

Shattering the “Status Quo”



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Researchers work with communities to overturn disparities and improve health.

BY GENE PINDER

It all started when a group of North Carolina residents felt compelled to raise a stink.

In the early 1990s, large, industrial hog farms were locating and expanding in rural eastern North Carolina—particularly near communities of low-income African-Americans.

By the late 1990s, the N.C. General Assembly had a moratorium on the construction of new and expanding industrial swine operations in place for the state, but debate still simmered sometimes about whether to lift it.

Responding to this potential threat, a grassroots organization—The Concerned Citizens of Tillery—stepped up to fight for their community and others across the region by partnering with the North Carolina Hog Roundtable to present their case to the General Assembly.



PHOTO BY RICK DOVE

In the floodwaters of Hurricane Floyd (left), somewhere between 50,000 and 500,000 hogs perished. Most were buried in the adjoining wet fields. North Carolina citizens protest hog pollution outside of General Assembly buildings in Raleigh, N.C. (above).

Composed of grassroots community groups and environmental groups like the Neuse River Foundation, the Roundtable was formed several years earlier at the initiation of the Concerned Citizens of Tillery. It represents the combined efforts of groups concerned about North Carolina's hog industry and its effect on the environment, wildlife, human health and personal property.

The Roundtable maintained that industrial hog farms were a threat to the quality of life, health and well-being of rural residents who did not benefit economically from corporate agriculture. Hog waste lagoons flooded during heavy rains or hurricanes and, they claimed, contaminated their wells. They suffered a host of health ailments such as persistent headaches, runny noses and sore throats they believed were attributable to the presence of the farms.

And, of course, there was the *smell*—a foul odor that found its way into every corner and crevice of their lives. It meant keeping their windows closed at all times. It also meant curtailing outdoor activities. The people of Tillery were mad, and they wanted to do something about it.

There was only one problem. No scientific studies had been conducted in North Carolina linking their health problems to the farms, and Tillery residents could not afford to conduct this research themselves. Without it, the moratorium was in jeopardy, and the status quo would remain, regardless of the potential health consequences. ►►



Enter UNC School of Public Health Epidemiologist Dr. Steve Wing and his research team.

Wing had heard about the group's plight through a network of friends and colleagues. With a grant from the National Institute of Environmental Health Sciences, he decided to examine the claims.

Wing and other UNC researchers analyzed the location and characteristics of 2,514 hog operations in relation to the racial, economic, population density and water source characteristics of census block groups and neighborhoods within North Carolina. They found that

hog operations were about five times as common in the highest three quintiles of the nonwhite population as compared to the lowest. The evidence was clear. Whether intended or not, industrial hog farms were indeed most prevalent in areas with both high poverty and a high percentage of nonwhites.

Armed with this new information, the Roundtable took their case to the General Assembly and helped convince the state to keep the moratorium—a moratorium which still exists.

Wing wasn't finished. In another study, he and other UNC researchers investi-

gated the group's claims that their deteriorating health conditions were caused by the hog farms and their waste lagoons. After interviewing 155 individuals, Wing and his team found that certain respiratory and gastrointestinal problems were elevated for people living near an industrial hog farm compared to other rural residents.

For Wing, arming community members with facts was rewarding.

"It's exciting to be involved in this kind of work," he says. "Too often in academia, we tend to focus on one very narrow issue. This particular project allowed us

UNC Associate Professor of Epidemiology Dr. Steve Wing (above) works in his office on the Carolina campus. Wing and other UNC researchers analyzed the location and characteristics of 2,514 North Carolina hog operations and found that industrial hog farms were most prevalent in areas with both high poverty and a high percentage of nonwhites. Flood waters are shown here (right) washing hog waste from hog confinement buildings. Such waste has been known to pollute groundwater and the drinking wells of nearby residents.



Into the Mouths of Babes

Dr. Gary Rozier, professor of health policy and administration at the UNC School of Public Health — along with colleagues — has dedicated the past seven years to a single, important goal — getting appropriate dental care to one of North Carolina’s most vulnerable populations — young, disadvantaged children.

to look at and be involved in the entire picture—from the analysis and research to the public policy efforts.”

Wing’s research is just one example of numerous research and intervention efforts underway at the UNC School of Public Health to overcome inequities in health and change the status quo. Read on for more examples. These projects are real-world applications that are changing and improving people’s lives—people who often don’t have the resources or the power to overcome the many hurdles that stand in the way of bettering their health and that of their families. ■



PHOTO BY RICK DOVE

Pollution from hog farms makes its way to rivers like the Neuse. Here (above), a sign next to the Neuse River near Cherry Point, N.C., warns people not to swim. Pediatric Resident Dr. Adam Shapiro (right) at the UNC Pediatric Clinics at N.C. Children’s Hospital in Chapel Hill, N.C., examines 2-year-old Julian Love’s teeth. Shapiro is one of hundreds of North Carolina pediatricians who have been trained to screen infants and toddlers for dental disease, apply fluoride varnish to teeth, and counsel parents on oral health.

The problem is significant, says Rozier, who holds a Doctor of Dental Surgery from UNC. According to the U.S. Surgeon General, tooth decay is the most common chronic childhood disease, five times more prevalent than asthma. Four out of 10 North Carolina children enter kindergarten having had tooth decay. Most are from poor or disadvantaged families. And while evidence suggests that early intervention for dental disease is important for the long-term health of these children, societal, geographic and cultural reasons often prevent them from getting the care they need.

Sometimes, the lack of care is due to a shortage of dentists in poor or rural communities. Other times, it is caused by parents being unable or unwilling to take time off from work to wait in a dental office. For others, the cost of fluoride toothpaste is an obstacle. Compounding the problem is the fact that some dentists don’t accept Medicaid-reimbursed patients.

With help from Dr. Jim Bawden, former dean of the UNC School of Dentistry, and Dr. Rebecca King, chief of the Oral Health Section of the N.C. Department of Health and Human Services, Rozier and others came up with a novel idea—train pediatricians and family physicians to screen infants and toddlers for dental disease, apply fluoride varnish to their teeth, and counsel parents on oral health. Although new to dentists’ armamentarium, painting fluoride on teeth was, ▶▶



PHOTO BY EMILY J. SMITH

after all, relatively easy to do and, if parents were already taking their children to see their medical doctors, didn't it make sense to integrate this preventive care procedure into their current practice?

What emerged was *Into the Mouths of Babes*, a highly successful and unique program currently administered by the Oral Health Section and Division of Medical Assistance of the N.C. Department of Health and Human Services. Since its inception, more than 250,000 preventive dental visits have occurred in North Carolina medical offices. The number of children visiting dental offices also increased during this same period.

"Nobody knew if this would really work," says Rozier, "and there were so many questions associated with it since it had not been tried before. Would physicians do it? If so, how would we train them? Would it prevent cavities and save Medicaid money? Could we improve the quality of life of these children and their families over time? We didn't know the answers, but we knew there was a prob-

lem with access to dental care for disadvantaged families, and so we went about trying to solve it."

Rozier, along with Dr. Sally Stearns, associate professor of health policy and administration at the UNC School of Public Health, and others on the evaluation team, first tackled the question of

Finally, the team investigated the opinions of parents served by the program. More than 80 percent said they were satisfied or very satisfied with dental visits in medical offices, including how physicians explained the fluoride procedure and other aspects of preventive dental care.

Funding for the project, which now has

Since the inception of *Into the Mouths of Babes* in 2001, more than 250,000 preventive dental visits have occurred in North Carolina medical offices. The numbers of children visiting dental offices have also increased.

whether intensive, in-office training was necessary for high adoption rates of the new procedure by physicians (it wasn't). Then, they looked at whether the new program increased access or merely shifted it from dentists to physicians (the former).

been extended to a dozen other states, is provided by the Centers for Disease Control and Prevention, the National Institutes of Health, the Centers for Medicare and Medicaid Services and the Health Resources and Services Administration. ■



Pediatric Resident Dr. Adam Shapiro at the UNC Pediatric Clinics at N.C. Children's Hospital in Chapel Hill, N.C., shows 2-year-old Julian Love the proper way to brush his teeth while Julian's father, Joseph, looks on.

PHOTO BY EMILY SMITH



Eat your fruits and vegetables

For the past 15 years, Dr. Marci Campbell, associate professor of nutrition in Carolina's School of Public Health, has worked on finding the most effective ways to improve nutritional knowledge and eating patterns among minority and economically disadvantaged populations who often face greater challenges than others in eating nutritiously.

Campbell currently oversees two such intervention efforts—*Body & Soul*, a nutrition program working with African-American churches throughout the United States, and *HOPE Works*, a community-based strategy to support, educate and strengthen women in reducing obesity and leading healthier and more fulfilling lives.

The seed for *Body & Soul* began with an earlier project—*Black Churches United for Better Health*—co-directed by Campbell. Project researchers worked with 50 Black congregations in rural North Carolina communities using church activities, pastor involvement and peer counseling to encourage church members to eat more fruits and vegetables. Research has found that African-Americans have higher rates of death from certain cancers (such as colon and prostate) than any other ethnic or minority group in the United States. Studies have also shown that people with low fruit and vegetable intake may have a higher risk of cancer and other chronic diseases than individuals who eat many fruits and vegetables.

While Campbell was working with North Carolina churches to implement *Black Churches United for Better Health*, a colleague, Dr. Ken Resnicow, then with Emory University and now with the University of Michigan, was implementing a simi-

lar program—*Eat for Life*—with several Black churches in the South. The success of these two programs prompted the American Cancer Society to take notice and the Society decided to combine the two programs and test pilot them among churches throughout the country. Thus, *Body & Soul* was born.

The pilot of *Body & Soul* was such a success that the National Cancer Institute (NCI) offered to take the program national, and last year, created a professionally-produced, interactive, DVD-based peer-counselor training program based on the materials created by Campbell and Resnicow. Last fall, the program was launched in major cities throughout the country via promotional spots on local radio stations targeting African-American audiences.

The Centers for Disease Control and Prevention is currently funding research, led by Campbell, to study dissemination and effectiveness among 16 churches ►►

Sharon Brown (above, left), chair of the Duplin-Sampson County Community Advisory Committee for the UNC School of Public Health's *HOPE Works* project, arranges a bucket of eatable fruit art treats at the Sampson County *HOPE Works* project kickoff on July 22, 2006, at the Clinton, N.C., Farmers' Market. Brown is also the chief operating officer of the Tri-County Community Health Center in Newton Grove, N.C., which participated in the kickoff. Darlene Dixon (below), a "Hope Circle Leader" with the UNC School of Public Health's *HOPE Works* project, finishes a praise dance at the Sampson County *HOPE Works* kickoff in Clinton, N.C.

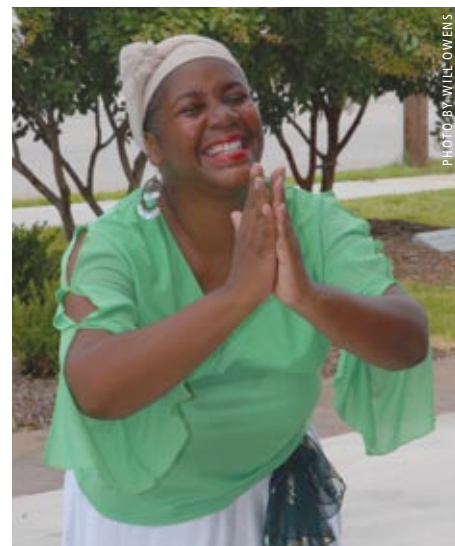




PHOTO BY WILL OWENS

across the country that have requested the *Body & Soul* program from NCI. Respondents have noted that *Body & Soul* has made a difference in their health.

Similarly, *HOPE Works*, a project of the UNC Center for Health Promotion and Disease Prevention, relies on a community-based participatory approach to reduce health disparities among low-income women and their families and communities. However, instead of working strictly through churches, *HOPE Works* uses the power of women's support groups and lay leaders from the commu-

nity to empower women to reduce obesity, increase their hope for the future and thereby improve their lives overall.

"The idea is to build on existing networks within a community to build hope for people who have had very little," says Campbell. "We hypothesize that the self-empowerment approach is really stronger in the long run than having professionals come in and tell people what to do. What's happening is that the people themselves are connecting the dots. They are starting to ask 'what caused our health problems and how do we fix it?'"

A grant from the Centers for Disease Control (CDC) has allowed Campbell, her staff and a very active group of community members in eastern North Carolina's Duplin and Sampson Counties to plan and implement this community-based approach in these two economically-disadvantaged counties.

HOPE Works is implemented by the community women themselves. Women from each community are trained to be *HOPE Circle Leaders* and to conduct ongoing meetings with other women in the community. They learn strategies for managing stress, preventing and controlling obesity, and overcoming barriers to change. They also exercise and prepare healthy foods together. The goal is to encourage one another as they each set up health and life-improvement goals such as completing high school or starting a small business.

While the data on the five-year project are still being collected and analyzed, qualitative data suggest the approach works and that women involved in the project are changing their health behaviors and growing in self-esteem. Campbell and her team hope to show that this approach can also be combined with the micro-enterprise model of home-grown businesses to further empower minority women to take control of their lives. ■



Two participants (above, top) in the Sampson County *HOPE Works* project kickoff at the Clinton, N.C. Farmers' Market, on July 22, 2006, dance while others watch with smiles. The word "HOPE" in the *HOPE Works* program name (above) stands for "Health Opportunity Partnership Empowerment." Face painting (right) was one of many activities that entertained both young and old at the *HOPE Works* project kickoff at the Clinton N.C. Farmers' market.



PHOTO BY WILL OWENS



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Doris Morales, a *HOPE Circle Leader* with the UNC School of Public Health's *HOPE Works* project, gets her blood pressure and blood-sugar level checked by Tri-County Community Health Center employees at the Sampson County *HOPE Works* kickoff at the Clinton, N.C., Farmers' Market on July 22, 2006.

Defeating diabetes

Studies by Dr. Carmen Samuel-Hodge, research assistant professor of nutrition in the UNC School of Public Health, have also concentrated on self-empowerment as a tool for change, but with a focus on the management of type 2 diabetes among African-Americans.



Dr. Carmen Samuel-Hodge

With approximately 2.7 million African-Americans ages 20 years or older in the United States living with diabetes and with rates reaching 25 percent among African-Americans ages 65 to 74, Samuel-Hodge has found that breaking through this health disparity requires reaching out to people in a different way.

Her work in this area began more than 13 years ago when she conducted focus groups with 25 diabetes patients from seven North Carolina community health centers to better understand the cultural, ethnic and psychosocial factors influencing self-care behaviors and outcomes.

She sought to understand how much control sufferers felt they had in managing their disease and what skills, knowledge and social supports could help them control their diabetes. Study results indicated that people lacked basic information about the disease including information about the impact of diet on diabetes and the value of exercise in better managing it.

Samuel-Hodge used results from this first study to formulate a second, larger intervention in the mid-1990s, working with 200 female type 2 diabetes sufferers from seven North Carolina community health centers. Study participants were divided into three groups: a control group and two intervention groups. Participants in one intervention group participated in periodic meetings with others in their group to discuss problems managing the disease and met with a project dietitian four times. Those in the second intervention group met with a project dietitian, took part in group meetings and also received 12 monthly phone calls from a peer counselor. Intervention participants set monthly goals to help

them make small steps toward meeting the recommendations for healthy eating and physical activity behaviors. To help with exercise data collection, intervention participants also wore "accelerometers"—devices similar to pedometers except they measure both the amount and the intensity of most movements.

Study results surprised Samuel-Hodge. While physical activity improved significantly, the diets of the women did not. Furthermore, getting accurate, self-reported caloric counts proved difficult because many of the women underreported their intakes. Samuel-Hodge also discovered that religious beliefs and practices played a prominent, positive role in women's lives and were related to issues of life satisfaction, coping mechanisms and emotional support. Information gleaned from this research prompted Samuel-Hodge to try a new tactic in her next project.

"People learn where they are most comfortable," Samuel-Hodge notes. "Since people are comfortable in their church, we thought—why not educate them there?"

Thus began "A New DAWN: Diabetes Awareness & Wellness Network," a project of the UNC Center for Health Promotion and Disease Prevention. This 18-month intervention involves more than 200 participants from 24 Black congregations in North Carolina. The project, which ran from February 2001 to August 2003, compared blood sugar levels, diets, physical activity levels, weight changes and self-care practices of participants taking part in the "special intervention group" with those in the "minimal intervention group."

Special intervention group participants had face-to-face meetings with project dietitians, regular group meetings with other study participants, and received monthly phone calls from peer counselors. Those participating in the minimal inter-▶

vention group received two health mailings from the American Diabetes Association and three project newsletters with general health information and study updates. Participants in both groups tracked their caloric intakes and their exercise habits.

The extra attention received by those in the special intervention group paid off, says Samuel Hodge. Blood sugar levels of those in this group decreased more than those in the minimal intervention group, highlighting the importance of both health information and culturally appropriate social supports in managing this disease, says Samuel-Hodge.

The UNC School of Public Health works in other ways to help individuals with diabetes live healthy lives.

Dr. Ed Fisher, chair of the UNC School of Public Health's Department of Health Behavior and Health Education, is national program director for the Robert Wood Johnson Foundation's *Diabetes Initiative* that is working with community health centers and primary care practices in 14 disadvantaged communities around the United States.

"Most educated people think that good diabetes care is seeing a specialist, getting medication and being told to lose weight," Fisher says, "but it's really much more than

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that. Of course, self-management includes taking medicine, maintaining a healthy diet, and being physically active, but it also includes problem-solving skills to put this all together in a busy world that is more conducive to sedentary living and high-fat/high-sugar diets.

"Good care includes regular visits to the doctor and help in setting a management plan, opportunities to learn the skills to follow the plan, ongoing support



Faye Heggie of Fuquay-Varina, N.C., prepares a healthy vegetable dish to help manage her diabetes. Heggie—a member of the St. Augusta Missionary Baptist Church in Fuquay-Varina—participated in the UNC School of Public Health's "A New DAWN: Diabetes Awareness & Wellness Network" project, an 18-month intervention involving more than 200 participants from 24 Black congregations in North Carolina.

and encouragement to help folks stay motivated and help them figure out how to adjust their plans when things aren't working, and community resources such as safe, attractive places to walk—all working together," Fisher says. "Diabetes management is not two hours a year in a doctor's office. People need help with the other 8,764 hours as well."

neighborhood grocery stores. Walking for exercise to help manage their diabetes may not be an option for them if they live in a high-crime neighborhood."

Community health centers and primary care practices participating in the Diabetes Initiative offer a variety of activities and resources, including "talking circles" (in a Minneapolis American Indian Center), breakfast clubs, exercise classes, walking clubs, group medical visits, social marketing campaigns, cooking clubs, tailored self-management education classes and system changes to health care practices to improve patient-physician communication and goal setting.

The project appears to be working. For example, participants in Laredo, Texas, have reduced their blood sugar levels—indicative of good diabetes control—and maintained those reductions through a combination of group self-management classes and personalized ongoing support from lay *promotoras*.

"A big problem in diabetes management is the number of folks who don't receive care. To accommodate their often complicated lives, we need to provide choices—many 'good practices' rather than a 'best practice,'" Fisher concludes. ■

Caring for Alzheimer's patients

Perhaps no group needs greater help and support than the caregivers of Alzheimer's disease and related dementia sufferers in disadvantaged communities.



Dr. Peggye Dilworth-Anderson

While 4.5 million Americans have been diagnosed with Alzheimer's disease, age-specific dementia among African-Americans is anywhere from 14 to 100 percent higher than among whites.

Dr. Peggye Dilworth-Anderson, professor of health policy and administration at the UNC School of Public Health and associate director of aging and diversity at the UNC Institute of Aging, said that with an aging baby-boomer population and fewer children to act as caregivers, helping disadvantaged families is not a luxury, but a necessity.

"This is a sobering disease," says Dilworth-Anderson, "and most families are ill-prepared to deal with it. This is especially true in poor and rural populations that have limited healthcare access. Often, the diagnosis is made in the middle or late stage of the disease when there are significant behavioral issues and difficulties in sleeping, eating and bathing. People are strapped to take care of the individual, and by this time the family is in great distress. There are profound physiological and psychological effects on the caregiver that we're only now beginning to understand."

An ongoing intervention designed and conducted by Dilworth-Anderson provides crucial education and information to caregivers of poor, rural and medically underserved elders in North Carolina.



Members of the Coharie Indian Tribe in North Carolina were some of those who participated in "Train the Trainer: A Dementia Care Program" developed and implemented by UNC School of Public Health researchers and funded by the GlaxoSmithKline Community Partnership Program. These participants included (front row, left to right): Brandy J. Brewington, Marie B. Whitehead, Marie B. Faircloth and Carol S. Brewington. Middle row (left to right): Sadie B. Barbour (the trainer), Arlene S. Faircloth, Lois J. Torres and Sue B. Brewington. Back row (left to right): John S. Taylor and Juanita B. Brewington.

Train the Trainer: A Dementia Care Program, funded by the GlaxoSmithKline Community Partnership Program, has trained community-based individuals in 13 counties (Beaufort, Bertie, Bladen, Greene, Harnett, Hertford, Hoke, Jones, Martin, Richmond, Robeson, Sampson and Scotland) to conduct six-hour training classes for caregivers. The classes focus on topics such as normal aging processes, identifying dementia symptoms and developing caregiving skills and strategies.

Approximately 300 African-American, American Indian and white caregivers have participated in this ongoing program. Early results show improved awareness and knowledge about dementia among caregivers upon completion of the training sessions, but note that there is a continued need for such intervention efforts in both North Carolina and other areas of the United States.

"Medications can help manage the disease in the early stages, but there's currently no way to stop it," says Dilworth-Anderson.

In other research funded by the National Alzheimer's Association, Dilworth-Anderson is studying how factors such as culture, geography and family dynamics influence how disadvantaged families perceive and give meaning to dementia.

In this study, a UNC research team is conducting two-hour family group meetings with individuals caring for African-American, white and American Indian Alzheimer's sufferers in North Carolina to collect information on how caregivers cope with providing care and access services to support their caregiving efforts.

Early findings from discussions with 84 caregivers in 25 families show that caregivers rely largely on five strategies to manage stress: humor, faith, preempting conflict with the care recipient, seeking support and disengaging from the care recipient. Very few of the caregivers know what services are available to support them and how to seek the best medical care for their loved ones.

"This is important information that will help us design better intervention strategies for caregivers who typically must shoulder the burden of this disease's devastating effects," Dilworth-Anderson says. ■