



PHOTO BY TOM FULLINER

Research highlights – Implementation-ready studies that may shape policy and treatment

Innovative research at the School offers risk-reduction strategies, defines vulnerable populations and informs optimal treatments. Implementing findings such as these – and making them work for individuals and communities – will help make the public healthier faster.

DRAMATIC RISE IN DIABETES AMONG AMERICAN TEENS

Diabetes increased by about 25 percent among American teens in the last decade. Noting this disturbing trend, which was seen for both Type 1 and Type 2 diabetes, nutrition professor **Elizabeth Mayer-Davis, PhD**, says the real public health impact of these numbers may not be felt for decades, as the current teen population ages and becomes plagued with chronic diseases.

“Youth with Type 1 or Type 2 diabetes will enter adulthood with higher risk for cardiovascular disease and other long-term, costly complications of diabetes, including eye and kidney disease,” she says.

Mayer-Davis’ research also showed that diabetic teens rarely meet health recommendations for exercise and diet, and their diabetes often is controlled poorly. She says this makes it all the more important to redouble efforts to support daily medical management,

healthy food choices and opportunities for physical activity among teens with – or at risk for – diabetes.

ADULTS BORN DURING 1980S UNIQUELY PRONE TO OBESITY

Despite recent reports that obesity in the U.S. appears to be leveling off, assistant professor of epidemiology **Whitney R. Robinson, PhD**, has found that young adults born in the 1980s may continue to be burdened by increasing obesity rates when compared to the rest of the adult population. Her study, published in May by the *International Journal of Obesity*, found marked generational differences in the rates of obesity.

Robinson hopes the findings will help shape public health efforts to prevent incident obesity and further weight gain in these young adults, especially as they reach middle age and begin to experience obesity-related conditions like hypertension and diabetes.



Dr. Paul Godley



Dr. David Margolis



Dr. Elizabeth Mayer-Davis



Lauren McCullough



Dr. Whitney R. Robinson

EXERCISING, EVEN LATER IN LIFE, APPEARS TO CUT BREAST CANCER RISK

One in eight American women is diagnosed with breast cancer at some point in her life – something that weighs heavily on many women’s minds, especially as they age. New research led by **Lauren McCullough**, doctoral candidate in epidemiology, offers promise. McCullough’s study found the risk of breast cancer can be reduced by as much as 30 percent in women who exercise 10 to 19 hours per week.

According to the study, published June 25 in the journal *Cancer*, risk reductions were observed at all levels of intensity, and exercise seemed to reduce the risk of hormone-receptor-positive breast cancers – the most commonly diagnosed tumor type among American women. McCullough says active women also need to focus on maintaining a healthy weight. Substantial weight gain, particularly after menopause, seemed to negate the cancer-reducing benefits of exercise.

STUDY VALIDATES OPTIMAL TREATMENT FOR PROSTATE CANCER, INFORMS MEDICAL CHOICE

Over the last decade, Intensity-Modulated Radiation Therapy (IMRT) largely has replaced conventional conformal radiation therapy (CRT) as the primary radiation technique for treating localized prostate cancer, despite little hard data to support it. Now, UNC researchers, led by **Paul Godley, MD, PhD**, adjunct professor of epidemiology and professor of medicine, have helped to validate this change in practice.

In a comparative analysis, published April 18 in *Journal of the American Medical*

Association, IMRT was better at preventing cancer recurrence and results in fewer side effects than conventional CRT. IMRT was associated with fewer diagnoses of gastrointestinal symptoms such as rectal bleeding or diarrhea, fewer hip fractures and less additional cancer therapy, but more difficulty with sexual function. It was as effective as proton therapy, a new high-cost technique that has been growing in popularity.

Godley and his team believe these results will provide clinicians and patients with more information upon which to base medical decisions. In 2012, approximately 241,740 American men will be diagnosed with prostate cancer.

DRUG HELPS TARGET HIDDEN HIV

While antiretroviral therapies (ARTs) have been effective in controlling HIV levels, they have not completely eliminated latent virus hiding within infected cells. Problems with long-term ARTs, such as drug resistance, side effects and cost, have underscored the need for a new approach to combating the virus, according to **David Margolis, MD**, professor of epidemiology and medicine.

A recent study by Margolis and colleagues, published online July 25 in the journal *Nature*, found that a cancer drug, vorinostat, can force HIV out of hiding and expose it to attack from conventional anti-HIV therapies. The results provide a path forward for testing this class of anti-cancer drugs, known as HDAC inhibitors, to target persistent virus, which would be an important step toward finding a cure.

In a related study, published online May 28 in *Proceedings of the National Academy*

of Sciences, Margolis and colleagues found that latency develops soon after infection and slows when ART is administered.

EARLIER HIV TREATMENT CAN HELP PROTECT PARTNERS

In African countries with the highest HIV rates, nearly half of HIV-infected adults in stable relationships have uninfected partners. More than half of new adult infections occur within such couples, according to the World Health Organization (WHO).

A landmark study known as HPTN 052, conducted by **Myron Cohen, MD**, and his team, found that starting combination antiretroviral therapy (cART) dramatically cuts the rate of sexual transmission of HIV to uninfected partners (by 96 percent) and significantly reduces HIV-related illness and death in the infected partner (by 41 percent). Results, published July 18 in *The New England Journal of Medicine*, have led WHO to consider recommending early cART in its guidance to couples with one HIV-infected partner.

“HPTN 052 is the first randomized clinical trial to indicate definitively that an HIV-infected individual can reduce sexual transmission of HIV to an uninfected partner by beginning antiretroviral therapy sooner,” Cohen says.

Cohen is the J. Herbert Bate Distinguished Professor of medicine, microbiology and immunology in the UNC School of Medicine and epidemiology professor at UNC’s public health school. *Science* named HPTN 052 its “Breakthrough of the Year” in 2011.

—Amanda Crowe