Chronic Disease Notes & Reports

CENTERS FOR DISEASE CONTROL AND PREVENTION Vol. 19 No. 1 February 2009 Supplement

Cultivating Healthy Communities

20th NATIONAL CONFERENCE ON CHRONIC DISEASE PREVENTION & CONTROL

Center's Current & Former Leaders Look Back, Ahead

Two decades ago, CDC established a national center devoted to chronic disease prevention and health promotion. Since that time, the center has grown dramatically to become one of CDC's largest centers. Its influence and reach can be felt from congress to every state public health department, where comprehensive chronic disease prevention programs are now in place.

On the following pages, the center's two past directors—Jeffrey Koplan, MD, MPH, currently Vice President for Global Health at Emory University and Director of the Emory Global Health Institute; and Jim Marks, MD, MPH, now Senior Vice President and Director of the Health Group at the Robert Wood Johnson Foundation—and its current director, Janet Collins, PhD, come together to discuss NCCDPHP's challenging early years, momentum-building milestones, and future directions.

► CONTINUED ON NEXT PAGE

Inside

Key Figures Recall Milestones . 11
Understanding Health Behavior . 14
NCCDPHP's School Health Beginnings 17
Tackling Cancer's Burden 21
Growing Diabetes Crisis Requires Community Answer 24
A Coordinated Approach to Cardiovascular Health. 26
Confronting the Obesity Epidemic 29
Making Strides in the Nation's Oral Health. 32
Early Advances in Reproductive Health 35
Closing the Genomics Gap 38
Tackling Tobacco 41
Voices of States 45
A Friend in Washington 47
The Global Face of Chronic Diseases. 49

What prompted establishing a chronic disease center two decades ago?

Jeffrey Koplan, MD, MPH

Koplan: When I came back in 1978 from career development at the Harvard School of Public Health, it struck me that many of the things that were emphasized in the Department of Epidemiology there, and indeed in schools of public health in general, were not on the front and center of priorities at CDC and in state-level public health at the time. Chronic diseases—both their epidemiology and interventions to control them—were addressed in bits and pieces but not in a coherent manner, and not in the systematic way we do in public health. So I raised the idea with [then-CDC director] Bill Foege, and later with [subsequent director] Jim Mason, that we take on some of these chronic disease areas as public health priorities. The most obvious thing that struck us at the time was breast and cervical cancer control. We had screening tests for both these cancers, but the tests were being used more widely in other countries than here. We really had no public health approach to this—it was being left as a strictly clinical matter. I felt that if CDC was going to be the center for public health practice, in innovation and leadership for this country at least, it couldn't ignore a major component of public health—cancer prevention, and we were already behind.

During that time, we thought we could fairly easily form a center by pulling together the relevant existing pieces at CDC, which included units from the Center for Health Promotion and Education, the Center for Environmental Health and Injury Control, the Diabetes Translation Division, and a chronic disease–environmental health division that was developing expertise in the cancer epidemiology area. We made the pitch internally and got external validation, through a consulting group, that there was value in forming such a center. Jim Mason then took the dramatic step of forming the Center for Chronic Disease Prevention and Health Promotion.

Jim Marks, MD, MPH

Marks: CDC had always said that epidemiology is the basic science of public health, yet that same basic science was telling us that the major public health burden was in the chronic diseases—in heart disease and in cancer, the leading causes of death and disability. Yet we were doing almost nothing in those areas. So at one level there was a tremendous disconnect between how we evaluated these problems through epidemiology and what we were actually doing about them.

Koplan: And we weren't doing things in a coherent, comprehensive way. In the area of chronic disease prevention, it was ad hoc. This idea of a new, dedicated center for chronic disease prevention gave us the opportunity to survey the landscape. What do we have to do? What expertise do we need? Do we need to do something in the cardiovascular disease area? And as Jim said, let epidemiology and the burden of illness drive a public health agenda.

Marks: I believe that CDC's willingness to commit to giving prominence to chronic disease in many ways completed the transition begun by Bill Foege of moving CDC to an agency that would take on the big public health issues of our time, regardless of the cause.

How have public health challenges regarding chronic disease changed from those early years to now?

Koplan: When we first set up the center, we didn't have all these people, so my view was to make it look like a Western set—there's a bank, there's a saloon, there's a sheriff's office, et cetera. It's really just a cardboard front propped up with a board in the back. But when you drive the visiting dignitary down the street, it looks like a flourishing town. You can do that and make the case that you've got a functional center, but you have to work like crazy to start stacking cinder blocks behind each of those buildings and making them work.

Marks: We were moving toward a center—we had programs and initiatives and all of that, but we had almost no money and no resources behind them. So an important part of our work was raising money and then showing results. We then had to make the case that these kinds of efforts needed to become prominent in every state and community.

Koplan: In addition to the fundraising challenges, we faced the recognition challenge: to get people to see that CDC had a role to play in chronic disease prevention. This area was not seen—internally or externally—as part of our turf; it was not seen as part of our mission. So it was a huge hurdle just to get people to see that

Founding NCCDPHP director Jeff Koplan and his immediate successor, Jim Marks, are now leading prevention efforts at Emory University and the Robert Wood Johnson Foundation, respectively.

chronic disease prevention was part and parcel of what CDC did, alongside the agency's unquestioned mission in infectious disease control. The goal of public health is not to protect only the things it's always protected. The goal of public health is to see where the new needs and the new opportunities are that will make a difference in the well-being of the population. There has never been a level playing field when it comes to the way people look at chronic diseases or their risk factors compared with how people look at other public health issues—much as there is still not a balanced playing field when it comes to thinking about prevention as opposed to thinking about curative or treatment medicine.

Marks: If we're clear that our mission is public health, then we have to work on the largest, most important problems. And if there are more problems than you've got resources for, you've got to make that case and get those resources. Europe is doing more in this area and is becoming more explicit about it. Doing this here is going to be trickier for public health, which often has its biggest strengths in government agencies. These agencies are not always in the best position to argue for needed changes in policies. One of the major challenges for public health is for the people it serves to become aware and supportive of its role in helping them protect, promote, and preserve their health and those they care about.

Koplan: What Jim also describes and what one also sees in Europe is that leaders above the department or ministerial level have to set prevention as a priority, articulate it, and insist that their officials work together and create some broader interface programs. Examples of where we need to do this now in this country are obesity and dietary issues.

What were the key highlights and defining moments of your tenure?

Koplan: It was getting the center put into place. It was forming a close and productive working relationship with the states around chronic disease prevention. The role of the states in shaping what we did can't be overestimated. Many of those folks are still around in different places. Our annual meetings were a chance to link up with people who were telling us to be better, giving us examples of what they did, urging us on, and giving an incentive for us to be active. It was really a partnership in the best mode of CDC—partnering with states. Whether it was New York, Maine, Utah, Colorado, Michigan, Ohio, or South Carolina—all of these places had active chronic disease directors who really contributed, cared about the field and what their states did, and were supportive of us being stronger in support of them.

I was pleased with our early focus on women's cancer issues, like breast and cervical cancer, because it made a difference then, especially with issues of health disparity, and it continues today.

Bringing the Office on Smoking and Health to Atlanta was important, too. The move allowed that office to flourish and grow in a way that I don't think it could have in the Washington environment. We could nurture and nourish it here—recruiting staff from not only outside CDC but also within

CDC. The office could relate much more closely to the other units that were here. And it got a fresh start. It no longer lived just for the Surgeon General's reports on smoking and health, which had been a big part of its output, but could expand beyond the reports to include everything from epidemiology, to intervention programs, to global work.

When I became director of CDC in 1998, an area I thought was critically important involved vital statistics and CDC's big-scale surveys—in other words, data that were not just one-center focused. Many of the things we wanted to do in the chronic disease and health promotion area were and are dependent on data from CDC's National Center for Health Statistics. The idea of collecting and applying data on a broader scope was behind one of the things I promoted as director: the internationalization of CDC data collection. CDC was always happy to send people out to do outbreak investigations, but what were we doing in terms of how our risk factor surveillance was being "exported" overseas? So something near and dear to my heart was the expansion of NCCDPHP's Behavioral Risk Factor Surveillance System (BRFSS) and Youth Risk Behavior Surveillance System (YRBSS) into different modes that could be used in different countries.

Marks: I felt it was my job to get money for important areas, but I was going to have to do it categorically. It was clear to me that the only way to get appropriations was to be very specific. So, for example, the money we sought was for breast cancer prevention, and it was for cervical cancer prevention. Jeff started the breast and cervical cancer screening program, and during my tenure we got every state to join. We also got cancer registries in every state. Those registries for cancer represented the first chronic diseases surveyed nationwide. The national cancer coalitions grew out of the plans that were written using data from those registries. It was no longer just public health talking with public health, but public health talking with clinicians and with cancer survivor networks. Similarly, the BRFSS was expanded to every state. We developed a much more robust set of questions, including questions about quality of life and satisfaction with one's life, rather than just longevity and freedom from illness and pain. I think this expansion positioned public health in a much better light than before.

Inaugural issue of NCCDPHP's e-journal, *Preventing Chronic Disease.*

We had to move beyond modest demonstrations or pilots to efforts of sufficient scale and effectiveness that they could be shown to have impact and the promise of greater impact if grown.

We started the first practice-oriented journal, *Preventing Chronic Disease*, which we made available on-line and free. A key goal was to serve the practice community—a group that is paid less and often doesn't have ready access to major medical school or hospital libraries where they can get journal information easily and free.

We put together the first Surgeon General's report on physical activity and health. That was a tremendously beneficial undertaking. Then there was the REACH 2010 program, which initially funded 30 communities and aimed at reducing disparities in major

health areas. A program focused so extensively on reducing health disparities was something that hadn't happened before. And the results now show that these funded communities narrowed the gap in health outcomes.

I'm also proud of forming, as the new center was being constructed, the Division of Adolescent and School Health, with Lloyd Kolbe as director. With Lloyd's and Janet's [Collins'] help, we were able to use YRBSS data to position the division as a resource for schools nationwide, as a place that was paying attention to adolescent and school health. The School Health Policies and Programs Study was tremendously important as well, with its policy emphasis in schools.

During my time, to head up our nutrition division, we brought in Bill Dietz as someone well-known in pediatric nutrition. We began a shift from only addressing undernutrition to anticipating overnutrition, which was emerging as a major public health problem. Bill came with expertise in both areas, and he knew everybody in the field. He had already done childhood obesity work, long before it became a prominent focus for us.

Darwin Labarthe (l) and Janet Collins (r) joined by former American Heart Association CEO Cass Wheeler and former HHS Assistant Secretary for Health John Agwunobe at 2006 congressional reception celebrating new Division for Heart Disease and Stroke Prevention

In several areas I have mentioned, you can see the importance of surveillance in building the case for the need of the programs. That is the classic CDC role and one that the field needed and still needs more work in.

Koplan: Overall, Jim made things comprehensive. He took programs that had been pilots or partial programs and turned them into national programs with a national presence that still exists. When Janet took the helm after Jim, she focused on filling a conspicuous gap in our chronic disease prevention agenda, and she also saw and acted on the need to consolidate our program efforts.

Collins: During my tenure, forming the Division for Heart Disease and Stroke Prevention was a huge step forward. How CDC went as long as it did without taking at least a division-level response to addressing the first and third leading causes of death in the country is hard to imagine. The other recent structural change was the opportunity to add the Office of Public Health Genomics to our ranks. This highly productive and forward-looking group of public health analysts and researchers work on planning how and when to integrate genomic applications into public health.

I hope our recent efforts in program integration will also pay off down the line. We've been focused on building strong programs for each one of these multiple chronic conditions, but there are commonalities that shouldn't be overlooked—common populations, common strategies, as well as common settings, like schools and work sites. Our activities need to be coordinated, well thought-out, and streamlined. Instead of making each state compete for numerous individual grant awards, we're looking at connecting these programs epidemiologically, and through policy and program work, in a way that makes sense, without losing

VERB, setting the standard for integrated health marketing campaigns

sight of the fact that these programs don't have identical needs.

We have also reinvigorated our community health activities through the REACH and Steps programs. Ultimately public health happens at the local level, and we have not invested in the same type of local capacity in chronic disease that exists in infectious disease or preparedness. REACH and Steps [the latter now the Healthier Communities activity] are demonstrating the power of communities to improve health and achieve health equity.

Because I joined CDC and spent 10 years in the Division of Adolescent and School Health, I'm especially connected to their work. My association with the 5-year youth media program VERB stands out as a once-in-a-lifetime professional opportunity to deliver public health in a new and bold way.

Koplan: VERB is a cutting-edge version of health promotion. In the areas where the private sector has achieved a greater level of sophistication than the public sector, we should take advantage of that expertise. That's what we did with VERB. We went to the top advertising and marketing firms—and not just for the usual late-night public service announcement, but for a professional, paid marketing program. And they delivered.

How important do you think public-private partnerships are to the center's success today?

Collins: They're tremendously important. We would put in that category the Bloomberg Foundation's investment in international surveillance of tobacco use and our work with the Produce for Better Health Foundation, the YMCA of the USA, Kaiser Permanente, the Robert Wood Johnson Foundation, and many other organizations. At present our center's resources are augmented by $60 million from external sources —all donated to the CDC Foundation. And the earlier partnerships that Jeff and Jim established just get better all the time. The National Association of Chronic Disease Directors has come into its own; it's a strong policy-advocacy-

leadership organization. The American Cancer Society, the American Heart Association, and the American Diabetes Association have all banded together and, with our involvement, are working together on national issues.

We have a CDC staff person positioned at the World Bank and at AARP. Think about the reach and impact that each of these organizations has. It's extraordinary to have a CDC person in these locations integrating health messages and promoting attention to health—that sort of strategic positioning is just huge.

How do you see this center evolving to meet future challenges?

Marks: There are two big issues that public health has not sufficiently addressed and that this center has got to be positioned right in the middle of. One is health disparity. The largest sources of the gap in life expectancy between rich and poor, between minority and majority, are in fact the chronic diseases—with the single exception, perhaps, of homicide. And when you look closer, the differences are around cardiovascular disease, cancer, and diabetes. The centrality of health disparity for our nation as a whole has got to get higher attention, and getting that attention will fall squarely, from the public health side, on this center and the programs it can enact.

The other issue is that of quality of life and life satisfaction. It's the next big thing with an aging population. People don't just want to live long; they want to live well. Think about older adults. What do they want? They want to continue to do the things they like. They want to not be a burden to their kids or to society. That is all about quality of life. Probably the best paradigm for us right now is arthritis. It can cause a lot of disability and a lot of pain, and it can limit the ability of people to live the way they would like—yet it doesn't kill many people. Again, it's all about quality of life. I think this is something we're going to have to grapple with as a nation. If we don't make this point prominent, people will continue to put money and energy into late-life care, and there is very little benefit to that. When you're at a point later in life, what you want is to have the chance to know and play with your grandkids. You may have to work to maintain your standard of living, or you may want to work because you find it fulfilling. You may want or need to take care of grandkids while their parents work. You can only do that if you're healthy. I think the center is going to be at the forefront of this issue.

I also believe that a similar kind of reframing needs to take place regarding what health means in adolescence and early adulthood. You want young people to be able to form warm, positive relationships, to have empathy for those who have less, to feel motivated enough and have enough of a sense of accomplishment to believe that they can get a good job and have a satisfying life. For children, of course health is an important base for the developmental milestones that lead to these outcomes. But as children reach adolescence and adulthood, health itself is not the outcome they seek; what they seek is a satisfying life with good, personal relationships and

the ability to enjoy themselves—and to have those things is to be healthy.

So I think that health disparities and quality of life are the two central issues, and I think that most of the analyses suggest that the determinant of those issues is more heavily socioeconomic than it is racial-ethnic, though there is definitely a racial-ethnic component.

Finally, it is increasingly clear that the greatest changes in public health will come through changes in policies and laws. We have not used those powerful levers as much as we should. As representatives of public health, we have to recognize that some of the most powerful interventions are in fact outside the turf we have direct responsibility for—in areas like housing, urban planning, and transportation, and in policies regarding physical education and the food served in schools. In addition, we have to make sure that when policies in those areas are assessed or are being considered, they are examined for their health impact.

Collins: Jim already touched on two areas—policy and social determinants of health. We have learned much from tobacco control that we need to capitalize on in other areas. One-on-one approaches to doing public health are too costly and inefficient. Dealing with larger social issues calls for formal and informal policy work, and tobacco control is so much more sophisticated in this realm than any of the other areas we work in.

When you look at the health disparities that are mostly socioeconomic in nature, you realize you can't solve these problems through traditional public health means, or certainly not through clinical means. You have to be dealing with education; you have to be dealing with other social systems that position people to succeed. The role for public health in this effort is not clear. I'll give you one example. High school graduates are much healthier than non-high school graduates. Does that mean public health should get in the business of ensuring high school graduation? Probably not, but the fact that educational outcomes define a lot of the problems we have to address does imply that public health has a role to play in these realms. So Jim talked about working with the other government sectors of agriculture, justice, housing, and employment. I don't think public health has figured out what its role is in those sectors, but I think that is the new horizon—bringing public health to bear on the issues with the greatest impact on health.

Koplan: In the midst of all that, we'll be ill-served if we don't tackle and triumph over the specific root issues in chronic diseases. So while we continue to tackle health disparities and the challenges of aging and living well, we have to do something about the obesity and weight problem specifically. If at the end of all this, we have fleshed out all of our agenda for social determinants and quality of life, but everyone weighs 700 pounds, it isn't going to do us much good.

Other areas we need to get into are not science narrow, but science broad. In the world of basic science, we have to look at what tools public health programs can be using to address chronic diseases. With ongoing changes in genetics, immunology, and so many other areas, we as a public health agency are going to be left behind if we don't bring those tools into play and figure out how to employ them in a population-based activity. There has to be an agency

investment instead of just having a single unit doing it. A lot of big changes in the next 10–20 years are going to be in the neuro-psychiatric area. Many of these changes will have public health implications. There's a lot on the plate for a futures view in chronic disease-related public health.

If you were able to speak to the next generation of public health staff, who are going to be tackling these challenges, what would your advice be for them?

Collins: A lot of talented people in many different fields don't think about public health as an option for their work. But we need economists, anthropologists, political scientists, geneticists, and many others. It's not just individuals trained through public health routes who can bring their talent to bear on public health issues. One of the most exciting things about the CDC environment is the cross-discipline work and the benefit of tackling public health problems from different perspectives. We need to market the excitement of public health and bring diverse expertise to bear on these problems.

Koplan: A hot field in medicine these days is systems biology. It's the recognition that biology alone doesn't have the horsepower you can have if diverse fields all work together, such as engineering, mathematics, physics, and pure chemistry, as well as the subfields of those fields. I think it's time for systems public health, where we bring in transport engineers, economists, psychologists, and geneticists. That mix is what's going to lead us to innovations and breakthroughs in what we are trying to do.

Marks: The only scientifically defensible position is optimism. If you look back 100 years ago, life expectancy was in the late 40s. The leading causes of death were things like diarrhea and respiratory illness. If you said at that time that 100 years from then, most people would live 30 years longer, and that the then-leading causes of death would be uncommon, at least in this country, people would think you were being incredibly Pollyannaish. But that's exactly what happened. So we need to remember that despite the challenges we face right now, the only thing we can defend is optimism.

Koplan: I think Jim is right. In public health, it pays to always be optimistic. It's never easy, but we've got a great track record, and the proof is in the numbers. There is increasing longevity. On the whole, people are healthier than they were before, and this is mostly due—demonstrably so—to public health programs. There's no reason to think that such progress will stop. The challenge for us is how to keep it going and how to do it in new, creative, and cost-effective ways. If there is a really good reason to do something, and if you can make a case for it, sooner or later if you persevere, it's going to happen. One of the biggest attributes you can have in public health is dogged perseverance.

Key Figures Recall Milestones in Center's Formation, Growth

The decision to establish NCCDPHP 20 years ago rested on the shoulders of then-CDC Director James O. Mason, MD, DrPH, who led the agency from 1983 until 1989. At the time, CDC was grappling with AIDS and was mostly known for its infectious disease work.

"Over the years, CDC became immersed in how to comprehensively look at health promotion and disease prevention," says Mason. Years before NCCDPHP's creation, the responsibilities for a broader scope were being thrust upon the agency. Mason cites as examples the 1961 transfer from Washington to CDC Atlanta of the *Morbidity and Mortality Weekly Report (MMWR)*, which serves as a key reporting vehicle of federal and state public health surveillance. He also points to the similar relocation of the Office on Smoking and Health in 1991, which brought with it the responsibility of producing the Surgeon General's reports on the health risks of tobacco use.

"And you can't get involved with smoking and health without tackling lung cancer and cardiovascular disease," says Mason. "A new center had to be formed, because CDC as a U.S. government organization couldn't effectively deal with these problems without a chronic disease center. Fortunately, there were some very bright people working at CDC who had the leadership ability and expertise to make a new chronic disease center successful. It was an important and courageous decision—these were difficult problems to try to take on—and looking back, it was a good decision for the nation."

He adds that in making this organizational expansion, CDC served as the role model for state and local health departments to move beyond sanitation and infectious disease activities to embrace chronic disease issues.

Chance to Address Leading Health Problems, Elevate Work to a New Level

Martha Katz, former deputy director for policy and legislation at CDC, remembers NCCDPHP's early years as an exciting time, because "it was an opportunity to address leading health problems—heart disease, cancer, and stroke—and take CDC's previous experience in looking at health education and risk reduction to a new level. The challenge was coming up with the resources to do it."

George Mensah (l) leading an NCCDPHP briefing of chronic disease directors in 2004

Katz was at CDC from 1981 to 2003, and she recently retired as Director of Health Policy for Healthcare Georgia Foundation. Katz notes that one of Mason's great gifts was the ability to make the hard decisions for reallocating resources to address new priorities. The new chronic disease center benefited from CDC's new responsibility for tobacco control and from the continued infusion of resources to address HIV through comprehensive school health education.

Key to NCCDPHP's growth early on was convincing congress to fund other focused efforts, says Katz. What emerged was a center with robust disease-focused programs in cancer, diabetes, and heart disease prevention, as well as risk-factor-focused programs, such as smoking and health, nutrition, and physical activity.

"Early divisions in the new center served as an incubator for what would later become major efforts to control cancer and prevent heart disease and stroke," she says.

Successful at persuading congress to fund these focused chronic disease efforts, staff within NCCDPHP next faced an even tougher challenge: how to get integrated chronic disease prevention programs that efficiently served people and communities without losing financial support for existing programs.

"Integrating programs in ways that best serve people remains an important challenge for CDC and public health agencies around the country," Katz says.

Acting Directors Virginia Bales Harris, George Mensah Share Insights

NCCDPHP has enjoyed strong leadership from its three appointed directors—Jeffrey Koplan, Jim Marks, and Janet Collins. Two other people distinguished themselves as acting directors of the center: Virginia Bales Harris and George Mensah.

Harris, noted by colleagues for her compassionate support to new center staff who began their careers at CDC during this time, is distinguished for her service as NCCDPHP's founding deputy director under both Koplan and Marks, as well as serving as acting director between their tenures in 1996.

"Jeff Koplan left a really strong organization, and David Satcher, who was CDC director at the time, was very supportive of me personally and of the center. I had the great fortune to talk Steve Wyatt into stepping up to be my acting deputy director," recalls Harris, who remembers her time at the helm as "fun and exhilarating." Key accomplishments included initiating the first Surgeon General's report on physical activity and health and expanding CDC activities around physical activity promotion.

In 1996, Harris recruited the center's first communications director, Mike Greenwell, who was at ATSDR at the time. "He was a terrific addition. Communications is such an important part of chronic disease prevention, since personal behavior choices are critical. We worked very hard to make sure the American public and policymakers knew that chronic diseases were a major killer in the United States."

Greenwell says his role was to build recognition that CDC had good, credible programs for preventing chronic diseases. "You can't really have a voice if there's no recognition of the work that you do." His biggest challenge was coordinating communications across eight different divisions and creating "one voice for the center." He credits efforts such as developing the National Arthritis Action Plan and the Public Health Action Plan for Heart Disease and Stroke for helping put NCCDPHP on the map.

George Mensah, MD, principal advisor on medical affairs in NCCDPHP, served as NCCDPHP's acting director from 2003 to late 2004—a time of "great excitement, when we recognized that we had an opportunity to continue to make a difference," Mensah recalls.

A cardiac surgeon by training, Mensah is most proud of helping bring together key partners to raise CDC's role in the area of heart disease.

"For many years, the public health field recognized that our agency could do a lot more for the leading cause of death. Working with the American Heart Association, the American College of Cardiology, the National Association of Chronic Disease Directors, and our many other partners, we were able to elevate from a branch to a division our programs at CDC that addressed heart disease and stroke."

Mensah continues to be impressed by the quality of scientists and career public health staff within the center. "Any time you have an opportunity to integrate both the science and the programs, you have a winner. For me, that's been the real excitement."

"Any time you have an opportunity to integrate both the science and the programs, you have a winner. For me, that's been the real excitement."

- George Mensah, MD

CDC Colleagues Count the Most

For many of these early leaders in NCCDPHP, it's not just the breakthroughs in science or the program or policy milestones that they treasure, but also the people they came to know as more than just professional colleagues.

Katz captures it this way: "There's nothing better than going to work every morning with not just a few people who are the best and brightest, but a whole team of them. Many of us found not just colleagues, but lifelong friends."

Understanding Health Behavior in the Context of Community

Marshall Kreuter, community health promotion pioneer

Too often in public health, education practitioners tend to focus first and foremost on how to change individual behavior.

"Clearly, health behavior is very important, but we can't lose sight of the reality that it occurs in the context of where we live and work," says Marshall Kreuter, PhD, MPH (Hon.). Long a student of community health behavior, Kreuter has played key roles in CDC's newly formed chronic disease center, has led his own consulting firm, and has worked as a researcher and professor. Kreuter retired from NCCDPHP in 2000 and is currently a professor in the Institute of Public Health of Georgia State University.

"Predicting chronic disease rates by documenting trends and patterns of behavior in social conditions has been a major component of the chronic disease center," notes Kreuter. "I credit leaders like Jeffrey Koplan and Jim Marks for making that a center priority."

Kreuter joined CDC in 1982 to lead the Division of Health Education, which included school programs. He and his colleagues quickly elevated that age group focus to an agency priority. Even back then, says Kreuter, CDC's school health activities were closely tied with local community efforts. Kreuter went on to direct both NCCDPHP's Division of Chronic Disease Control and Community Intervention and the Prevention Research Centers program.

Kreuter says that one of the early accomplishments of his health promotion colleagues within the newly created chronic disease center was the expansion of the Behavioral Risk Factor Surveillance System (BRFSS). This pivotal public health tool is the nation's premier system for tracking and measuring state-level data on critical health problems, such as obesity, arthritis, diabetes, and asthma, as well as a wide variety of health-related behaviors. The BRFSS began in 1984 with 15 states participating. By 1994, all states, the District of Columbia, and three territories were participating.

Six years ago, recognizing the need for more local data, CDC modified the system so that it could collect and analyze data from selected local areas across the country. The BRFSS was also used as a model for CDC's national school-based Youth Risk Behavior Surveillance System, which is managed out of the Division of Adolescent and School Health.

Pioneer in Developing PATCH

The Division of Chronic Disease Control and Community Intervention, which later became the Division of Adult and Community Health (DACH), was recognized nationally as a leader in designing community-based strategies and

policies. These activities helped refine community health models that address a broad spectrum of determinants of health. For example, Kreuter and his colleagues created the Planned Approach to Community Health (PATCH), an early application of the principles of community-based participatory research. PATCH was grounded in the principles of the Precede-Proceed Model, a seminal guide to health promotion planning jointly developed by Lawrence W. Green and Kreuter.

Through PATCH, CDC trained state health department staff, and they, in turn, trained local community workers to identify community problems and come up with programs to address key issues. "Not all communities face the same problems," Kreuter explains. "Data may suggest that childhood obesity is a priority, where for others it may be cancer screening, or injury prevention." Promoting healthier outcomes requires looking at behavior as well as engaging the community at large." PATCH is still used today, Kreuter says, pointing out that a group in Appalachia is using the program for early screening for the prevention of colon cancer.

Tackling Issues of Equity

Kreuter joins those who want more attention given to health disparities. "Why do certain populations have a disproportionately high rate of lung cancer or other conditions? As a retired person, I find it discouraging that my age peers in certain populations are suffering from problems like site-specific cancers, diabetes, and heart disease that could have been detected at an earlier, more treatable stage."

Another disturbing indicator is when low-income portions of society, because they have no insurance, have to turn to the emergency medical system for care. "We have a system that doesn't give all people access to care," says Kreuter. "That is a big challenge—how do we get equity in health care?"

"A step in the right direction" is how Wayne H. Giles, MD, MS, director of DACH since 2005, characterizes DACH's REACH U.S. program (Racial and Ethnic Approaches to Community Health Across the United States), which funds 40 U.S. communities to advance the prevention and elimination of health disparities. "REACH U.S. provides communities with critical resources and training needed to develop and disseminate culturally appropriate strategies that promote health equity," says Giles.

Building on the success of its earlier efforts, last year the REACH program ramped up activities to support these strategies by establishing 18 Centers of Excellence in the Elimination of Health Disparities and 22 Action Communities in all regions of the country. The Centers of Excellence serve as national and regional experts in promoting effective interventions. The Action Communities put into place evidence-based interventions that target specific populations, including Hispanics, Asian Americans, African Americans, Pacific Islanders, American Indians, and Alaska Natives.

"The REACH grantees are galvanized to respond to the range of social determinants that construct health disparities in some communities of color," says Giles. "The unique approaches developed and evaluated by REACH communities are being adapted broadly by public health programs traditionally assumed to be intractable."

These community-based efforts are having measurable effects. Data from a REACH Risk Factor Survey showed significant improvements in health-related behaviors, including blood sugar testing, blood pressure control, and mammography and cholesterol screenings.

Developing and evaluating programs that address health disparities is also a core focus of DACH's Prevention Research Centers. This community-based, participatory prevention research program not only helps determine what works in prevention but also can drive major community change that can prevent and control chronic diseases. "This program has played a major role in bringing greater credibility and scientific accountability to the activities of health promotion and health education," Kreuter says.

Promoting physical activity and wellness among seniors in a REACH project on the Sea Islands of rural South Carolina

Optimistic About Community Health's Future

Early in the development of the chronic disease center, leaders recognized that the determinants of chronic diseases were numerous, complex, and interrelated. "To increase its ability to address this complexity," Kreuter points out, "CDC expanded its capacity by bringing in staff with expertise in genetics, behavioral and social sciences, economics, and health policy."

And so, even with the growing chronic disease burden in an aging population and the increasing disparities facing certain segments of the population, Kreuter remains optimistic about the future of community health promotion. "A growing body of evidence indicates that well-planned, community-based programs do result in documented improvements in knowledge, behaviors, policies, and health status," he concludes.

NCCDPHP's School Health Beginnings: Building a True Community

Lloyd Kolbe, PhD, currently Associate Dean for Global and Community Health at Indiana University, was in his third year at CDC when he launched the newly created Division of Adolescent and School Health (DASH). The year was 1988, and CDC was in the midst of the HIV epidemic, having received substantial dollars from congress to help schools and other agencies develop strategies to prevent the spread of HIV infection.

Recalls Kolbe, "We hoped to build DASH's infrastructure to not only help prevent HIV infection among young people but also address other youth health problems, like obesity and drug and alcohol use."

Growing Up at CDC

Kolbe led DASH for 18 years. When he began the division, there were three staff members. In 2003, when he left for Indiana University, there were about 100 full-time employees.

"With the grace and guidance of senior people at CDC, we were able to bring in some of the best people in the nation who had backgrounds in education and had worked with social service agencies," says Kolbe. "Many of these staff were very young and subsequently grew up in CDC. We built the division with an eye toward building a community where we helped each other, worked with each other, and cared about each other."

Kolbe applauds people like Virginia Bales Harris, former acting director, NCCDPHP, for being role models and mentors to him and other new hires.

Harris recalled how in its early years, NCCDPHP had to recruit talent outside CDC.

"Coming to your first federal job can be a really tough transition for people," she says. "Jeff Koplan, Jim Marks, and other key leaders shared a strong commitment to a workforce that worked and played well together. Mentoring younger staff was just part of how we led the organization."

Focusing on Youth Surveillance

A key part of DASH's infrastructure was the Youth Risk Behavior Surveillance System (YRBSS), which was funded to monitor HIV risk behaviors. This new survey tool permitted the division to simultaneously monitor other behaviors, including drug and alcohol use, violence, unintentional injury, tobacco use, diet, and physical activity.

"Before the YRBSS was developed, every time we in pubic health wanted to measure something, we would go out to the schools," says Kolbe. Instead of overwhelming schools with multiple surveys, it made sense to focus, at a single time, on the most critical behaviors—and to do that rather than measure knowledge, attitudes, and skills. Schools willingly implemented the YRBSS, because they were getting much more valuable

Lloyd Kolbe (l) and other early members of Division of Adolescent and School Health

data than they had been from multiple, noncoordinated surveys and studies.

Furthermore, Kolbe notes, "We have been able to analyze these data and show how many of these risk behaviors cluster. If we only measured one behavior at a time, we wouldn't be able to see how the data were interrelated." For example, YRBSS data collected since 1991 on physical activity and dietary behaviors represented an early indicator that the nation was heading into a major obesity epidemic among young people.

In 2007, DASH provided funds and technical assistance that enabled 44 states, 5 territories, 23 cities, and 17 Steps Program communities to conduct their own YRBSS. A simplified version of the YRBSS has been deployed to middle schools in 16 states, 3 territories, and 9 cities.

As a complement to the YRBSS, another key DASH innovation was to establish surveillance systems to monitor what education agencies and schools are doing to address the health needs of students across the nation (the School Health Policies and Programs Study) and in states and large urban health districts (School Health Profiles).

Funding Education Agencies Drives Shared Ownership

Under Kolbe's leadership, DASH began funding almost all state education departments and many large urban school districts. Before this, CDC funded only state health departments.

By directly funding education agencies, says Kolbe, there was shared ownership for solving the problem. "This enabled us to characterize and position schools and educational agencies as key players in national efforts to improve the well-being of young people," Kolbe says.

In addition to funding state education agencies to address categorical issues, such as HIV, DASH under Kolbe began funding these agencies to work together with state health departments to help local school districts adopt what would amount to a paradigm shift for school health programs: a coordinated approach that addressed such critical health issues as physical inactivity, poor nutrition, obesity, and tobacco use—the key risk factors for chronic disease.

Indeed, it was Kolbe—working with Diane Allensworth, PhD, RN, now leading partnerships with the education sector for CDC's National Center for Health Marketing—who in 1987 developed the eight-component coordinated school health model that is the foundation of today's state school health programs. The interactive components are health education, physical education, health services, nutrition services, counseling and psychological services, healthy school environment, health promotion for staff, and family and community involvement.

"This model has become the leading framework for school health programs across the nation and has profoundly inspired and guided a generation of school health professionals," notes

Howell Wechsler, EdD, MPH, current DASH director.

The states' coordinated school health programs funded by DASH require strong partnerships between education and health agencies, where there are shared project funds and shared project decision-making. "These partnerships represent one of Dr. Kolbe's greatest legacies," adds Wechsler. "The approach provides a strong incentive for breaking down silos and fostering collaboration across sectors, maximizing the strengths of each agency to serve the state's youth."

The coordinated school health model developed by Kolbe and Diane Allensworth.

With Kolbe's guidance, CDC also funded a sizable number of national nongovernmental organizations, including the National Association of State Boards of Education and the American Association of School Administrators.

"We brought these national education organizations together and said, 'These are your schools,'" Kolbe explains. Working at the national level with these agencies was highly efficient, because they all had local affiliates.

He explains that there is a growing acceptance in public health circles and in society that all institutions—community organizations, public health agencies, the media, and especially schools—have a role to play in improving young people's health.

"Young people spend the most formative years of their life in school. Schools can have an enormous influence on health outcomes when they help young people develop the best health skills, whether it is physical activity, healthy nutrition, or being educated about what public health is."

A Settings Approach to Health Promotion

Kolbe is particularly proud of CDC's embracing a settings approach to health promotion, to include homes and family settings, preschools, schools, colleges, workplaces, health care agencies, community locations, and government venues.

"This is not implementing interventions within settings; this is changing the entire setting to improve health outcomes and improve the primary purpose of setting outcomes," Kolbe says.

He considers teachers and public health workers the real heroes of any nation, and he expresses consternation at the current, serious teacher shortage, as more teachers

retire and as new teachers leave the profession after a short time—some 30% within three years and 50% within five years.

Kolbe emphasizes that society as a whole needs to accord a higher status to teachers if the nation hopes to make inroads in the health outcomes of young people.

"Unless we can mount an effort to address the well-being of our school employees—teachers, school administrators, and others—how can we expect them to take seriously our efforts to improve the health of young people?" he asks.

"Young people spend the most formative years of their life in school. Schools can have an enormous influence on health outcomes when they help young people develop the best health skills, whether it is physical activity, healthy nutrition, or being educated about what public health is."

- Lloyd Kolbe, PhD

Tackling Cancer's Burden

Cancer is the second leading cause of death in the United States, exceeded only by heart disease. Each year, cancer claims the lives of more than half a million Americans. In 2005 (the most recent year for which cancer statistics are available), about 1.3 million new cancer cases were diagnosed.

Still, progress continues in cancer prevention and control—a core focus of CDC's chronic disease efforts since the center was established two decades ago. Although cancer death rates have been dropping since the publication of the first *Annual Report to the Nation on the Status of Cancer* 10 years ago, the latest edition marks the first time the report has documented a simultaneous decline in cancer incidence, the rate at which new cancers are diagnosed, for both men and women.

"The progress made in recent years is encouraging, but there remains much work to do," says Stephen Wyatt, DMD, MPH, director of the Division of Cancer Prevention and Control (DCPC) from 1991 to 1998, except for a brief period when he was deputy director for NCCDPHP. "Clearly CDC's decision to enhance its focus on chronic diseases has contributed to this positive trend." He recalls that when he first came to CDC in 1989, only a small group of public health workers were tackling cancer issues. "There was a shift in how CDC looked at cancer, with a true interest in primary and secondary prevention. In the past, CDC had focused more on exposures to environmental causes of cancer," says Wyatt, who retired from CDC in 1998 to join the faculty of the University of Kentucky, where he is now dean of the College of Public Health.

A Nationwide Approach to a Nationwide Problem

In 1992, congress passed the Cancer Registries Amendment Act, through which the National Program of Cancer Registries (NPCR) was established. Administered by CDC, the NPCR collects data on the occurrence of cancer; the type, extent, and location of the cancer; and the type of initial treatment. Wyatt was pivotal in establishing the NPCR. "The state-based cancer registries were a huge step forward. For the first time, we had data to target allocations of resources in the states," he says.

Before NPCR was established, 10 states had no registry, and most with registries lacked the resources and legislative support needed to gather complete data. Today, NPCR supports central cancer registries in 45 states, the District of Columbia, Puerto Rico, and the U.S. Pacific Island jurisdictions. These data represent 96% of the U.S. population. Together, NPCR and the National Cancer Institute's Surveillance, Epidemiology, and End Results Program collect data for the entire U.S. population.

Also during Wyatt's tenure, CDC launched the National Breast and Cervical Cancer Early Detection Program (NBCCEDP), following congressional passage of the Breast and Cervical Cancer Mortality Prevention Act of 1990. The NBCCEDP funds every state, the

District of Columbia, 5 U.S. territories, and 12 American Indian/Alaska Native tribes or tribal organizations to provide breast and cervical cancer screening services to low-income, underinsured, or uninsured women. Since 1991, the program has served more than 3.2 million women and provided more than 7.8 million screening examinations.

In 1998, CDC established the National Comprehensive Cancer Control Program (NCCCP), which provides seed money, structure, and support for developing and implementing cancer control plans in states, tribes and tribal organizations, and U.S. Associated Pacific Islands and territories. Since 1998, the number of programs participating has increased from 6 to 65. The NCCCP now supports 50 states, the District of Columbia, 7 tribes and tribal organizations, and 7 U.S. Associated Pacific Islands and territories in developing and implementing cancer control plans. The NCCCP encourages recipients to leverage CDC funding to maximize their own resources, strengths, and capabilities to achieve greater outcomes.

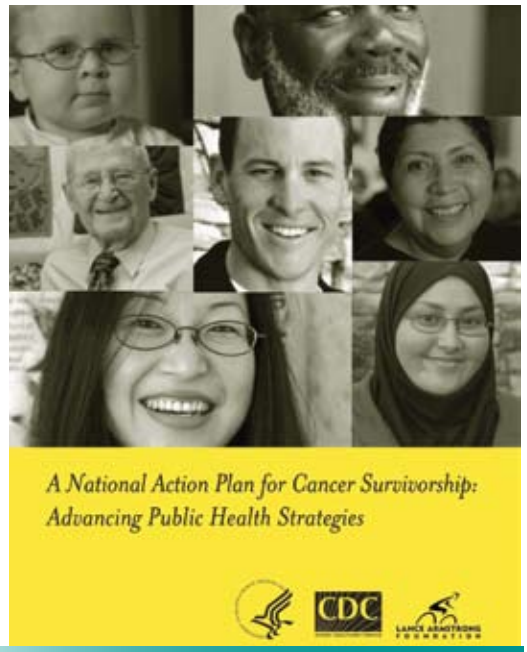
Partnering for Reach and Creativity

"Integration and coordination are key concepts in our approach to reducing cancer incidence, morbidity, and mortality," says Barbara Bowman, PhD, acting DCPC director. "We work across the continuum: from preventing disease onset to reducing risk factors, advancing early detection and treatment, improving access to quality care, enhancing the quality of life for cancer survivors, and eliminating health disparities."

CDC collaborates with researchers from many different scientific disciplines to address the public health research needs of DCPC programs, health care providers, people affected by cancer, and the larger cancer control community. This applied and multidisciplinary research takes advantage of advances in behavioral science, economics, epidemiology, health services, medicine, and statistics to develop and promote the application of sound science to reduce the burden of cancer and eliminate health disparities.

Because of advances in detecting and treating cancer, more people are living longer after a cancer diagnosis, and survivors often face a range of health challenges. "I am extremely proud of our work in cancer survivorship, helping people live with, through, and beyond cancer. We have been able to leverage very modest resources into an effective national program, thanks to our collaboration with national, state, and local partners," Bowman notes. For example, DCPC and the Lance Armstrong Foundation together developed a groundbreaking national action plan for cancer survivorship.

As Wyatt observes, "To me, one of the biggest accomplishments in the cancer area has been building partnerships—a model and approach that has been replicated in many other places at CDC. Battling cancer is too big to take on alone. You



Partnering with the Lance Armstrong Foundation to promote cancer survivorship

need folks at every level. Without the progress that has been made in partnerships, we'd be nowhere near where we currently are."

DCPC's partnership approach extends to its work in health communications, perhaps best exemplified by the multiyear *Screen for Life: National Colorectal Cancer Action Campaign* to educate Americans about the importance of regular screening for colorectal cancer, beginning at age 50. DCPC works with public health partners and the entertainment industry to develop and place public service announcements (PSAs) featuring well-known personalities, such as journalist Katie Couric and actors Diane Keaton, Morgan Freeman, and Jimmy Smits. Through December 2008, the campaign's PSAs have generated more than six billion audience impressions (the number of times they have been seen or heard) worth an estimated $74.3 million.

Future Enhancements

In the future, technology enhancements—such as improved diagnostic and screening tools, as well as developments in information technology and communication—will play an important role in battling cancer. Just as critical will be continuing efforts to translate research into programs, practices, and services for the people who most need them.

"By working with those in the cancer community and beyond, we will continue to make a real difference in reducing the burden of cancer and promoting our nation's health," concludes Bowman.

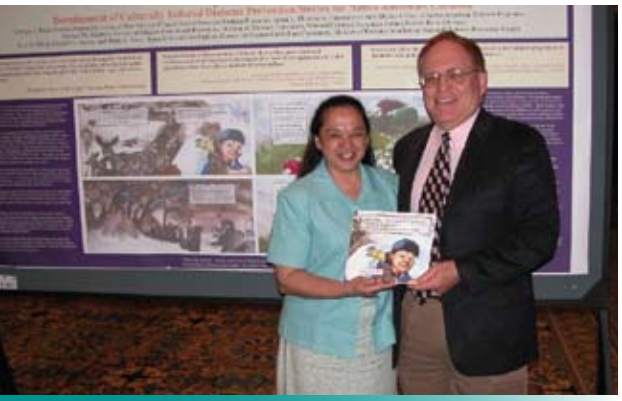
Screen for Life print ad featuring journalist Katie Couric

Growing Diabetes Crisis Requires Community Answer

Over the last 15 years, the number of cases of diabetes—primarily type 2 (formerly called non-insulin-dependent) diabetes—has doubled, and a quarter of those people don't know they have the disease. Today, 24 million Americans have diabetes, and another 54 million have prediabetes, meaning they are at increased risk for developing diabetes. Certain populations—the elderly, minority groups, and groups with lower socioeconomic status—are disproportionately burdened by the disease. If current trends continue, 1 in 3 Americans (including children) will develop diabetes during their lifetime.

Unless it is managed well, diabetes is progressive. The medical complications can play havoc on every major organ in the body, leading to complications such as stroke and heart disease, amputations, end-stage kidney disease, and blindness.

Throughout his 18-year CDC career, Frank Vinicor, MD, MPH, former director of the Division of Diabetes Translation (DDT), was committed to using his knowledge and experience in diabetes to better understand how to prevent the disease and improve the treatment of this seventh-leading cause of death for Americans. Vinicor came to CDC to head up DDT in 1989, two years after NCCDPHP was formed, bringing with him broad epidemiologic and clinical expertise.



Frank Vinicor with *Eagle Books* author Georgia Perez – storytelling for diabetes prevention and health promotion.

Vinicor recalls how the division began as a small program that interacted with only a few states. "The major thrust was for people who had diabetes and who were at risk for complications," he says. "We wanted to get them proper care and education to minimize the complications." As new diabetes science emerged, "our job was to translate that science quickly and widely to daily practice activities, so that patients would receive the best care possible."

To Vinicor, the most exciting part of his CDC work was getting sufficient funds to have diabetes programs in every state and territory. The second key milestone was building up the epidemiology and surveillance part of the program. Today, CDC's National Diabetes Surveillance System includes a comprehensive assembly of diabetes-related data from national and state-based surveys, such as the Behavioral Risk Factor Surveillance System, the National Vital Statistics System, and other data sources that examine and track the prevalence and incidence of diabetes and its risk factors in the U.S. population, by state and by specific demographic groups.

Vinicor and other public health experts attribute the sharp increase in type 2 diabetes to a combination of factors, including increased obesity and decreased physical activity. "If you can get people to lose some weight and be more physically active, you can prevent the development of type 2 diabetes," Vinicor explains.

As the worldwide burden of diabetes continued growing (see sidebar), CDC's work began to include a more global focus. "Initially the program's interests were to link up internally—

with related chronic disease activities in the center's Division of Nutrition, Physical Activity, and Obesity and Division for Heart Disease and Stroke Prevention. But after opportunities arose to work with the World Health Organization and individual countries, such as India and Egypt, we began to look at the international picture," Vinicor says.

Community Awareness and Engagement

Vinicor thinks the heart of combating diabetes' progression is to move beyond clinical care alone and involve the entire community. He points out, "It's not just what goes on in the doctor's office, but also how we educate people and how we support healthy lifestyle choices, such as providing or supporting facilities for people to exercise in a safe environment. It's working with leaders to accept that this is a public health challenge and not just a clinical problem."

He cites how the American Indian community took this approach, and it made a difference. Other high-risk populations are also seeing the merits of a concerted effort. "It's more than just decision-making for the individual—it's decision-making for the community," he says.

Moving Forward

Ann Albright, PhD, RD, current director of DDT, shares Vinicor's views on combating the diabetes epidemic. "It is imperative that we continue making improvements in reducing the devastating complications of diabetes and increase our efforts in making widespread prevention of type 2 diabetes a reality." One of the ways DDT is making prevention a reality is by working with partners, such as the YMCA and Indiana University, to set up a national primary prevention system that connects community-based organizations and health care institutions. "This program has a strong evidence base and can be cost saving," says Albright.

DDT has recently developed a new strategic plan and is using it to help focus work and measure outcomes. "It is an exciting time in DDT, as we enhance our surveillance system with such additions as small area estimates of diabetes prevalence, initiate new health services and primary prevention research studies, and embark on new cooperative agreements with states, territories, tribal nations, and community organizations," says Albright. Much remains to be done in diabetes prevention and control, and DDT is forging ahead with a firm commitment to reducing the burden of diabetes.

Diabetes' Increasing Reach

- Every 10 seconds, a person dies from diabetes-related causes.
- Every 10 seconds, two people develop diabetes.
- Globally, diabetes is the fourth leading cause of death by disease.
- India has the largest number of people with diabetes of any country in the world.
- At least 50% of all people with diabetes are unaware of their condition. In some countries, this figure may reach 80%.
- Up to half of type 2 diabetes cases in the United States can be prevented by adopting a healthy diet and increasing physical activity.

NCCDPHP's Newest Division Takes a Coordinated Approach to Cardiovascular Health

In 2006, CDC's newest chronic disease division was formed to focus on heart disease and stroke, the nation's first and third leading causes of death and among the leading causes of disability.

The move, according to Darwin Labarthe, MD, MPH, PhD, director of NCCDPHP's Division for Heart Disease and Stroke Prevention (DHDSP), "brought the whole area of heart disease and stroke prevention to an appropriate level within the national center. As a new, high-level point of reference for CDC's activities in the cardiovascular health area, we were able to develop external partnerships as a division in a way we could not before," he explains.

DHDSP was formed from merging the cardiovascular health program from NCCDPHP's Division of Adult and Community Health and the WISEWOMAN Program from the center's Division of Nutrition and Physical Activity. WISEWOMAN (Well-Integrated Screening and Evaluation for Women Across the Nation) was created in 1995 to carry out cardiovascular risk screening and evaluation for women participating in the center's National Breast and Cervical Cancer Early Detection Program.

Labarthe came to CDC from the University of Texas School of Public Health, where he was co-director of the school's Prevention Research Center. "Ginny Bales Harris (then acting director of NCCDPHP) asked me to help develop a long-range strategic plan for CDC's newly congressionally funded program in heart disease and stroke prevention. That was something I was only too willing to do," he recalls.

That was 2000. The resulting long-range strategy document, *A Public Health Action Plan to Prevent Heart Disease and Stroke*, was developed by CDC and released by HHS Secretary Tommy Thompson in April 2003. Soundly based on the department's Healthy People 2010 initiative, which required the agency to develop a plan and begin taking steps to implement it, the action plan was a "landmark event," says Labarthe. For the first time, CDC became a co-lead partner with the National Institutes of Health in the area of heart disease and stroke prevention.

As the primary vehicle for carrying out the plan, a pivotal partnership—the National Forum for Heart Disease and Stroke Prevention—was established in 2004. The founding organizations of the National Forum were the American Heart Association, the Association of State and Territorial Health Officials, and CDC. Today, more than 80 national and international organizations from every sector of heart disease and stroke prevention are represented.

Labarthe says it wasn't until 2006, when DHDSP was in place and had discretionary resources to invest, that the National Forum flourished. "The National Forum's existence

WISEWOMAN™
Well-integrated Screening and Evaluation for Women Across the Nation

WISEWOMAN, working to prevent cardiovascular disease in low–income, underinsured, or uninsured women.

is absolutely a consequence of the division's existence. DHDSP enabled CDC to leverage resources and bring together many partners from other sectors, from other domains within the country, and from some international groups, as well."

Mike Greenwell, NCCDPHP's first communications director and currently a member of the National Forum's coordinating board and executive committee, remembers the period well. He says the major challenge facing CDC at the time was getting its chronic disease prevention work on the map. "The action plan *[A Public Health Action Plan to Prevent Heart Disease and Stroke]* really made it happen," says Greenwell. "Prior to the existence of the plan, CDC had no program for the number one killer in the United States."

Global Problem

The global burden of cardiovascular disease is immense and growing rapidly, especially in low- and middle-income countries, says Labarthe. According to the World Health Organization, 30% of deaths worldwide are due to heart disease or stroke. The work of the National Forum increasingly recognizes this global problem. One of its implementation groups is focusing on regional and global collaboration.

"We have a long way to go in our own country. The majority of people who have high blood pressure do not have it under control, despite decades of research and vast experience in dealing with the problem," says Labarthe. "Also, the racial and ethnic disparities related to high blood pressure persist. We've known of them for 70 years, and yet we have not effectively intervened to tackle them."

Almost a million Americans die of heart disease every year, yet the disease is largely preventable. In addition, the costs of heart disease are enormous: more than $400 billion for 2007, which is nearly $100 billion more than the costs only five years earlier.

Labarthe believes that the greatest opportunity DHDSP has is to exercise leadership in the field by pointing out the proper path, as the U.S. health system broadens its outlook and increases its investment in the "upstream determinants of health." This investment can lead to prevention of not only cardiovascular disease but also other chronic diseases.

"The public health world has begun to speak more in terms of chronic disease prevention overall. The leadership we can exercise in the cardiovascular area will carry over to other chronic diseases. By modeling what can be done on a disease-specific basis, and by being continually mindful of our work for broader chronic disease prevention, we can contribute to needed changes in the health system," Labarthe says.

Beyond NHANES: Sharpening Surveillance

Strengthening the country's cardiovascular surveillance system remains a major priority, since surveillance is the foundation of CDC's work—from determining policy,

initiatives, and programs, to ensuring evaluation and accountability.

Currently, DHDSP relies on CDC's National Health and Nutrition Examination Survey (NHANES) and Behavioral Risk Factor Surveillance System (BRFSS). Both have limitations: the former is a national probability sample but does not provide any estimates for states, whereas the latter provides data at the state level but lacks direct examination data.

"We are overseeing a pilot study in five states to determine the feasibility of having states collect limited direct examination data on cardiovascular risk factors. These data include measuring blood pressure, cholesterol, height and weight, blood glucose, and other individual examination elements. This information would help fill the gap between NHANES and BRFSS," Labarthe explains, adding that his division has already established a statistics unit and is actively engaged with the American Heart Association in this new work.

Labarthe is also working to incorporate measures for cardiovascular disease occurrence in the planning for Healthy People 2020. "The promise of improved surveillance may lead us to adopt better objectives for Healthy People 2020 and in the process strengthen our ability to get needed surveillance in place," he concludes.

Almost a million Americans die of heart disease every year, yet the disease is largely preventable.

Confronting the Obesity Epidemic

During the past 20 years, obesity has increased dramatically in the United States. In 2007, only the state of Colorado had a prevalence of obesity less than 20%. At least 25% of people living in 30 states are obese. Residents of Alabama, Mississippi, and Tennessee have obesity rates of 30% or more.

Childhood obesity rates also have risen sharply, with about 18% of 6- to 19-year-olds now overweight.

These statistics are all too familiar to William Dietz, MD, PhD, director of NCCDPHP's Division of Nutrition, Physical Activity and Obesity (DNPAO). Dietz has been on the front lines of this battle as both a clinician and a public health expert. Before joining CDC in 1997, he did research in a number of areas related to childhood obesity and ran a clinic for obese children and adolescents in Boston.

"At the time it was a relatively small field," recalls Dietz. "There was recognition that this was a problem, but people hadn't appreciated its magnitude or its implications—as an epidemic—for things like morbidity, mortality, and costs."

Watershed Event: *JAMA's* Obesity Issue

In 1999 the *Journal of the American Medical Association (JAMA)* prepared a special issue on obesity. In that issue, NCCDPHP staff, including Dietz, and then-CDC director Jeffrey Koplan, MD, MPH, wrote an editorial about the obesity epidemic. Accompanying the text of the editorial was a simple graphic—a sequence of U.S maps showing state-specific obesity data for the years 1991, 1993, 1995, and 1998. The trend upwards was immediately and alarmingly apparent.

ORIGINAL CONTRIBUTION

The Spread of the Obesity Epidemic in the United States, 1991-1998

Ali H. Mokdad, PhD
Mary K. Serdula, MD, MPH
William H. Dietz, MD, PhD
Barbara A. Bowman, PhD
James S. Marks, MD, MPH
Jeffrey P. Koplan, MD, MPH

Context The increasing prevalence of obesity is a major public health concern, since obesity is associated with several chronic diseases.

Objective To monitor trends in state-specific data and to examine changes in the prevalence of obesity among adults.

Design Cross-sectional random-digit telephone survey (Behavioral Risk Factor Surveillance System) of noninstitutionalized adults aged 18 years or older conducted by the Centers for Disease Control and Prevention and state health departments from 1991 to 1998.

Setting States that participated in the Behavioral Risk Factor Surveillance System.

ALTHOUGH ATTEMPTS TO LOSE weight are common in the United State lence of ob creased since the 198 creases will tremendou health since obesity is ated with several chroni as cardiovascular disea tes.[5,6] Recent estimates s sity-related morbidity r

rted weight

kg/m²) in- served in all red regard- ıe following tion (10.6% tude of the ic to 67.2% rom 11.3%

Figure. Prevalence of Obesity Among US Adults From Years 1991, 1993, 1995, and 1998

1991 1993 1995 1998

Data were calculated using the Behavioral Risk Factor Surveillance System. States are white in the years 1991 and 1993 because information on weight and height was not collected.

Milestone 1999 *JAMA* article, catapulting CDC's obesity maps into news headlines nationwide

"The use of the maps was a significant milestone. For the first time, the public health audience—and the wider audience that followed from extensive press coverage—had a compelling demonstration that obesity was epidemic in the United States," Dietz explains.

Since 1999, the focus has shifted from establishing obesity as a problem to focusing on solutions, particularly to the problem of childhood obesity. This transition occurred in part from DNPAO's efforts and was accelerated in 2004 by the release of *Preventing Childhood Obesity: Health in the Balance*, a report from the Institute of Medicine Committee on Prevention of Obesity in Children and Youth.

"The committee brought the breadth of this problem to the attention of policy makers, emphasizing the need for a comprehensive approach to address it," Dietz says.

DNPAO funds obesity prevention

and control activities in 23 states. These efforts include making policy and environmental changes to increase access to healthy foods and to places that offer opportunities to be physically active, as well as strengthening obesity prevention and control programs in medical, preschool, child care, work, and other community settings.

Building a Grassroots, Social Movement

Dietz believes that society as a whole has embraced a much more comprehensive approach to tackling the childhood obesity epidemic. He compares this approach—its history and aims—to the tobacco control movement, where policy and environmental changes proved necessary for real social change to occur. It was not just a matter of "personal responsibility."

"If you are building a social movement, grassroots engagement is critical. Analogous to what happened in tobacco control, successes at the state and community level may be starting to transform things on the childhood obesity front," Dietz says.

As of today, more than 100 communities nationwide have begun to address this issue at the community level. DNPAO recently hosted a conference in Atlanta with 25 of those communities. "In a two-week period, we received 75 applications for the 25 spots at this Communities Conference," says Dietz. It was a first-of-its-kind meeting to have groups share their experiences and successes. "We see meetings like this as an opportunity to begin building a network to connect communities with similar interests and to share innovation," he says.

But the challenge, he acknowledges, is to demonstrate what works. "We've identified six behavioral targets: increasing breastfeeding [which is associated with decreased risk for many early life diseases and conditions, including obesity], reducing intake of sugar-sweetened beverages, increasing fruit and vegetable intake, reducing intake of high caloric density foods, reducing television time, and increasing physical activity. What we lack are good policy and environmental strategies to implement these behavioral changes—in other words, building the evidence base."

State by state, progress is being made in reducing childhood obesity. For example,

- In Arkansas, which a few years ago led the country in childhood obesity rates, the prevalence has stabilized for the last two years, thanks to successful partnerships between the education and the clinical community to support parents.
- In Texas, schools are using environmental and classroom strategies to promote physical activity and healthy food choices. One of the better-known strategies, the CATCH (Coordinated Approach To Child Health) Program, has spread to 2,000 schools statewide.

"We are starting to see many different groups working together to prevent childhood obesity," says

Deanna Hoelscher, PhD, a professor in the Austin Regional Campus of the University of Texas School of Public Health and director of the Austin-based Michael and Susan Dell Center for Advancement of Healthy Living. "The state has come out with legislation that is very supportive of these programs." One example is the tighter regulation of what kinds of foods are sold in schools. "We have academic partners with CDC funding and other foundations supporting this. We are leveraging funding and opportunities from all these groups—playing on each other's strengths to put together a coordinated program," Hoelscher says.

Another important highlight for Dietz is the progress in fostering development of primary care for childhood obesity. CDC, the American Medical Association, and the Maternal and Child Health Bureau of the Health Resources and Services Administration funded an expert committee to revisit the 1999 recommendations for assessing, preventing, and caring for obese children. Out of that activity grew a network of providers to share innovation, sponsored by the National Initiative for Children's Healthcare Quality.

"The perspective and approach we have taken is to view this as an initiative within specific sectors: medical, school, community, and work site," Dietz says. "Specific divisions in NCCDPHP have or share responsibility for these sectors."

DNPAO's Cross-cutting Work, New Vision

For Dietz, CDC's focus on combating obesity is deeply interwoven with DNPAO's other two focus areas, physical activity and nutrition. "All three of our issues cut across almost every division in the chronic disease center," says Dietz, whose division recently established strategic priorities and a new vision statement: "A world where regular physical activity, good nutrition, and healthy weight are part of everyone's life."

Bill Dietz at national launch of rebranded 5 A Day for Better Health program, *Fruits & Veggies—More Matters.*

Dietz admits that Americans' sedentary and dietary habits present formidable hurdles to achieving this vision. More than 50% of American adults do not get enough physical activity to provide health benefits, and 25% are not active at all in their leisure time. In addition, more than a third of young people in grades 9 through 12 do not regularly exercise vigorously.

But Dietz remains optimistic, observing that community and public health partners have a much better handle than they used to on what needs to be done. "There is a greater recognition of the obesity problem and a clearer understanding of the need to partner for solutions to it," he says.

Making Strides in the Nation's Oral Health

Kip Duchon, CDC's National Fluoridation Engineer with the Division of Oral Health, demonstrating the use of a chemical feed pump to add fluoride to community water supplies

In 1978, CDC named dental diseases, especially tooth decay, one of the nation's top 15 public health challenges for primary prevention. In recent decades, the agency has made significant strides to improve the nation's oral health. Rates of tooth decay are markedly reduced, thanks to several factors, including the expansion of community water fluoridation and the increased number of Americans brushing with fluoride toothpaste. Challenges remain, especially in the area of population disparities—as evidenced by the Surgeon General's 2000 report, *Oral Health in America*.

"This disparity reflects not only economics and education but also racial and ethnic barriers to care," says William R. Maas, DDS, MPH, former director of NCCDPHP's Division of Oral Health (DOH). "In 2007, the nation spent $98.6 billion on dental services, yet many children and adults went without the services they need to prevent and control oral disease. We have interventions that can not only prevent disease but also save money for society." Maas served as DOH director for 10 of the 13 years it has been part of NCCDPHP. Today, the division includes approximately 30 staff, and its 2008 budget was $12.4 million.

Maas stepped down as director in 2008 to assume a new role in the center, working with partner organizations and leadership groups and leveraging relationships with HHS and other federal agencies, think tanks, and public and private organizations on behalf of oral health.

He points out that a key breakthrough in reducing oral health disparities is the wider use of dental sealants, a clinical service that CDC has promoted through school-based sealant programs. CDC has found that sealants used on second graders whose first permanent molars are ready to receive them can prevent 60% of the decay on those surfaces in later years. Most sealant programs target schools where at least half of the students qualify for reduced or free lunches.

"Since the early 1990s, school-based dental sealant programs have become much more common and have greatly reduced the burden of tooth decay in children and adolescents," Maas says. Indeed, findings from national surveys show a marked increase in sealant use during the 1990s, particularly among children from minority and low-income families. Continued progress is needed, however, to meet the Healthy People 2010 objective that 50% of all children aged 8 have dental sealants.

DOH had two main thrusts at the time it joined NCCDPHP: infection control

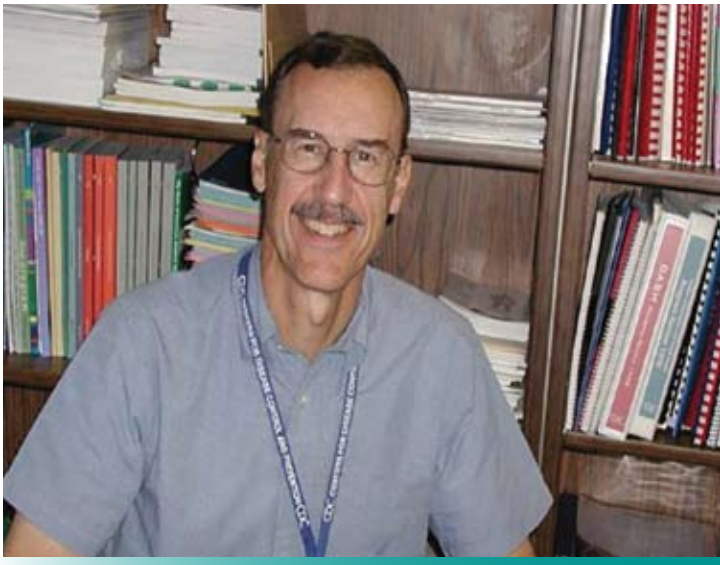
in dental care settings—a need arising in the 1980s with the emergence of HIV—and promoting community water fluoridation. Infection control focused on ensuring that people could receive preventive and other dental care, without fearing infection. In 2003, the division's infection control recommendations, updating those developed in the 1980s–early 1990s, became worldwide standards.

"This pivotal work represented the consolidation and adaptation of all the infection control recommendations that had been issued for dental care settings—for hospital care, surgery, and health care workers—and they were disseminated in collaboration with the American Dental Association," Maas explains.

CDC has also made impressive strides in community water fluoridation, a responsibility assigned to CDC in 1978. Of the U.S. population receiving water from public water systems, the percentage with optimally fluoridated water has increased from 62% to almost 70%. The last decade also saw a complete change of staff charged with supporting state and local water fluoridation efforts. Through diligent attention to engineering, quality assurance, and risk communication principles, and by harnessing the capacity and reach of the Internet, DOH staff have ensured that useful and insightful information is now available to all state oral health program personnel and their partners for their efforts to expand and maintain fluoridation. As a result, the number of people served by fluoridation has increased at a higher rate since 2000 than during the previous decade.

"Many people still don't realize that water fluoridation protects against tooth decay not only in children but also in adults," Maas says. "Tooth decay afflicts older adults at the same rate that it afflicts children, and it may even occur at a higher rate."

One of the most important insights DOH gained by becoming part of the larger chronic disease center was in the area of oral health surveillance. Maas reports that the division quickly learned a model for doing state-based surveillance. "Since most health policies and preventive programs happen at the state level, you need to make the burden of disease 'real' for state policymakers," he noted.



Bill Maas, a member of the project team that in 2000 prepared the first-ever Surgeon General's report on oral health in America

DOH worked with the Association of State and Territorial Dental Directors and others to establish the National Oral Health Surveillance System, a national standard for state-based collection of oral health information. In February 2001, the system began providing Web-based access to key indicators of oral health by state.

"This system has made a difference for

justifying public health programs and policies, because policymakers now understand what the burden of oral disease is in their state and what the potential is for prevention," says Maas.

Reflecting on the decade he led DOH, Maas credits the division's success to the efforts of "both its excellent, multidisciplinary staff and to the many partner organizations that have collaborated with the division.

"The state of oral health has been much improved, but we still have tremendous disparities. As a public health agency, our responsibility is to understand what those disparities are and to apply our best efforts to reduce them," he concludes.

"In 2007, the nation spent $98.6 billion on dental services, yet many children and adults went without the services they need to prevent and control oral disease. We have interventions that can not only prevent disease but also save money for society."

- William R. Maas, DDS, MPH

Early Advances in Reproductive Health Represent Fertile Ground for Growth

The statistics are arresting:

- Some 40% of pregnancy-related deaths could be prevented, mainly through improved quality of medical care.
- About two-thirds of all infant deaths occur in infants who were born preterm.
- African-American mothers face infant mortality 2.5 times more often than white mothers; key causes are preterm deliveries and resulting low birth weight.

The Division of Reproductive Health (DRH) was established to improve maternal and infant health outcomes through research and surveillance in partnership with various organizations. DRH began as CDC's Family Planning Evaluation Activity in 1967, which was one of CDC's first activities outside the realm of communicable disease control and prevention.

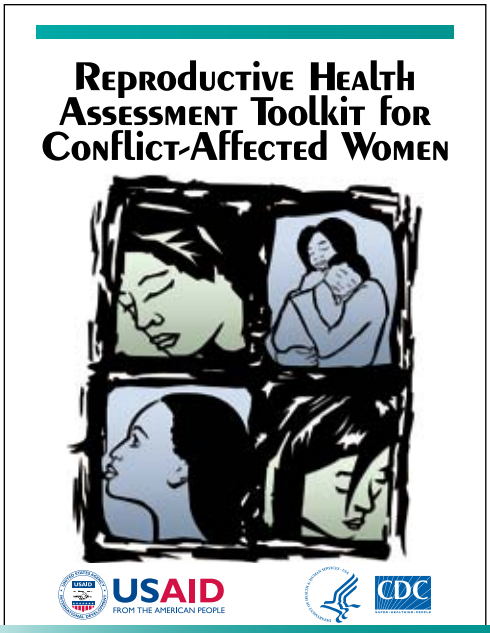
"We've come a long way from helping evaluate a family planning clinic at [Atlanta's] Grady Hospital," says acting DRH director John R. Lehnherr. "But we've never forgotten that confronting threats to women's and infants' health begins with the expertise of local health officials and the clinicians on the front lines."

In 1981, this CDC "activity" was renamed with its current division title. Carol Hogue, PhD, MPH, who came to DRH in 1982 and served as director from 1988 to 1992, recalls how the division quickly grew as staff mastered the art of securing funds. "We did this by focusing on the division's goals, drafting proposals in advance, and being proactive about communicating needs to organizations—inside and outside of CDC—that could potentially help DRH programs," says Hogue. And when DRH became one of the founding divisions of NCCDPHP, the newly formed chronic disease center "learned a lot from our experience," Hogue adds.

During Hogue's time at CDC, the division doubled in size. One memorable year, DRH staff themselves either gave birth to or adopted 12 babies. "That was the year we really were the division of 'reproducing' health," says Hogue, whose adopted daughter, Elizabeth, was among the new arrivals.

Hogue believes that one of the division's greatest achievements is the Pregnancy Risk Assessment Monitoring System (PRAMS). Begun in 1987, shortly before NCCDPHP was established, PRAMS was designed to gather information leading to public health practices that could improve the health of mothers and infants by reducing adverse outcomes, such as low birth weight, infant mortality and morbidity, and maternal morbidity.

Lehnherr concurs on the importance of PRAMS and of surveillance in general. "Ward Cates [MD, MPH, who led a major surveillance branch during the pre-DRH days] once



Helping meet the reproductive health needs of women in conflict settings

said that 'what gets measured gets funded.' It takes resources dedicated to maternal and child health to make strides in changing outcomes."

Progress has certainly been made. A special issue of CDC's *Morbidity and Mortality Weekly Report (MMWR)* counted the U.S. decline of maternal and infant mortality—together, among the most important indicators of a nation's health—as one of the "Ten Great Public Health Achievements" of the 20th century.

Yet problems, such as racial disparities in reproductive health, persist. "We've begun to understand that these disparities are only partially explained by economic disparity," Hogue says. "I think our division contributed tremendously to the acceptance of alternative hypotheses and to the development of methodologies for asking hard questions of those hypotheses."

Lehnherr agrees. "We have mentored many professionals who can now tease out what might become breakthroughs in understanding racial and ethnic disparities in both maternal and infant health outcomes."

DRH continues to help monitor and also address maternal health issues—not just deaths, but the patterns that may place a woman's life at risk or cause life-long disabilities. In 2001, under the leadership of then-DRH director Lynne Wilcox, MD, MPH, the division organized the first National Summit on Safe Motherhood to examine what could be done to improve women's health before, during, and after pregnancy. The summit framed much of DRH's work on analyzing and reducing the magnitude of maternal illness. Within the past decade alone, DRH has expanded the PRAMS program, has developed better ways to measure the risk of maternal death, and is working to promote partnerships to help couples overcome infertility.

As experts in the science and art of maternal and child health epidemiology, DRH staff routinely receive outside requests for assistance. "Whether it's WHO seeking to measure maternal mortality in Afghanistan or the UN High Commission on Refugees needing assistance in an Asian country," observes Lehnherr, "or whether we're working on the U.S./Mexico border or responding to catastrophes like Hurricane Katrina, our staff brings the tenets of maternal and child health epidemiology to where they're most urgently needed."

Though the scope of DRH's activities has expanded, these new directions remain firmly grounded, Lehnherr points out. "Our efforts always stay in

Members of the adolescent reproductive health program, promoting science-based approaches to prevent teen pregnancy, HIV, and STDs

touch with the fundamental aspects of reproductive health—from having a science-based approach to preventing teen pregnancy to helping providers recommend the best contraceptive method for women who choose to delay childbearing."

Lehnherr gives the final say to Jim Marks, MD, MPH, who succeeded Hogue as DRH director before becoming NCCDPHP director: "'DRH is where science meets society.' That's exactly right. In areas like preventing teen pregnancy—or any unintended pregnancy—we need science to help us understand how social forces and technology can alter a woman's life."

The Global Maternal Health Burden

Global reproductive health issues have long been one of DRH's priority areas.

Over the last 30 years, DRH has provided scientific expertise, technical assistance, and capacity building for a broad array of reproductive health areas. Still, maternal morbidity and mortality rates remain a major problem. An estimated 500,000 women die each year in pregnancy and childbirth around the world, and over 99% of those deaths occur in the developing world.

As one example of its work to address these global health disparities, the division in 2002 began to develop the Reproductive Health Assessment Toolkit for Conflict-Affected Women. Pilot tested in three refugee camp settings during 2004–2006 and finalized for use in 2007, the kit provides readily accessible tools to assess the reproductive health needs of women in conflict settings. It also includes a survey instrument that allows field staff with minimal survey expertise to collect reproductive health data, which in turn can help inform program planning, monitoring, evaluation, and advocacy.

Closing the Gap Between Genetic Discoveries and Public Health Application

The mapping of the human genome in 2003 remains one of the biggest milestones in the genomics field, points out Muin J. Khoury, MD, PhD, director of NCCDPHP's Office of Public Health Genomics (OPHG).

"We are truly at the cusp of a new era, where genomics has the potential to change the practice of public health," says Khoury, who became director when the office was established in 1997.

OPHG works to integrate genomics into public health research, programs, and policy to help promote health and prevent disease. The office started with two people and now boasts more than 40 staff with expertise in genetics, public health, epidemiology, statistics, policy, economics, and health communication.

Putting Genomics on the Map

Looking back over the last two decades, Khoury believes that "putting genomics on the radar screen of public health" is one of CDC's greatest accomplishments.

Muin Khoury (center) working with partners on the Human Genome Epidemiology Network

"With the emergence of new tools of genome discoveries, we will see increased applications of these tools in public health research, policy, and practice, especially for chronic disease prevention and control," Khoury says.

It's widely acknowledged that genomics plays a part in 9 of the 10 leading causes of U.S. deaths and may help doctors and other health care professionals understand why certain infections, behaviors, and environmental factors will make some people sick but not others. Hundreds of scientific studies have emerged, citing genetic linkages to everyday diseases. More recently, commercial tests have become available for people to analyze their entire genome, though the scientific jury is still out on the value of such tests.

"We've raised awareness within the agency and the public health profession. We're also striving to close the gap between the science of gene discovery and our ability to use this information to improve the population's health," says Khoury. He further notes that OPHG has seminal initiatives focusing on family health history, genetic testing, human genome epidemiology, and population research.

Khoury cites several major agency accomplishments over the last decade, beginning with establishing an evidence-based process for evaluating genetic tests across a broad spectrum of chronic diseases. CDC also has developed the Family History Public Health Initiative, whereby a person's family health history is used as a tool for disease prevention and health promotion.

"For people who have tracked their family history and risk factors and are trying to exercise more and eat right, it's our hope that this personal information will provide some extra

motivation," Khoury says.

OPHG also has established the Human Genome Epidemiology Network. This global collection of investigators helps translate genetic research findings into opportunities for preventive medicine and public health by advancing the synthesis, interpretation, and dissemination of population-based data on human genetic variation in health and disease. Finally, through the NHANES III Collaborative Genomics Project, Khoury's team has measured and evaluated the prevalence estimates of selected candidate gene variants for a nationally representative sample of the U.S. population, including major racial and ethnic subgroups. This work may shed light on how these gene variants influence health and disease outcomes.

Striving for Personalized Medicine

Khoury notes that genetic discoveries have not yet resulted in true "personalized medicine," although that is the direction genomics is heading. Part of the reason for the delay is that research agencies and the private sector are primarily focused on finding new genes, not on translating these discoveries into actual health benefits. New gene discoveries with implications for conditions such as heart disease emerge frequently, and these discoveries are sometimes followed by the offer of a genetic test. Khoury estimates that there are now more than 1,500 tests, and more are arising almost daily.

"Most are for rare genetic diseases, but we're seeing genetic tests that affect a larger segment of the population, including tests for cancer, diabetes, and infectious diseases. And now you can buy your whole genomic profile online for a thousand dollars or so." But Khoury points out, "We really need evidence on the validity and utility of this information before it is deployed in the population."

Ethical considerations remain uppermost in mind. Privacy concerns and fears of genetic discrimination fueled congressional passage of the Genetic Information Nondiscrimination Act of 2008, which prohibits health insurers and employers from canceling or denying coverage or increasing premiums because of a person's genetic risk of developing a certain disease.

In Khoury's view, CDC's role is to serve as an "honest broker of information" to help both the public and health providers evaluate applications such as genetic testing and determine which ones are ready for public dissemination and which are not. CDC's work can also inform the policymaking process in terms of laws, regulations, policies, and practice guidelines.

Genomic testing may have the greatest impact in the newborn screening area. Helping doctors detect infants affected with certain genetic and metabolic conditions could result in early treatment that could improve quality of life and save lives.

All of Public Health Needs to Be Ready

Even with these early successes, Khoury emphasizes that there is much more

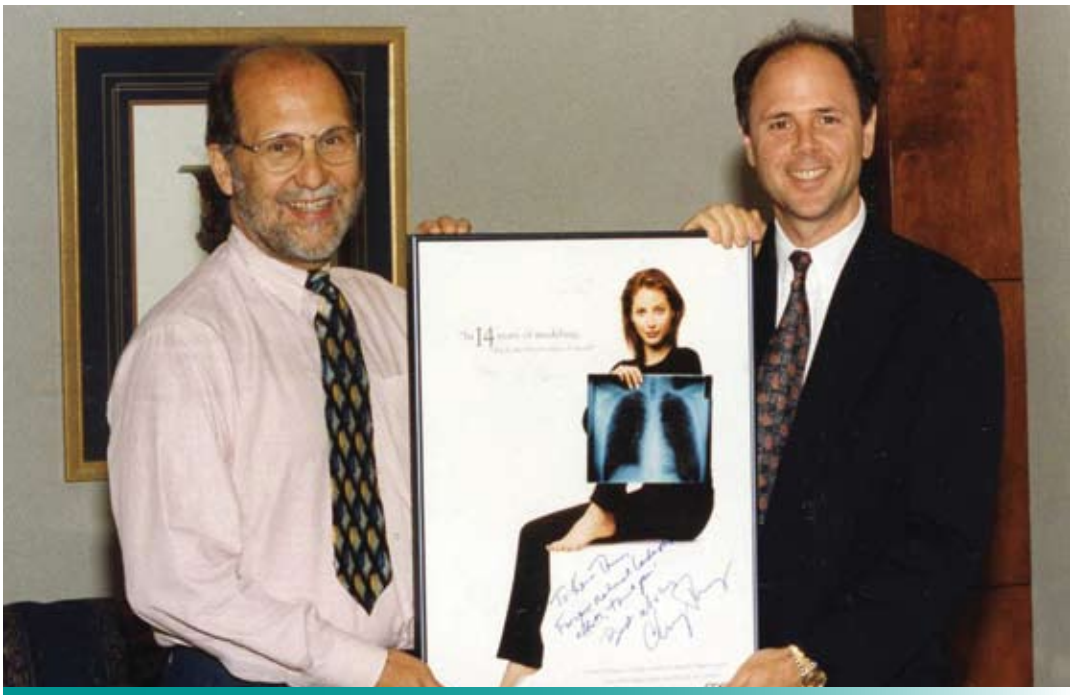
work to do. CDC has a critical role to play, both in educating the public health workforce on genomics and in doing the necessary translational research before integrating genomic information into medical training and practice.

"We've had 10 years to prepare for this new era. Now it's time to integrate genomics awareness and competencies into all chronic disease program areas. Unless all of public health is ready, we won't be able to realize the full potential of genomics," Khoury concludes.

"With the emergence of new tools of genome discoveries, we will see increased applications of these tools in public health research, policy, and practice, especially for chronic disease prevention and control."

- Muin J. Khoury, MD, PhD

Tackling Tobacco: The Momentum-Building Years



Michael Eriksen (l) with former HHS deputy Kevin Thurm, holding anti-smoking poster featuring model Christy Turlington.

One of the early decisions Jeffrey Koplan made in his consolidation of chronic disease work at CDC was to move the legislatively mandated Office on Smoking and Health (OSH) from Rockville, Md., to Atlanta in 1991 and make it part of the new chronic disease center.

Since this move, OSH has flourished—overseeing landmark Surgeon General's reports, expanding comprehensive tobacco control programs in every state, establishing quitlines in every state, and launching the Global Youth Tobacco Survey (GYTS). Michael Eriksen, ScD, currently Professor and Director of the Institute of Public Health at Georgia State University, served as CDC's director of OSH from 1992 to 2000, a period marked by significant milestones and momentum building.

"When I became OSH's director, its budget was $3 million. When I left eight years later, it was $100 million. This huge increase in investment allowed the office to expand its activities, to fund every state in the country, to support dozens of partners, particularly those serving racial and ethnic minority groups, and to expand our efforts to have more of a global impact," says Eriksen, who left a cancer prevention research position at MD Anderson to head OSH.

"Working in a cancer center, I saw the effects of chronic tobacco use. The opportunity to lead a national effort to try to remediate this problem was attractive enough that I took a sizable pay cut to come and work for the government. It turned out to be a wonderful experience," recalls Eriksen. "CDC was unequivocally supportive of what

our office tried to do, and the center worked hard to build the investment in tobacco control."

During Eriksen's tenure, staff grew from 14 employees to 100. Eriksen notes that the type of new positions the agency was filling changed from traditional health educators and communications staff, to toxicologists, economists, and lawyers, underscoring what an interdisciplinary field tobacco prevention had become. Today, the office's 136-member staff collaborates closely with other federal and nongovernmental units, as well as with external partners, in its mission to make the world free from tobacco-related disease and death. Some 65% of OSH's $100 million budget in 2007 was distributed to states to support comprehensive tobacco control programs.

In November 1998, the Master Settlement Agreement between state attorneys general and the four major tobacco companies paved the way for major funding of state tobacco control programs. Florida and three other states settled ahead of the rest of the country, notes Eriksen, led by late Florida Governor Lawton Chiles, who considered the lawsuit "the best fight" of his life. Chiles battled Big Tobacco for two years in the state legislature, in the courthouse, and in the court of public opinion. On August 25, 1997, the tobacco industry admitted defeat and agreed to pay the state of Florida $11.3 billion over the next 25 years to settle the state's case, including funding a $200 million anti-smoking campaign targeting youth. "The Truth" anti-smoking campaign, begun in Florida with the creative help of local teenagers, was partly credited with the state's dramatic decrease in teen smoking (rates declined by 54% among middle school students and 24% among high school students).

Ann Goding of the Office on Smoking and Health training country representatives in Global Youth Tobacco Survey data analysis at a workshop in Brazzaville, Congo.

Other jurisdictions quickly followed suit. Eriksen says New York City is a good example of a place that reduced tobacco use through a combination of passing laws that prohibited smoking in restaurants and bars, passing laws that increased the price of a pack of cigarettes, establishing quitlines, and developing edgy media campaigns.

"It has been demonstrated again and again that there are interventions that will work to reduce tobacco use here and in other developed countries. The question is, will those same strategies work equally well in developing countries?" muses Eriksen, noting that it's an area ripe for research.

He points out that certain interventions are universal—they will work regardless of context or culture. A good example is price increases: as price goes up, consumption will go down.

"However, edgy advertisements toward youth may not work as well in developing countries, where there is not the same skepticism of the tobacco companies as there is here. So there needs to be thoughtful research to determine whether interventions that work well in places like New York City would work equally as well in Zambia or Cambodia. Which interventions are universally effective, and which are culturally specific?"

Looking at the scope of work that OSH accomplished during his time at the agency, Eriksen is most proud of launching the GYTS. "For the first time, we provided standardized data using a common protocol to assess tobacco use among young people across the world," Eriksen says. "More than a million kids have participated in the survey."

The GYTS was an outgrowth of the National Youth Tobacco Survey, which came out of the Florida Tobacco Survey.

"Governor Chiles really wanted an aggressive program, starting with a survey of tobacco use among kids," recalls Eriksen. "He worked with CDC to get a survey done within months—written, developed, delivered, and analyzed. That Florida survey served as a basis to collect this information nationally and then internationally." Today, the GYTS collects youth surveillance data in more than 150 countries and enhances those countries' capacity to design, implement, and evaluate tobacco control and prevention programs.

More than any chronic disease area, tobacco control efforts have taken a cross-cutting approach. Since the late 1990s, CDC has overseen the National Tobacco Control Program, which uses cooperative agreement funds to set up comprehensive programs for all 50 states, Washington, D.C., and the territories. Such programs represent a coordinated effort to establish smoke-free policies and social norms, help tobacco users quit, and prevent initiation of tobacco use. This comprehensive approach combines educational, clinical, regulatory, economic, and social strategies. These individual components work together to produce the synergistic effects of a comprehensive program.

Changing Mindsets About Smoking

Virginia Bales Harris, a key leader in the center's formation and a former acting director of the center, now active on the National Board of Directors of the YMCA, considers these cross-cutting tobacco prevention efforts as among the greatest program successes in the center.

"Not just within CDC or within the public health community, but more broadly, you see chronic disease prevention in newspaper articles, in campaign issues, and in public debate. There is acceptance of health promotion, public policy, and prevention and control of chronic diseases—certainly tobacco control is the poster child of that."

Two in 10 Americans Still Light Up

Despite declines in smoking rates in recent decades, the prevalence

of smoking among U.S. adults has stalled at about 21% for the last three years. However, the total number of cigarettes purchased annually has been declining as a result of higher taxes, more smoke-free policies, and other measures that limit smoking and move smokers toward quitting.

"We have gone from the vast majority of smokers being every-day smokers, to the point that about 20% who report they are current smokers are not smoking every day—many only smoke a few times a week or once a week," says Matthew McKenna, MD, MPH, OSH's current director.

Fighting a Global Epidemic

That's not to say that the smoking burden isn't still a major public health issue, especially globally. "Projections are that by 2025, tobacco will be the leading preventable cause of death in the world. It currently kills more people than HIV, TB, and malaria put together," says McKenna.

Partnerships such as Michael Bloomberg's $375 million initiative toward global tobacco control are critical to fighting this growing global epidemic.

According to Eriksen, the Bloomberg investment provided funding to the CDC Foundation to implement the Global Adult Tobacco Survey, a first-ever standardized approach to surveying adult tobacco use. That program includes doing household surveys in 15 of the world's most tobacco-addicted countries.

"The investment of the CDC Foundation to do the survey with the Bloomberg dollars is a direct result of the success that the GYTS demonstrated," Eriksen says. "Both examples underscore the importance of developing surveillance systems that have common approaches and common methods that are repeated over time."

Eriksen notes that in spite of these positive inroads, he finds it ironic that the United States has yet to ratify the WHO Framework Convention on Tobacco Control, a treaty passed in Geneva in 2003 and ratified by 170 countries.

Without question, as smoking decreases in the developed world, it's on the increase in the developing world.

"We are at the cusp in the the slope of the tobacco epidemic. As far as the tobacco companies are concerned, this is an opportunity to expand tobacco use in unprecedented ways, to get children and (particularly in Asia) women to pick up the habit. If that were to occur, the epidemic of tobacco-related diseases would skyrocket, the tobacco companies would profit handsomely, and we would have another century of a renewed tobacco epidemic," concludes Eriksen.

Voices of the States

Looking at the past or to the future, CDC's chronic disease work is only as effective as is its collaboration with state and local public health partners. A key organization that was formed just as the national center was taking shape was the National Association of Chronic Disease Directors (NACDD), which celebrated its 20th anniversary in 2007. Former NCCDPHP director Jim Marks observed in the NACDD anniversary publication, *Twenty Years of Progress,* that the influence of this group helped legitimize the field of chronic disease prevention and control. He said that had NCCDPHP existed alone, "it would have been an academic center, an ivory tower. We needed this practice infrastructure, linking us to the world of real programs." Here, early champions from Ohio, South Carolina, and Michigan recall the role of CDC's new national center in their own chronic disease programs.

Virginia Bales Harris (center) joined by state chronic disease champions (l to r) Jean Chabut, Paula (Marmet) Clayton, David Hoffman, and Fran Wheeler

"It is fitting that two organizations that have worked together for essentially their entire existence continue their partnership, building on mutual successes and facing the challenges that lie ahead in chronic disease prevention and control. NCCDPHP has provided a focal point for state-based public health efforts in this area. The center has anchored efforts and given direction so that the people we serve can be assured of high-quality, science-based programs and activities designed to improve the population's health. The center has also elevated this area of public health in the public's awareness and provides additional credibility to state-based efforts to prevent and control the diseases and conditions that kill 7 out of 10 Ohioans. Public-private partnerships have been very effective at addressing chronic disease issues. For instance, Ohio had the first written agreement between a state health agency and an American Cancer Society division, whereby we shared a cancer position and formally agreed on partnership responsibilities, including forming Ohio's comprehensive cancer coalition, the Ohio Partners for Cancer Control."

– **Frank Bright,** former Chief, Bureau of Health Promotion and Risk Reduction, Ohio Department of Health (1985–2005), currently, Chief Mission Delivery Officer, American Cancer Society – Ohio Division

"NCCDPHP was organized at CDC just as we in South Carolina were organizing our own chronic disease programs, moving from a collection of federally funded grants toward a coherent integrated effort to address the leading causes of death and disability. The new national center was critical to our state programs' development: one part leadership, one part linkages, and one part funding. National-level leadership from CDC gave us a focal point and gave us access to experts in every field. Linkages with other states, facilitated by NCCDPHP, allowed us to learn from and share with others struggling with similar issues. One NCCDPHP project was especially important to the formulation of South Carolina's overall chronic disease program efforts—that was the South Carolina Cardiovascular Disease Prevention Project, better known as the Florence Heart to Heart Project. This project was supported by five years of funding to translate the findings of the National Heart, Lung, and Blood Institute-funded cardiovascular disease projects into public health action at the local level. The lessons we learned were 10 times more important than the modest success of the project itself. This project laid the groundwork for transforming South Carolina's public health approach to chronic disease from clinic-based personal services to community-based services targeting organizational and systems change."

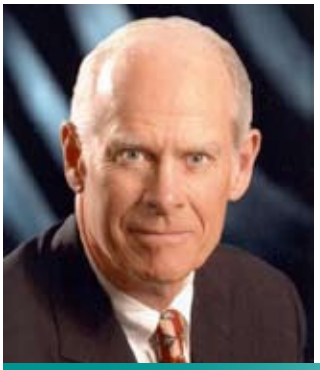
– **Fran Wheeler,** former Director, Center for Health Promotion, South Carolina Department of Health & Environmental Control (1984–1997), currently Program Consultant, NACDD

"As a charter member of NACDD, Michigan was able to be in the front-end thinking both of other states and of the chronic disease center at CDC. We were able to participate in the evolution of our science base as our programs were implemented and evaluated. It was extremely useful to be able to network with CDC staff members who were designing these new programs and often actually provide input to the way the program was shaped. NACDD's growing advocacy efforts to help expand the chronic disease programs nationally has been a godsend to states. [To colleagues at CDC and at NACDD], keep up the great work in the next 20 years ahead, and be sure to elbow your way up to the health care reform table to make sure chronic disease prevention and management are covered."

– **Jean Chabut,** Deputy Director, Public Health Administration, Michigan Department of Community Health, and President, Michigan Public Health Institute

A Friend in Washington

"There's a great need for us to get staff and members down to Atlanta and for Atlanta to come to Washington."
– John Edward Porter



Former congressman John Porter

Perhaps more than any congressional figure, John Edward Porter was CDC's staunchest defender during a time when the agency's budget was under attack and its new chronic disease programs were in their infancy.

"He is one of my heroes," says Mike Greenwell, NCCDPHP's first communications director, now Vice President for Health Marketing and Communications at Danya International. "He was such a fierce supporter of public health," says Greenwell. "It was tough for him; he was swimming upstream against his party, which held the majority in congress. He got things done at a time when there wasn't a very strong appetite for new public health programs."

Porter spent 21 years as a U.S. congressman from the 10th District in Illinois, serving on the Appropriations Committee and on the Subcommittee on Labor, Health and Human Services, and Education. In 1995, Porter became chairman of the subcommittee when the Republicans took control of the House. The Republican budget suggested huge cuts in NIH and CDC.

"I thought that was crazy, so I brought together a bunch of businessmen, Nobel laureates, and other scientists to see [then-Speaker of the House] Newt Gingrich. After listening to them for an hour, he said, 'I think we've made a mistake, and I'm going to do everything I can to support funding for health and research,'" Porter recalls.

Porter conceived of pulling funding for both NIH and CDC out of the main bill early in the appropriations process to protect them from cuts on the House floor, something that had never been done before. He succeeded, and NIH and CDC were the only two agencies to receive modest increases while every other agency and program in the subcommittee bill had budget cuts or received no funding increases.

In 2001, his final year as the subcommittee chair, Porter responded to the growing obesity epidemic among America's children. He approved $125 million for VERB, CDC's highly effective youth media campaign, which used paid advertising to galvanize "tweens" (9- to 12-year-olds) to be more physically active. During its short (five-year) funding period, VERB had a remarkable success not only in raising awareness but also in increasing physical activity among young people.

Both for children and adults, the obesity epidemic remains a big challenge.

"There's been a lot of national leadership and awareness around the obesity area that has translated into actions at the local level that are beginning to permeate our society. But it's going to take a long time," Porter says. "This is not going to be solved in a year or two. I don't think we've reached critical mass, but I think it's possible that if we stay with it, like we stayed with smoking cessation, we will actually over time make good progress."

The congressman retired in 2001, after his six years as subcommittee chairman were up. "My passions were for science, technology, research, and public health, and I wanted to try to do what I could in the private sector to influence these areas," says Porter, who today is an influential lobbyist and partner with the Washington, D.C., firm Hogan & Hartson. He also serves as Vice Chair for the Foundation for the National Institutes of Health and as Chairman of Research!America, an alliance committed to giving research to improve health a higher national priority.

Porter applauds CDC leaders for their foresight 20 years ago to make chronic diseases an area of focus. He notes that as progress in medical science keeps people alive longer, the burden increases on the health care system for chronic disease care. Porter urges CDC leaders to communicate the agency's important public health work and its impact on people's lives.

"Public health has not been well defined to the American people or to policymakers. Repeated examples must be given on how public health interventions and research can make a difference in people's lives," he says, noting that federal agencies being prohibited from lobbying shouldn't keep them from educating policymakers and the American public. "There's a great need for us to get staff and members down to Atlanta and for Atlanta to come to Washington," Porter says, emphasizing that getting representatives "a little bit inspired and interested" can make all the difference.

Research!America has a separate arm called the Campaign for Public Health that does nothing but lobbying for CDC funding. It has arranged trips to Atlanta for Capitol Hill staff for the last two years and will continue to do so.

Porter will no doubt be remembered as he hopes to be—as "somebody who cared enough to protect CDC and NIH in the budget wars and then to increase funding when I became chairman and had the resources to make those agencies strong."

The Increasing Global Face of Chronic Diseases

Twenty years ago, global health was not at the forefront of NCCDPHP's activities; today, it's a major priority. What's changed?

"In the last 15 to 20 years, chronic diseases have become the leading cause of mortality in the world and a major burden of illness," says David McQueen, ScD, associate director for global health promotion at NCCDPHP.

According to the World Health Organization (WHO), in 2005 chronic diseases—mainly cardiovascular disease, cancer, chronic respiratory diseases, and diabetes—were estimated to cause 35 million deaths (60% of all deaths). Sub-Saharan Africa is the only part of the world where more people die from infectious diseases than from chronic diseases, McQueen says.

And it is not as if chronic disease deaths have taken the place of those from infectious disease. In fact, many less-developed countries face a double burden of disease. According to West African native George Mensah, MD, principal advisor on medical affairs for NCCDPHP, low- and middle-income countries are grappling with issues around sanitation and safe drinking water that play a large role in communicable diseases. "At the same time, diseases of poor environment and poor nutrition are increasing. So these countries have the burden of infectious diseases and also the burden of chronic illnesses."

The worldwide costs of chronic diseases are staggering. "The global economic impact of increasing

David McQueen (l) working with global partners to develop a joint CDC-WHO megacountry health promotion network

lifespans, and of the resulting increased incidence and duration of chronic diseases, is just enormous," says McQueen, citing projections from *The Global Burden of Disease*, published by the WHO. "The United States spends 15% to 16% of its GNP on health costs. Other countries that have more comprehensive medicine, like Germany, devote 10% to 11% of their GNP on disease, and most of that is for chronic diseases. Typically, countries that are less developed spend a very small percentage of their GNP on health. As these populations age and chronic diseases increase, more and more of their total income is going to be spent on chronic diseases."

In December 2007, the WHO published a report estimating the disease burden and loss of economic output associated with chronic diseases in 23 low- and

middle-income countries—those least equipped to handle the escalating health costs. The report estimates that between 2006 and 2015, if nothing is done to reduce the risk of chronic diseases, an estimated $84 billion of national income in those countries will be lost to health costs associated with heart disease, stroke, and diabetes alone. On a more positive note, the report points out that as little as a 2% yearly reduction in the mortality rates from chronic diseases would avert 24 million deaths, with almost 80% of the life-years gained coming from people younger than 70 years old. These countries would save around $8 billion collectively in expected income loss by 2015.

McQueen says there continues to be a lack of recognition of the growing chronic disease problem in many countries and health agencies around the world, where "the public health response has not kept up with the change in burden." In addition, the underlying causes of chronic disease are complex, having to do with behaviors and social factors.

"That's what makes it exciting to work on chronic diseases—but also very complex for people to understand how they can address them," he says.

McQueen emphasizes the need to build infrastructure and capacity in the public health system. Parts of the world moving in the right direction include Germany and, in particular, Scandinavia, where "they have built, over the years, comprehensive approaches to chronic disease prevention and health promotion. Most of these countries have a 'health in all policies' approach. That is, everything you do in society affects health; whether it is agricultural policy or transportation policy, it will have a health impact."

In Finland, for example, the Department of Agriculture and Fisheries began a program where the food industry would produce meat with less fat content. At the same time, the government had favorable

"We need to use the most effective practices possible based on what we know now. We know a lot of what to do. The issue now becomes one of acting as quickly as possible, translating the research and knowledge base we have into programs and action."

- David McQueen, ScD

pricing policies to encourage people to eat more fish.

McQueen expressed dismay that as countries like China become more economically powerful, they are following the old U.S. model of urban sprawl (with its reliance on motorized transportation) and increased access to fast foods. The result is a dramatic rise in type 2 diabetes among China's children. McQueen believes that comprehensive, aggressive steps taken in addressing another urgent public health problem, that of tobacco use, can offer a powerful lesson on what can be done to change the global burden of chronic disease—namely, changing individual behavior through policy interventions. In the case of smoking, effective measures include raising the price of cigarettes, limiting their distribution, and banning smoking in public areas.

One thing is certain to McQueen: CDC has a critical role to play in training and building capacity in countries for dealing with this growing health challenge.

"We need to use the most effective practices possible based on what we know now," he says. "We know a lot of what to do. The issue now becomes one of acting as quickly as possible, translating the research and knowledge base we have into programs and action."

Chronic Disease Notes & Reports is published by the National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia. The contents are in the public domain.

Acting Director, Centers for Disease Control and Prevention
Richard Besser, MD

Director, National Center for Chronic Disease Prevention and Health Promotion
Janet L. Collins, PhD

Managing Editor
Jeff McKenna

Copy Editor
Rick Hull

Staff Writer
Anne Sargent

Layout & Design
Katie Brazel, Ashley Bothwell

Address correspondence to Managing Editor, *Chronic Disease Notes & Reports,* Centers for Disease Control and Prevention, Mail Stop K–11, 4770 Buford Highway, NE, Atlanta, GA 30341-3717; 770/488-5050, fax 770/488-5095

E-mail: cdcinfo@cdc.gov
NCCDPHP Internet Web site:
http://www.cdc.gov/nccdphp

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
Mail Stop K–11
Atlanta, Georgia 30341-3717

Official Business
Penalty for Private Use $300
Return Service Requested