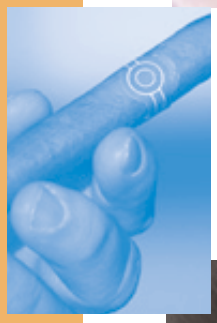
community partnerships prevention environmental hazards burden of illness managed care culture fertility beliefs and values barriers to access diversity innovative research women's health disability health policy homelessness communication quality improvement violence aging outcomes substance abuse ethics technology stress placebo youth genetic testing information and decision making morbidity and mortality poverty patient satisfaction cost families work conditions caregivers risk factors population health

exchange

the Center for Health *and* Community

at The University of California, San Francisco



In This Issue

From the Director

While our country remains galvanized against external threats, we cannot lose sight of a more immediate and substantial threat to our health–our own behavior. Sadly, the same behaviors that can give us pleasure and comfort may, over time, kill us. Smoking, lack of exercise, high-fat diets, excessive alcohol, and unprotected sex are among the most prominent causes of disease and early death in the US.

In fact, the Centers for Disease Control estimate that about half of premature deaths in the US are due to behavior and lifestyle. That far exceeds the 20 percent due to genetics and 10 percent due to inadequate health care. But you wouldn't know it from where the money is spent. We are spending less than 10 percent of research dollars on behavioral factors and an even smaller fraction of health care dollars on prevention.

Perhaps this is because behavioral contributions to health pose dual challenges. Changing behavior doesn't lend itself to magic pills or quick fixes, because it is a complex mix of social and economic factors, psychological characteristics, and biological vulnerabilities. Secondly, focusing on health-related behavior is uncomfortable since it risks "blaming the victim." It is too easy to attribute these behaviors to lack of will power or poor moral character. However, our research is showing such behaviors are powerfully shaped by social circumstances. Changing our behavior, therefore, requires a sustained individual effort paired with substantial social change.

The complexity of the problem also dictates that change efforts work on many levels. We must convince individuals and society that there is a reason to change. We must unpack the complex set of forces that foster health-risking behaviors. And then we

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Volume 3, Number 1 April 2002

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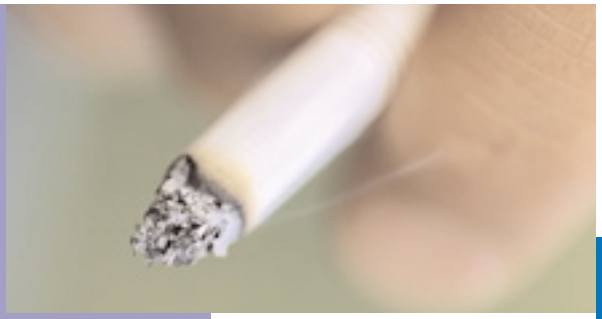


Measuring the Costs

Measuring the Costs

The raw numbers that illustrate the human costs of risky health behaviors are blunt and unforgiving.

Active smoking kills 430,000 Americans and second-hand smoke another 53,000 every year, according to UCSF professor Stan Glantz. Last year, a Robert Wood Johnson–sponsored compendium of studies and statistics called the abuse of alcohol, drugs, and tobacco America's number-one health problem. Some speculate that obesity—in the spotlight now because of the recent Surgeon General's report—is responsible for the premature deaths of 300,000 people each year in the U.S. And these numbers do not even begin to depict the physical and emotional suffering risky health behaviors impose.

If the human costs were enough to convince policymakers they need to address health behaviors, there might be no need to also mention that these behaviors cost American society over $400 billion each year. But because money tends to be the strongest driver of change, measuring the direct and indirect costs of illness–pioneered thirty-eight years ago by health economist Dorothy Rice–is an indispensable piece of public health research.

The Costs of Tobacco Use and the Value of Prevention

Rice has been analyzing the costs of tobacco use over the past decade; her work contributed to the widely publicized lawsuits against the tobacco industry.

Rice and a team of prominent researchers are currently tracking the health and economic effects of smoking and smoking cessation efforts in California. Unlike other analyses that take a snapshot of one point in time, Rice and her colleagues are building a dynamic model to continuously analyze the effects of smoking on general health status, smoking-caused disease and mortality; tie these effects to medical expenditures and nursing home costs; and then assess the impact of smoking cessation on those expenditures.

Rice is convinced that now is an ideal time for such work. "People are more cost-conscious now than they've ever been," she says. "Large companies pay large shares of their employee health care costs. If these companies recognize that individuals engage in preventable behaviors that result in the high use of managed care services, they may be moved to act."

While Rice's work looks at the long-term health and monetary costs of smoking, Stan Glantz takes what he calls "a much more cynical approach." Glantz is renowned for his work on second-hand smoke and for co-authoring *The Cigarette Papers*. Over the past few years he has turned his attention to measuring the short-term cost-effectiveness of California's Tobacco Control Program because he believes policymakers are much more likely to respond to short-term numbers. He recently noted that "full" investment in the California Tobacco Control Program could cut California's smoking rate to 10% over the next five years, saving 50,000 lives and millions of dollars in medical costs for smoking-related heart disease.

Stan Glantz

Recently, Glantz co-authored an article in the *New England Journal of Medicine* that demonstrated that California's Tobacco Control Program, which was implemented in 1989 and was then cut back in 1994, dramat-

"These health-risking behaviors cost American society over $400 billion each year."

CHC researchers:

- Measure the economic costs of smoking
- Assess the economic benefits of smoking prevention programs
- Evaluate the effectiveness of increased local investment in drug treatment programs

Dorothy Rice

ically cut the rates of heart disease and the deaths associated with it. Over the first seven years, it prevented 59,000 heart disease deaths, about 9% of total heart disease mortality.

"We assumed the most short-sighted, venal political take," says Glantz. "If we fully fund the tobacco control program, can we get that money back in a year? And what we found was, yes, just through reduction of heart disease a tobacco control program pays for itself." Glantz is now pressing Governor Gray Davis to fully fund the California program by using settlement funds from the tobacco lawsuits.

Evaluating Drug "Treatment on Demand"

Of course, tobacco use is not the only preventable health behavior to exact huge human and economic costs. In 1997, aware of the dramatic costs San Francisco bore in coping with the medical and social effects of drug abuse, the city began investing millions of dollars in a Treatment on Demand philosophy that expands drug treatment capacity so all those who need treatment can get it.

"Local governments make a lot of commitments," says psychologist and drug researcher Joseph Guydish, "but in this case there was real follow-through. San Francisco made and kept its commitment to a bold and interesting experiment."

Now that the program is a few years old, Guydish and his colleagues have done a study documenting an increase in service across the board, though the results of San Francisco's investment have not met everyone's hopes. The increase in service, for example, has not been commensurate with the amount of the investment. Nor does the investment seem to have eliminated waiting lists for treatment programs. However, the study links many of the gaps to the logistical and bureaucratic challenges of setting up new services and keeping accurate numbers.

Guydish does not think the problems indicate that the program is a failure. Quite the opposite.

"We're learning," he says. "Maybe our study shows that the program shouldn't have grown so quickly, that we need to put the infrastructure in place first. Treatment on Demand *is* serving more people and reducing the amount of chronic relapsing among drug users in San Francisco." ■

Rooting Out the Causes

Because preventable health behaviors do exact enormous costs in human suffering and hard dollars, researchers need to deepen their understanding of what drives these behaviors if they are to design more effective interventions and policies to reduce them. CHC researchers are at the forefront of these efforts.

The Role of the Media

Pharmacologist Lisa Bero, who co-authored (with Glantz and others) *The Cigarette Papers*, has been involved more recently with a number of studies that examine the role the media play in helping the public understand the effects of tobacco.

With colleague Ruth Malone and others, Bero has looked at how the media covered passive smoking research. "Reporters generally got the facts straight," she says. "But many (62%) newspaper and magazine articles leave readers with the belief that research on passive smoking is controversial–even though there is no real controversy about it in the scientific community. This happens because reporters, trying to be fair, quote tobacco industry spokespeople with the same frequency as public health researchers, yet cite few studies that actually dispute the mainstream findings."

Bero's recent work focuses on the way tobacco companies have used cigar magazines to promote tobacco use as a lifestyle choice. "Through magazines like *Cigar Aficionado* and *Smoke*, they've broken new ground by selling this luxurious, high-end lifestyle of which cigars are simply a part. Daily newspapers pick up these stories, but rarely mention the negative health effects of cigars (including second-hand smoke)," she says.

And then there is Hollywood. Stan Glantz exposes the tobacco industry's efforts and effectiveness at glamorizing smoking through film. "The tobacco industry recruits and retains smokers by associating its products with excitement, sex, wealth, rebellion, and independence. Films are a powerful way to make this connection," wrote Stan Glantz in a recent *British Medical Journal* editorial.

Glantz says, "Tobacco companies have a very sophisticated understanding of the media...they also kill 3,000 people per day." Determined to pressure Hollywood to make smoke-free films, he has set up a website (http://smokefreemovies.ucsf.edu) and has been running a series of provocative ads in the entertainment trade press to promote discussion of this issue.

Cultural Context

Drug abuse directly kills approximately 10,000 people per year in the United States and is a major factor in the spread of AIDS and hepatitis C (Substance Abuse and Medical Health Services Administration). Anthropologist Philippe Bourgois's broad body of work includes a long-term study of homeless heroin addicts in San Francisco, who often share the needles that spread those devastating illnesses. Since 1994, Bourgois has befriended a community of these addicts, whom he visits regularly and observes as they go about their daily routines, including shooting up.

Philippe Bourgois

"There is a fundamental miscommunication between the public health community and heroin addicts," says Bourgois. "We define sharing needles as ignorant, stupid and dangerous. But from the addict's perspective, sharing [paraphernalia] is responsible, nice, and normal, because their primary fear is not AIDS or hepatitis C–it's becoming dope sick (suffering the pains of drug withdrawal)." Sharing your heroin with a friend, says Bourgois, helps maintain community and guarantees that when you're in need someone will share with you.

Bourgois believes if the messages about needle exchange were placed

"In my dream of what should be, all of our silly attempts to legislate morality would be replaced by a compassionate willingness to allow science to save lives."

CHC researchers:

- Examine the influence of the media and entertainment industries on smoking
- Explore reasons why drug addicts share needles
- Uncover evidence that moderate alcohol use may not protect against heart disease
- Identify links between physical and chemical reactions to stress and overeating

Kaye Fillmore

within this context–and addicts understood there are ways to share heroin without sharing needles–a good program could be made better. He speaks frequently to drug counselors on the front lines about this and finds what he calls an "open, receptive audience devoted to solving these problems.

"Knowledge isn't the magic bullet we think it is," says Bourgois. "It needs a cultural context. If providers deepen their understanding of health behaviors, we can find more effective interventions. Cross-disciplinary research can help us do that."

Questioning Conventional Wisdom

Alcohol use has a more complex relationship to health. Though it causes devastating health problems and economic costs (such things as cirrhosis of the liver, breast cancer, fetal damage, violence, and drunk driving account for over 100,000 deaths annually, and medical costs of over $175 billion), researchers have demonstrated some positive health effects from alcohol use as well. But sociologist Kaye Fillmore believes alcohol's health benefits have been exaggerated by flawed scientific research–and that these studies may be overshadowing alcohol's dangers.

Scientists have long talked about the health advantages of moderate drinking, citing a number of studies that indicate 1-3 drinks per day reduce coronary heart disease mortality risk. Government agencies and providers, along with the alcohol industry, have promulgated this information.

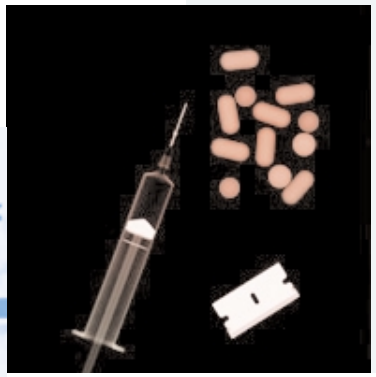
But Fillmore will soon publish a study that indicates the claims for reduced mortality risk are overstated at best and may be just plain wrong. Her research examined 55 studies for biases, such as not accounting for abstinence from drinking caused by poor health or aging. She found that not only did bias exist, but that it significantly increased the likelihood of finding abstainers at increased risk for all-cause or heart disease mortality.

"Based on these questionable findings, we may be encouraging middle-aged people to drink despite the fact that as we get older our alcohol tolerance decreases and so does our risk of falling or having complex interactions with other medications," says Fillmore. "Moderate drinking may have some positive health effects, but public health researchers should not be encouraging people to drink based on bad science."

Stress and Overeating

Another threat to our health comes from a common and necessary activity –eating. The Surgeon General's recent report on obesity has raised people's awareness of just how severe a health threat overeating can be and asserted that obesity is now epidemic in the U.S. Moreover, we know that central distribution of fat (in lay terms, an apple-shaped body as opposed to a pear-shaped one) is a risk factor for heart disease, stroke, and diabetes.

Health psychologist Elissa Epel's research is showing that central fat distribution–and the stress-induced (or emotional) overeating that contributes to it–is linked to the secretion of cortisol in response to psychological stress. "We know there is a direct link between how we feel psychologically and our metabolic functioning," says Epel. "Understanding that link can help physicians better recognize warning signs for the development of chronic disease and points to more effective psychological and physical interventions." ■



A New Era of Prevention

Measuring the costs and identifying the causes of health behaviors are important, but the goal is to design effective interventions.

Preventing the Spread of AIDS

The AIDS epidemic is now twenty years old. Tom Coates, who directs UCSF's AIDS Research Institute (ARI), has seen how a deepened understanding of AIDS transmission helped create

Tom Coates

increasingly successful prevention initiatives. Condom use, creating a safe blood supply, female contraception (especially in the developing world), targeted counseling to those most at risk, and needle exchanges have all slowed the epidemic. Yet, says Coates, prevention needs to improve, especially in the face of two countervailing forces: 1) government resistance to key prevention efforts and 2) the success of medications that hold the disease at bay, but inadvertently hobble prevention efforts by removing some of the inhibitions of those who might transmit the disease.

"AIDS prevention remains an enormously complex process that goes far beyond delivering information," says Coates. One example: to increase and improve prevention programs, we need to change government policies, which often block proven measures such as sex education and needle exchange, claiming that they encourage sex or drug use.

In an op-ed piece in the *San Francisco Chronicle*, Coates wrote, "In my dream of what should be, all of our silly attempts to legislate morality would be replaced by a compassionate willingness to allow science to save lives."

Epidemiologist Nancy Padian is one of those using science to save lives. As Director of International Research at ARI, Padian is particularly focused on the transmission of AIDS among women around the world.

"There is a political and economic context, as well as a cultural context to sexual behavior," notes Padian, who has worked extensively in Zimbabwe, where a third of the population, male and female, is afflicted with AIDS. "For many women, their political and economic situation makes unprotected sex a necessity."

Presently, Padian is trying to begin a study focused on teenage women in Zimbabwe that will give women increased access to female-controlled contraception, and will also provide economic interventions and education

Cherrie Boyer

that can create a vital sense of independence. Padian calls this "giving women the tools to help themselves. Economic interventions, like micro-financing, have been tried successfully all around the world, but they've never been tied to reproductive health. It's an appealing model; now we have to see if it works."

Preventing STDs

Like Padian, Cherrie Boyer has been instrumental in designing interventions for HIV/STD prevention. She notes that many teens and young adults fail to understand the way their social networks put them at risk for STDs.

This includes the U.S. military. For the military, Boyer has created a number of effective interventions, including a stark, emotional, documentary that presents HIV-positive military personnel speaking candidly about how they contracted the disease and the price they are paying for having done so.

She also helped create and is now evaluating the YUTHE (Youth United Through Health Education) Project, a community-based peer-led HIV/STD

"AIDS prevention remains an enormously complex process that goes far beyond delivering information."

CHC researchers:

- Deliver and document effective approaches to AIDS prevention worldwide
- Slow the spread of STDs in the military and among inner-city teens
- Explore methods for helping older people stop smoking
- Institute successful exercise programs for older people in underserved communities

prevention program focused on increasing STD screening and treatment among African American adolescents in San Francisco's Bayview-Hunters Point neighborhood.

"Good public health," says Boyer, "has to be rooted in theory, but also has to embrace the communities it is trying to serve. With STDs, the stakes are so high and young people's lives are so complex, we can't do this work from ivory towers; we have to get our hands dirty."

Reaching Older People

Unfortunately, risky health behaviors are not just the province of young adults. Older people also engage in these behaviors–with enormous costs and consequences for themselves and for the communities in which they live.

"Older people are among the most chronic smokers, with a physical dependence and habit built up over many years," says psychologist Sharon Hall, who has begun to look closely at the effects of smoking on this population.

Unfortunately, health providers don't pay much attention to addressing older smokers, on the theory that it is too late to reverse the health effects and that there may be negatives to stopping (depression and a loss of mental acuity) that offset the positives. Hall is challenging those assumptions.

"We know, for example, that the changes in cardiovascular health are rapid and dramatic–and that cardiovascular health can affect cognitive functioning," she says.

Hall is also challenging the notion that quitting smoking is simply a matter of employing short-term solutions. She notes, "With any other addiction, we assume we have to treat it over the long term, addressing physical, psychological, and behavioral issues." She is just beginning a study that would test longer-term interventions with older people. Understanding the most effective ways to cure *their* addiction may well offer insight into improving cessation among all age groups. (Interested participants should call 415.476.7453 for information.)

Like smoking, lack of exercise is also rampant among older adults. Anita Stewart's CHAMPS (Community Health Activities Model Program for Seniors) educates seniors about moderate physical activity. The program describes the proven benefits for physical and mental well-being, and supports seniors' involvement in community exercise programs or activities on their own. In a randomized, controlled trial, CHAMPS clearly led to meaningful increases in physical activity for a group of underactive seniors.

Anita Stewart

But Stewart wanted to bring her program into traditionally underserved communities, including San Francisco's Bayview-Hunters Point and the Mission. Now in the second year of doing so, Stewart has found, "The program in its original design just doesn't work in these communities, because there isn't enough infrastructure. People need community support, exercise resources, safe streets, and role models. But what's interesting is that with the seed in place, something *has* begun to happen."

She describes how in Bayview-Hunters Point, with virtually no physical set-

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Exchange is published by the Center for Health and Community at the University of California, San Francisco
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From the Director *continued from front page*

must create innovative policies and programs to prevent or reduce these behaviors. CHC researchers are leading the way. Some of our faculty document the staggering human and economic costs of tobacco use and reveal how the tobacco industry continues to influence people's smoking habits. Others uncover important information about the costs and causes of injection drug use, alcohol use, and even everyday stress.

Finally, CHC researchers are developing a range of widely adopted interventions. Among other things, these interventions help prevent the spread of sexually transmitted diseases around the world–including AIDS–and improve physical activity levels in elderly Americans.

This issue of *Exchange* demonstrates the importance of research on behavior. By looking at health behaviors across many disciplines, we are taking important steps towards improving health and reducing perhaps the biggest threat to our health. But it will take more than today's few scattered research efforts to make that happen. Just as we are doing with terrorism and biological research, we must accept the magnitude of the challenge and mobilize to address it. ■

Nancy Adler

A New Era *continued from page 7*

tings to help seniors exercise, a partnership grew between a community agency called the Network for Elders and a community college. A health education and an exercise class began at the college. The seniors contacted the local Parks and Rec department and were instrumental in obtaining new chairs for a program there and are petitioning to have the local gymnasium cleaned up to meet their needs.

As the project has grown, Stewart's team has found increased physical activity among the participants, but perhaps the most compelling success story comes in Stewart's description of "one older woman, who four or five weeks into the program was walking around the Joseph Lee Gymnasium, happily swinging her unused cane in the air." ■

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