

Heart Disease & Stroke Awareness

A Woman's Heart Attack Causes and Symptoms May Differ from a Man's

A woman's heart attack may have different underlying causes, symptoms and outcomes compared to men, and differences in risk factors and outcomes are further pronounced in black and Hispanic women, according to a scientific statement published in the American Heart Association's journal *Circulation*.

The statement is the first scientific statement from the American Heart Association on heart attacks in women. It notes that there have been dramatic declines in cardiovascular deaths among women due to improved treatment and prevention of heart disease as well as increased public awareness.

"Despite stunning improvements in cardiovascular deaths over the last decade, women still fare worse than men and heart disease in women remains underdiagnosed, and undertreated, especially among African-American women," said writing group chair Laxmi Mehta, M.D., a noninvasive cardiologist and Director of the Women's Cardiovascular Health Program at The Ohio State University.

Causes

Heart attacks caused by blockages in the main arteries leading to the heart can occur in both men and women. However, the way the blockages form a blood clot may differ. Compared to men, women can have less severe blockages that do not require any stents; yet the heart's coronary artery blood vessels are damaged which results in decreased blood flow to the heart muscle. The result is the same – when blood flow to the heart is decreased for any reason, a heart attack can occur. If doctors don't correctly diagnose the underlying cause of a woman's heart attack, they may not be prescribing the right type of treatments after the heart attack. Medical therapies are similar regardless of the cause of the heart attack or the severity of the blockages. However women are undertreated compared to men despite proven benefits of these medications.

Treatment

Women face greater complications from attempts to restore blood flow because their blood vessels tend to be smaller, they are older and have increased rates of risk factors, such as diabetes and high blood pressure. Guideline recommended medications are consistently underutilized in women leading to worse outcomes. Also, cardiac rehabilitation is prescribed less frequently for women and even when it is prescribed, women are less likely to participate in it or complete it.



Symptoms

While the most common heart attack symptom is chest pain or discomfort for both sexes, women are more likely to have atypical symptoms such as shortness of breath, nausea or vomiting, and back or jaw pain.

Risk factors

Risk factors for heart attacks also differ in degree of risk in men compared to women. For example, high blood pressure is more strongly associated with heart attacks in women and if a young woman has diabetes her risk for heart disease is 4 to 5 times higher compared to young men.

Racial differences:

Compared to white women, black women have a higher incidence of heart attacks in all age categories and young black women have higher in-hospital death rates. Black and Hispanic women tend to have more heart-related risk factors such as diabetes, obesity and high blood pres-

sure at the time of their heart attack compared to non-Hispanic white women. Compared to white women, black women are also less likely to be referred for important treatments such as cardiac catheterization.

Understanding gender differences can help improve prevention and treatment among women. "Women should not be afraid to ask questions – we advise all women to have more open and candid discussions with their doctor about both medication and interventional treatments to prevent and treat a heart attack," Mehta said.

"Coronary heart disease afflicts 6.6 million American women annually and remains the leading threat to the lives of women. Helping women prevent and survive heart attacks through increased research and improving ethnic and racial disparities in prevention and treatment is a public health priority," she said.

Information for this article was provided by the American Heart Association.

HEART DISEASE & STROKE AWARENESS

New, Easy-to-Use Technology May Solve Serious Problems Caused by Retained Blood Syndrome

HEART and lung diseases are the leading causes of death in the United States. Each year, approximately 1.3 million patients undergo life saving cardiac or thoracic operations. While these surgeries clearly improve and save lives, there are common complications that hamper a speedy recovery. Considerable efforts are underway at hospitals to identify ways to reduce complications that occur after surgery.

An area of increased focus is the problem of chest tube clogging. Chest tubes are simple drainage devices used to remove blood from around the heart and lungs while patients are recovering immediately after cardio-thoracic surgery. These plastic tubes can clog and occlude with blood, impairing their function. Peer-reviewed literature has shown chest-drain blockage after cardio-thoracic surgery is a common problem, with complete obstruction occurring in 36% of all cases. Most of the time, when a chest tube clogs, the blockage occurs in the portion of the tube that is inside the patient, which hides the initial problem from clinicians, delaying treatment and leading to potentially serious complica-

tions for the patient.

When a chest tube clogs, blood can be retained in the chest and cause one or more complications collectively referred to as Retained Blood Syndrome (RBS). Nearly one in five patients develop RBS after heart surgery that require one or more new interventions to treat the problem, leading to longer hospital stays and additional clinical issues such as post-operative atrial fibrillation (POAF) and renal failure. In turn, these complications drive high rates of hospital readmissions after discharge, and double the risk of mortality compared to patients who do not suffer an RBS event.

The incremental costs of treating the complications of Retained Blood Syndrome add billions of dollars to the total cost of care causing a huge financial drain on hospitals and our national health system.

A Solution

Cardiac surgeons Edward Boyle, M.D. (St. Charles Medical Center in Bend, Oregon) and A. Marc Gillinov, M.D. (Cleveland Clinic) recognized the ongoing challenges surrounding chest tubes and retained blood and teamed up to address the problem with

the goal of improving outcomes and reducing healthcare costs for patients.

Dr. Boyle founded Clear Catheter Systems Inc. in Bend, Oregon which, under CEO Paul Molloy, later became ClearFlow, Inc. (based in Anaheim). The Company's first product is the PleuraFlow Active Clearance Technology (ACT) System, which helps maintain chest drain patency after cardio-thoracic surgery. The PleuraFlow System provides caregivers with an easy-to-use method for proactively keeping chest tubes clear of clots, maximizing evacuation potential while decreasing the potential for interventions needed for Retained Blood Syndrome (RBS).

The PleuraFlow ACT is inserted between the conventional chest tube and the drainage canister. A magnetically coupled clearance loop can be manually advanced into and out of the chest tube to keep the interior lumen free of obstruction, facilitating blood evacuation through the chest tubes in the early recovery period after surgery in the ICU.

"PleuraFlow is the first FDA cleared device indicated to maintain chest drain patency and to reduce retained blood," said Molloy. "RBS is associated with high-

er rates of mortality, post operative atrial fibrillation, renal dialysis, stroke, infection and extended ICU and hospital stays after cardiothoracic surgery. The PleuraFlow System has been shown to reduce the incidence of retained blood as well as other complications by keeping chest tubes free of occlusion during early recovery."

"Our goal with the ACT concept has always been to solve a problem that most had considered unsolvable," said Dr. Boyle. "With PleuraFlow, we have provided that solution. No other chest tube product exists that has any means to preserve their functionality over time; they're just tubes. With the PleuraFlow System, we're moving from passive drainage to active drainage – and removing the challenge of frequent clogging from the equation."

The PleuraFlow System has already been adopted at some of the top hospitals in North America and Europe.

The PleuraFlow design fuses function with ergonomics, making the system intuitive and easy to use. The system's reliable evacuation capacity may also enable surgeons to use smaller and fewer tubes overall, decreasing the surgical footprint and potentially reducing patient discomfort.

Older, Healthy Adults with Systolic BP Below 140 Have Lower Stroke Risk

RAISING the systolic blood pressure threshold from 140 to 150 mmHg, as a new target for high blood pressure treatment in older people who don't have chronic kidney disease or diabetes, could put this population at greater stroke risk, according to new research in the American Heart Association's journal *Hypertension*.

The increased stroke risk is even more pronounced among Hispanics and blacks, the research showed.

In 2014, panel members appointed to the Eighth Joint National Committee, known as the JNC 8, published a paper in the *Journal of the American Medical Association* recommending treatment of high blood pressure in people 60 years and older whose systolic pressure – the top number in a blood pressure reading – was 150. The paper, however, was not an official guideline.

"We started this analysis very soon after [the *JAMA* paper] came out ... because we were concerned about the recommendation's potential effect on stroke prevention," said study author Ralph L. Sacco, M.D., professor and chair of neurology at the University of Miami Miller School of Medicine.

Sacco and colleagues from University of Miami and Columbia University studied 1,750 people ages 60 years and older, who were free of stroke, diabetes and chronic kidney disease.

Researchers measured participants' systolic blood pressure at the study's start and noted during an average 13 years if any of those patients had strokes. Among those studied, 63 percent were women, 48 percent were Hispanic, 25 percent white, and 25 percent black. Forty-three percent of participants had systolic readings of less than 140 mmHg; 20 percent were between 140 and 149 mmHg; and

37 percent had systolic pressures of 150 mmHg and higher.

They found:

- Over the median 13 years of follow-up, 182 people developed stroke.
- Having a systolic blood pressure of 140 to 149 mmHg elevated stroke risk as much as having systolic blood pressure greater than 150.
- Those with 140 mmHg systolic blood pressure and higher at the start of the study were 70 percent more likely to suffer a stroke compared to adults with normal systolic pressure, which is less than 140 mmHg.
- The increased stroke risk was most

notable among Hispanics and non-Hispanic blacks.

"The findings suggest one should not liberalize or change the treatment threshold for blood pressure in people older than 60 without chronic kidney disease or diabetes. For stroke prevention, maintaining a blood pressure target of 140 mmHg is important," Sacco said.

There are limitations to the study, according to Sacco. One is that it's an observational, not a randomized study, which means the researchers observed what happened in the study population rather than randomly assigning people to treatment groups for comparison. A study

strength is that it had strong minority representation. That's important, Sacco said, because blacks and Hispanics have greater risks of stroke and more hypertension than whites.

"As a result, more aggressive treatment of blood pressure in those population groups is even more critical," he said. "In general, our findings support adherence to the current American Heart Association guidelines that consistently recommend treatment for blood pressure above 140-90 mmHg in order to improve cardiovascular health and reduce stroke."

The National Institutes of Health (NIH) supported the study.

Seven Healthy Heart Measures May Reduce Heart Failure Risk

People scoring well on the American Heart Association's "Life's Simple 7" checklist for a healthy heart are less likely to develop heart failure, a condition that reduces blood and oxygen flow to the body, according to new research in the American Heart Association's journal *Circulation: Heart Failure*.

Life's Simple 7 encompasses seven measures that people can use to rate their heart health and take steps to improve it. The measures are:

- 1) manage blood pressure, 2) control cholesterol, 3) reduce blood sugar, 4) get physically active, 5) eat better, 6) lose weight and 7) stop smoking.

Researchers analyzed data from the Framingham Offspring Study. To evaluate the association between the Simple 7 and heart failure, they followed 3,201 participants, average age 59, for up to 12.3 years. During that time, 188 participants

developed heart failure.

Researchers found for each one-point higher cardiovascular health score, there was a 23 percent lower risk of developing heart failure. Those scoring in the middle third cut their risk of heart failure nearly in half compared to those in the bottom third. Those in the top third reduced their risk even further.

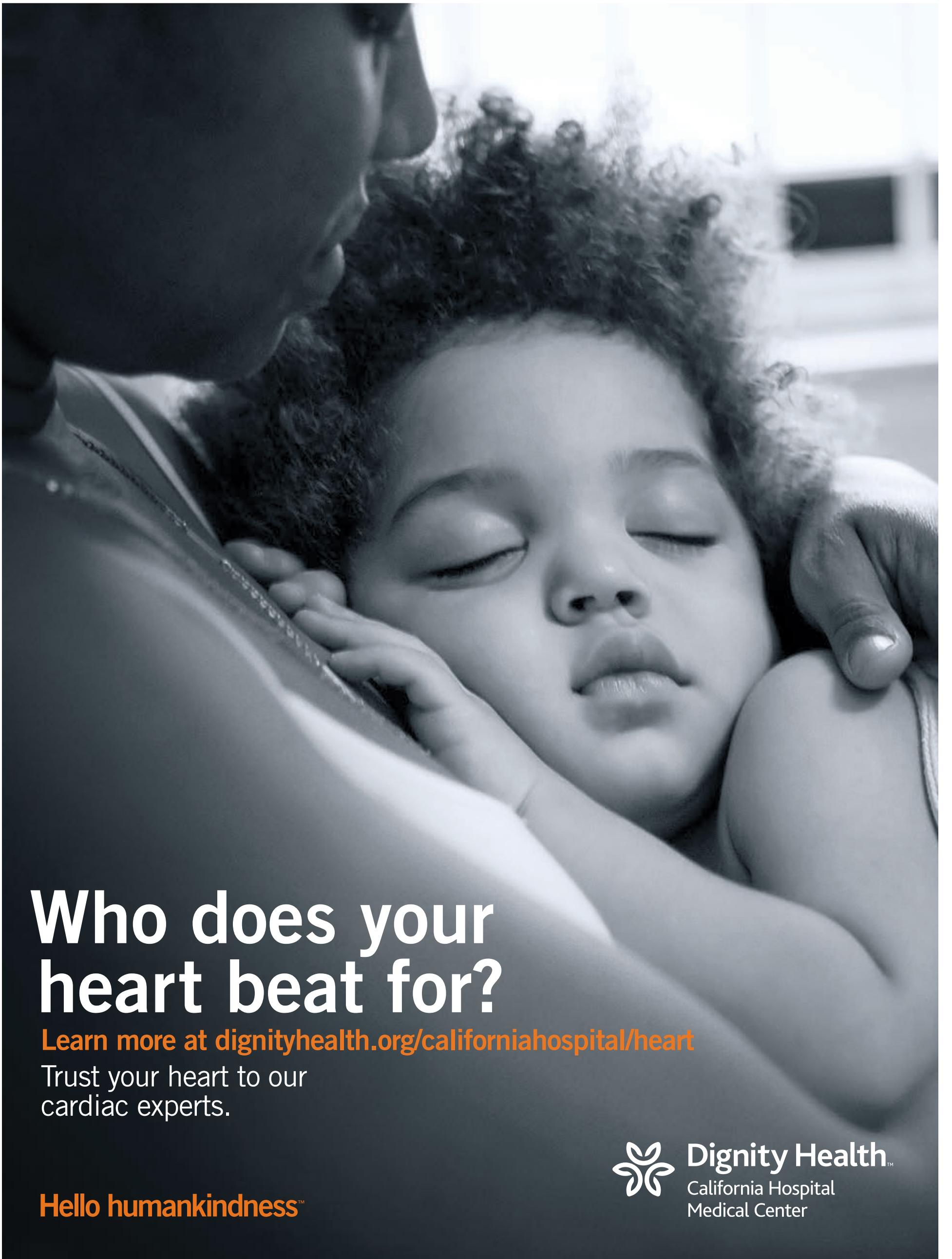
"Even though there is awareness about the importance of a healthy lifestyle, many people don't act on those messages," said Vanessa Xanthakis, Ph.D., senior author and assistant professor of medicine and biostatistics at Boston University. "This study points to the importance of knowing your numbers and speaking to your doctor about improving your score on each health metric and trying to get as close to ideal status as possible."

Previous research has shown that improvements in these measures reduce

the risk of heart attack and stroke. According to the American Heart Association's Statistical Update, at 40 years of age, men and women have a one in five chance of developing heart failure during their lifetime.

Researchers also found an association between poor heart health measures and unhealthy changes in the heart's structure and function, known as cardiac remodeling. These changes, measured at the beginning of the study, appeared to put people at greater risk for heart failure later in life. However, after adjusting for cardiac remodeling, low scores in the seven heart health factors remained predictors of heart failure.

Matthew Nayor, M.D., lead author and a cardiology fellow at Boston's Brigham and Women's Hospital, Boston, Massachusetts, said, "This is a useful metric for a healthy lifestyle that may not only help you reduce your chances of heart attack and stroke, but also of developing heart failure in the future."



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HEART DISEASE & STROKE AWARENESS

Most Americans' Hearts are Older than their Age

YOUR heart may be older than you are – and that's not good. According to a new CDC report, three out of four U.S. adults have a predicted heart age that is older than their actual age. This means they are at higher risk for heart attacks and stroke.

"Heart age" is the calculated age of a person's cardiovascular system based on his or her risk factor profile. The risks include high blood pressure, cigarette smoking, diabetes status, and body mass index as an indicator for obesity.

This is the first study to provide population-level estimates of heart age and to highlight disparities in heart age nationwide. The report shows that heart age varies by race/ethnicity, gender, region, and other sociodemographic characteristics.

CDC researchers used risk factor data collected from every U.S. state and information from the Framingham Heart Study to determine that nearly 69 million adults between the ages of 30 and 74 have a heart age older than their actual age. That's about the number of people living in the 130 largest U.S. cities combined.

"Too many U.S. adults have a heart age years older than their real age, increasing their risk of heart disease and stroke," said CDC Director Tom Frieden, M.D., M.P.H. "Everybody deserves to be young – or at least not old – at heart."

Key findings in the report include:

- Overall, the average heart age for adult men is 8 years older than their chronological age, compared to 5 years older for women.
- Although heart age exceeds chronological age for all race/ethnic groups, it is highest among African-American men and women (average of 11 years older for both).

- Among both U.S. men and women, excess heart age increases with age and decreases with greater education and household income.

- There are geographic differences in average heart age across states. Adults in the Southern U.S. typically have higher heart ages. For example, Mississippi, West Virginia, Kentucky, Louisiana, and Alabama have the highest percentage of adults with a heart age 5 years or more over their actual age, while Utah, Colorado, California, Hawaii, and Massachusetts have the lowest percentage.

Learn your heart age

The heart age concept was created to more effectively communicate a person's risk of dying from heart attack or stroke – and to show what can be done to lower that risk. Despite the serious national problem of higher heart age, the report's findings can be used on both an individual and population level to boost heart health, particularly among groups that are most at risk of poor cardiovascular outcomes.

Healthcare providers can use cardiovascular risk assessment calculators to inform treatment decisions and work with patients on healthy habits. For example, a 53-year-old woman might find out through her doctor that her heart age is 68 because she smokes and has uncontrolled high blood pressure. Her doctor could then talk with her about finding a quit-smoking program that is right for her, and about life-style changes and medications that would put her in charge of her blood pressure.

U.S. adults can learn their own heart age and how to improve it. This could



include quitting smoking or lowering blood pressure through eating a healthier diet, taking appropriate medication, or exercising more. State and local health departments can help by promoting healthier living spaces, such as tobacco-free areas, more access to healthy food options, and safe walking paths.

"Because so many U.S. adults don't understand their cardiovascular disease risk, they are missing out on early opportunities to prevent future heart attacks or strokes," said Barbara A. Bowman, Ph.D., director of CDC's Division for Heart Dis-

ease and Stroke Prevention. "About three in four heart attacks and strokes are due to risk factors that increase heart age, so it's important to continue focusing on efforts to improve heart health and increase access to early and affordable detection and treatment resources nationwide."

For more information, visit www.cdc.gov/heartdisease and www.cdc.gov/stroke. Visit millionhearts.hhs.gov to learn about Million Hearts, a national initiative to prevent one million heart attacks and strokes by 2017.

Eating Healthier Fats Could Reduce Heart Disease Deaths Worldwide

EATING healthier fats could save more than a million people internationally from dying from heart disease, and the types of diet changes needed differ greatly between countries, according to new research in *Journal of the American Heart Association*.

"Worldwide, policymakers are focused on reducing saturated fats. Yet, we found there would be a much bigger impact on heart disease deaths if the priority was to increase the consumption of polyunsaturated fats as a replacement for saturated fats and refined carbohydrates, as well as to reduce trans fats," said Dariush Mozaffarian, M.D., Dr.P.H., senior study author and dean of the Tufts Friedman School of Nutrition Science & Policy in Boston. Refined carbohydrates are found in sugary foods or beverages and are generally high in rapidly digested starch or sugar and low in nutrition.

He said this study provides, for the first time, a rigorous comparison of global heart disease burdens estimated to be attributable to insufficient intake of polyunsaturated fats versus higher intake to saturated fats.

Polyunsaturated fats can help reduce bad cholesterol levels in the blood which can lower the risk of heart disease and stroke. Oils rich in polyunsaturated fats also provide essential fats that your body

needs – such as some long chain fatty acids. Foods that contain polyunsaturated fats include soybean, corn and sunflower oils, tofu, nuts and seeds, and fatty fish such as salmon, mackerel, hering and trout.

To estimate the number of annual deaths related to various patterns of fat consumption, researchers used diet and food availability information from 186 countries, and research from previous longitudinal studies – which study people over long periods of time – on how eating specific fats influences heart disease risk. Using 2010 data, they estimate worldwide:

- 711,800 heart disease deaths worldwide were estimated to be due to eating too little healthy omega-6 polyunsaturated fats, such as healthy vegetable oils, as a replacement for both saturated fats and refined carbohydrates. That accounted for 10.3 percent of total global heart disease deaths. In comparison, only about 1/3 of this – 250,900 heart disease deaths – resulted from excess consumption of saturated fats instead of healthier vegetable oils; accounting for 3.6 percent of global heart disease deaths. Saturated fats are found in meat, cheeses and -fat dairy products, as well as palm and coconut oils. The authors suggest that the difference is due to the

additional benefits of increasing omega-6 polyunsaturated fats as a replacement for carbohydrates.

- In addition, 537,200 deaths, which represent 7.7 percent of global heart disease deaths – resulted from excess consumption of trans fats, such as those in processed, baked, and fried goods as well as cooking fats used in certain countries.

Comparing 1990 to 2010, the investigators found that the proportion of heart disease deaths due to insufficient omega-6 polyunsaturated fat declined 9 percent and that due to high saturated fats declined by 21 percent. In contrast, deaths due to high consumption of trans fats rose 4 percent.

"People think of trans fats as being only a rich country problem due to packaged and fast-food products. But, in middle and low income nations such as India and in the Middle East, there is wide use of inexpensive, partially hydrogenated cooking fats in the home and by street vendors. Because of strong policies, trans fat-related deaths are going down in Western nations (although still remaining important in the United States and Canada), but in many low- and middle-income countries, trans fat-related deaths appear to be going up, making this a global problem," Mozaffarian said.

In the study, nations in the former Soviet Union, particularly Ukraine, had the highest rates of heart-disease deaths related to low consumption of heart-protective omega-6 polyunsaturated fat. Tropical nations, such as Kiribati, the Solomon Islands, the Philippines and Malaysia, had the highest rates of heart-disease deaths related to excess saturated fat consumption.

"We should be a cautious in interpreting the results for saturated fat from tropical nations that consume lots of palm oil. Our model assumes that the saturated fats in palm oil have the same heart-disease risk as animal fats. Many of the blood cholesterol effects are similar, but long-term studies have not specifically looked at the heart disease risk of tropical oils," said Mozaffarian.

"These findings should be of great interest to both the public and policy makers around the world, helping countries to set their nutrition priorities to combat the global epidemic of heart disease," Mozaffarian concluded.

The research was undertaken as part of the 2010 Global Burden of Diseases, Injuries, and Risk Factors Study which is supported in part by the Bill and Melinda Gates Foundation and by the National Heart, Lung and Blood Institute of the National Institutes of Health.

HEART DISEASE & STROKE AWARENESS

New Dietary Guidelines Help Establish a Healthier Roadmap

THE American Heart Association (AHA) earlier this year announced its strong approval of the Departments of Health and Human Services (HHS) and Agriculture (USDA) for their release of the 2015 Dietary Guidelines for Americans.

"The new federal dietary guidelines give Americans more flexibility in their diets without sacrificing their health. By providing a valuable source of nutrition information, the standards are part of a roadmap to help build a 'culture of health' in America. This healthier culture will help reduce our risk for heart disease and stroke – the two leading causes of death in the world," said Mark Creager, M.D., president of the American Heart Association. "We commend HHS and USDA for their transparent approach in developing these guidelines and for incorporating the science-based nutrition recommendations made by the Dietary Guidelines Advisory Committee."

The Dietary Guidelines for Americans set a pattern for consumers to eat healthier by encouraging them to avoid trans-fat and limit saturated fat, added sugars, and sodium, while also encouraging them to increase their physical activity. Following this eating pattern may reduce the risk of chronic disease. "These guidelines will help us examine our diets in a more overall fashion. This 'bigger picture' view of our daily food consumption encourages more personal choice. Each American can use these guidelines to tailor their daily meals, meet their individual needs and

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MARK CREAGER, M.D., American Heart Association

work toward a healthier eating pattern," added Creager.

The American Heart Association supports a healthy eating pattern similar to the HHS/USDA Guidelines and encourages consumers to do the following:

- Adopt the total diet concept recommended in the guidelines that an overall heart healthy dietary pattern emphasizes: fruits, vegetables and whole grains; include low-fat dairy products, poultry, fish and nuts; and limit red meat, sodium, sweets and sugar-sweetened beverages.
- Consume lower levels of sodium. For optimal heart-health, AHA recommends that most American adults should aim to eat no more than 1500 mg of sodium per day. Since the average American's sodium intake is so excessive, even reducing sodium to the 2,300mg per day recommended by the Dietary Guidelines will produce significant improvement in the population's blood pressure and heart

health. Americans deserve the opportunity to choose how much sodium they are eating. Right now, that decision has been made for them by food manufacturers and the restaurant industry—about 77% of the sodium Americans consume comes from sodium added during processing.

- Maintain a healthy limit on saturated fats which can raise bad cholesterol levels and increase risk of heart diseases and stroke. Saturated fats are found mainly in animal fats, meat and dairy products and tropical oils like coconut and palm. To lower LDL-cholesterol in the blood, the American Heart Association continues to recommend limiting saturated fats to less than 5-6 percent of total calories consumed. For someone eating 2,000 calories a day that's about 11 to 13 grams of saturated fat a day. Trans-fats should be as limited as possible. Cholesterol is a waxy substance that comes from two sources: your body and food. Your body,

and especially your liver, makes all the cholesterol you need and circulates it through the blood. But cholesterol is also found in foods from animal sources, such as meat, poultry and full-fat dairy products. These foods may also have higher amounts of saturated fats.

- For the first time, the guidelines include a definitive amount for the consumption of added sugars, less than 10 percent of calories per day. This gives Americans clear direction on how much sugar they can consume and still keep their weight and health in check. For example, in a person who needs 2,000 calories a day this would be only 200 calories—less than the amount found in a 20 oz. sugar sweetened beverage if you didn't get any added sugars from other foods. The AHA encourages Americans to curb consumption of added sugars, especially from sugar-sweetened beverages like regular sodas, sports drinks and fruit-flavored drinks. The AHA and the Dietary Guidelines both acknowledge eating and drinking too many excess calories is linked to obesity, a major risk factor for cardiovascular diseases like heart attacks and heart failure.

"The American Heart Association encourages all Americans to use these guidelines to achieve healthier eating patterns. The guidelines will be important tools to help families and communities live healthier, longer lives," Creager said.

To learn more or to get involved, call 1-800-AHA-USA1, visit heart.org.

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