

# CONQUERING CANCER

UNC tackles cancer as a public health issue, from research to prevention to treatment to survivorship

Every family has a cancer story. So does every neighbor, friend, co-worker and employer. That's why it's not just a statistic – it's a human issue. And that's why it's not just a disease – it's a significant public health issue.

Each year, nearly 1.5 million Americans are diagnosed with cancer – more than 42,000 in North Carolina. About 562,340 Americans – more than 1,500 people a day – will die of cancer, according to the American Cancer Society. Cancer costs this country more than \$200 billion annually in direct medical costs and lost productivity.

“Cancer affects the public as broadly as the public can be affected by any type of condition,” says Jesse Satia, PhD, who, as associate professor of epidemiology and nutrition in the UNC Gillings School of Global Public Health and the UNC School of Medicine, studies the impact of diet and other health behaviors on cancer survivorship. “That is why cancer is a public health issue!”

Cancer is the second leading cause of death in the U.S.; only heart disease kills more people. In North Carolina, cancer

has caught up with heart disease as the leading cause of death, which mirrors global trends.

The World Health Organization (WHO) predicts that cancer will surpass heart disease as the world's top killer by 2010. WHO projects the number of cancer cases to increase 37 percent from 2007 to 2030 (from 11.3 million to 15.5 million) and the number of deaths to increase 45 percent (from 7.9 million to 11.5 million). The projected leaps are due to population increases and rising tobacco use in highly populated countries like India and China, coupled with better cancer diagnostic techniques and the downward trend in infectious diseases that once were the world's leading

killers. Thus, as the world becomes increasingly developed, cancer becomes a larger global problem.

“Just as it is in the United States, our international focus in public health is shifting from a

traditional infectious disease emphasis to an emphasis on chronic diseases like cancer, and the leading underlying causes of these diseases: tobacco use, physical inactivity and dietary practices,” says Marcus Plescia, MD, MPH, director of the Division of Cancer Prevention and Control at the Centers for Disease Control and Prevention.

Meanwhile, he continues, “The tobacco industry has clearly responded to the success of tobacco control efforts in the United States by exporting this highly addictive product and their highly effective marketing strategies abroad. The results will be disastrous for public health on an international scale.”

## Research and Outreach

There is good news. Like many other states, North Carolina is fighting back by promoting early detection of cancer and healthier lifestyles. UNC is a national leader in research, treatment and outreach. With the creation of the University Cancer Research Fund (UCRF), UNC is positioned as a transformative leader in progress against cancer.

In 2007, the N.C. General Assembly created the UCRF to accelerate cancer research across the state, especially at UNC's School of Medicine, Lineberger Comprehensive Cancer Center and the new N.C. Cancer Hospital.

**In the U.S., cancer  
accounts for  
nearly one of  
every four deaths.**



UCRF's mission is to save lives and reduce suffering from cancer in North Carolina and beyond. The fund is being used to study the causes and course of cancer, to create new and better ways to prevent and treat cancer and to improve cancer care and screening, with a particular focus on eliminating racial and socio-economic disparities.

Several UNC researchers are tackling disparities among cancer patients, ranging from Andy Olshan's study of the ways head and neck cancer treatment affects quality of life, particularly among African Americans, to Geni Eng's leadership in exploring whether

says Laura Linnan, ScD, associate professor of health behavior and health education at the UNC Gillings School of Global Public Health. "We need to counter the fear and misunderstanding with strong public education. We need to help people know they can do something to reduce their risk, because when they learn they can take action, that is when they feel empowered."

Empowering people is particularly important, given that WHO and other health organizations estimate that about 40 percent of all cancer deaths can be prevented. Key risk factors for cancer that can be avoided include

"One of the most powerful arguments for why cancer is a public health issue is that it is preventable," says Noel Brewer, PhD, assistant professor of health behavior and health education. "Even if we never find a 'cure' for cancer, we can still eliminate substantial morbidity and mortality through early detection and treatment."

The CDC's Dr. Plescia agrees, praising actions by the N.C. General Assembly to invest in cancer research in North Carolina and to ban smoking in restaurants and bars.

"The choices we make are shaped by the choices we have, and this is why public policy has emerged as the driving force for cancer control," says Dr. Plescia, who until recently was chief of the Chronic Disease and Injury Section in the N.C. Division of Public Health. "The General Assembly's investment in cancer research is profound, as are its actions in the 2009 legislative session to ban smoking in North Carolina restaurants and bars. Studies show that nonsmokers who are exposed to secondhand smoke at home or work increase their heart disease risk by 25 to 30 percent and their lung cancer risk by 20 to 30 percent. This legislation will save lives and reduce health care costs to the state." ▶▶

When people know they can do something to reduce their risk... that is when they feel empowered.

– UNC Associate Professor Laura Linnan

the burden of cancer is greater among African Americans than whites. (See stories, pages 11 and 20.)

"Cancer touches everyone and is still feared the most in terms of health issues,"

tobacco and harmful alcohol use, obesity, inactivity, some environmental and occupational carcinogens and some infections, such as the sexually transmitted human papillomavirus. In all these areas, public education is crucial.

## Access to Data a Key to Success

Another key to successful research and outreach is having access to data. Again, UNC is taking the lead by creating a comprehensive health registry that will serve as a treasure trove of information for researchers. Beginning this fall, UNC plans to enroll 10,000 English- and Spanish-speaking adult North Carolinians in the UNC Health Registry. (See story, page 30.) The registry will be a tremendous resource for research into cancer and other diseases and, as a hospital-based cohort, will complement the rich history of UNC's excellent population-based research conducted by the public health, medical and other schools.

"Clearly, good science drives good policy decisions," he says. "Health reform, information technology and systems change in the medical care setting all provide us with new and important opportunities for cancer prevention and control. A comprehensive health registry, such as the UNC Health Registry, will provide data essential to helping to drive these changes."

## Survivorship and Advocacy: New Ways of Looking at Things

More people than ever are becoming better educated about their disease and, with advances in early diagnosis and treatment, are surviving longer. The American Cancer Society

Another emerging area of study – and another area in which UNC stands out – is to focus on cancer survivors and study how they can live fuller and richer lives. A priority of the UCRF is to stimulate research about factors that affect the growing population of cancer survivors. The Lance Armstrong Foundation, now known as LIVESTRONG™, also is committed to better quality of life among survivors and has named Lineberger a "Survivorship Center of Excellence." (See story page 27.)

When it comes to cancer, UNC plays a leading role on the local, state, national and global stages. Whether conducting studies in the laboratory, clinic or community, using cutting edge technologies to diagnose and treat patients, or helping them piece their lives back together when the chemotherapy ends, UNC is transforming the way the world thinks about cancer.

"What we're proud of is a translational line of work that goes from the laboratory and a small set of clinical hospital patients to the population at large," says Robert Millikan, PhD, Barbara Sorenson Hulka Distinguished Professor of epidemiology and member of the UNC Breast Cancer SPORE at Lineberger. "That is how UNC is making a difference all the way from the individual level, by helping patients and their families, to the global level, by being a leader in research. We cover it all." ■

– *By Kim Gazella and Ramona DuBose*

The choices we make are shaped by the choices we have, and this is why public policy has emerged as the driving force for cancer control.

– Dr. Marcus Plescia, CDC Cancer Prevention & Control

Why does all of this research have public health implications? Because while the UNC faculty members do not make public policy – that is left to the elected and appointed health officials at the state and national levels – they are able to provide the data that drive policy. Even more, the collective actions sparked by UNC's research, treatment and outreach lead to improved outcomes for patients.

Last year, UNC was selected as one of two cancer research sites by the U.S. Agency for Healthcare Research and Quality (AHRQ), an arm of the U.S. Department of Health and Human Services. (See story page 19.)

"We don't do policy, but we create the science under which people make policy," says Jean Slutsky, PA, MSPH, director for the Center for Outcomes and Evidence at AHRQ. That policy, she says, can range from a patient and doctor agreeing on a treatment to decisions made by Medicare or the head of a large medical insurance company.

Dr. Plescia calls an evidence-based policy agenda "essential" to the public health profession's credibility with the public and with policy makers.

notes that the five-year relative survival rate for all cancers diagnosed between 1996 and 2004 is 66 percent, up from 50 percent in 1975-1977. Nationwide, an estimated 12 million patients are cancer survivors; North Carolina's share is 300,000.

## Quick Global Cancer Facts

- Cancer is a leading cause of death worldwide: it accounted for 7.9 million deaths (around 13 percent of all deaths) in 2007.
- Lung, stomach, liver, colon and breast cancer cause the most cancer deaths each year globally.
- The most frequent types of cancer differ between men and women.
- About 30 percent of cancer deaths can be prevented.
- Tobacco use is the single most important risk factor for cancer.
- Cancer arises from a change in one single cell. The change may be started by external agents and inherited genetic factors.
- About 72 percent of all cancer deaths in 2007 occurred in low- and middle-income countries.

Source: World Health Organization