

**Table B. Deaths and death rates for 2010, and age-adjusted death rates and percent changes from 2009 to 2010, for the 15 leading causes of death: United States, final 2009 and preliminary 2010**

[Data based on a continuous file of records received from the states. Rates are per 100,000 population. Rates are based on populations enumerated in the 2010 U.S. census as of April 1 for 2010 and estimated as of July 1 for 2009. Age-adjusted rates per 100,000 U.S. standard population are based on the year 2000 standard; see "Technical Notes." For explanation of asterisks (\*) preceding cause-of-death codes, see "Technical Notes." Figures for 2010 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Rank <sup>1</sup>	Cause of death (based on the <i>International Classification of Diseases, Tenth Revision, Second Edition, 2004</i> )	Number	Death rate	Age-adjusted death rate		
				2010	2009 <sup>2</sup>	Percent change
...	All causes . . . . .	2,465,932	798.7	746.2	749.6	-0.5
1	Diseases of heart . . . . . (I00-I09,I11,I13,I20-I51)	595,444	192.9	178.5	182.8	-2.4
2	Malignant neoplasms . . . . . (C00-C97)	573,855	185.9	172.5	173.5	-0.6
3	Chronic lower respiratory diseases . . . . . (J40-J47)	137,789	44.6	42.1	42.7	-1.4
4	Cerebrovascular diseases . . . . . (I60-I69)	129,180	41.8	39.0	39.6	-1.5
5	Accidents (unintentional injuries) . . . . . (V01-X59,Y85-Y86) <sup>3</sup>	118,043	38.2	37.1	37.5	-1.1
6	Alzheimer's disease . . . . . (G30)	83,308	27.0	25.0	24.2	3.3
7	Diabetes mellitus . . . . . (E10-E14)	68,905	22.3	20.8	21.0	-1.0
8	Nephritis, nephrotic syndrome and nephrosis . . . . . (N00-N07,N17-N19,N25-N27)	50,472	16.3	15.3	15.1	1.3
9	Influenza and pneumonia . . . . . (J09-J18) <sup>4</sup>	50,003	16.2	15.1	16.5	-8.5
10	Intentional self-harm (suicide) . . . . . (X60-X84,Y87.0) <sup>3</sup>	37,793	12.2	11.9	11.8	0.8
11	Septicemia . . . . . (A40-A41)	34,843	11.3	10.6	11.0	-3.6
12	Chronic liver disease and cirrhosis . . . . . (K70,K73-K74)	31,802	10.3	9.4	9.1	3.3
13	Essential hypertension and hypertensive renal disease . . . . . (I10,I12,I15)	26,577	8.6	7.9	7.8	1.3
14	Parkinson's disease . . . . . (G20-G21)	21,963	7.1	6.8	6.5	4.6
15	Pneumonitis due to solids and liquids . . . . . (J69)	17,001	5.5	5.1	4.9	4.1
...	All other causes . . . . . (residual)	488,954	158.5	...	...	...

... Category not applicable.

<sup>1</sup>Based on number of deaths.

<sup>2</sup>Rates are revised and may differ from rates previously published; see "Technical Notes."

<sup>3</sup>For unintentional injuries and suicides, preliminary and final data may differ significantly because of the truncated nature of the preliminary file.

<sup>4</sup>Expanded ICD-10 code J09 (Influenza due to certain identified influenza virus) was added to the category in 2009; see "Technical Notes."

NOTES: Data are subject to sampling and random variation. For information regarding the calculation of standard errors and further discussion of variability of the data, see "Technical Notes."

The age-adjusted death rate for drug-induced deaths declined by 4.0 percent from the final rate of 12.6 in 2009 to the preliminary rate of 12.1 in 2010. However, the final number of drug-induced deaths in 2010 may be substantially higher because information on cause of death in these cases is often delayed pending investigation. Additional information based on toxicology or autopsy reports is often not available in the preliminary file. The observed decrease in the age-adjusted death rate for firearm injuries (1.0 percent) and the observed increase in the age-adjusted death rate for alcohol-induced deaths (1.4 percent) were not statistically significant. Mortality from injury at work in 2010 was unchanged from 2009 (Table 2).

## Infant mortality

The preliminary infant mortality rate for 2010 was 6.14 infant deaths per 1,000 live births (see Tables A and 4). This represents a decrease of 3.9 percent from the final 2009 rate of 6.39. With the exception of 2002 and 2005, the infant mortality rate has statistically remained the same or decreased significantly each successive year from 1958 through 2010 (14,32). The neonatal (i.e., infants aged less than 28 days) mortality rate decreased 3.3 percent from 4.18 per 1,000 live births in 2009 to 4.04 per 1,000 live births in 2010. The postneonatal (i.e., infants aged 28 days–11 months) mortality rate decreased by 5.4 percent from 2009 to 2010.

The 2010 preliminary infant mortality rate for black infants was 11.61 infant deaths per 1,000 live births, compared with the final rate of 12.64 per 1,000 live births in 2009.

The infant mortality rate for white infants decreased in 2010 by 2.1 percent, from 5.30 infant deaths per 1,000 live births in 2009 to 5.19 in 2010, but the observed decrease was not significant. The mortality rate for black infants was 2.2 times the rate for white infants (see Tables A and 4). Because of inconsistencies in the reporting of race groups on birth and death certificates (especially for races other than white and black and for Hispanic origin), infant mortality rates for these groups are likely to be underestimated (27). The linked birth/infant death data set provides a better source of data for infant deaths and mortality rates by maternal race and ethnicity (33).

Although the infant mortality rate is the preferred indicator of the risk of dying during the first year of life, the infant death rate is also shown in this report. While similar, these two rates vary based on differences in their denominators. The denominator of the 2010 infant death rate is the estimated population under age 1 year as of the reference date, April 1, 2010 (16). This population estimate includes a combination of infants born in 2009 who had not reached their first birthday before April 1, 2010, and infants born in 2010 before April 1, 2010. In contrast, the denominator of the 2010 infant mortality rate is all live births occurring during 2010 (34). For example, the preliminary number of live births for 2010 ( $n = 4,000,279$ ) is 1.4 percent higher than the April 1 infant population in 2010 ( $n = 3,944,153$ ). Therefore, the infant mortality rate for 2010 (613.7 deaths per 100,000 live births) is lower than the infant death rate for 2010 (622.4 deaths per 100,000 population). For 2010, both the infant mortality rate and the infant death rate decreased significantly from 2009.

PERSONAL HEALTH | Jane E. Brody

# New Thinking on How to Protect the Heart

If last week's column convinced you that surgery may not be the best way to avoid a heart attack or sudden cardiac death, the next step is finding out what can work as well or better to protect your heart.

Many measures are probably familiar: not smoking, controlling cholesterol and blood pressure, exercising regularly and staying at a healthy weight. But some newer suggestions may surprise you.

It is not that the old advice, like eating a low-fat diet or exercising vigorously, was bad advice; it was based on the best available evidence of the time and can still be very helpful. But as researchers unravel the biochemical reasons for most heart attacks, the advice for avoiding them is changing.

And, you'll be happy to know, the new suggestions for both diet and exercise are less rigid. The food is tasty, easy to prepare and relatively inexpensive, and you don't have to sweat for an hour a day to reap the benefits of exercise.

The well-established risk factors for heart disease remain intact: high cholesterol, high blood pressure, smoking, diabetes, abdominal obesity and sedentary living. But behind them a relatively new factor has emerged that may be even more important as a cause of heart attacks than, say, high blood levels of artery-damaging cholesterol.

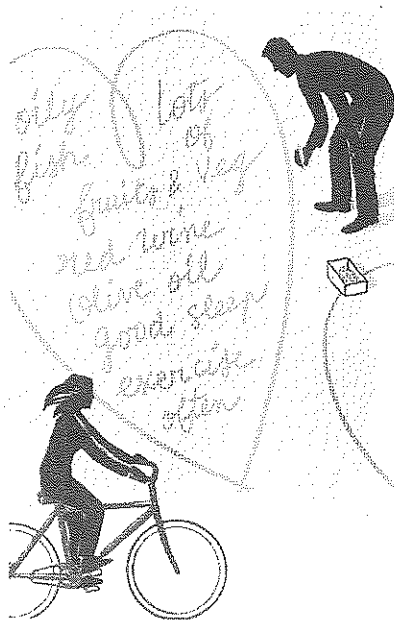
That factor is C-reactive protein, or CRP, a blood-borne marker of inflammation that, along with coagulation factors, is now increasingly recognized as the driving force behind clots that block blood flow to the heart. Yet patients are rarely tested for CRP, even if they already have heart problems.

Even in people with normal cholesterol, if CRP is elevated, the risk of heart attack is too, said Dr. Michael Ozner, medical director of the Cardiovascular Prevention Institute of South Florida. He thinks that when people have their cholesterol checked, they should also be tested for high-sensitivity CRP.

## Diet Revisited

The new dietary advice is actually based on a rather old finding that predates the mantra to eat a low-fat diet. In the Seven Countries Study started in 1958 and first published in 1970, Dr. Ancel Keys of the University of Minnesota and co-authors found that heart disease was rare in the Mediterranean and Asian regions where vegetables, grains, fruits, beans and fish were the dietary mainstays. But in countries like Finland and the United States where diets were typically filled with red meat, cheese and other foods rich in saturated fats, heart disease and cardiac deaths were epidemic.

The finding resulted in the well-known advice to reduce dietary fat and especially saturated fats (those that are firm at room tem-



AUDE VAN RYCK

perature), and to replace these harmful fats with unsaturated ones like vegetable oils. What was missed at the time and has now become increasingly apparent is that the heart-healthy Mediterranean diet is not really low in fat, but its main sources of fat — olive oil and oily fish as well as nuts, seeds and certain vegetables — help to prevent heart disease by improving cholesterol ratios and reducing inflammation.

## Virtues Confirmed

It was not until 1999 that the value of a traditional Mediterranean diet was confirmed, when the Lyon Diet Heart Study compared the effects of a Mediterranean-style diet with one that the American Heart Association recommended for patients who had survived a first heart attack.

The study found that within four years, the Mediterranean approach reduced the rates of heart disease recurrence and cardiac death by 50 to 70 percent when compared with the heart association diet.

Several subsequent studies have confirmed the virtues of the Mediterranean approach. For example, a study among more than 3,000 men and women in Greece, published in 2004 by Dr. Christina Chrysohoou of the University of Athens, found that adhering to a Mediterranean diet improved six markers of inflammation and coagulation, including CRP, white blood cell count and fibrinogen.

The same year Kim T. B. Knoppers, a nutritionist at Wageningen University in the Netherlands, and co-authors published a study showing that among men and women ages 70 to 90, those who followed a Mediter-

anean diet and other healthful practices, like not smoking, had a 50 percent lower rate of deaths from heart disease and all causes.

"The Mediterranean diet is one people can stick to," said Dr. Ozner, author of "The Miami Mediterranean Diet" and "The Great American Heart Hoax" (BenBella, 2008). "The food is delicious, and the ingredients can be found in any grocery store.

"You should make most of the food yourself," Dr. Ozner added. "When the diet is stripped of lots of processed foods, you ratchet down inflammation. Among my patients, the compliance rate — those who adopt the diet and stick with it — is greater than 90 percent."

Among foods that help to reduce the inflammatory marker CRP are cold-water fish like salmon, tuna and mackerel; flax seed; walnuts; and canola oil and margarine based on canola oil. Fish oil capsules are also effective. Dr. Ozner recommends cooking with canola oil and using more expensive and aromatic olive oil for salads.

Other aspects of the Mediterranean diet — vegetables, fruits and red wine (or purple grape juice) — are helpful as well. Their antioxidant properties help prevent the formation of artery-damaging LDL cholesterol.

## Other Steps

Several recent studies have linked periodontal disease to an increased risk of heart disease, most likely because gum disease causes low-grade chronic inflammation. So good dental hygiene, with regular periodontal cleanings, can help protect your heart as well as your teeth.

Reducing chronic stress is another important factor. The Interheart study, which examined the effects of stress in more than 27,000 people, found that stress more than doubled the risk of heart attacks.

Dr. Joel Okner, a cardiologist in Chicago, and Jeremy Clorfene, a cardiac psychologist, the authors of "The No Bull Book on Heart Disease" (Sterling, 2009), note that getting enough sleep improves the ability to manage stress.

Practicing the relaxation response once or twice a day by breathing deeply and rhythmically in a quiet place with eyes closed and muscles relaxed can help cool the hottest blood. Other techniques Dr. Ozner recommends include meditation, prayer, yoga, self-hypnosis, laughter, taking a midday nap, getting a dog or cat, taking up a hobby and exercising regularly.

He noted that in a 1996 study, just 15 minutes of exercise five days a week decreased the risk of cardiac death by 46 percent.

Even very brief bouts of exercise can be helpful. A British study published in the current American Journal of Clinical Nutrition found that accumulating short bouts — just three minutes each — of brisk walking for a total of 30 minutes a day improved several measures of cardiac risk as effectively as one continuous 30-minute session.

*This is the second of two columns on cardiac care. Last week: The drawbacks to interventional cardiology.*

## **Health 10 assignment for Mr. Brown**

Read and Discuss the article, "New Thinking on How to Protect the Heart" by Jane Brody, with your parents.

Was any of the information new to your parents?

What do you and your parents currently do to maintain heart health?

What specific changes in life style could you and your parents make to be more heart healthy?

Name \_\_\_\_\_

Parents Name \_\_\_\_\_

Signature \_\_\_\_\_

**Comment:**

# STROKE, ALIAS "BRAIN ATTACK"

by Richard Burtis, M.D.

As the population of the United States ages, degenerative diseases of blood vessels, especially heart attack and brain attack, as a stroke is now sometimes being called, have assumed an increasing importance in the public health. Each year, nearly a half-million people in the U.S. suffer a stroke, making it the third leading cause of death after heart disease and cancer. But, unlike either heart disease or cancer, the seriousness of stroke – which is fatal in nearly one-third of cases and causes permanent disability for another one-third of individuals – is not as well recognized by most people.

A stroke is being termed a "brain attack" because of its similarity to a heart attack in that prompt medical attention to both can prevent a fatal or disabling situation to occur. Treatment, outcome, and effects of a stroke depend upon what part of the brain has been damaged.

Also called atherosclerosis (hardening of the arteries), a stroke causes focal narrowing in arteries where cholesterol-laden plaques are deposited within the inner lining of these blood vessels. When the affected arteries are within the brain or lead to the brain, as do the carotid arteries in the neck, the blood flow to a portion of the brain can slow, and then cease altogether when the clot forms at the site of narrowing. In some cases, a clot forms in the heart, as during a heart attack, or upon a diseased heart valve, and escapes from the heart and migrates to a brain artery. Blockage of a brain artery deprives that portion of the brain of oxygen and other nutrients, causing injury to, and eventually death of, brain cells.

In recent years, a successful approach to similar events in the heart's coronary arteries has made it possible to prevent or reverse some heart attacks. Powerful drugs called thrombolytics ("clot busters"), if administered intravenously within several hours, can dissolve a clot in a coronary artery (coronary thrombosis), rescuing injured heart

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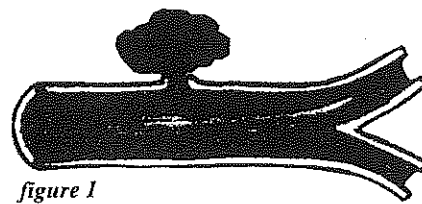


figure 1

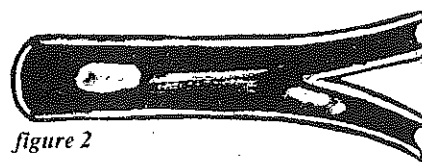


figure 2



figure 3

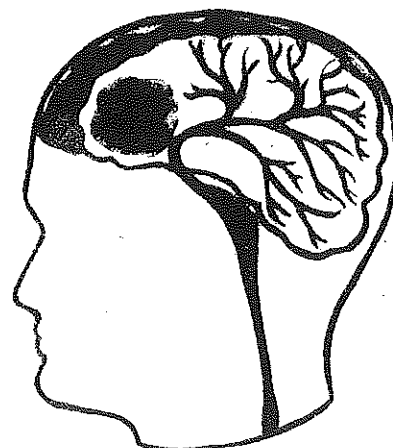


figure 4

A stroke occurs when a blood vessel carrying oxygen to the brain bursts (fig. 1) or becomes clogged (fig. 2 & 3). This cuts off the supply of oxygen to a part of the brain, causing brain cells to die (fig. 4).

## **STROKE, ALIAS "BRAIN ATTACK"** *continued from previous page*

muscle cells from oxygen lack and thereby preventing myocardial infarction, the death of heart muscle.

It naturally followed that a similar strategy has been applied to stroke as well. However, physicians in the Emergency Room would need to determine, via MRI or CT scan or other such state-of-the-art technology, the cause and extent of the damage, and all within a three-hour window from onset of symptoms. Hence, administering "clot busters" to people with strokes has been much riskier and more difficult for several reasons.

1. Brain cells are much more sensitive to oxygen deprivation than heart cells, so that the clot buster must be administered within three hours of onset in order to prevent permanent brain damage.
2. A significant minority of strokes are caused not by a blocked brain artery (thrombotic stroke), but by a burst artery (hemorrhagic stroke). Obviously, a clot buster or any medicine that impedes clotting would be disastrous in such an instance. Therefore, within the three-hour deadline, a CT scan of the brain must be obtained to confirm the absence of hemorrhage.
3. Even in a thrombotic stroke, administration of clot busting medication can occasionally cause some bleeding into the injured brain tissue, compounding rather than

relieving the problem. This is especially true in the case of a large stroke. Obviously, deciding where "small" leaves off and "large" begins is a subjective decision and makes the determination to treat or not to treat very difficult.

4. If hemorrhage does occur into an injured area of brain, there is swelling and crowding of the entire brain. This may need to be relieved by a neurosurgical procedure, which is not readily available in many hospitals, especially in small community institutions.

In a 1995 placebo-controlled study conducted by The National Institute of Neurologic Disorders and Stroke, it was demonstrated that done in an optimal fashion, patients were 30 percent more likely to have an improved clinical result when treated with a thrombolytic drug than with conventional care and placebo. However, there also was a tenfold increase in a cerebral hemorrhage incidence in the treated versus the placebo group (6.4 percent versus 0.6 percent). Despite this sobering complication, the treated group overall did better.

Efforts are being made, especially through the use of brain imaging techniques including some specialized MRI's, to better categorize patients into those who are most likely to benefit and least likely to be harmed by this promising approach. Hopefully, in the not too distant future, most hospitals, even smaller rural ones like BMH, will be able to administer brain tissue-sparing thrombolytics to stroke patients as confidently and safely as it is now done for heart attack victims.

*Dr. Burtis is an internist on the BMH Medical Staff.*

### **"BRAIN ATTACK" SYMPTOMS**

- Sudden weakness or numbness of the face, arm, and leg, usually on one side of the body;
- Loss of speech, or trouble talking or understanding speech;
- Dimness or loss of vision, particularly in only one eye;
- Unexplained dizziness, unsteadiness, or sudden falls;
- Sudden, severe headache.

### **PREVENTING A STROKE**

- Eat a low-fat, low-salt diet;
- Exercise in moderation;
- Don't smoke;
- Keep your blood pressure in check. (BMH offers free blood pressure checks at its Emergency Department.)



## Risk Factors You Can & Can't Control

**S**ome risk factors for stroke you simply can't do anything about. These include:

- **Your age**—The chance of suffering a stroke roughly doubles for each decade of life after age 55.
- **Family history**—Your risk is greater if a parent, grandparent or sibling has had a stroke.
- **Race**—African-Americans have a much higher risk of death from stroke.
- **Gender**—Stroke is more common in men than in women. But women are more likely to die of stroke.
- **Prior stroke, TIA or heart attack**—People who've previously suffered a stroke or a "mini-stroke" (Transient Ischemic Attack, or TIA) or a heart attack are at higher risk.

**B**ut plenty of risk factors for stroke are things you can change, treat or control. These include:

- **High blood pressure**—Effective

treatment of hypertension is key to reducing stroke risk.

- **Smoking**—Research has shown that cigarette smoking is an important risk factor.
- **Other health conditions**—Diabetes, carotid or other artery disease, atrial fibrillation, other heart disease and sickle cell anemia are all risk factors for stroke.
- **Blood cholesterol**—High LDL ("bad") cholesterol levels increase your risk of stroke. At least in men, low HDL ("good") cholesterol appears to also be a risk factor.
- **Poor diet**—High intakes of saturated fat, trans fat and dietary cholesterol, too much sodium and simply too many calories can boost your stroke risk. But eating five or more servings daily of fruits and vegetables may reduce your risk.

- **Physical inactivity and obesity**—Being inactive, obese or both increases your risk for high blood pressure and other conditions linked to stroke.

PERSONAL HEALTH · Jane E. Brody

# After Smoking and Fats, Focus Turns to Salt

In decades past, when companies wanted to test-market a product meant to enhance health and well-being, they often tried it first in California — where people were reputed to be the most health-conscious in the country. But now companies might be wise to consider field-testing their wares in New York City.

If he can take credit for nothing else, the city's mayor, Michael R. Bloomberg, can rightfully claim to have launched a national effort to help people live more healthfully. He began with a prominent campaign to curtail smoking, the single leading killer of Americans, by banning it in restaurants and bars, and followed that with a campaign to get heart-damaging trans fats out of packaged and restaurant foods.

Next Mr. Bloomberg attacked rampant obesity (though New York, being a walking city, is leaner than most other metropolitan areas) by promoting a requirement that chain restaurants prominently display the caloric content of all their offerings.

And at his urging, the city health department is seeking to curtail consumption of sugary soft drinks, with subway advertisements that ask riders, "Are you pouring on the pounds?"

Now Mr. Bloomberg has called on restaurant chains and food producers to lower the amount of salt in their products by 25 percent over the next five years. The goal is to reduce the incidence of high blood pressure, a major contributor to heart attacks, strokes and kidney disease.

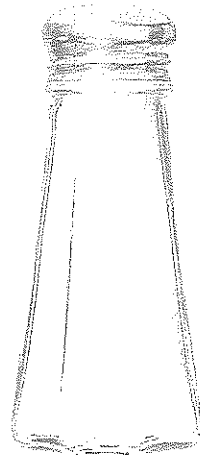
If the mayor has his way, this could well be the year when salt, once a form of legal tender, is finally devalued as a prized condiment in the American diet. As happened with trans fats and calorie listings, other cities and states may follow New York's example, if for no other reason than to control rapidly rising public health costs.

## Saving Money and Lives

In a scientific analysis published last week in *The New England Journal of Medicine*, researchers at the University of California, San Francisco; Stanford University; and Columbia University College of Physicians and Surgeons calculated that if Americans reduced their salt intake by half a teaspoon a day, or three grams (the equivalent of 1,200 milligrams of sodium, the health culprit in salt), the nation would save up to \$24 billion a year in health care costs.

The research team, led by Dr. Kirsten Bibbins-Domingo, an epidemiologist and biostatistician at U.C.S.F., concluded that even a much more modest reduction — one gram a day, achieved gradually by the year 2019 — "would be more cost-effective than using medications to lower blood pressure in all persons with hypertension."

And money is not the only thing that



BY ILLUSTRATION BY THE NEW YORK TIMES

would be saved. The researchers calculated that the half-teaspoon reduction would "reduce the annual number of new cases of coronary heart disease by 60,000 to 120,000, stroke by 32,000 to 66,000, and myocardial infarction [heart attack] by 54,000 to 99,000, and reduce the annual number of deaths from any cause by 44,000 to 92,000."

That, dear reader, would be a very big bang for a relatively small buck. The researchers' suggested salt reduction would hardly render food tasteless, especially if the reduction is done gradually, as Mr. Bloomberg has proposed. Currently, the average American man consumes 10.4 grams of salt a day, and the average American woman consumes 7.3 grams.

"This is a classic example of a lifestyle change that has a modest effect on individuals but a huge effect on the population over all," Dr. Lee Goldman, a cardiologist at Columbia's medical school and co-author of the new study, said in an interview.

"With our current high-salt diet, all our blood pressures are increased, and the risk of heart disease with each rise in blood pressure is continuous."

About 80 percent of the salt in the American diet comes from processed and restaurant-prepared foods, the main targets of Mr. Bloomberg's proposal. But for some people, including the mayor, meaningful cutbacks in how much salt they consume will also require restraint at the table.

The mayor is reported to add salt to almost everything, even saltine crackers, already-salted popcorn and bagels. If so, he is probably well above the amounts of sodium recommended by federal health authorities: 2,300 milligrams a day for otherwise healthy individuals; 1,500 milligrams for the elderly,

those who already have high blood pressure and African-Americans, who are especially prone to developing high blood pressure.

## A Federal Classification

Salt has escaped federal regulatory action because it is classified as GRAS, or "generally recognized as safe." The Center for Science in the Public Interest, a health advocacy group based in Washington, has been urging the Food and Drug Administration for three decades to change this classification and instead regulate salt as a food additive that requires proof of safety for the amounts used.

Failing that, in 2005, the center petitioned the agency to set maximum levels of salt in various categories of food. A public hearing was held in 2007, but no regulatory action has been taken.

Meanwhile, millions of Americans continue to get sick and die of ailments caused or complicated by salt in the foods they eat.

The average daily intake of sodium exceeds 4,000 milligrams — nearly double what a healthy person should consume. The explosive growth of fast foods has not helped matters. Last year, the Washington center published the sodium content of a number of popular restaurant meals that each provided 4,000 or more milligrams of sodium.

For example, at Olive Garden, a meal of chicken parmigiana, one breadstick, salad with house dressing and raspberry lemonade totaled 5,735 milligrams of sodium, the equivalent of two and a half teaspoons of salt.

At Chili's, a meal of Buffalo chicken fajitas with tortillas, condiments and a Dr. Pepper totaled 6,916 milligrams of sodium, or three teaspoons of salt. Even the rather innocentsounding Dairy Queen meal of a spicy chili bowl, a side salad with fat-free ranch dressing and a Mountain Dew added up to 4,500 milligrams of sodium.

City health officials acknowledged that it would be hard to legislate a reduction in salt, as finally happened with trans fats when a call for voluntary elimination fell on deaf ears.

But several companies have already expressed support. The supermarket chain A.& P. plans to follow the city's recommendation to reduce salt in the hundreds of store-brand products it sells. And the fast-food chain Subway announced its commitment to the guidelines at its nearly 23,000 stores nationwide.

Consumers, meanwhile, would be wise to check the sodium content per serving on food labels and select lower-sodium brands. When eating out, consider asking that salt not be added to the foods you order. You can always sprinkle on a little at the table. If you cut back gradually, your taste buds will adapt painlessly.

## PERSONAL HEALTH

# 'Diabesity,' a Crisis in an Expanding Country

By JANE E. BRODY

I can't understand why we still don't have a national initiative to control what is fast emerging as the most serious and costly health problem in America: excess weight. Are our schools, our parents, our national leaders blind to what is happening — a health crisis that looms even larger than our former and current smoking habits?

Just look at the numbers, so graphically described in an eye-opening new book, "Diabesity: The Obesity-Diabetes Epidemic That Threatens America — and What We Must Do to Stop It" (Bantam), by Dr. Francine R. Kaufman, a pediatric endocrinologist, the director of the diabetes clinic at Children's Hospital Los Angeles and a past president of the American Diabetes Association.

In just over a decade, she noted, the prevalence of diabetes nearly doubled in the American adult population: to 8.7 percent in 2002, from 4.9 percent in 1990. Furthermore, an estimated one-third of Americans with Type 2 diabetes don't even know they have it because the disease is hard to spot until it causes a medical crisis.

An estimated 18.2 million Americans now have diabetes, 90 percent of them the environmentally influenced type that used to be called adult-onset diabetes. But adults are no longer the only victims — a trend that prompted an official change in name in 1997 to Type 2 diabetes.

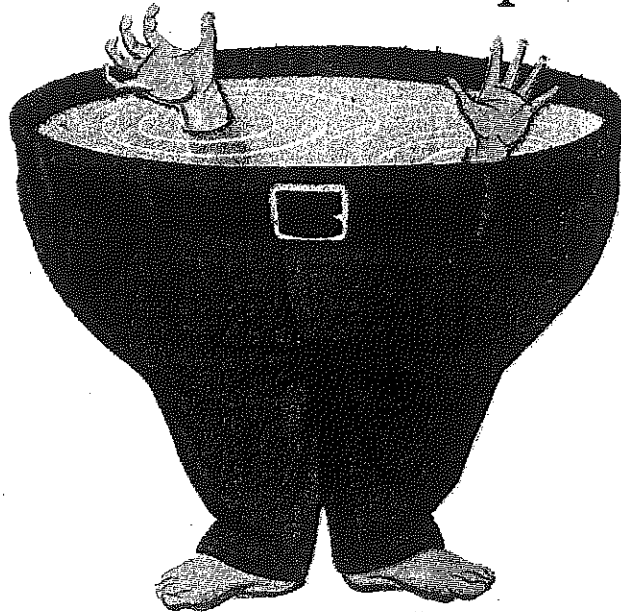
More and more children are developing this health-robbing disease or its precursor, prediabetes. Counting children and adults together, some 41 million Americans have a higher-than-normal blood sugar level that typically precedes the development of full-blown diabetes.

## 'Then Everything Changed'

And what is the reason for this runaway epidemic? Being overweight or obese, especially with the accumulation of large amounts of body fat around the abdomen. In Dr. Kaufman's first 15 years as a pediatric endocrinologist, 1978 to 1993, she wrote, "I never saw a young patient with Type 2 diabetes. But then everything changed."

Teenagers now come into her clinic weighing 200, 300, even nearly 400 pounds with blood sugar levels that

*Next week: Helping an overweight child.*



Alex Nabaum

are off the charts. But, she adds, we cannot simply blame this problem on gluttony and laziness and "assume that the sole solution is individual change."

The major causes, Dr. Kaufman says, are "an economic structure that makes it cheaper to eat fries than fruit" and a food industry and mass media that lure children to eat the wrong foods and too much of them. "We have defined progress in terms of the quantity rather than the quality of our food," she wrote.

Her views are supported by a 15-year study published in January in *The Lancet*. A team headed by Dr. Mark A. Pereira of the University of Minnesota analyzed the eating habits of 3,031 young adults and found that weight gain and the development of prediabetes were directly related to unhealthy fast food.

Taking other factors into consideration, consuming fast food two or more times a week resulted, on average, in an extra weight gain of 10 pounds and doubled the risk of prediabetes over the 15-year period.

Other important factors in the diabesity epidemic, Dr. Kaufman explained, are the failure of schools to set good examples by providing only healthful fare, a loss of required physical activity in schools and the inability of many children these days to walk or bike safely to school or to play outside later.

Genes play a role as well. Some people are more prone to developing Type 2 diabetes than others. The risk is 1.6 times as great for blacks as for

whites of similar age. It is 1.5 times as great for Hispanic-Americans, and 2 times as great for Mexican-Americans and Native Americans.

Unless we change our eating and exercise habits and pay greater attention to this disease, more than one-third of whites, two-fifths of blacks and half of Hispanic people in this country will develop diabetes.

It is also obvious from the disastrous patient histories recounted in Dr. Kaufman's book that the nation's medical structure is a factor as well. Many people do not have readily accessible medical care, and still many others have no coverage for preventive medicine. As a result, millions fall between the cracks until they are felled by heart attacks or strokes.

## A Devastating Disease

There is a tendency in some older people to think of diabetes as "just a little sugar," a common family problem. They fail to take it seriously and make the connection between it and the costly, crippling and often fatal diseases that can ensue.

Diabetes, with its consequences of heart attack, stroke, kidney failure, amputations and blindness, among others, already ranks No. 1 in direct health care costs, consuming \$1 of every \$7 spent on health care.

Nor is this epidemic confined to American borders. Internationally, "we are witnessing an epidemic that is the scourge of the 21st century," Dr. Kaufman wrote.

Unlike some other killer diseases,

Type 2 diabetes issues an easily detected wake-up call: the accumulation of excess weight, especially around the abdomen. When the average fasting level of blood sugar (glucose) rises above 100 milligrams per deciliter, diabetes is looming.

Abdominal fat is highly active. The chemical output of its cells increases blood levels of hormones like estrogen, providing the link between obesity and breast cancer, and decreases androgens, which can cause a decline in libido. As the cells in abdominal fat expand, they also release chemicals that increase fat accumulation, ensuring their own existence.

The result is an increasing cellular resistance to the effects of the hormone insulin, which enables cells to burn blood sugar for energy. As blood sugar rises with increasing insulin resistance, the pancreas puts out more and more insulin (promoting further fat storage) until this gland is exhausted. Then when your fasting blood sugar level reaches 126 milligrams, you have diabetes.

Two recent clinical trials showed that Type 2 diabetes could be prevented by changes in diet and exercise. The Diabetes Prevention Program Research Group involving 3,234 overweight adults showed that "intensive lifestyle intervention" was more effective than a drug that increases insulin sensitivity in preventing diabetes over three years.

The intervention, lasting 24 weeks, trains people to choose low-calorie, low-fat diets; increase activity; and change their habits. Likewise, the randomized, controlled Finnish Diabetes Prevention Study of 522 obese patients showed that introducing a moderate exercise program of at least 150 minutes a week and weight loss of at least 5 percent reduced the incidence of diabetes by 58 percent.

Many changes are needed to combat this epidemic, starting with schools and parents. Perhaps the quickest changes can be made in the workplace, where people can be encouraged to use stairs instead of elevators; vending machines can be removed or dispense only healthful snacks; and cafeterias can offer attractive healthful fare. Lunchrooms equipped with refrigerators and microwaves will allow workers to bring healthful meals to work.

Dr. Kaufman tells of a challenge to get fit and lose weight by Caesar's Entertainment in which 4,600 workers who completed the program lost a total of 45,000 pounds in 90 days. Others could follow this example.



PERSONAL HEALTH | Jane E. Brody

# Too Much Salt Takes a Blood-Pressure Toll

Perhaps nothing in medicine more aptly depicts the paradoxical statement “doing better, feeling worse” than high blood pressure. Despite an extraordinarily easy way to detect it, strong evidence for how to prevent it and proven remedies to treat it, more Americans today have undetected or poorly controlled hypertension than ever before.

The aging of the population is a reason but not the only one, said Dr. Aram V. Chobanian, a hypertension expert at Boston University Medical Center. As he summarized the problem in an interview and in *The New England Journal of Medicine* in August, Americans are too sedentary and fat. They eat too much, especially salt, but too few potassium-rich fruits and vegetables.

The makers of processed and fast foods created and persistently promote a craving for high-salt foods, even in school lunch programs. And Americans without health insurance often don't know that their blood pressure is too high because they wait for a calamity to strike before seeking medical care.

Solutions to the blood pressure problem require broad-scale approaches — by the public, by government, by industry and by health care professionals. Several measures are similar to those that have been so effective in curbing cigarette smoking; others require better, affordable access to medical care for everyone at risk, including children and the unemployed. Still others need the cooperation of government, industry and the public to improve the American diet and enhance opportunities for health-promoting exercise.

No one claims that the solutions are cheap. But failure to fix this problem portends even greater costs down the line, because uncontrolled hypertension sets the stage for astronomically expensive heart and kidney disease and stroke — diseases that will become only more common as the population ages.

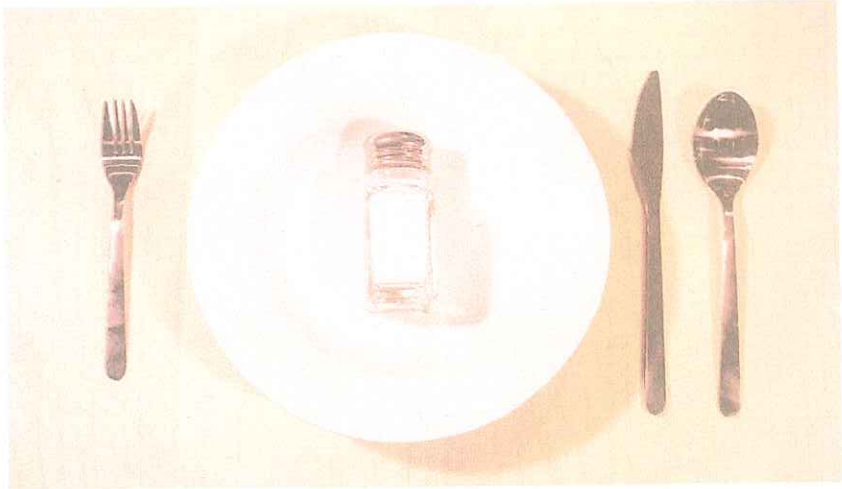
## Doing the Numbers

Once, the prevailing medical opinion was that lowering an elevated blood pressure was hazardous because it would deprive a person's vital organs of an adequate blood supply. But a few pioneering medical researchers thought otherwise and eventually showed that lowering high blood pressure could prevent heart attacks, heart failure, strokes and kidney disease — and save lives.

Even then, it was long thought that the only important indicator was diastolic pressure — the bottom number, representing the pressure in arteries between heartbeats. Further studies showed that the larger top number, systolic pressure, representing arterial pressure when the heart beats, was also medically important.

And as the various studies reached fruition, it became apparent that the long-accepted numbers for desirable blood pressure were too high to protect long-term health.

Now the upper limit of normal blood pressure is listed as 120 over 80; anyone with a



pressure of 140 over 90 or higher is considered hypertensive. Those with pressures in between are considered prehypertensive and should take steps to bring blood pressure down or, at least, prevent it from rising more.

The change mirrors what happened with serum cholesterol, for which “normal” was once listed as 240 milligrams per deciliter of blood and is now less than 200 to prevent heart disease caused by clogged arteries.

It was also long thought that blood pressure naturally rises with age. Indeed, the Framingham Heart Study showed that when 65-year-old people whose blood pressure was below 140 over 90 were followed for 20 years, about 90 percent of them became hypertensive because their arteries narrowed and stiffened with age, causing blood to push harder against artery walls.

But in many societies where obesity is rare, activity levels are high and salt intake is low, blood pressure remains low throughout life. This is the best clue we have for the lifestyle changes needed to prevent illness and premature death caused by hypertension.

Dr. Claude Lenfant, who served as director of the National Heart, Lung and Blood Institute, is now 81 and has a blood pressure of 115 over 60, a level rarely found among older Americans not taking medication for hypertension. His secret: a normal body weight, four or more miles of walking daily, and no salt used to prepare his meals, most of which are made from scratch at home.

In an interview, Dr. Lenfant, who now lives in Vancouver, Wash., said the problem of hypertension was rising all around the world and added that by 2020 the number of people with uncontrolled hypertension was projected to rise 65 percent. One reason is that doctors today are more likely to diagnose the problem, so it is reported more often in population surveys. “But I'm much more concerned about the fact that so much high blood pressure is not controlled,” he said, and called

“therapeutic inertia” an important reason.

It is not enough for doctors to write a prescription and tell patients to return for a check-up in six months, he said. Rather, a working partnership between health care professionals and patients is needed to encourage people to monitor their pressure, adopt protective habits and continue to take medication that effectively lowers pressure.

## Treatment and Prevention

Diuretics are a first-line and inexpensive remedy, but many patients with hypertension also need other drugs to lower pressures to a desirable level.

Dr. Chobanian, whose *New England Journal* report was titled “The Hypertension Paradox: More Uncontrolled Disease Despite Improved Therapy,” noted that “in the majority of patients, two or more antihypertensive drugs are required to achieve target blood-pressure levels.” In the interview, he emphasized the detrimental role played by diets high in salt and calories and low in protective fruits and vegetables — a result of portions that are too large, and of too many fast and processed foods that rely on salt to enhance flavor. “Generally, the average person in our society consumes more than 10 grams of salt a day,” Dr. Chobanian said, “but the Institute of Medicine recommends a third of this amount as optimal.”

A new RAND Corporation study finds that a one-third reduction in salt consumption could save \$18 billion a year in direct medical costs. Dr. Chobanian called for better food labeling; changes in foods served in cafeterias, restaurants and schools; and less advertising on children's television of unhealthy foods high in fat, salt and sugar. Also needed are better opportunities for all people to get regular exercise. “We have to focus more on children,” he said. “They're the ones who will be getting cardiovascular diseases in the future.”

# Inflammation called chief trigger of heart attacks

Greater risk than cholesterol, study says

By DANIEL Q. HANEY  
THE ASSOCIATED PRESS

BOSTON — A landmark study offers the strongest evidence yet that simmering, painless inflammation deep within the body is the single most powerful trigger of heart attacks, even worse than high cholesterol.

The latest research is likely to encourage many doctors to make blood tests for inflammation part of standard physical exams for middle-age people, especially those with other conditions that increase their risk of heart trouble.

The study, based on nearly 28,000 women, is by far the largest to examine inflammation's role,

and it shows that people with high levels of inflammation are twice as likely as those with high cholesterol to die from heart attacks and strokes.

Over the past five years, research by Dr. Paul Ridker of Boston's Brigham and Women's Hospital has built the case for the "inflammation hypothesis." With his latest study, many believe the evidence is overwhelming that inflammation is a central factor in cardiovascular disease, by far the world's No. 1 killer.

"I don't think it's a hypothesis anymore. It's proven," said Dr. Eric Topol, chief of cardiology at the Cleveland Clinic.

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# Inflammation

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Inflammation can be measured with a test that checks for C-reactive protein, or CRP, a chemical necessary for fighting injury and infection. The test typically costs between \$25 and \$50.

Diet and exercise can lower CRP dramatically. Cholesterol-lowering drugs called statins also reduce CRP, as do aspirin and some other medicines.

Doctors believe inflammation has many possible sources. Often, the fatty buildups that line the blood vessels become inflamed as white blood cells invade in a misguided defense attempt. Fat cells also are known to turn out these inflammatory proteins. Other possible triggers include high blood pressure, smoking, and lingering low-level infections, such as chronic gum disease.

Doctors theorize that a chronic infection anywhere in the body can produce these inflammatory proteins, which then make their way into the bloodstream and do their damage in the blood vessels.

The proteins are thought to weaken the fatty buildups, or plaques, making them more likely to burst. A piece of plaque can lead to a clot that can choke off the blood flow and cause a heart attack.

For the first time, Ridker's study establishes what level of CRP should be considered worrisome, so doctors can make sense of patients' readings. However, experts are still divided over which patients to test and how to treat them if their CRP readings are high.

Some experts, such as Dr. Richard Milani of the Ochsner Clinic in New Orleans, urge a CRP check for virtually anyone getting a cholesterol test. "If I have enough concern to check a patient's cholesterol, it seems naive not to include an inexpensive test that would give me even more information," he said.

Others are reluctant to test people at low outward risk. Dr. Sidney Smith, research director of the American Heart Association, said

CRP testing is likely to be most helpful in guiding the care of the 40 percent of U.S. adults already considered at intermediate risk of heart attacks because of other conditions, such as age, obesity, and high blood pressure.

In March, the American Heart Association and the federal Centers for Disease Control and Prevention held a meeting of 50 experts to review the evidence and make recommendations on CRP testing. Although it hoped to be finished this month, the committee went back to the drawing board after learning last week of Ridker's latest results, which appear in today's *New England Journal of Medicine*.

Although the study involved only women, Ridker was confident the findings apply to men because earlier, small studies in men reached similar conclusions.

A skeptical editorial in the journal by Dr. Lori Mosca of Columbia University questioned the need for widespread testing, at least until more studies are done to show that lowering CRP saves lives.

Such studies are planned. Until then, Ridker believes a high CRP reading can help doctors convince people with low cholesterol that they still need to diet and exercise.

"The CRP test can predict risk 15 to 25 years in the future," Ridker said. "We have a long time to get our patients to change their lifestyles...."

However, Mosca said telling people they have low CRP may falsely reassure them they can continue their slothful habits. "Why do we need a test to help us motivate patients to improve their lifestyles?" she said.

She also worried that doctors will immediately put patients on drugs to lower CRP before there is proof this saves lives.

Ridker's latest study is based on an eight-year follow-up of 27,939 volunteers in the Women's Health Study. About half of heart attacks and strokes occurred in those with seemingly safe levels of LDL, the bad cholesterol.