff from 43 states reported disruptions in care due to extreme weather.[7] Some hospitals have been evacuated repeatedly, such as Adventist Health St. Helena in California, which was evacuated twice within five weeks due to wildfires in 2020.[8]

ILLUSTRATIONS BY STEPHANIE DALTON COWAN

Although the eye of the media has long since moved on from these communities, their health and well-being will continue to be affected for months and years to come—as is illustrated by Hurricane Katrina's long-lasting effects on the communities of New Orleans.[9]

Worsening extreme weather events have short- and long-term health impacts. Floods increase the risk of waterborne illness and cutaneous and respiratory infections.[10] Mold growth following floodwaters can cause headaches and irritation of the eyes, nose, and throat; it can also aggravate lung conditions such as asthma and heighten the risk of lung infections, particularly in individuals with weakened immune systems.[11] Wildfire smoke, containing respiratory irritants from burning vegetation and toxic chemicals from structures, can harm lung and heart health even far from the fire.[12] Extreme heat increases the risk of exhaustion, heat stroke, and death, particularly for those with chronic health conditions.[13] The month after a hurricane, mortality rates increase by an estimated 33 percent due to injuries, infectious and parasitic diseases, cardiovascular issues, respiratory conditions, and neuropsychiatric disorders, with the mortality rate remaining elevated for months.[14] Hurricanes also cause an estimated 14.5 percent more poor mental health days, including elevated stress, anxiety, depression, and substance abuse—impacts that have been shown to persist for at least *seven years* following a storm.[15] The surges in mental health diagnoses following extreme weather events and crises are seen not only for patients but also for the clinicians and staff who care for them.[16]

There are also social, economic, and political effects of extreme weather events and climate change that further impact health and access to care. Globally, extreme events related to climate change are estimated to cost $143 billion per year, primarily due to loss of life. Those costs are ultimately passed onto nations and the communities impacted.[17] And such events are among the drivers of climate migration; they influence the decisions of millions of people around the world to leave their homes and homelands each year, requiring communities—including health systems—to adapt.

Despite the wide-ranging consequences of a changing climate, there are tried and true ways to protect our health and healthcare systems. Some facilities have become much more prepared for the climate impacts they encounter—like Tampa General Hospital, which uses a temporary barrier that prevents flooding from swells up to 15 feet above sea level. The hospital has used this barrier successfully during multiple storms, including Hurricanes Milton and Idalia.[18] In this article, we discuss the threats of climate change to health and healthcare systems and what we can do individually and collectively to address them within institutions and through policy changes. As health professionals in the United States, we want to improve the resilience of our healthcare systems and our communities, and we want to mitigate the climate change–related health risks affecting our patients, our coworkers—every single one of us.

Climate Change and Healthcare

Climate change is a health crisis that affects not only individual morbidity and mortality but also society's ability to deliver healthcare and support healthy living. The World Health Organization (WHO) has called the climate crisis the greatest health challenge of the 21st century,[19] yet the severity of climate-related health risks is highly dependent on how well health systems can protect people.[20] Over the past 100 years, civilizations globally have relied on fossil fuels to propel development and growth, resulting in the carbon dioxide concentration in our atmosphere rising from around 280 parts per million (ppm) in the pre-industrial era to approximately 419 ppm today.[21] This chemical blanket has thrown our planet's delicate climate systems out of balance, leading to increasing temperatures and escalating extreme heat, intensification of extreme weather (e.g., wildfires, hurricanes, flooding), and rising sea levels.[22] Subsequent downstream climate exposures, such as degraded air, food, and water quality, and increases in vector-borne disease result in cascading negative health effects and healthcare disruptions.[23]

Rapid climatic changes are reshaping the United States in profound ways, impacting natural ecosystems, public health, infrastructure, and economic stability. A few examples:

- There are now more average flooding days across the United States.[24]
- New diseases spread by ticks and insects are appearing, such as the cases of dengue reported in Los Angeles for the first time in 2024.[25] Compared to the 1951–1960 average, in 2014–2023 the conditions suitable for malaria-causing *P. falciparum* and *P. vivax* increased by 39.7 percent and 32.1 percent in the United States. The length of US coastline suitable for the infection-causing *Vibrio vulnificus* increased by 50 percent between 2000–2004 and 2014–2023.[26]
- In the United States in 2021, there were approximately 125,800 deaths due to anthropogenic air pollution, with 39 percent attributable to fossil fuels.[27]
- Globally, 2024 was the warmest year to date,[28] and the United States is warming faster than the global rate, with a statistically significant increase in the frequency and number of heat waves compared to the 1960s.[29]

Rapid climatic changes are impacting natural ecosystems, public health, infrastructure, and economic stability.

Climate change and the associated health impacts are affecting every region of the United States while impacting vulnerable citizens—children, elderly, socially at-risk populations, Indigenous populations,

Hurricanes and wildfires affect the health and well-being of communities—and the health centers that serve them—for years.

individuals with disabilities or chronic conditions, outdoor workers, and pregnant people—the most.[30]

Furthermore, healthcare systems are directly impacted by climate change. Annually, trillions of dollars are estimated to be spent on global health costs related to climate change and air pollution caused by fossil fuels.[31] One extreme weather event alone can lead to billions of dollars in costs for a single healthcare system.[32] Extreme weather also causes disruptions in care through damage to essential systems—water and power lines may go down, roads may be impassable, public transportation may be limited, and supply chains may be cut off. And healthcare utilization changes, which requires health systems to respond dynamically. For instance, extreme events often result in surges in demand for emergency medicine services, which may result in prolonged boarding times, staffing shortages, worker fatigue, and poor patient outcomes.[33]

Healthcare systems in the United States not only are at risk from the impacts of climate change but also play a role in exacerbating the issue. These systems contribute to 8.5 percent of domestic US greenhouse gas emissions—primarily related to the purchase of goods and services rather than from direct emissions—and a quarter of all healthcare emissions worldwide.[34] Pollution from US healthcare is estimated to result in a loss of 388,000 disability-adjusted life-years per year,[35] competing with the annual number of deaths from cigarette smoking,[36] and above the 44,000 to 98,000 annual deaths in US hospitals as a result of preventable medical errors.[37] In keeping with the mission of healthcare and the time-honored oath to do no harm, the healthcare sector has ample opportunities to enact climate-smart healthcare through rapid and systematic reduction in the environmental impacts of its own activities. In 2023, the Joint Commission introduced guidelines aimed at reducing the environmental impacts of healthcare systems. However, due to significant resistance from health systems and the healthcare industry, the recommendations for monitoring and lowering emissions were made voluntary rather than mandatory for hospitals and health systems, ultimately limiting their potential effectiveness.[38] Strategies for moving toward a low-emission healthcare system would involve decreasing low-value care (like unnecessary diagnostic testing and procedures) and investing in preventive care to reduce the need for acute care, incentivizing the transition to a circular economy that minimizes single-use products and physical waste, and shifting toward a sustainable energy infrastructure.[39] Many of these strategies would reduce costs for payers, but most importantly, they would radically decrease the healthcare sector's contributions to the climate health crisis.

What We Can Do as Health Professionals

Health professionals and our organizations—including unions—occupy a critical position in the response to climate change.[40] First, health professionals are charged with protecting individual and community health in the face of multiple, new, compounding health risks that will become more complicated to address as time goes on. Clinicians will increasingly care for patients whose disease processes are caused or accelerated by climate change and will be tasked with counseling and treating these individuals as well as readying healthcare systems to cope with the increasing burdens of disease. Second, health professionals' institutional knowledge and collective voice, exercised through union organizing and membership as well as through professional associations, are indispensable in modifying health systems to become both resilient to climate threats and environmentally sustainable. As trusted members of our communities and of society, health professionals can also advocate for policy solutions inside and outside the health system.[41]

To protect health, now and in the future, we urgently need collective action to slow, stabilize, and reverse climate change by reducing greenhouse gas emissions while simultaneously addressing the current impacts on our patients, communities, and ourselves.

Individual Actions

First, to address the health impacts of climate change at the individual level, as health professionals we can learn to identify, treat, and communicate about climate-sensitive diseases and recommend protective measures to our patients. To do this effectively, there are multiple free resources for your climate health education, as well as learning opportunities with enrollment fees (see "Building Climate Health Knowledge" on page 31). Unions can support such education efforts by facilitating training for members, coordinating training through labor-management committees, and bargaining for continuing education reimbursement and paid release time. Additionally, certain organizations, such as the Alliance of Nurses for Healthy Environments,[42] have pledges to improve health professional education. By joining, you can serve as a liaison to help educate and empower your colleagues. By including a climate-health lens in our clinical practice, health professionals—nurses, dentists, physician assistants, physicians, and physical and occupational therapists, among others—can play a critical role in safeguarding individual and community health.

To help patients understand their specific risk profiles and increase resilience, health professionals can review patient-specific vulnerabilities and push healthcare administrators to evaluate and prepare their facilities. The Climate Resilience for Frontline Clinics Toolkit, which is available for free in English and Spanish at go.aft.org/z7i, offers reference documents and worksheets that clinicians can use with

patients to evaluate their specific health risks. For instance, the resources for clinicians and patients include a review of heat-sensitive medications[43] and a handout detailing recommendations by condition, such as that patients with heart disease should weigh themselves daily when it is hot out and know their target weight to avoid dehydration.[44] (The toolkit also offers resources for health system administrators related to accessing critical roles and responsibilities, preparedness guidance for the different climate shocks and slow-onset events, response actions to consider, and communication templates.)

Additional resources and guidance are available from WHO and the US Department of Health and Human Services (HHS),[45] including the Climate Resilience for Health Care Facilities Toolkit* (available at go.aft.org/uzc), to raise awareness of the individual-level actions we can take to improve resilience. Unions can support all of these practices by making resources available to members and offering support as members put them into practice. Don't forget that having your own emergency plan will enable you to help others.

Health professionals can also support decarbonization and improve clinical practice and personal sustainability. We can prescribe and advocate for access to medications with lower emissions than clinically comparable options. For instance, metered-dose inhalers in the United States generate annual greenhouse gas emissions comparable to the output of 500,000 gas-powered vehicles. In contrast, dry powder inhalers, which are often clinically equivalent, have a significantly lower carbon footprint and are widely used in other countries as a more sustainable, less-costly alternative—but some of the most effective options aren't available in the United States.[46] To advocate for access, you can sign the open letter to encourage AstraZeneca to make its Symbicort Turbuhaler dry powder inhaler available in the United States.[47]

As health professionals, we are also well equipped to emphasize the health benefits of emission reductions to patients,[48] highlight cost savings from sustainable practices, and evaluate how our specific field can reduce greenhouse gas emissions. For instance, we can consult the HealthcareLCA (life cycle assessment) database[49] or the Choosing Wisely database[50]—or go above and beyond and conduct a life cycle assessment ourselves[51]—to evaluate the sustainability and efficacy of common materials and procedures. Additionally, when conducting research, we should consider the environmental impacts of our study designs (including the use of technologies and computation methods with significant carbon footprints, such as deep learning models[52 †]). For example, one research group is including an environmental impact analysis in its randomized control trial on surgical and endoscopic removal of early colon cancer to assess the carbon footprint of the two interventions, along with standard clinical metrics.[53] Finally, individuals can personally decarbonize by using energy-efficient transportation and public transportation where possible, minimizing meat consumption, supporting sustainable food systems, using eco-friendly web browsers, such as Ecosia, and investing in renewable energy sources.

Institutional Actions

At the institutional level, health professionals can create and implement evidence-based protocols that protect patients from the health impacts of climate change. For example, we can develop heat stroke protocols to standardize treatment at our facilities.[54] We can foster interdisciplinary collaboration within healthcare systems to enhance education and awareness among staff of climate-vulnerable diseases and patients. Establishing "green teams"[55] or sustainability committees allows us to identify areas for improvement and track progress in achieving sustainability goals. For instance, at Stanford Medicine, the Green Anesthesia team successfully reduced the carbon footprint of anesthetic gases by removing desflurane; it also launched a recycling program and instituted reusable products in the operating rooms.[56] By advocating for institutional-level changes, we can not only make our own clinical practice more sustainable and aligned with climate health goals but also drive systemic transformations that benefit the broader healthcare ecosystem. (And if our employers resist these changes, we can engage our unions in negotiating them.)

We can also use our collective voice to encourage our institutions to implement policies that prioritize climate-resilient infrastructure, such as ensuring facilities are prepared for extreme weather events and equipped with energy-efficient systems. For instance, after extreme flooding at Texas Medical Center, the hospital system upgraded all its critical infrastructure to be above projected flood elevations and developed a long-term hazard mitigation plan that incorporates 42 sustainable design strategies aimed at mitigating the effects of future extreme weather events.[57] As climate impacts affect your hospital system, advocate for infrastructure investments that support improved resilience, including through bargaining for the common good.[58] Additionally, request to see the most recent climate resilience plan and healthcare vulnerability and adaptation (V&A) assessment at your hospital. If no V&A assessment

Globally, extreme events related to climate change cost an estimated $143 billion per year.

*This toolkit is available online as of March 20, 2025. If it is removed from the internet, email hc@aft.org to request a copy.

†To learn more about the equitable and ethical use of deep learning models such as clinical algorithms, see "Addressing Bias in Clinical Algorithms to Advance Health Equity" on page 20.

Our facilities should be prepared for extreme weather events and equipped with energy-efficient systems.

exists, there are frameworks[59] to help guide implementation at your institution.

To support decarbonization and sustainable practices, health professionals can advocate for our healthcare organizations to adopt specific practices, such as reducing energy use, transitioning to renewable energy sources, and improving waste management systems. We can promote environmentally friendly procurement policies to help minimize the environmental footprint of medical supplies and equipment. Additionally, we can advocate for and lead initiatives to reduce the climate and environmental footprint of our clinical practice,[60] through union activism and labor-management partnerships,[61] and by forming professional working groups across the organization. For instance, at the University of Pittsburgh, health professionals in Clinicians for Climate Action have reduced greenhouse gas emissions, and its various sustainability initiatives have resulted in significant cost savings for the institution.[62] We can also encourage our healthcare systems to be more ambitious than federal and state mandates. Penn Medicine, for example, is aiming for carbon neutrality by 2042.[63] Advocate for your hospital to complete a carbon baseline audit to determine areas where improvements can be most effectively made. If no office of sustainability exists to make such an inquiry, band together with your fellow union members or colleagues to write a letter to your executive leadership—like Clinicians for Climate Action did[64]—to start the process. By leading or supporting institutional efforts to monitor and reduce greenhouse gas emissions, you can contribute to creating more resilient healthcare systems while advocating for patient and environmental health.

Organizational and Society Actions

FEDERAL-LEVEL POLICY OPPORTUNITIES

Although the future of these policies is uncertain, there are some federal policies aimed at sustainability initiatives and reducing emissions that health professionals, organizations, unions, and professional societies can encourage healthcare systems to join. For instance, as of November 2024, 19 percent of US hospitals, including 960 private-sector hospitals, had signed on to the HHS Health Sector Climate Pledge.[65] Announced in 2022, the HHS pledge included a voluntary commitment to cut greenhouse gas emissions to 50 percent by 2030, reaching net zero by 2050; under the Biden administration, hospitals received support from the Office of Climate Change and Health Equity to meet these goals. (At the time this article was finalized for print, in March 2025, the HHS Climate Pledge website was removed; a nonprofit preserved it here: go.aft.org/c7y. Regardless of the state of national climate leadership, hospitals can still aim for the goals of the pledge—and unions and communities can still push hospitals to honor their commitments.) Separately, hospital systems can apply for the Joint Commission's Sustainable Healthcare Certification.[66] Hospitals earning the certification demonstrate their commitment to establishing healthy, sustainable systems for their communities. An alternative new voluntary option is the Centers for Medicare & Medicaid Services Decarbonization and Resilience Initiative.[67] We can encourage our health systems to take advantage of the Inflation Reduction Act's Investment Tax Credit to invest in solar power and save on energy bills,[68] and participate in the Administration for Strategic Preparedness and Response's Regional Disaster Health Response System, which is aimed at creating disaster resource hospitals that coordinate efforts across multiple hospital sites during emergencies.[69] Through advocating for these federal programs, we can encourage our hospital systems to join the green healthcare movement or even exceed federal mandates.

STATE-LEVEL POLICY LEADERSHIP

States are also proving to be fertile ground for climate and health innovation. They can act independently or supplement federal efforts (or the lack thereof) to decarbonize healthcare and other sectors while simultaneously building resilience. States can, for example, set their own ambitious greenhouse gas reduction targets and create incentives and regulations to achieve them. As of December 2024, 24 states and the District of Columbia had set specific greenhouse gas reduction targets, with many aligning their goals toward achieving net-zero emissions by 2050.[70] These states include major players like California, New York, and Washington, which have implemented comprehensive climate action plans to transition to cleaner energy, transportation, and industry. Additionally, some states have established intermediate milestones to ensure steady progress toward their decarbonization goals.

Healthcare organizations and healthcare unions can engage substantially on the state level to advocate for and advise on such policies. For example, the California Health Care Climate Alliance, a coalition formed by five of California's largest health systems (Kaiser Permanente, Dignity Health, Sutter Health, Providence St. Joseph Health, and University of California Health) was established to harness the expertise and credibility of the healthcare sector to advance public policies that will protect Californians from the harms of climate change, build public health resilience, reduce emissions from healthcare facilities, and support the state's climate goals.[71] Unions and professional organizations can play a pivotal role by lobbying state legislators to integrate health considerations into climate and energy policy. By framing decarbonization as a public health imperative rather than merely an environmental one, these organizations may be able to gain bipartisan support for action, even in politically polarized states.

PRIVATE-SECTOR PARTNERSHIPS

In addition to influencing public policy, health professionals and health systems can forge partner-

ships with private-sector organizations to advance sustainability goals. Collaborations with technology companies, renewable energy providers, and green building firms can help healthcare institutions reduce their carbon footprint while lowering operational costs. One notable example is the partnership between Boston Medical Center and local renewable energy companies, which led to the hospital becoming carbon-neutral while saving millions of dollars annually.[72] Such partnerships not only are cost-effective but also provide replicable models for other institutions to follow.

Health professional organizations can also work with (and unions can advocate for) pharmaceutical and medical device companies to prioritize sustainable practices in the production, packaging, and distribution of supplies. By leveraging their collective purchasing power, hospitals and healthcare systems can push the supply chain toward environmentally friendly solutions. Even small changes, like QR codes for electronic instructions instead of paper instruction booklets, can make an impact for widely used products.[73] The National Academy of Medicine launched the Action Collaborative on Decarbonizing the US Health Sector as part of its Grand Challenge on Climate Change, Human Health, and Equity. This public-private partnership unites leaders across healthcare—including hospitals, health systems, academia, industry, and policymakers—to reduce the sector's carbon footprint and enhance resilience. It emphasizes collaboration in areas such as supply chains, infrastructure, healthcare delivery, and professional education. The initiative aims to halve healthcare emissions by 2030 and achieve sustainability goals aligned with community health improvements.[74] Health professionals and organizations can join these efforts.

STRENGTHENING GRASSROOTS ADVOCACY AND PUBLIC ENGAGEMENT

Health professionals must also amplify their voices beyond hospitals and clinics. This is another venue for union activism in local communities and at the state and federal levels. Community education is essential to building public pressure for climate action. Initiatives such as town halls, op-eds, and public service campaigns can help individuals connect the dots between climate change and their personal health, galvanizing grassroots support for local and state initiatives. Unions and organizations such as the American Medical Association,[75] Health Care Without Harm,[76] and the Medical Society Consortium on Climate and Health[77] offer opportunities to amplify your voice. Additionally, training programs and leadership development initiatives can empower healthcare workers to become advocates for change.

We provide these resources and recommended actions in the hope that they will inspire you to take action to protect the health of your patients and your community. As the extreme weather events of the last several months have demonstrated, the time for urgent action on climate change is now. There are many opportunities and lots of support for conducting this important work. The next storm may come, but we don't have to wait for it to flood. +

For the endnotes, see aft.org/hc/spring2025/weinstein_thiel_sorensen.

We urgently need to reverse climate change while also addressing current health impacts on our patients, communities, and ourselves.

Building Climate Health Knowledge

Free resources:

Climate for Health's Ambassador training – ecoAmerica (go.aft.org/m7s)
Take this self-paced, four-hour training to become a climate ambassador in your workplace and community.

The Global Consortium on Climate and Health Education's climate and health responder courses – Columbia University Mailman School of Public Health (go.aft.org/dka)
Register for upcoming courses on a range of climate health–related subjects or take previous courses, like "Nursing on the Frontlines of the Climate Crisis: Education for Action." (Some are eligible for continuing education credit.)

HarvardX: The Health Effects of Climate Change – Harvard University and edX (go.aft.org/52t)
Enroll in a seven-week, self-paced course to learn how to address climate change's effects on health outcomes.

Climate change resources – *New England Journal of Medicine* (go.aft.org/9wh)
Read articles on various climate-related topics, including the health impacts of wildfires and extreme heat, managing climate-related health risks, and how academic health systems can drive sustainable climate action.

Diploma and certificate programs with enrollment fees:

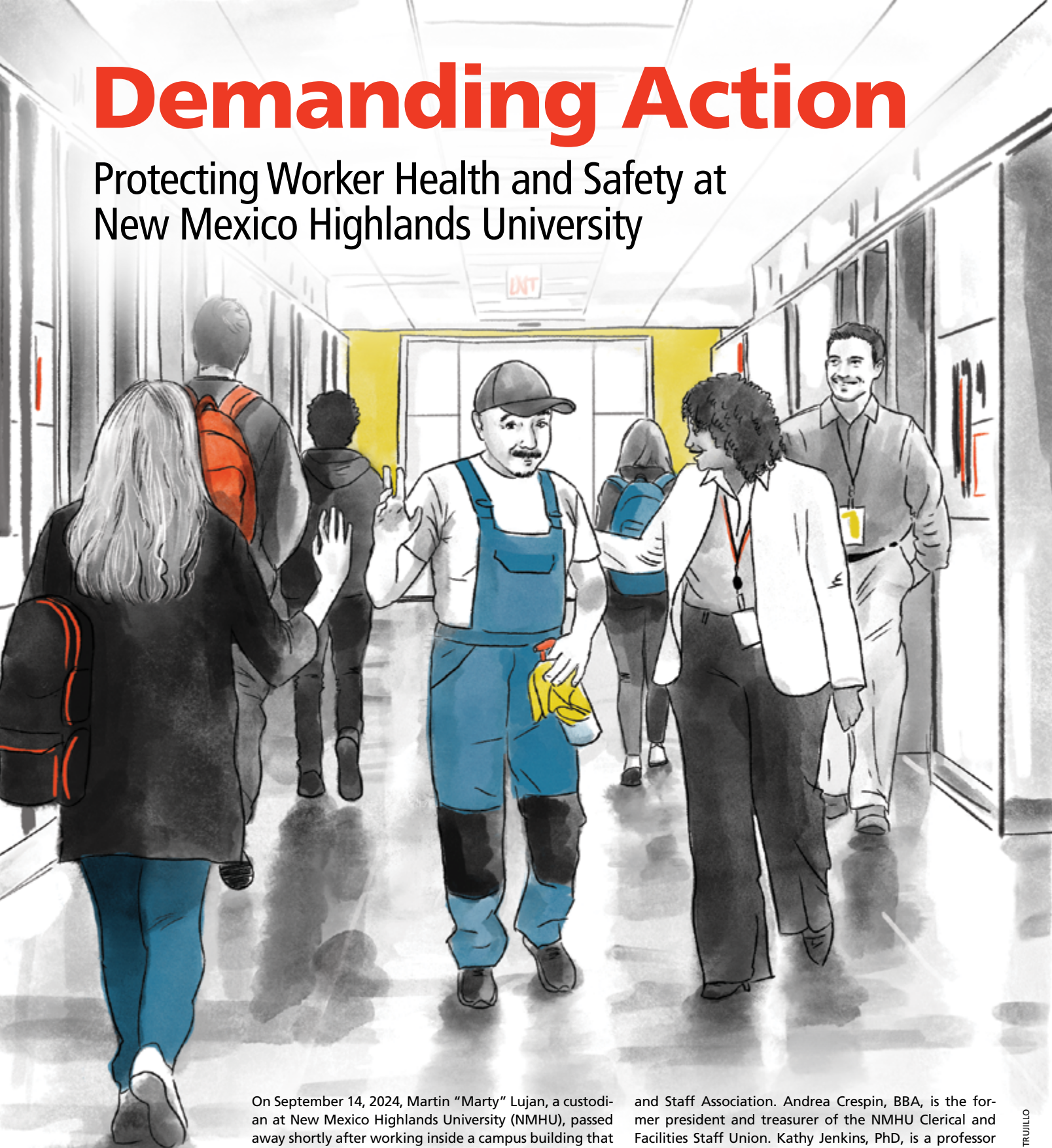
Diploma in Climate Medicine – University of Colorado Anschutz School of Medicine (go.aft.org/zjq)
Learn to advocate for policies that improve climate resilience and center patient care in this development program for health professionals.

Climate Change and Health Certificate – Yale School of Public Health (go.aft.org/mju)
Collaborate with health professionals from multiple fields and disciplines to learn to build community resilience and communicate effectively about climate change's health effects in this 21-week online course.

–H. N. W. W., C. T., and C. S.

Demanding Action

Protecting Worker Health and Safety at New Mexico Highlands University



On September 14, 2024, Martin "Marty" Lujan, a custodian at New Mexico Highlands University (NMHU), passed away shortly after working inside a campus building that had been closed following odors from chemicals that were not properly stored—setting in motion investigations into health and safety hazards on the campus that put students, staff, and faculty at risk.

To learn more about this tragic incident and how unions can protect workers in similar situations, we spoke with leaders and members of the NMHU Faculty and Staff Association. Andrea Crespin, BBA, is the former president and treasurer of the NMHU Clerical and Facilities Staff Union. Kathy Jenkins, PhD, is a professor of exercise physiology and the president of the NMHU Faculty Association. Michael Remke, PhD, is an assistant professor of forestry and a member of the NMHU Faculty Association. (For information on protecting workers from a broader array of hazards, we also spoke with occupational medicine specialists. That Q&A begins on page 37.)

–EDITORS

ILLUSTRATIONS BY GABRIELLA TRUJILLO

EDITORS: Tell us about your role at New Mexico Highlands University (NMHU) and in the union.

KATHY JENKINS: I'm a professor of exercise physiology, and I'm in my 29th year at NMHU. I came as a visiting professor and loved it so much that I just stayed. The university has a mission of open enrollment, and as one of the original Hispanic-serving institutions, NMHU has the values of diversity and access to education woven throughout the curriculum, so it's exciting to work here.

I'm also president of the Faculty Association, one of the three bargaining units of the NMHU Faculty and Staff Association. I represent approximately 100 tenured and tenure-track faculty, and I'm the lead negotiator for our collective bargaining team.

ANDREA CRESPIN: I was born and raised in this community. I graduated from NMHU in 2002 with my bachelor's in accounting and then came to work here. I currently work in the registrar's office. I got involved with the union in 2015. I have served as treasurer and president of the Clerical and Facilities Staff Union, the bargaining unit representing clerical and facilities staff. But I was promoted recently, so I'm not currently eligible to be a member of the union.

MICHAEL REMKE: I've been an assistant professor of forestry here since August 2023. I was attracted to NMHU because it's a teaching university where I could still engage in research, and this area is very affordable. I'm a member of the Faculty Association. This is my first unionized job. I had heard other people's opinions about the union, but I wanted to find out what it was like for myself. I've found it's a wonderful, supportive group of people who are really advocating for faculty and for employee wellness.

EDITORS: What led to investigations into health and safety hazards on campus?

KATHY: In July 2024, we started hearing complaints among the faculty that there was a foul smell in the Ivan Hilton Science and Technology Building, which houses a number of departments, including chemistry, biology, computer science, forestry, and natural resource management. We were told, "Oh, everything's fine," but people working in the building had a different experience.

MICHAEL: My office is on the first floor of the building, and the smell was like decaying flesh and chemical fumes. We learned that a walk-in cooler in the cold storage room had broken, and there were specimens that had gotten very warm as a result—and that there were unsorted and unlabeled chemicals being stored in that same room. We were told the issue was under control, but weeks later, the entire first floor again smelled strongly of death and chemicals. After a full day of class prep in my office, my eyes, throat, and lungs were burning. I had a headache, and my stomach was cramping.

When I called our Environmental Health and Safety Office and reported the smell, my symptoms, and that I was worried about improperly stored chemicals, I was directed to file a workers' compensation claim through human resources. It took several days for human resources to process any paperwork. (My claim was eventually denied; because handling chemicals isn't part of my job, the insurance company ruled that chemical exposure didn't happen while carrying out my "normal" work duties.) Meanwhile, the first floor of the building still had chemical fumes, and other workers also started experiencing symptoms.

KATHY: The administration responded incorrectly for many weeks. At first, they just put up caution tape to keep people away from that part of the building. That, of course, didn't help with the smells. Then, they tried to close one of the floors. But the smell went through the HVAC system to every other part of the building.

In August, another faculty member filed an Occupational Safety and Health Administration (OSHA) complaint about the chemical fumes. She spoke with OSHA's deputy director of hazardous waste, who ramped up a campus visit because of the previous complaints. At the same time, the university finally hired an abatement company, which came to campus on September 3, saw the cold room, and pulled the fire alarm. They refused to touch any of the chemicals because they were unlabeled and improperly stored. So the fire department came and closed the building immediately.

ANDREA: Unfortunately, although the building had been closed, we learned that the custodial staff was still required to work inside. We were also told that the custodial manager recommended custodians work in pairs so one could drag the other out if they passed out due to the fumes. Then Marty Lujan passed away on September 14, the day after he was assigned to clean the building.

After Marty passed, Kathy and I got a phone call that OSHA was on campus to do a walkthrough of the Ivan Hilton building as a starting point of its investigation into Marty's death and the chemical exposure. During the walkthrough, although we were given N95 masks, there was still a very strong chemical smell when the lab was opened. After being in that building for less than an hour, my throat hurt and I had a sharp headache. So I can only imagine what employees who spent eight hours a day in the building went through.

EDITORS: How did the union organize to address the problem?

KATHY: The union really pushed this issue to the forefront. I don't work in the building, so I didn't know what was happening until after Michael became ill and filed his workers' comp claim and the other professor

"After a full day ... in my office, my eyes, throat, and lungs were burning. I had a headache, and my stomach was cramping."

–Michael Remke

filed the OSHA complaint. When I learned about the problems, I spoke with them and immediately notified NMHU's president on behalf of the union. When we learned through another faculty member that Marty had passed, we again immediately contacted the president. The administration went into protection mode, but we were undeterred. We filed two grievances and went to the media about the issue.[1]

NMHU's president just joined our university in July 2024. Our Faculty Senate and Faculty and Staff Association worked together to bring about this leadership change by voting no confidence in the Board of Regents in May 2023.[2] The board was supporting a former president and provost who were ineffective and were hurting the institution. Our goal was to make the university a better place, and it took a public outcry for us to be heard. We got a new president and a new vice president of finance out of it—and we're getting a new provost soon. So, we came to this problem with the Ivan Hilton building knowing how to collaborate to accomplish our goals—and knowing that we would have to do everything we could to both support and pressure our new president to take the appropriate actions.

ANDREA: Our national unions, the AFT and National Education Association (NEA), were very helpful in organizing for some of the immediate changes we needed and strategizing more actions long-term. They came to campus in October, and a strategic group met with faculty and staff who worked in the building and collected stories of what had happened. The AFT and NEA jointly held OSHA-10 trainings to certify as many people as wanted to participate. And in November, the union filed a request for a health hazard evaluation with the National Institute for Occupational Safety and Health—that investigation is underway.

Our union's strategic group meets once a week to see what more can be done to keep workers safe. We also continue to let the staff know that the union is here to help if they feel unsafe in their jobs.

MICHAEL: The union made us feel heard. They organized and facilitated interviews with OSHA so that faculty and staff had representation and met with me to make sure that I felt protected against retaliation for speaking up. They held a vigil for Marty after he passed and advocated for faculty to get replacement offices and help with rescheduling things while the Ivan Hilton building was closed. They put pressure on the president to host a forum in December for open dialogue about everyone's collective experiences.

With more people contributing to the narrative, there was more recognition from the president that the administration needed to handle this. Things have moved really slowly, but in my opinion, the president has been stepping up and trying to do the best that he can. Unfortunately, he's depending on people who will not take action or hold themselves accountable. The union is showing clear support for the faculty and staff and getting the president to care, which can mobilize people, but we still need more support. We need more upper-level leaders to help with some of these processes.

KATHY: Ivan Hilton reopened on January 10 at the start of the new semester, even though NMHU still had steps to take to demonstrate compliance with the fire department and ensure that the building is safe. Some of the chemicals were still in the building. The abatement company has since been able to remove most of them, but so much material has been collected over the years without being properly disposed of that only a few hazardous waste companies in the United States can handle the volume. We're continuing to press the issue, and we'll continue to file grievances as necessary to get this handled. We're sending the administration the message that they need to be transparent and communicate, and they need to follow the law.

EDITORS: What factors do you believe contributed to this incident?

KATHY: People have known this building was a problem for years. When the Ivan Hilton building opened over 14 years ago, departments brought over almost everything from the storage of the old science building, even if they weren't using it. Many of the chemicals that made the move were unlabeled and/or expired and should've been properly disposed of. Instead, they've been kept in rooms that were intended only for short-term storage. The university kept citing financial difficulties as the reason for not disposing of the materials, but according to the research policy handbook we negotiated, the university is supposed to allocate 42 percent of grant funds for administrative costs, including hazardous waste disposal. That money has not been earmarked correctly. We need the university to start using those funds for what they were intended—to further our educational mission and to keep everybody safe.

When people raise an issue and ask for change for so long but keep being told "No," they become apathetic and finally give up, and I think that happened here. People stopped being so careful about storage and disposal because nothing was being done. When we walked the building with the OSHA investigators, we saw chemicals stored next to flammable materials and chemicals in unapproved containers and shoved onto shelves on top of each other as departments ran out of space because the university never disposed of these materials.

The investigation turned up other serious safety violations in the building and elsewhere on campus. In one building, human remains had not been stored properly. And the state police and New Mexico Environment Department's Hazardous Waste Bureau started to investigate the university's poor record-keeping for chemicals. Our collective bargaining agreement says

that the university must follow all state and federal health and safety standards, but it hadn't filed hazardous waste reports in years. And our safety manual says that we're supposed to have a safety officer who specifically works in this building to ensure everything is up to code, but there was none.

I think our systems infrastructure just eroded away over time, so we had no prevention or reporting mechanisms in place. It is the university's responsibility to create that system of support and infrastructure, and we have been pushing to get that in place.

ANDREA: That infrastructure eroded due to lack of training and accountability. For instance, there was a person who was in charge of keeping track of all the chemicals, but he was never properly trained for the job. He reported issues with the chemicals being unlabeled and improperly stored several times, but nothing was ever done. He became so fed up that he quit.

MICHAEL: To add to that, I learned that 11 years ago, the campus had a chemical hygiene officer who was in charge of chemical safety, handling, procurement, inventory, and so forth for the whole campus. This person was a chemist with a PhD who set up campus safety plans that should have been followed, but when they left the position, the university chose not to replace them.

The former director of the Environmental Health and Safety Office crafted chemical handling plans based on the chemical hygiene officer's work, but when that person left the university, the plans were forgotten. I found them on an archive of our website after arriving on campus and being shocked by the state of some of the labs. I immediately started correcting my lab based on the chemical handling plan, but the dean never disseminated the plan to department chairs so that other faculty could also make corrections to their labs. And importantly, the plans were never communicated or made accessible by the Environmental Health and Safety Office. Although they conduct inspections for fire code violations, they never once held anyone accountable for chemical handling or chemical hygiene violations, even though both were blatantly obvious in our facilities.

ANDREA: Another factor is that once people started experiencing issues because of the chemical storage and handling, they wouldn't report it—many times out of fear of retaliation. People were experiencing things such as confusion, nausea, headaches, vomiting blood, respiratory and intestinal issues, and other concerning symptoms. A few were reporting but their supervisors were ignoring them, so they ignored the issues themselves. For those who came to see me, I'd tell them to go see a doctor, but there was no master list of chemicals being stored in the building, which a doctor would have needed to know what to look for in their bloodstream. The university took a long time to release the chemical list, which was unfortunate.

MICHAEL: Some of the custodial staff in the Ivan Hilton building were not part of the union until a lot of this happened. They would tell me they'd been assigned to clean up a spill or move chemicals, and I'd advise them not to do it unless they were given protective equipment. But there were a lot of concerns that they were going to be punished or terminated if they didn't do their job. Fearing retaliation, they weren't comfortable going to their supervisor, and they weren't comfortable not doing what their supervisor had asked of them.

ANDREA: That fear is still there. When the building reopened, a custodian asked me if they had to go back to work because they were afraid to be in that building. Another told me that the nightmares they'd been having the last several months have only just stopped.

EDITORS: What do you want to share about Marty Lujan?

ANDREA: Marty was my friend. I met him when I was in high school, and my mom and I worked with him before we came to NMHU. He was very outgoing; he always had a smile on his face and was always willing to help. Every time I saw him, he would ask about my mom. He loved her so much.

The numbers of students and staff who came to Marty's memorial showed what an impact he had on our campus. This whole incident has been heartbreaking. His coworkers, who were with him every day, have taken it very hard. When I heard about all of this, I asked myself why he continued to work in that building. But I know he was fearful of losing his job. It's ironic, because he was the one always telling other people to go see their union rep for help, but he didn't come to me when he was ordered to keep working in the building.

MICHAEL: I saw Marty every single day that I was on campus, and he was such an amazing person. He was the first-floor custodial staff in Ivan Hilton and probably one of the brightest lights in the building. Not only was he always here at work, but he was so loyal and enthusiastic about doing his job. He was always going out of his way to make sure we had everything we needed. He knew his job was important because keeping the facilities clean and functional is how we keep things running. So it's been wonderful to see how many people care about Marty, but the circumstances are tragic.

KATHY: It's unfortunate when somebody passes away that you find out so much about them. I didn't work in the building, so I only saw Marty a few times. But it's been amazing to hear stories about what a wonderful, kind, and funny man he was. To hear the number of people he spoke to every single day. The outpouring of love for him has been tremendous.

"The administration went into protection mode, but we were undeterred. We filed two grievances and went to the media."

–Kathy Jenkins

"Join the union, join a bargaining unit, and let your voice be heard."

–Andrea Crespin

EDITORS: What are you advocating for to continue protecting workers?

ANDREA: We have seen some important changes made. For instance, the university hired a new environmental health and safety officer, and that officer and their staff have been given training. We also have staff members in the Ivan Hilton building who are in charge of chemical stockrooms and who will be creating a centralized database for material safety data sheets, hazardous waste tracking, and chemical tracking. And in September 2024, 30 members of our facility staff were certified in OSHA-30 training because they were out of compliance.

Now we are pushing for continued work safety training for staff, because that's an area that has been neglected. I know of one custodian who worked here for eight months and didn't know she wasn't supposed to touch certain chemicals because she was never properly trained. And one thing the OSHA officials noted right away was that the chemicals our custodians use to clean were not properly labeled. So our staff needs training, and the university needs to communicate training opportunities properly. When the hazardous waste management training and the OSHA-10 training were scheduled, the staff received notification just one day prior, yet the custodial staff was told it was mandatory to attend.

MICHAEL: Importantly, those trainings need to have paper trails for accountability. With much of what we've been advocating for, the administration has tried to hand it off to us to implement, but the faculty union is going to keep pushing for administration-based roles to track and implement trainings, disseminate information, enforce rules and policies, and create systems of accountability. Right now it's both-and—we are fighting for the administration to fulfill its obligations, and the union also continues to facilitate the trainings the law requires to keep workers safe.

We will also be pushing for the university to release the full chemical manifest list of all the 4,000-plus chemicals that were removed from the building as well as the results of the comprehensive air quality testing they recently conducted to determine the building was clear to reopen. And as Kathy said, there are still tasks the university needs to complete to keep the building open and operating safely.

From there, it's going to be up to faculty to handle things properly in their labs and up to custodial managers to make sure that custodians have the proper protective equipment for mixing and handling their cleaning chemicals. We now have a chemical safety committee that helped develop new chemical handling protocols, and we have very strict chemical handling requirements and policies from the New Mexico Environment Department to ensure regulatory compliance. I feel much safer in the building now that we have working emergency showers and eye-wash stations, a weekly inspection plan for emergency equipment, and a new chemical hygiene officer to oversee chemical handling. We're working with him to address ongoing issues with mishandling and with legacy waste that may have been missed in the cleanup. Plus, because of the volume of hazardous waste involved, we're required to have relevant staff receive hazardous waste training from the Environmental Protection Agency; it's mandated that those staff have spending authority for emergencies with no preapproval requirements.

So now we have established channels to prevent students, staff, or faculty from becoming ill—or worse. I hope that we can create a culture of safety on campus where people learn that "If you see something, say something." But I genuinely trust that the vast majority of faculty and staff are here trying to do their jobs with care, and I am stoked to be able to teach some lab techniques again and trust that my students and I are in a safe environment.

KATHY: The university is stepping up, so we are seeing good things come out of this effort to revamp our safety and hazardous waste practices. When we uncovered safety issues with other buildings and the union notified the president, he acted immediately to ensure people had the resources to put safety practices in place. We want to continue to see health and safety conditions improve throughout the campus.

We want to be a partner with the university in helping create a good, safe infrastructure, and we want NMHU to be known as one of the safest places in the world. According to the environmental safety report from the New Mexico Environment Department, the campus had 16 critical violations.[3] We need to do our part to start following the rules, but at the same time we don't want to let the administration off the hook. As Michael said, without accountability, we can't move forward. So that's a part of our grievance.

We want to get more of our faculty and staff involved in this work, but we're also fighting some anti-union sentiment on campus and tactics intended to whittle down our bargaining units and prevent staff from being represented. We should have about 400 members in our units, but we have just 250. So we need to get all those positions back in to help push our agenda forward.

And we need to help our faculty and staff who are experiencing acute and chronic effects of the chemical exposure. We want to bring occupational medicine practitioners—who are rare in New Mexico—to campus so that faculty and staff can get answers and the medical treatment that they need. Access to these clinicians, along with access to the chemical manifest list, could give people more direction and insight into what's happening to them, and it could help them better protect themselves and their families.

EDITORS: What do you wish you had known? What would you tell others facing similar situations?

MICHAEL: My biggest regret is that we did not successfully mobilize the university to get people tested

immediately after chemical exposure. Now it's too late; most of the chemicals are out of the building and have been metabolized in people's bodies, so there's no way to test all that we were exposed to. I wish I'd had a better understanding of what state- and national-level union resources were available to help us push for testing.

I also wish that our union had formed a subcommittee specifically to figure out all the needs, including staff representation, across all units. I think sometimes our units get a little siloed, and we could get much more work done quickly by working together. We did a lot of things well, such as getting details to the public about the situation when the university was not being transparent. Unions are such a powerful tool—especially when they are well versed in things like whistleblower protection laws. When we were all scared, the union made us feel safer. I don't think I would've gone to the press if I didn't have union support.

ANDREA: We've tried very hard to let our clerical and facility staff know that the union is here to help. That is our main goal. We want to make sure that they feel safe in their work environment. And that's what I'd want to tell anyone else in this type of situation. Join the union, join a bargaining unit, and let your voice be heard.

KATHY: I think the biggest lesson I learned through this is to use small things to build union power. If you engage members and create a ruckus on the small issues, you create power to make long-term change, and you'll have more power in the future. For us, one of those small things was going to the press. The president didn't want that to happen. But why wouldn't we? The situation was atrocious. A member of our NMHU family died. We're never going to let them forget.

As union members, we are always fighting for justice. Being a part of bringing justice to this campus has been one of the most uplifting accomplishments of my life. And with the AFT's support, people are feeling more power and starting to shake off the apathy of the past. We're seeing that together we can make change, and that is energizing. ✚

For the endnotes, see aft.org/hc/spring2025/crespin_jenkins_remke.

Protecting Workers

Lessons from Occupational Medicine

Marty Lujan's death was tragic—and likely preventable. To learn essential lessons for worker protection, we spoke with three occupational medicine experts. Robert "Bob" Harrison, MD, MPH, a specialist in occupational medicine, founded and is senior faculty with the University of California San Francisco Occupational Health Services. He served on the California Occupational Safety and Health Administration Standards Board and also directs the California Department of Public Health's worker tracking and investigation program. Joseph "Chip" Hughes, MPH, served as deputy assistant secretary for pandemic and emergency response at the Occupational Safety and Health Administration in 2021. For 31 years, he was the director of the National Institute of Environmental Health Sciences Worker Training Program. Currently, he is a senior policy advisor to MDB, Inc. Before retiring, Katherine "Kathy" Kirkland, DrPH, MPH, served as the executive director of the Association of Occupational and Environmental Clinics, where she spent three decades. She also served as an adjunct assistant professor in the Department of Public Health Nursing at the University of North Carolina at Chapel Hill.

For more information and resources on a range of topics, including asbestos and chemical exposure, indoor environmental quality, and safe laboratories, visit aft.org/health-hub. You can also email the health and safety team directly at 4healthandsafety@aft.org.

–EDITORS

(continued »)

> **"Finding out what chemicals are present in the workplace is a right of every worker."**
>
> **–Bob Harrison**

EDITORS: How did you get involved in occupational medicine?

BOB HARRISON: When I was a medical student in the late 1970s, I learned about occupational medicine by working with Tony Mazzocchi, who was the national head of safety and health at a chemical workers union.[1] Union members at a factory were exposed to several toxic chemicals and were suffering from liver damage—but they didn't understand what was causing it. The doctors in the area didn't understand the complex chemicals used in this factory or how they could affect the liver. I researched the problem and worked with the local union to provide training so everyone understood the connection between their liver problems and those toxic chemicals.

After I graduated from medical school, I went to the University of California San Francisco, which at that time had one of the few training programs for doctors in occupational medicine. Now there are about 20 of these programs around the country.[2] Once I finished my training, I became a faculty member. Now I train specialists like me—two to three per year—and they diagnose and treat patients with me. My union relationships have been my inspiration in the field. I appreciate being able to make a difference for workers in many different unions.

KATHY KIRKLAND: I got started in 1990 when I became the administrative assistant for the Association of Occupational and Environmental Clinics (AOEC). We had a whopping staff of two and were fortunate to have a very active board of directors—including Dr. Bob Harrison. When the AOEC was formed, the American College of Occupational Medicine was mainly corporate focused and didn't address environmental issues, though it later became the American College of Occupational and Environmental Medicine, which we at AOEC always like to attribute to AOEC's influence. The AOEC has always been involved with public health and been pro-worker, as opposed to pro-company.

Occupational medicine remains a very small specialty. This year (2024–25) is the first in which it will be part of the National Resident Matching Program.[3] Occupational medicine requires a one-year clinical residency in a clinical specialty and then two years of specialty training.

CHIP HUGHES: I was a student activist searching for a labor- and worker-based career as an organizer. The day after I graduated from college, the United Mine Workers sent me to Harlan County, Kentucky, to support coal miners striking against Duke Power Company as part of the Black Lung Movement. After that, in the mid-1970s, I got involved with a group of people to develop the Brown Lung Association focused on cotton textile workers—they were a forgotten, downtrodden group of people.

Arend Bouhuys, an occupational medicine physician from the Netherlands, came to the United States in 1962 because he wanted to investigate the presence of byssinosis, or cotton dust disease.[4] His work became a North Star for documenting a problem that no one was acknowledging. Occupational medicine is like being a disease detective. You can't see someone's alveoli being destroyed in their lungs or tumors growing until it's too late. And even when the disease is undeniable, attributing it to the workplace is difficult. Bouhuys's studies and our years of working together resulted in an Occupational Safety and Health Administration (OSHA) Cotton Dust Standard in 1978.[5]

EDITORS: What are some of the challenges of occupational medicine?

KATHY: Traumatic workplace injuries are pretty easy to diagnose, but workplace illnesses and cumulative injuries such as carpal tunnel syndrome are much more difficult. This is where occupational medicine physicians are key because of their in-depth training in epidemiology, ergonomics, and toxicology, including low-dose chronic exposures.

A critical part of being in the occupational health field is making patients aware of their risks on the job. You can't let them seriously endanger their lives, so you focus on education and supporting workers' choices. For example, you can't tell a painter, "Your lead level is too high, so you're going to have to quit work for however long it takes to get your lead levels down. And in the meantime, I don't know what you're going to do for work." But you can teach painters how to limit their exposures, such as by washing their work clothes separately and using respiratory protection.

In order to get younger physicians interested in occupational medicine, you need leaders, like Bob, who advocate for it. Occupational medicine does not provide a lot of income to a hospital or clinic, and taking a good occupational medicine history requires about 45 minutes. Medicare, Medicaid, and other forms of insurance aren't set up for that.

Given how few medical schools offer occupational medicine and the payment structure barriers, one challenge is the lack of occupational specialists. In areas with no trained occupational physicians or nurses, workers depend on clinicians who are willing to connect the dots. But physicians typically have 15 minutes per patient—that doesn't leave time for asking about issues at work. So it's important for union members to bring information to clinicians. Have several women working in one factory given birth prematurely? Are multiple workers in one section of a plant experiencing headaches? Unions are well-positioned to gather such information and raise red flags. Sometimes there's a problem, and sometimes these are just coincidences. Clinicians are needed to help figure out whether coworkers are at risk.

BOB: I'll add that the complexity of occupational medicine is an inherent challenge. If workers are concerned about toxic chemicals, for example, they first need to understand what the toxic chemicals are. Each individual chemical can be toxic or cause harm, and combinations—like the mixtures in many brand-name chemicals—can be even more harmful. Finding out what chemicals are present in the workplace is a right of every worker under an OSHA regulation called the Hazard Communication Standard issued in 1985.[6]

When it comes to complex chemicals, the amount of available information varies significantly. The Safety Data Sheets (SDS), which are required by OSHA to be available to everybody in the workplace, are a great place to start looking. But sometimes the SDS is incomplete, so the next step is contacting a doctor or a toxicologist who has knowledge of the health effects of those chemicals.

Let's say somebody's concerned about a problem with their nervous system; they are experiencing frequent headaches and tingling in their arms and feet that they think might be from nerve damage. They go to their regular doctor and bring the SDS for the chemical they're working with. Their regular doctor may not know much about that chemical. Even a neurologist may not know—doctors generally have only one or two hours of training in occupational medicine. So, I highly recommend that an occupational specialist gets involved if more investigation is needed. But, as Kathy explained, we don't have enough specialists.

CHIP: I was nearly 40 when I went to work for the National Institute of Environmental Health Sciences, a federal agency that looks at the way the environment affects our bodies, our organs, our systems, our genes. My focus has been on developing education training programs for workers in hazardous situations, including the Exxon Valdez spill, the World Trade Center cleanup after 9/11, Hurricane Katrina, Ebola, and COVID-19.

It feels like we've barely scratched the surface in creating a medical and public health infrastructure that can serve workers in a world so full of hazards. One would think it would be really easy to rally majority support for protecting people who risk their lives on behalf of everybody else. But sadly, that hasn't been the case.

Occupational medicine takes place in the fraught battleground of labor and management. A lot of the fight around occupational and environmental diseases centers on causation and liability. And in the case of workers' compensation for occupational diseases, instead of going to the hospital and getting treatment, workers have to file a claim to figure out whether their treatment will be covered by their insurance and whether their harm is compensable. The litigious nature of occupational disease is an impediment to getting the necessary care.

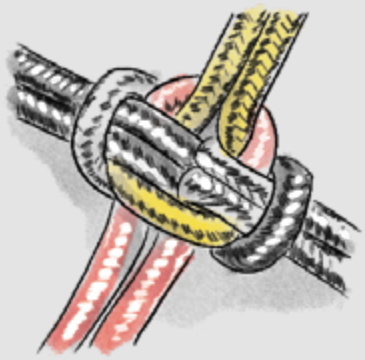
To resolve this, we need a national healthcare system that integrates occupational medicine and environmental medicine. Workers shouldn't have to hire a lawyer, an industrial hygienist, and an epidemiologist to prove workplace-caused harm in order to be eligible for treatment. Many other wealthy countries, such as Canada[7] and England,[8] have integrated healthcare systems that cover everyone, so their workers don't have delays or added costs in accessing care for work-related problems.

KATHY: I agree. If you look at the systems in Sweden[9] and France,[10] as well as Canada and England, they are so much better than what we have in the United States.[11] We have higher infant mortality, higher maternal mortality[12]—so many issues, and yet our system is not designed to put time and money into preventive care or even basic treatment.[13] We need to get away from paying for procedures and start paying for prevention and treatment of chronic disease.

EDITORS: How can unions help protect their members and all workers?

BOB: The most important thing unions can do is ensure workers know their rights. Workers have the right to a healthy and safe workplace under the General Duty Clause of the Occupational Safety and Health Act.[14] It covers all safety and health hazards—anything from a machine that has a rotating blade that's not guarded to a roofer who is not connected by a safety rope, a construction worker on a ladder, or ergonomic hazards (such as from repetition, where doing something over and over again causes wear and tear on muscles, nerves, and tendons and can eventually lead to permanent injury).

Although OSHA requires the employer to measure hazards and correct them immediately, in my view unions ideally would have their own capacity to measure—or at least warn of—hazards. At minimum, unions should bargain to ensure they have a union representative involved in evaluating and correcting hazards.



OSHA was created to protect workers, but it's important to provide training and support so workers feel safe making complaints. That's a key role for unions. Under OSHA law, the employer cannot retaliate against somebody for filing an OSHA complaint—and complaints are confidential—but many workers are hesitant and need support.

"With collective action ... we can create a world where no one has to sacrifice their health for a paycheck."

–Chip Hughes

CHIP: For the last 30 years, I've preached that each organization needs to have its own emergency response capacity, which may involve protocols, procedures, plans. It may involve having staff experts to call on, knowing who to call, or at least knowing who knows.

How you prepare your organization to live in our world of risk needs to be something that leadership takes seriously. In the union context, that's a challenge for the labor movement and for each local. How do you think about health and safety within your organizations—your union and your employer?

> **"Don't be afraid to speak up and talk to your colleagues and union steward. See if you share any symptoms or concerns."**
>
> **–Kathy Kirkland**

KATHY: I'll add a message for workers: Don't be afraid to speak up and talk to your colleagues and union steward. See if you share any symptoms or concerns. If you're a union member, you are fortunate because you can complain to somebody. It's the undocumented workers who are living hand-to-mouth who have nobody to complain to. And if they do complain, they're fired.

EDITORS: Let's turn to Marty Lujan's tragic death. What lessons should we learn to prevent future tragedies?

BOB: The first step in a situation like this is to intervene at the very beginning—the longer somebody is exposed, the greater their risk. There should be a response plan in place, including a comprehensive inventory of the chemicals someone could be exposed to, whether there are chemicals being used, old chemicals being stored, or new chemicals being ordered.

In addition, there should be an environmental health and safety department that must review each chemical and grant permission for it to be ordered, used, or stored. That department shouldn't prevent research from being done, but it must prevent students, custodians, janitors, and others from being exposed to those chemicals. There should also be a health and safety committee with a clear reporting system for anyone who has potentially been harmed—and the reporting system should specify who is responsible for responding immediately. If exposure or harm is happening, the health and safety committee must take it seriously and ensure that all other responsible parties take it seriously.

Unions need to advocate and bargain for an effective health and safety committee so that workers know they have a pathway for reporting, their concerns are heard, and the employer will meet its responsibility under OSHA to respond. In some cases, the right thing for the employer to do is contact OSHA to get help addressing the problem. And, if the employer doesn't do that or otherwise solve the problem, the union or any individual can contact OSHA.

Especially with chemical exposure, as an occupational medicine specialist, I always advise erring on the side of caution. You may not be sure there's a toxic chemical involved, but stop the exposure and do an investigation. If you have an effective environmental health and safety department and an effective health and safety committee, these investigations can be done quickly. If you don't have them, then it's time to take collective action to first stop the potential exposure and then establish these necessary safeguards and procedures.

For expert support, turn to one of the 18 Education and Research Centers around the country funded by the National Institute for Occupational Safety and Health. They all have specialists in occupational medicine, toxicology, and industrial hygiene as well as worker outreach and education arms.

CHIP: I've spent my career in chemical emergency response. The worker trainer in me would say that every worker in every workplace should have emergency response preparation—much like what Bob described. Every worker should know not to enter a potentially hazardous site and who to call to begin evaluating the site. No one who's not a trained professional should respond to a chemical leak in a workplace unless it's been characterized, meaning that you know what chemicals are involved, how lethal they are, and what protection is needed.

Ideally, workplaces would have someone on staff with the appropriate level of expertise, like an industrial hygienist or an occupational physician or nurse, so that there is some emergency response capacity. But in most cases, employers rely on local fire departments, including volunteer firefighters in rural areas; they often don't have the expertise or the equipment needed for an adequate response.

Over the past several decades, the United States has developed an infrastructure of trained HAZMAT technicians—think of firefighters in moon suits. But that infrastructure is mainly in urban areas and in big companies. Our chemical emergency response structure across the country is a patchwork.

To improve our national capacity, I think we need three things. One, having the awareness in the workforce of how to protect yourself. Two, having the infrastructure everywhere so that even rural counties have the capacity to act while protecting emergency responders. Three, having the expertise in occupational medicine throughout the country to determine when there are health hazards and to warn people about them.

As we look to the future, we must honor the struggles of those who came before us while building a movement that is bold, inclusive, and adaptive. The fight for worker health is far from over, but with collective action and a commitment to justice, I believe we can create a world where no one has to sacrifice their health for a paycheck. ✚

For the endnotes, see aft.org/hc/spring2025/harrison_hughes_kirkland.

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