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How Policy Makers Can Advance Cardiovascular Health

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Consider Turkey before 2008.

Nearly half of all men smoked, as did nearly one out of every six women— among the highest rates in the world. Cigarettes were lit at business meetings, on buses and in Parliament. Restaurants and hotels were perpetually shrouded in a dingy, choking haze.

Cigarettes were considered a polite hospitality gift when visiting friends and family. And, perhaps most shocking of all, nearly a third of Turkish smokers started before the age of 10, according to a 2003 survey. Smoking flavored tobacco in a water pipe is a tradition that dates back to the 17th century under the Ottoman Empire.

Then came a health revolution. In December 2007, Turkish Prime Minister Recep Tayyip Erdogan declared the fight against tobacco to be “as important as our counterterrorism struggle.” He told a meeting of the National Tobacco Control Program in Ankara that tobacco products were “literally murdering our future generations.” Less than a month later, he signed a law banning smoking in all enclosed public spaces. It was part of a comprehensive effort involving government, advocacy groups, universities and nonprofit organizations to reduce tobacco-related diseases, which had accounted for more than 20 percent of admissions and half of deaths at Turkish hospitals at the turn of the millennium.

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Other policy measures included a stiff 81 percent tax on tobacco products, a total ban on cigarette advertising and promotion, warning labels on packages and government-funded quit-smoking programs. On Turkish television, a filter blurred out cigarettes held by actors on-screen.

Results came fast. “In just one year, between 2009 and 2010, admissions to hospital emergency rooms for smoking-related disease decreased by 24 percent,” says Toker Erguder, a physician and National Tobacco Control Program officer for the World Health Organization (WHO) in Turkey. “It demonstrates that policies to control tobacco work, and if they work in Turkey, with our strong smoking culture, they can work anywhere in the world.”



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We tend to think of cardiovascular ailments as diseases of lifestyle because their development and progression are influenced by what appears to be individual personal choices: Whether we smoke, what we choose to eat, how much we exercise and other factors. But those personal choices are heavily swayed by our environment and by our options. And—as Turkey’s experience shows—public policy is a powerful tool for shaping that environment. It’s no wonder, then, that in its report, “Promoting Cardiovascular Health in the Developing World,” the U.S. Institute of Medicine urged that policy be used to promote cardiovascular health around the globe.

A wide range of government policies have been used to protect people from cardiovascular diseases. Taxes, for example, are a powerful force for discouraging high-risk behaviors. Raising taxes on cigarettes is often a foundational part of any national antitobacco campaign. That strategy is now being applied in the fight against obesity. In Mexico, which recently surpassed the U.S. with the world's highest prevalence of obesity, legislators approved a national levy of one peso per liter on sugar-sweetened beverages (about 10 percent) as well as an 8 percent tax on junk food (foods that contain 275 calories or more per 100 grams).

Subsidizing what's good may be as important as taxing what's bad, such as government support for quit smoking or healthy diet programs. In Mexico, that includes federal spending to install water fountains in public schools to ensure a cost-free, healthful alternative to soda.

Including efforts such as these within a well thought-out, larger strategy is an effective way for policy makers to help make the healthier choice the easier choice across an entire population, reducing the risk for heart disease and stroke and leading to improved health and lives saved. This approach has proven successful in high-income countries and is now being rolled out in middle- and low-income nations to combat the world's two biggest causes of cardiovascular mortality: tobacco use and high blood pressure.

An “MPOWERED” APPROACH TO TOBACCO POLICY

Tobacco is responsible for 9 percent of all deaths world-wide, killing six million people a year, mostly from cardiovascular diseases, cancer and chronic lung diseases. High-income countries currently bear a greater burden than middle- and low-income countries, with 18 percent, 11 percent and 4 percent of all deaths, respectively. That's because tobacco use peaked in wealthier countries several decades ago, and it typically takes 30 to 40 years for smoking to do fatal harm. But that ratio will shift in coming years, with rising tobacco use and population growth in less wealthy countries and decreasing use in more affluent nations. By 2030, tobacco-related diseases will kill eight million people a year, more than half of them in developing nations. These diseases are expected to claim a billion lives this century—with about 70 percent in the developing world.

In May 2003, WHO took unprecedented action, passing the Framework Convention on Tobacco Control on behalf of its member states, the world's first public health treaty. Reflecting decades of careful evaluation of interventions conducted in various locales, the WHO framework provides a foundation to successfully reduce tobacco use. As of June 15, 2013, 178 countries had signed on. To support their commitment, WHO introduced MPOWER, a package of six tobacco-control measures. The acronym defines the strategy: **M**onitor tobacco use and prevention policies (with rigorous oversight and metrics); **P**rotect people from tobacco smoke (generally with policies that limit or ban smoking in public spaces and indoors); **O**ffer help to quit tobacco use (through cessation programs, hotlines and medications); **W**arn people about the dangers of tobacco (with labels on cigarette packages and health promotion campaigns); **E**nforce bans on tobacco advertising, promotion and sponsorship; and lastly, **R**aise taxes on tobacco. Together, these measures create an environment where not smoking or quitting is an easier choice to make.

Turkey has implemented these policies more thoroughly than any other nation, according to a 2013 WHO analysis, and New York has done the best job of any major city. After all six MPOWER strategies were adopted there, adult smoking declined from 22 percent in 2002 to 14 percent in 2010, with far fewer young people lighting up, down from nearly 18 percent to 8 percent—a record drop.

MPOWER is gaining momentum: More than one third of the world’s population—2.3 billion people in 92 countries—are now covered by at least one of its six measures. Nearly 7.5 million smoking-related deaths will be averted because of MPOWER policies adopted in 41 countries between 2007 and 2010.

Major funding for tobacco-control efforts in developing countries comes from Bloomberg Philanthropies, which has committed more than \$600 million since 2007. Meanwhile, the U.S. Centers for Disease Control and Prevention (CDC) provides technical support in 180 nations, collecting country-level information on tobacco use, interventions and evaluates the public’s awareness of the risks. The world’s most populous countries—China and India—have made major commitments to MPOWER policies, along with Russia, where 40 percent of adults smoke and where one of the world’s toughest tobacco-control laws went into effect in June 2013.

LOWERING BLOOD PRESSURE WITH POLICY

High blood pressure is responsible for massive disability and huge numbers of cardiovascular-related deaths globally. It’s astonishingly common. Approximately one third of adults age 25 and older have high blood pressure, defined by doctors as having a systolic pressure (the pressure in the arteries when the heart beats) at or above 140 millimeters of mercury and/or a diastolic pressure (when the heart is resting between beats and refilling with blood) at or above 90 mm. In parts of Africa, Asia and eastern Europe, prevalence exceeds 45 percent.

High blood pressure, also called hypertension, puts a steady strain on blood vessels, resulting in damage that may cause them to narrow and harden with plaque. It raises the risk that vessels will break or that clots will form, break loose and cut off circulation to the brain, resulting in a stroke—or block blood flow to the heart, causing a heart attack. About one half of all heart attack and stroke deaths worldwide are linked to hypertension—causing over nine million largely preventable deaths each year. The financial toll is staggering: about \$370 billion in 2001, the most recent comprehensive estimate. That’s more than 10 percent of the world’s health care spending.

Governments can play an important role in helping to reduce hypertension risks among their citizens. Due to the effect of sodium intake on blood pressure, policies are increasingly focused on reining in excessive consumption of salt (sodium chloride). Most people, regardless of race or nationality, consume too much, exceeding WHO recommended levels: 2,000 milligrams of sodium daily or five grams of salt (about four fifths of a teaspoon). In many Asian countries, average intake is more than twice that level. According to an analysis led by Perviz Asaria of Imperial College London, reducing sodium intake by just 15 percent

in 23 low- and middle-income countries where hypertension is rampant could prevent 8.5 million deaths over a 10-year period.

Although there is no precise equivalent to MPOWER when it comes to battling hypertension, an array of effective policies can work to change the trajectory. These policies, however, are best customized, as sodium intake varies greatly according to regional diet and reliance on packaged food. In high-income countries where processed foods are a common part of the daily diet, three quarters of salt comes from packaged and restaurant foods, while in other countries, nearly that much salt is added during cooking or at the table. In more economically developed countries, improvement has come through reducing salt in processed foods by clearly labeling sodium content on packages, making more healthful options available in the marketplace and using public programs to educate consumers. Finland pioneered the approach in the late 1970s, a protocol that reduced salt consumption by one third. The result: The average systolic blood pressure dropped by 10 mm over the next 30 years and death from both coronary heart disease and stroke fell by 75 percent.

In the United Kingdom, the government is working closely with food manufacturers to voluntarily lower salt content in 85 categories of processed and packaged foods. “Reformulation of mass-market products was the foundation for the most successful nutrition policy in the U.K. since the Second World War: The salt reduction programme that has cut the average national intake by 16 percent in its first six years,” noted J. T. Winkler, a British nutrition policy expert, in the *British Medical Journal*.

The approach has been adopted in the United States through the National Salt Reduction Initiative, and by the governments of Canada, Australia, Brazil and Colombia, among others. While the U.K. has shown that reducing population-wide sodium intake will require changes in the food supply at large, a pilot study in Argentina suggests that even small changes can make a difference: Just cutting the salt content in French bread from 2 percent to 1.4 percent sparked moderate reductions in average blood pressure.

In countries like China, where 80 percent of salt is added during cooking, other approaches may be appropriate. A 2011 survey found that about one quarter of adults in the northeastern province of Shandong had high blood pressure; average salt consumption was 12.5 grams per day. And yet, just one in four people was aware of the risks of a high-salt diet. In 2011, Shandong leaders and the national health ministry introduced a comprehensive salt reduction program, with technical support from the Chinese Center for Disease Control and Prevention in Beijing and the U.S. CDC. Their objective: reducing salt intake to 10 grams a day by 2015 and providing better treatment for those with high blood pressure. The program includes classes in public schools, messages that are broadcast on television and on posters placed in restaurants and supermarkets. It also targets those who prepare food, with training for chefs and food service employees on preparing low-salt recipes and distribution of special spoons to individual households that measure out two or three grams of salt. Salt content in food now appears on food labels, there are new low-salt food aisles in grocery stores and the health department is working with doctors to improve the detection and treatment of hypertension.

A preliminary assessment of the program's impact is expected later this year, with more complete results due in 2015. "We are convinced that the salt reduction project will decrease the risk of hypertension among Shandong residents in a short time, and lower cardiovascular mortality in the long term," says Wang Linhong, executive deputy director of China's National Center for Chronic and Noncommunicable Disease Control and Prevention. "The experience in Shandong should be of value to the rest of China."

To be comprehensive, programs also may include easy access to diagnosis, treatment and follow-up care for those with high blood pressure. This is a major challenge—even in economically developed countries. Effective treatment generally requires prescription drugs and long-term monitoring to ensure that patients reach and maintain a healthy blood pressure. In the U.S., only about half of those with hypertension have it under control, while in China—home to almost a fifth of the world's population—only about 19 percent of people with hypertension have stabilized their blood pressure.

A new global initiative seeks to develop a standardized, affordable framework for treatment that can be adapted for use anywhere. That initiative, the Global Standardized Hypertension Treatment Project, is currently being launched by the U.S. CDC in collaboration with the Pan American Health Organization and other regional and international partners. It builds on approaches that proved previously successful in treating infectious diseases, such as those used to treat tuberculosis and HIV/AIDS. Managing these diseases also requires regular monitoring and lifelong adherence to medication as well as standardizing the specific medications used to treat them and promoting reliable data collection and patient management systems. Much of this is achieved by increased involvement of nurses.

Proof of concept comes from a 2013 study published in *The Journal of the American Medical Association*: This approach enabled doctors in the Kaiser Permanente health system to nearly double the numbers of patients with controlled hypertension in northern California. Creating comprehensive registries to track patient data, simplifying and standardizing treatment protocols and rigorous monitoring of clinical practices were all key to success, said Marc Jaffe, who heads the Kaiser Northern California Cardiovascular Risk Reduction Program. "Conceptually, this is easy, but to get it done takes a lot of persistence and strategy," said Jaffe, who is now advising the CDC on the new global hypertension project.

And it's not just high-income countries that can use this approach. Malawi, for example, has partnered with nonprofit organizations to manage hypertension, diabetes and other chronic diseases at a clinic that originally focused on HIV. That facility, which serves 50,000 people on the outskirts of the capital, Lilongwe, now treats HIV patients two days a week and those with noncommunicable diseases three days a week. The intake room is equipped with a touch-screen computer that makes care management and data collection easy. "We are using the same computer system and the same infrastructure for chronic care as for HIV," said Anthony D. Harries, a senior advisor to the International Union Against Tuberculosis and Lung Disease, who also advises the Malawi Ministry of Health on the project.

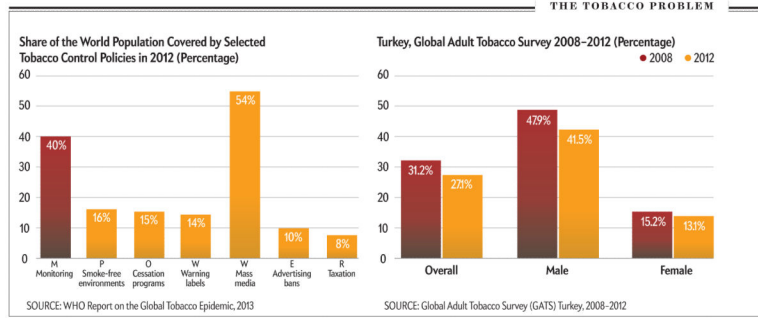
The clinic will use a streamlined approach to treating hypertension that is similar to the Kaiser Permanente model. A low-cost diuretic is the first-line treatment with calcium

channel blockers and low-cost ACE (angio-tensin-converting enzyme) inhibitors added if needed. “It is very standardized,” Harries said. “We think this is the way forward, and my feeling is that if it can work in Malawi, which is one of the poorest countries in the world, it can work anywhere.” Both Harries and the national health ministry will be evaluating the program’s efficacy over the next few years, with a view toward replicating it throughout the country.

The rising tide of cardiovascular diseases in low- and middle-income countries threatens not only the health of their citizens, but also endangers their economic future. Over the last decade we have increased our knowledge of effective interventions that address cardiovascular health by lowering risk and has made healthy choices—such as avoiding tobacco and limiting sodium—much easier to make. In some cases, less developed countries may have an opportunity to avoid some of the woes that plague high-income countries—for example, by ensuring that high-fat, high-salt processed foods don’t become a mainstay of local diets. Disseminating lessons learned from innovative policies, such as China’s salt reduction program to prevent and reduce hypertension, Malawi’s approach to treating hypertension and Turkey’s implementation of MPOWER may share lifesaving lessons across the globe that improve cardiovascular health and curtail its risk factors.

MORE TO EXPLORE

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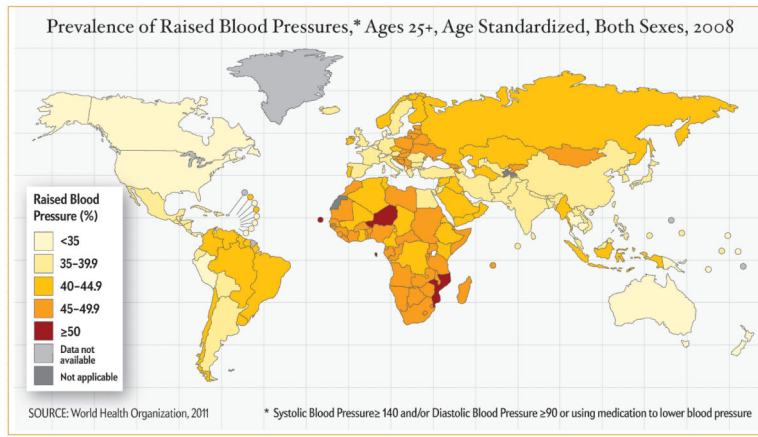
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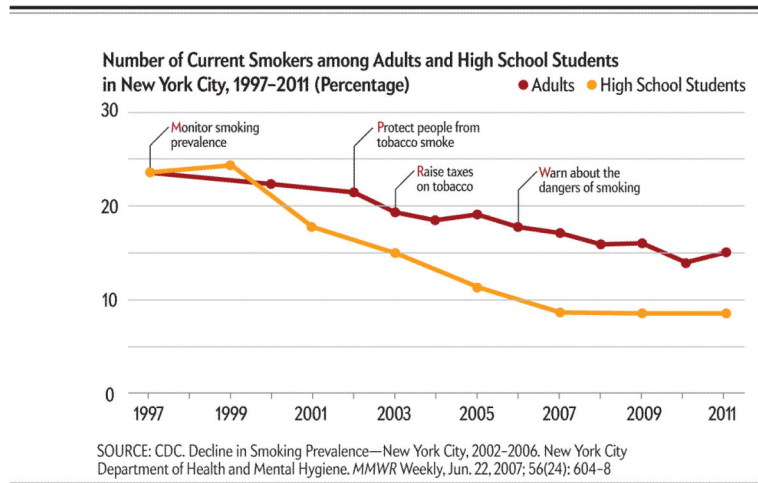
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Prevalence of Raised Blood Pressures,* Ages 25+, Age Standardized, Both Sexes, 2008



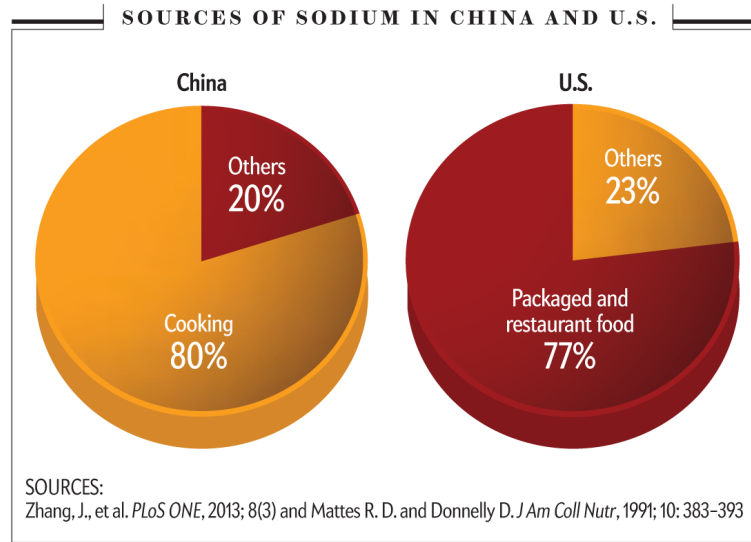
Number of Current Smokers among Adults and High School Students in New York City, 1997–2011 (Percentage)

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SOURCES OF SODIUM IN CHINA AND U.S.

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