

# IMPACT

Discoveries Making a Difference

## IDENTIFYING A CRITICAL MARKER OF HEART HEALTH

**HOW WELL SOMEONE SCORES ON THE AMERICAN HEART ASSOCIATION (AHA) “LIFE’S ESSENTIAL 8” LIST OF HEART-HEALTH FACTORS IS A STRONG PREDICTOR OF THEIR RISK OF DEATH.** The list includes healthy diet, physical activity, and sufficient sleep, plus managing weight, blood pressure, cholesterol, and blood sugar—and of course not smoking. Now researchers at Columbia Mailman School have found that adding a ninth metric—psychological health—is an even stronger predictor of risk of death from all causes, including cardiovascular disease.

“Positive mental states such as optimism and a sense of purpose are linked to better heart health, whereas depression is linked to higher risk for cardiovascular disease,” says senior author Nour Makarem, PhD, assistant professor of Epidemiology. (Makarem

also led research that contributed to sleep being added to the AHA’s list.)

The new study was led by a Columbia Mailman School alumna, Vanessa Dinh, MPH ’23. In a sample of more than 20,000 U.S. adults with an average age of 48 years, the team investigated the association of mortality with Life’s Essential 8 (diet, sleep health, physical activity, nicotine use, body mass index, blood glucose, blood lipids, and blood pressure) plus a measure for psychological health and well-being. The study showed that having a high versus low cardiovascular health score, plus a good psychological health metric, was associated with up to 70 percent lower all-cause and a 77 percent lower cardiovascular mortality risk. These associations were stronger than those seen for the Life’s Essential 8 score alone.

“We found that even a simple two-question depression screener could serve as a feasible proxy of psychological health in a clinic or public health setting, enhancing the heart-health construct,” Makarem says. Interestingly, a higher cardiovascular health score, along with good psychological health, was associated with lower mortality risk in both sexes as well as in Black and white adults, but not in Hispanic adults. The ninth metric was an especially helpful predictor of risk among Black adults and women. “Screening for depression and addressing psychological health and well-being may have far-reaching effects for promoting cardiovascular health and extending lifespan,” says Makarem. Perhaps the AHA will eventually move on from “Life’s Essential 8” to “Life’s Necessary 9.” ●



## WHEN POLITICS POSES HEALTH PROBLEMS

**AMERICA'S POLITICAL POLARIZATION DOESN'T ONLY MAKE FOR AWKWARD THANKSGIVING DINNERS.** It also exacerbates health risks, according to an analysis of more than 100 papers and reviews by researchers at Columbia Mailman School of Public Health, New York University, and Syracuse University. Political polarization obstructs the implementation of legislation aimed at keeping Americans healthy, to be sure, but it also discourages individual action to address health needs, such as getting a flu shot, and boosts the spread of misinformation that compromises citizens' trust in health professionals. In their analysis,

the paper's authors examined a range of studies, which showed the following:

- As individuals move further from the political center—in either direction—there is a deterioration in trust in medical expertise and participation in healthy behaviors and preventive practices. Those who are more ideologically extreme than their state's average voter have worse physical and mental health.
- Polarization affects what health information people are willing to believe and shapes their actions. This may mean disregarding accurate information or believing misinformation.
- Political leaders may make matters worse by linking health behavior to partisan identity.
- Republicans were less likely to enroll in marketplace insurance plans through the Patient Protection and Affordable Care Act ("Obamacare") than were Democrats. These differences have been linked to excess sick days and higher mortality rates.
- As policy polarization has increased over time, so has the difference in lifespan and health across states. Americans who live in states that have more

progressive social policies live longer than those in states with more conservative policies.

- Political leaders expressed skepticism regarding COVID-19 prevention behaviors. Partisan elites and news sources subsequently amplified this belief. Gaps in vaccination rates between Republicans and Democrats then widened.

"Public health agencies need to work with trusted voices and leaders, be proactive at sharing information, engage questions, and not write off concerns as irrelevant," says Kai Ruggeri, PhD, professor of Health Policy and Management and one of the paper's authors. "In a time when some people look less to doctors and more to prominent figures for health information, the best steps involve engaging directly with those voices." The study's authors also suggest communicating information about how many people follow public health guidelines instead of focusing on people who fail to follow them, and using trusted religious, athletic, and military spokespersons as public health messengers to lessen the harmful health effects of polarization. ●



## MICROMOBILITY, MAJOR RISK

**THE RATE OF E-BIKE INJURIES ALMOST TRIPLED BETWEEN 2019 AND 2022** and powered scooter injuries increased by 88 percent, according to a study published in the *American Journal of Public Health*. "Legislation is lacking on where micromobility devices can be ridden and regulations that restrict riding these devices while under the influence of alcohol or other recreational drugs is inconsistent and historically difficult to pass," notes first author Kathryn Burford, PhD, a postdoctoral fellow in Epidemiology. "Our results underscore the urgent need to improve micromobility injury surveillance and to identify strategies for cities to improve safety."

### TICK TALE

**LYME UPDATE** The Tick-Borne Disease Capture Sequencing Assay developed at the Center for Infection and Immunity can distinguish between the Lyme bacterium and all other tick-borne pathogens. The team is now working on making it more sensitive, affordable, and compact.

# IMPACT

## EARLY EDUCATION OFFERS BONUS BENEFITS

How much does education actually sharpen the mind? A study published in the *Journal of Human Capital* may help settle this long-standing debate by comparing 20 years of data on siblings in Indonesia. Led by Yuan S. Zhang, PhD, assistant professor of Sociomedical Sciences in the Robert N. Butler Columbia Aging Center at Columbia Mailman School, the research reveals education's impact on adult cognition—particularly for people from disadvantaged backgrounds.

Each additional year of education completed during the first nine years of schooling nearly doubled adult quantitative and abstract reasoning skills. Children of less educated mothers saw a large cognitive gain from basic schooling compared to peers with more educated mothers, but the benefits diminished at higher levels of their own education. In contrast, among children of more educated mothers, the cognitive benefits of education were more consistent across all levels of education.

Decades after participants left school, those with more education maintained sharper quantitative skills and abstract reasoning abilities. “Our study demonstrates education’s unique power to disrupt cycles of disadvantage,” says Zhang. “This lifelong dividend underscores schooling’s role not just in childhood development but in sustaining cognitive health across the adult lifespan. Early investments in education pay double dividends—stronger minds today and healthier aging tomorrow.”

## LOW-LEVEL LEAD POISONING STILL WIDESPREAD

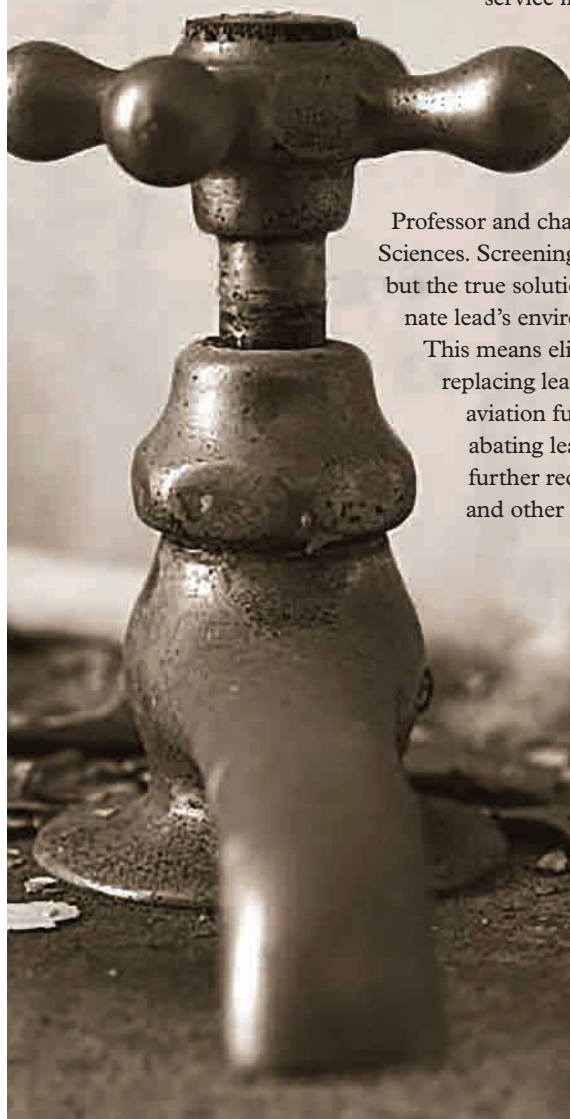
**LEAD EXPOSURE HAS DECLINED BY NEARLY 100 PERCENT SINCE 1970, BUT LEAD POISONING STILL HAUNTS US.** Chronic, low-level lead poisoning is a major risk factor for cardiovascular disease, kidney failure, and hypertension in adults and cognitive deficits in children, even at levels previously thought to be safe, according to a new study published in the *New England Journal of Medicine*. Lead is readily absorbed by rapidly growing infants. In adults, 95 percent of retained lead is stored in the skeleton and can be released during menopause or in response to hyperthyroidism, causing a spike in blood lead concentrations.

Exposures linger from lead paint in older houses, leaded gasoline in soil, seeping lead from water lines, and emissions from industrial plants and incinerators. Toddlers, especially those living in poorly maintained housing built before 1960, as well as people who drink tap water from lead service lines or live near airports or

pollution sites, are at highest risk. “The global burden of disease from lead exposure is staggering,” says study co-author Ana Navas-Acien, MD, PhD, the Leon Hess

Professor and chair of Environmental Health Sciences. Screening lead levels is important, but the true solution is to identify and eliminate lead’s environmental sources, she notes.

This means eliminating lead acid batteries, replacing lead service lines, banning leaded aviation fuel, reducing lead in foods, abating lead paint in older housing, and further reducing lead-contaminated soil and other longtime sources of lead. ●





## INTRINSIC HEALTH /in trinzik/ /helTH/

A new scientific framework proposed by researchers at the Robert N. Butler Columbia Aging Center, intrinsic health arises from the interaction of three essential biological components: **energy** (the fundamental requirement for life); **communication** (the system's ability to acquire and transmit information); and **structure** (the physical framework in which energy and communication support biological function and adaptation). Intrinsic health is quantifiable and tends to decline with age, making it a vital focus for aging research and preventive medicine. "Measuring it will allow us to focus on building, maintaining, and restoring health—not just preventing and treating disease," says Alan Cohen, PhD, associate professor of Environmental Health Sciences and a member of the Butler Columbia Aging Center.

## TELEHEALTH FUNDING NEEDS DIALING UP

Low Medicaid reimbursement for telehealth services in New York state could worsen a shortage of mental healthcare practitioners at Federally Qualified Health Centers (FQHCs). The centers provide badly needed safety-net care, and telehealth has many advantages for patients and providers. But when researchers conducted 56 interviews with leaders, clinicians, and staff at six FQHCs in New York City, the centers reported losing up to 40 percent of their mental health staff due to inadequate reimbursement and lack of remote work options. "In the face of potential Medicaid cuts and broader austerity measures, our study suggests that cutting telehealth reimbursements would exacerbate provider shortages, increase barriers to care for vulnerable populations, and lead to worse outcomes," says study co-author Sorcha A. Brophy, PhD, assistant professor of Health Policy and Management.



## VIETNAM VETS FACE CONTINUED CHALLENGES

Two major new studies reveal that veterans of the Vietnam War continue to have significant health challenges decades after their combat experience. The research is one of the longest observational studies of Vietnam veterans to date. "Combat exposure and PTSD were strong predictors of heart disease and other chronic illnesses in veterans, especially those who faced the most intense combat," says Jeanne Stellman, PhD, professor emerita of Health Policy and Management and co-author, along with Steven Stellman, PhD, professor emeritus of Epidemiology. Veterans who experienced higher levels of combat exposure were twice as likely to report heart disease as those with less exposure. Post traumatic stress disorder was also strongly associated with increased rates of arthritis (46.5 percent), sleep apnea (33.0 percent), and gastroesophageal reflux disease (23.5 percent).

The researchers also identified a form of PTSD where veterans' symptoms fall below the threshold for a formal diagnosis. Veterans with sub-threshold PTSD were found to have worse physical and mental health outcomes than those who never had PTSD. Veterans with sub-threshold PTSD are often ineligible for Veterans Affairs services coverage, and the researchers call for a more comprehensive approach to veteran care, one that considers the full spectrum of PTSD symptoms, including sub-threshold cases, and addresses both the psychological and physical tolls of combat. Says Jeanne Stellman, "This study provides crucial insights into the lasting legacy of the Vietnam War on those who served and underscores the urgent need for improved care."