

Biomedicine

Kathy A. Fackelmann reports from Monterey, Calif., at the American Heart Association Science Writers Forum

Hostility boosts risk of heart trouble

Anger, mistrust and aggression may be what it takes to get ahead on Wall Street, but research suggests it may be a ticket to an early death. Studies by Redford B. Williams Jr. of the Duke University Medical Center in Durham, N.C., and his colleagues suggest that high scores on a psychological test designed to measure hostility predict heart disease. High hostility scores also boost the risk of death from all causes, Williams finds.

His evidence is culled from several studies, including one that looked at 255 male physicians. The researchers found that doctors who had scored higher on a hostility test given during medical school were more likely to die during the 25-year follow-up period than were their more relaxed peers. Only 2 percent of physicians with low or average hostility scores died, while 14 percent of doctors with above-average hostility died during the same period.

A study of lawyers echoed those findings. Lawyers with the lowest hostility scores in law school had a mortality rate of about 4 percent, while 20 percent of those with the highest scores died during a 25-year follow-up study.

Many researchers in the 1970s believed that "Type A" behavior, characterized by hard-driving aggression and impatience, was a predictor of heart disease. But the theory has been challenged by a number of studies that failed to show a link between Type A personality and heart disease.

Williams believes hostility is the crucial component of the Type A personality and a potent predictor of heart trouble. Hostile people are more likely to meet daily challenges with large increases in blood pressure. Situations that annoy the average person may produce sharp increases in blood pressure and a surge of adrenaline in the hostile Type A person. Over the years, the hostile Type A individual may be placing a heavy burden on his or her cardiovascular system, Williams says.

Williams' advice to lawyers, doctors and other hard-driving types: Get rid of the anger and mistrust. People who trust others, he says, are more likely to live longer than the cynics of the world.

Progress in the fight against heart disease

Life-style changes such as healthier diets have helped people reduce their chances of having a heart attack. Yet cardiovascular disease remains the nation's leading killer, claiming an estimated 978,500 U.S. lives in 1986, the most recent year for which statistics are available.

The American Heart Association's annual summary of statistics shows a steady decline in cardiovascular disease. From 1976 to 1986, death rates from coronary artery disease fell 27.9 percent. Death from stroke fell 40.2 percent to 147,800 in 1986. Mortality rates from high blood pressure also continued to decline. High blood pressure affects an estimated 60,130,000 people in the United States.

The progress against heart disease can be linked to a number of factors, including public awareness. More Americans are trying to quit smoking and are eating low-fat foods, says American Heart Association science consultant William Thies of Dallas. Doctors have a wide arsenal of new methods to combat coronary artery disease, but the best approach is to try to prevent fat from clogging arteries.

Rheumatic heart disease, in which heart valves are damaged by an infection that starts with a strep throat, also has declined. The disease killed 6,400 Americans in 1986; in 1950, it claimed 22,000. Early diagnosis and treatment of strep throat with antibiotics have contributed to the progress.

The association estimates the cost of treating all Americans with cardiovascular disease in 1989 will approach \$88.2 billion, including the cost of hospital and nursing-home care as well as medication and loss of productivity.

Environment

A cure that's worse than the ailment

In their efforts to stamp out childhood lead poisoning, public-health policymakers have focused on environmental sources of the toxic metal — such as paint, gasoline and drinking water. But anthropologist Robert T. Trotter II, at Northern Arizona University in Flagstaff, contends these efforts have ignored a more insidious source of lead poisoning — one largely "hidden behind a cultural curtain." That source is folk medicine.

Several Mexican folk remedies use lead to treat common ailments — like *empacho*, constipation thought to be caused by eating a food at the wrong time, or by making children eat foods they don't like. Trotter's survey of 31 communities suggests that roughly half the Mexican-American households in Texas, New Mexico and Arizona treat this condition with any of nearly 100 traditional remedies. While lead-based treatments usually are not the first line of defense, he found families often administer several "fingertip"-sized doses of lead compounds daily when other *empacho* remedies fail. In fact, Trotter notes, lead cures constipation. Unfortunately, he adds, it also precipitates many hospital visits for acute lead poisoning.

"Our estimate is that as many as 10 percent of the children in the American Southwest have potentially been exposed to a toxic dose [of lead]," Trotter reported this month at a conference on advances in lead research, convened by the National Institute of Environmental Health Sciences in Research Triangle Park, N.C. And though intense education campaigns around 1984 got the lead compounds out of stores in Texas at that time, he says, "we've now got good evidence it's back: not on the shelves, but under the counter."

Hispanic communities are not lead's only advocates. Trotter says it's recently been identified as a folk remedy among Southeast Asian Hmong refugees, an aid to teething babies in Kuwait and Saudi Arabia, and part of African and Asian rituals to prevent umbilical-cord infections.

The costs of cleaning up DOE

The Department of Energy (DOE) has taken a lot of criticism in recent months for the management and safety of its aging defense facilities, which produce nuclear material for weapons (SN: 8/27/88, p.133). Last July, the General Accounting Office estimated that cleaning up DOE's defense facilities would cost about \$20 billion. Two new DOE reports suggest this estimate seriously understates the agency's defense-cleanup needs — perhaps by a factor of four. Moreover, these reports indicate that the 17 sites conducting DOE's defense work are far from the only DOE facilities in need of costly environmental cleanup.

One report charged with estimating the agency's environment, health and safety needs through the year 2010 found that 31 of DOE's 45 sites will need changes to bring air pollution, liquid discharges and trash management into compliance with existing federal laws. DOE figures those changes will cost \$7 billion to \$14 billion. Removing or stabilizing DOE's hazardous and radioactive wastes, now contaminating soil or water at about 37 sites, could cost \$64 billion more. Additional costs to manage the agency's radioactive wastes and to decontaminate and decommission inactive facilities (which had once handled nuclear materials) could add another \$13.5 billion to the tab.

The second report, estimating only what's needed to take care of the agency's defense-complex problems, indicates investments of more than \$80 billion may be required over the next 20 years — with almost \$30 billion for environmental cleanup alone. Most cleanup funds would go to three sites: the Rocky Flats Plant near Golden, Colo. (now scheduled to be shut down); and the Hanford Plant in Richland, Wash., and Fernald (Ohio) Materials Production Center (both slated to lose nuclear-materials production responsibilities).