

Diabetes Threat on the Rise among U.S. Children, Specialists Say

Pediatricians are learning of a disturbing trend. Type 2 diabetes—formerly called non-insulin-dependent diabetes—is increasingly being found in children and adolescents. Diabetes is one of the main causes of death in the United States and causes devastating complications, such as kidney disease and blindness.

Although type 2 diabetes is by far the most common form of diabetes, it was long believed to affect mainly adults. “Cases of type 2 diabetes during adolescence were first reported 20 years ago among the Pima Indians of Arizona, who have the world’s highest prevalence of type 2 diabetes during adulthood,” said Anne Fagot-Campagna, MD, PhD, medical epidemiologist in CDC’s Division of Diabetes Translation. “Reports of type 2 diabetes among children and adolescents of other ethnic groups were published more recently, and type 2 diabetes is now being found in all adolescent populations in the United States.”

The young people affected tend to be 10–19 years old with a strong family history of type 2 diabetes. They are slightly more likely to be girls than boys; to be African American, Hispanic, or American Indian than of other racial or ethnic groups; and obese rather than normal weight.

To respond to this emerging public health challenge, CDC convened workshops in October 1998 and January 1999 to bring together pediatric endocrinologists, epidemiologists, and public health professionals. Work is in progress to increase awareness of type 2 diabetes among children, determine the size of the problem, and stimulate new efforts to prevent and treat the disease.

Lifestyle Changes Needed

“Some people will say prevention is impossible,” said Gerald Bernstein, MD, Immediate Past President of the American Diabetes Association, “because it demands an intense public health intervention to change the way we live. But without change the occurrence of type 2 diabetes will continue to explode. Already roughly 800,000 new cases are added each year; taking into account about 200,000 deaths annually from diabetes leaves a net increase of 600,000 cases.”

The change Dr. Bernstein refers to concerns the unhealthy eating and physical activity habits that put many young people at risk for overweight, which in turn increases their risk for diabetes. More than 84 percent eat too much fat, less than 30 percent eat the recommended five servings of fruits and vegetables each day, and more than a third do not regularly engage in

Special Focus: Diabetes

- Commentary 2
- NDEP Strives to Help Persons with Diabetes 3
- NDEP Taps Six Minority Groups as Partners 5
- NDEP Media Campaign 7
- International Efforts to Control Diabetes 12
- TRIAD Studies Better Diabetes Treatments 15
- CDC Supports State’s Diabetes Control Efforts 17
- State Diabetes Control Programs Meet Unique Challenges 18
- cdnotes 25

U.S. DEPARTMENT
OF HEALTH AND
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Centers for Disease
Control and Prevention



▶ *CONTINUED, PAGE 10*

Commentary Commentary Commentary

Taking the Steps to Control the Growing Burden of Diabetes

Frank Vinicor, MD, MPH
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Translation, NCCDPHP

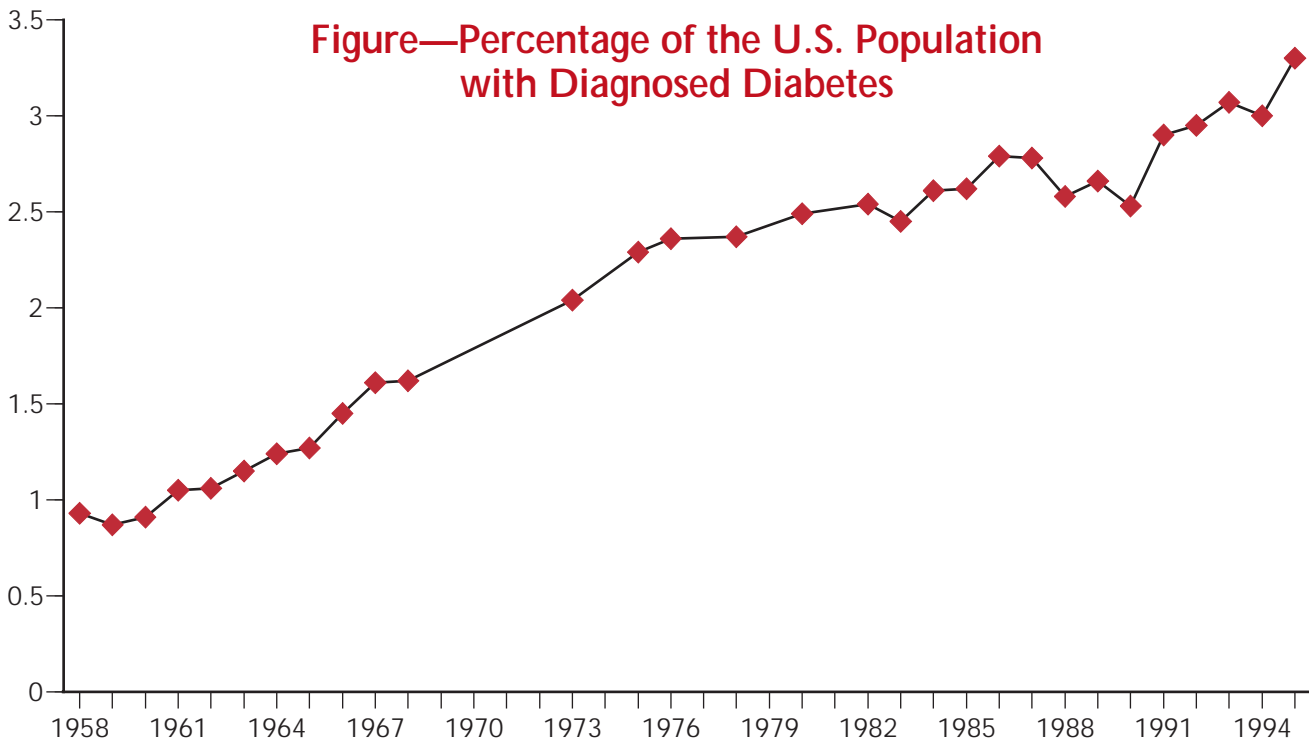
Diabetes mellitus remains a common, serious, costly, yet controllable chronic disease. The public health and economic burden of diabetes, as large as it is today, will likely continue to increase in the United States and throughout the world over the next two decades. Greater clinical and public health attention is now being directed to diabetes, and we know that much of the illness and death associated with diabetes can be prevented through diet, exercise, and drugs. Despite our efforts to date, many people with diabetes are not taking the steps necessary to control the disease and its complications, and millions of our citizens do not know they already have diabetes. In fact, about 2,200 new cases of diabetes are diagnosed every day in the United States, leading to a steady increase in the percentage of the U.S. population with diabetes (see Figure).

CDC, together with its many partners, has taken an active role in establishing a number of programs that are beginning to improve our understanding of diabetes and to take steps in controlling its expanding burden.

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Of particular importance is CDC's state-based Diabetes Control Program, which is now providing limited support to 34 states, 8 territories, and the District of Columbia and more substantive support to 16 states. We hope to strengthen our support of

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Source: *Diabetes in America*, 2nd edition, 1995, and CDC data, 1998.

NDEP Strives to Make a Difference in the Lives of People with Diabetes

Aggressive treatment with diet, exercise, and drugs can now alleviate much of the illness and death associated with diabetes. However, according to Faye L. Wong, MPH, RD, Associate Director for Diabetes Education, Division of Diabetes Translation, NCCDPHP, these interventions are widely underused. Many people with diabetes are unaware that they can control their diabetes with self-management or are unable to use self-management properly. Health care providers inadequately use prevention practices such as monitoring glucose levels and regularly checking the eyes and feet of people with diabetes. In addition, diabetes is not viewed as a serious disease. Public awareness of the devastating effects of diabetes is very low even though diabetes is one of the leading causes of disability in the United States.

To close these gaps in diabetes care and knowledge, CDC and the National

Institutes of Health (NIH) are cosponsoring the National Diabetes Education Program (NDEP). Directed by Ms. Wong and Joanne Gallivan, MS, RD, Director of Diabetes Outreach and Education Programs, National Institute of Diabetes and Digestive and Kidney Disease, NIH, the NDEP was formed to improve the treatment and outcomes for people with diabetes, to promote early diagnosis of diabetes, and ultimately to prevent the onset of diabetes.

NDEP Objectives

NDEP's objectives fall into four broad categories defined by four audiences:

1. *The general public:* increase public awareness of the seriousness of diabetes and its complications and dispel misinformation and myths.
2. *People with diabetes and their families:* improve understanding of diabetes and its control and promote effective self-management of diabetes.
3. *Health care providers:* improve understanding of diabetes and how to control it and promote an integrated, team-centered approach to care.



Diane L. Rowley, MD, MPH, Assistant Director for Science, NCCDPHP, speaks during the launch of the National Diabetes Education Program in 1998. Charles M. Clark, Jr., MD, Chair of the NDEP Steering Committee is on her left. Frank Vinicor, MD, MPH, Director, Division of Diabetes Translation, of NCCDPHP is pictured on her right.

4. *Policymakers and payers and purchasers of health care.* promote policies and activities that improve the quality of and access to diabetes care.

Building Partnerships

NDEP accomplishes much of its work through its partnership network, composed of public and private organizations concerned about diabetes and the health status of their constituents. Members of this network collaborate with the NDEP to change the way diabetes is treated.

The roles of NDEP partners include

- delivering a consistent set of diabetes messages to their constituents.
- integrating NDEP messages and strategies into existing systems of diabetes care, education programs, and community activities.
- forming new partnerships.
- sharing strategies and materials.

Work groups are made up of members of the steering committee and the partnership network with the experience, expertise, and organizational linkages to develop, implement, and evaluate specific program components. The following are examples of NDEP work groups and their activities:

Business and Managed Care Work Group is developing a “white paper” for employers and others on the value of worksite diabetes prevention and a worksite intervention tool kit.

Community Interventions Work Group has subcommittees representing the minority groups disproportionately affected by diabetes (African Americans, Hispanics/Latinos, American Indians, and Asian American/Pacific Islanders). These subcommittees are tailoring components of the *Control Your Diabetes. For Life.* campaign (see article, p. 7) to be relevant to their populations. The Hispanic/Latino campaign, *Rayos y Truenos (Thunder and Lightning)*, released in 1998, won the 1998 Aesculapius Award for Excellence from the Health Improvement Institute and the 1998 Silver Mercury Award from the

International Academy of Communications Arts and Sciences/MerComm, Inc.

Guiding Principles for Diabetes Care Work Group has created a set of guiding principles that represent the essential components of quality diabetes care and treatment. These guidelines, which can be downloaded from the NDEP Web site at <http://ndep.nih.gov>, are available in two versions—one for health care providers and one for patients and their families; each is available in English and Spanish.

HCFA Medicare Benefits Work Group, in partnership with the Health Care Financing Administration, is developing awareness campaigns about the new Medicare coverage for diabetes equipment, supplies, and education.

Team Approach Work Group is developing a resource guide for establishing patient-centered, team-based care in different types of health care settings.


In December 1998, NDEP funded six national minority organizations to support its activities (see story, p. 5). Ms. Wong expects these organizations to be valued, trusted channels for delivering NDEP’s messages for preventing and controlling diabetes in minority communities.

Breaking New Ground

The NDEP is still a relatively new national program. Its steering committee was formed in 1997, and its first major partnership network conference was held in March 1998. As one of the first major national programs to be cosponsored by CDC and NIH, the NDEP is setting an example of the types of accomplishments that are possible when these two federal agencies work together, according to Ms. Wong. She stated, “A program as complex and extensive as the NDEP requires resources that can best be provided by combining our strengths and accomplishments.”

The NDEP’s next steps will include mobilizing the support of work group members’ organizations, getting partners nationwide more involved in developing



the program, and investing in training. In the end, according to Ms. Wong, NDEP's success must be measured by the difference that it makes in the lives of people with diabetes. "If we succeed, nothing we develop or do will sit on a bookshelf or be just another good idea," she said. 

For more information, contact Faye L. Wong, MPH, RD, Director, NDEP, NCCDPHP, Centers for Disease Control and Prevention, Mail Stop K-10, 4770 Buford Highway, NE, Atlanta, GA 30341-3717; 770/488-5037, or Joanne Gallivan, MS, RD, Director, NDEP, NIDDKD, National Institutes of Health, Building 31, Room 9A04, 31 Center Drive, Bethesda, MD 20892; 301/496-6110; or visit the NDEP Web site at <http://ndep.nih.gov>.

NDEP Taps Six National Minority Organizations as Partners

NDEP has funded these six national minority organizations to help deliver tailored messages about diabetes prevention and control.

National Urban League of Nebraska

As the National Urban League's official National Technical Assistance Center and Information Clearinghouse for Minority Persons with Disabilities, the National Urban League of Nebraska has considerable experience helping National Urban League affiliates become effective advocates for minority persons with physical, social, and emotional disabilities. For this reason, the National Urban League of Nebraska was chosen to administer Lift Every Voice: A Community-Based National Diabetes Education and Prevention Program Designed and Implemented by Affiliates of the National Urban League. This community organization and education program will provide National Urban League affiliates in 16 U.S. cities with resources for developing and monitoring a series of community-specific education interventions for African Americans and other disadvantaged persons at risk for diabetes.

NDEP Steering Committee Roster 1999

American Academy of Family Physicians
 American Academy of Nurse Practitioners
 American Association of Clinical Endocrinologists
 American Association of Diabetes Educators
 American College of Physicians
 American Diabetes Association
 American Dietetic Association
 American Pharmaceutical Association
 Association of American Indian Physicians
 Association of Asian/Pacific Community Health Organizations
 California Diabetes Control Program
 The Endocrine Society
 General Motors Corporation
 Juvenile Diabetes Foundation International
 Kaiser Permanente (Medical Facility, Stockton, California)
 The Links, Inc.
 Lions Club International
 Michigan Diabetes Research and Training Center
 Mutual of Omaha Companies
 National Coalition of Hispanic Health and Human Services
 National Kidney Foundation
 National Medical Association
 Prudential Center for Health Care Research
 Puerto Rican Association of Diabetes Educators
 Vanderbilt University Diabetes Research and Training Center
 Wyoming Diabetes Control Program

National Asian Women's Health Organization

The National Asian Women's Health Organization, in collaboration with the NDEP and the American Diabetes Association, has launched Transforming Information into Action: The National Asian American Diabetes Education Campaign. The goal of this project is to increase awareness of and action on diabetes in the Asian American communities. Specific campaign activities in three key areas include the following:

1. *Leadership development*: sponsoring annual training courses to create a core of culturally competent diabetes educators.
2. *Public education*: developing culturally specific diabetes education materials and launching a nationwide diabetes education program in Asian American communities.
3. *Public policy*: convening a national Asian American diabetes summit and

developing policy statements to facilitate Asian Americans' access to diabetes information and care.

Association of American Indian Physicians

The Association of American Indian Physicians, dedicated to improving the health of American Indians and Alaska Natives, has launched *Strategies for the Prevention and Control of Diabetes*.

Major activities of this project include

- developing and disseminating diabetes education resources to American Indian communities.
- establishing an American Indian Partnership Network to collaborate on effective ways to disseminate NDEP messages to American Indian and Alaska Native communities.
- establishing and maintaining a 1-800 number to provide a culturally appropriate mechanism to respond to inquiries about diabetes from American Indians and Alaska Natives.

Association of Asian/Pacific Community Health Organizations


The Association of Asian/Pacific Community Health Organizations works to improve access to culturally and linguistically appropriate health care among Asian Americans and Pacific Islanders, particularly among those who are underserved. In partnership with NDEP, the association has launched a diabetes education and control project to increase awareness of the risk factors for diabetes, improve the health of Asian Americans and Pacific Islanders who have diabetes, and provide policymakers with a model of care for Asian Americans and Pacific Islanders with diabetes. Project activities will be aimed at identifying or developing and distributing appropriate diabetes education and care information through community-based networks and strengthening the capacity of local health care systems to provide appropriate care.

National Council of La Raza

The National Council of La Raza promotes civil rights and economic opportunities for Hispanics. Through its Center for Health Promotion, it has formed the National Latino Diabetes Initiative (NLDI) to partner with NDEP to reduce diabetes-related illness and death among Hispanics and Latinos. NLDI is establishing coalitions for diabetes prevention and control by awarding subgrants to community-based organizations and by providing training and technical assistance to the coalitions. In its first year, NLDI has established coalitions in Los Angeles, New York City, Washington, D.C., Dallas, Kansas City, and Miami. Other program objectives include establishing an expert advisory committee in Latino health and diabetes and developing a newsletter, a resource guide, and an Internet Web page.

National Hispanic Council on Aging

In collaboration with the NDEP, the National Hispanic Council on Aging has launched *Strategies for the Prevention and Control of Diabetes for Hispanic Elderly and Families*. The project is aimed primarily at Mexican Americans and Puerto Ricans, the two Latino groups at greatest risk for diabetes, and will initially take place at six sites in Texas, New Mexico, and Florida. Objectives for the first year of this three-year project include

- developing community-based education programs to raise awareness of diabetes risk factors among Hispanics.
- implementing a case management project to ensure that midlife and older Latinos with diabetes receive comprehensive care and follow specific medical recommendations.
- establishing a national steering committee along with a local advisory council and a local evaluation committee at each project site.
- developing a manual describing project activities and results for use by other members of the network. 

NDEP Media Campaign Gets the Word Out

The objectives of the National Diabetes Education Program (NDEP), a joint initiative sponsored by the National Institutes of Health and CDC, are to increase awareness and improve understanding of diabetes and its control among people with diabetes and health care providers, and to improve quality and access to diabetes care. According to Charles M. Clark, Jr., MD, Chair of the NDEP Steering Committee, “the program’s goal is to reduce the number of deaths and disabilities due to diabetes through ongoing public education and mass media campaigns.”

The NDEP initiated its media campaign in June 1998 with the theme *Control Your Diabetes. For Life.* Diabetes messages are crafted and tested to persuade people



with diabetes to take their disease seriously and to act to control it. Diabetes is described by Dr. Clark as “a silent killer that is reaching epidemic proportions, especially among minority populations.” Media announcements have been designed to reach specific populations including Hispanic/Latino Americans, African Americans, Asian Americans and Pacific Islanders, and American Indians. NDEP staff work with minority work groups who determine audience profiles and conduct focus group research to develop campaign concepts and slogans that are culturally acceptable. Components of the media campaigns released in 1998 include the following:

General Awareness Campaign

Many Faces of Diabetes (TV PSA). The strategy here is to reach all people—approximately 16 million Americans—with diabetes by featuring people from various racial and ethnic backgrounds who are successfully controlling their diabetes. This advertisement encourages people with diabetes to manage their blood glucose levels and to work with health professionals to perform self-management tasks such as eating healthy, exercising, taking medications, and testing blood glucose levels. As of July 1999, this PSA has aired 41,389 times on 274 television stations in 196 cities in 48 states and on 243 cable stations/networks in 220 cities in 44 states. The *Many Faces of Diabetes* TV PSA won a Certificate of Excellence from the National Chapter of the Public Relations Society of America, the leading membership organization of public health professionals.

In addition, culturally appropriate advertisements designed to address specific racial and ethnic priorities and concerns have been developed to reach populations most affected by diabetes.

Hispanic/Latino Campaign

Rayos y Truenos (Thunder and Lightning) (TV, radio, and print PSAs). The message “There are some things in life that can’t be controlled. Fortunately, diabetes isn’t one of them” directly counters the fatalistic belief that diabetes complications are inevitable factors of life, a much too common perspective on diabetes among 1.8 million adults with diabetes in the Hispanic/Latino community. This campaign, with the tag line, “Take your diabetes seriously so it never becomes too serious,” urges a change in thinking and prompts people to act before diabetes or its complications become a problem. Through November 1998, the TV PSA reached more than 6.6 million people, the radio advertisement, more than 8 million, and the print advertisement more than 6 million. *Rayos y Truenos* won the 1998

The success of the *Rayos y Truenos* (Thunder and Lightning) campaign among Hispanic/Latino communities led to the development of this English version as part of the 1999 NDEP media campaign.

THERE ARE MANY THINGS IN LIFE THAT CAN'T BE CONTROLLED. FORTUNATELY DIABETES ISN'T ONE OF THEM.

Millions of us are living with diabetes. For many, it runs in our families. But we don't let that run our lives. Because diabetes can be controlled — with the proper diet, exercise, and knowing and managing our blood sugar numbers. The more we learn about how to live with diabetes and avoid the many serious complications, the longer and better we'll live. There are so many things to live for.

Control your diabetes. For Life.

CALL 1-800-438-5383 FOR MORE INFORMATION.
Or visit us at <http://ndep.nih.gov> or <http://www.cdc.gov/diabetes/>

NATIONAL DIABETES EDUCATION PROGRAM
A joint program of the National Institutes of Health and the Centers for Disease Control and Prevention.

Aesculapius Award for Excellence from the Health Improvement Institute and the 1998 Silver Mercury Award from the International Academy of Communications Arts and Sciences/MerComm, Inc. NDEP partners have requested that this campaign be translated into English.

African American Campaign

Give it Up (radio PSA). About 2.3 million African Americans aged 20 years or older have diabetes, and the tradition among this population of eating fried and other high-fat foods is sensitively challenged in the radio announcement, *Give it Up*. A son describes how much he loves his mother's cooking; however, because she has diabetes, he decides to change his diet in support of his mom's efforts to control her blood sugar, because more than her cooking, the son declares, "I love Mom." This PSA aired 36,090 times on 597 stations in 395 cities in 49 states as of July 1999. An accompanying print advertisement reached more than 2.5 million people.

1999 Campaigns Under Way

The 1999 awareness campaigns, designed collaboratively with the NDEP minority work groups, are in full swing including the second wave of the *Rayos y Truenos* and the English version, *Thunder and Lightning*. The African American campaign, *Family Reunion*, uses the relationship between a grandfather and his granddaughter to emphasize the importance of controlling diabetes to be around for family and friends. The Asian American and Pacific Islander campaign is available in 11 languages, reflecting the great diversity in this population and provides a supportive message that diabetes may not be easy to manage, but "you can do it." *Future Generations*, an American Indian campaign, focuses on controlling diabetes to be around to pass on Indian traditions to future generations. The campaign *Taking Control*, targeted at the Caucasian population, highlights the importance of taking care

of diabetes to avoid the complications of the disease. Lastly, the HCFA Medicare Expanded Benefits Campaign features the new coverage of diabetes equipment and supplies for Medicare beneficiaries. NDEP partners across the country are helping to disseminate the campaign through media and community channels.

When asked about future NDEP media activities, CDC NDEP Director Faye L. Wong, MPH, RD, stated, “we want to fully implement the media campaigns that have already been developed and we will

be developing new campaign products to reinforce the NDEP messages in 2000.” 

Diabetes control programs in the states and other NDEP partners have copies of the campaign products. Others may obtain materials, media kits, and information by calling 1-800-438-5383; by contacting Faye L. Wong, MPH, RD, Director, NDEP, NCCDPHP, Centers for Disease Control and Prevention, Mail Stop K-10, 4770 Buford Highway, NE, Atlanta, GA 30341-3717; 770/488-5037, or Joanne Gallivan, MS, RD, Director, NDEP, NIDDKD, National Institutes of Health, Building 31, Room 9A04, 31 Center Drive, Bethesda, MD 20892; 301/496-6110; or by visiting either of the NDEP Web sites: <http://ndep.nih.gov> or <http://www.cdc.gov/diabetes>

Flu Shot a Life Preserver for People with Diabetes

After conducting a widespread campaign to encourage people with diabetes to get flu shots last year, CDC and its partners are working to continue and enhance the “Life Preserver” approach for the 1999 flu season. Research indicates that people with diabetes are at increased risk of both getting and dying of the flu and pneumonia. Data from the 1993 BRFSS indicate that an estimated 40 percent of people with diabetes get annual flu shots and 21 percent receive pneumococcal vaccines, leaving a majority of this at-risk population unnecessarily unprotected. Flu and pneumonia shots are safe, simple, inexpensive, and effective.

The “Life Preserver” campaign, as part of an overall health promotion campaign entitled *Diabetes. One Disease. Many Risks.* with the tag line “With Diabetes, Prevention is Control,” demonstrates that persons with diabetes can *do* something to prevent complications. In addition to increasing awareness, the campaign seeks to persuade people with diabetes to get pneumococcal and annual flu vaccinations in an effort to reduce the 10,000 to 30,000 deaths each year among persons with diabetes from pneumonia or the flu.

The “Life Preserver” campaign was first implemented nationally in 1998.

Although data are still being compiled, evaluations of the campaign indicate that the message was widely disseminated. Public service announcements were broadcast on TV or radio more than 100,000 times, and more than 18 million people were reached through print advertisements. Many diabetes control programs (DCPs) in state health departments participated in the campaign, and most conducted interventions to encourage health care providers to recommend flu shots and to increase flu shot availability for people with diabetes.

Goals for the 1999 program include increasing participation in the campaign, increasing awareness of the need for pneumococcal and flu shots among people with diabetes, and informing health professionals of the need for persons with diabetes to receive the pneumococcal vaccine.

CDC’s efforts were recognized when the campaign won national awards including the Public Relations Society of America’s Bronze Anvil for Excellence in Public Service, and the Award for Excellence from the Health Improvement Institute. “The real reward is that with prevention and health promotion behaviors—getting flu and pneumococcal shots—there will definitely be reduced illness and death in people with diabetes,” commented Frank Vinicor, MD, MPH, Director, CDC’s Division of Diabetes Translation.

Childhood Diabetes

► *CONTINUED FROM PAGE 1*

vigorous activity to help offset the quantity of calories consumed. The prevalence of obesity has increased among American youths since the 1960s. Now nearly 22 percent of those aged 6–17 years are considered overweight, and the percentage of young people who are seriously overweight has more than doubled in the last 30 years.

Like many clinicians, however, Steve Rith-Najarian, MD, a family practice physician with the Indian Health Service (IHS), warns that not all children with type 2 diabetes are obese. According to Dr. Rith-Najarian, “The weight of the children with type 2 diabetes runs the gamut from normal to extremely obese. But the more obese the child, the greater the risk of developing diabetes.” Dr. Rith-Najarian, who works at the Cass Lake Indian Hospital and serves as diabetes consultant for the Bemidji (Minnesota) Area IHS, cares for half a dozen American Indian youngsters with diabetes type 2.

Dr. Fagot-Campagna commented on another contributing factor: “Exposure to diabetes in utero may contribute to development of type 2 diabetes during childhood and adolescence.” Maternal diabetes is not well understood for its potential role in the emergence of type 2 diabetes among children, but some researchers believe that exposure to insulin in utero or another metabolic exposure may make children susceptible to developing diabetes. “We know from recent studies that the prevalence of diabetes has increased among women of childbearing age,” Dr. Fagot-Campagna added. “Gestational diabetes was originally a concern because of the risk that the mother would later develop diabetes and because of the impact on the fetus, but now attention must be given to the pregnancy outcome and future health of the child as well,” said Venkat Narayan, MD, MPH, MBA, another medical epidemiologist in the Division of Diabetes Translation.

Consequences Can Be Severe

The children who are developing early-onset type 2 diabetes may suffer complications at earlier ages than past generations did. “By the time these children reach age 30 or 40,” predicted Dr. Narayan, “they may develop renal disease, blindness, and cardiovascular disease that will threaten their life expectancy, reduce their quality of life, and lower their productivity.”

David Pettitt, MD, Senior Scientist at the Sansum Research Institute (Santa Barbara, California), conducted key research among the Pima Indians while working as an investigator at the National Institutes of Health. He noted, “Complications are a factor of how long you have the disease. Children with diabetes have a longer period in which to develop complications than do adults who develop type 2 diabetes late in life. We will be seeing patients with complications in their late 20s and early 30s.” Dr. Rith-Najarian agreed. “It’s one thing if a 60-year-old has complications and eventually needs an amputation; it’s quite another when that happens to someone with many decades of life ahead.”

Finding the Children at Risk

Type 2 diabetes is often diagnosed at puberty (ages 10–13), probably because of the increased insulin demand created by hormonal changes. However, people with type 2 diabetes may lack symptoms for quite a while, and their diabetes may be undiagnosed. This tendency is particularly true for young people because physicians may not suspect type 2 diabetes in children and adolescents. A child with type 2 diabetes may eventually have a severe or acute episode for which insulin treatment is required. Then, the diabetes may be misclassified as type 1, and the treatment protocol may be inappropriate.

Currently blood glucose testing is not routine for pediatric patients, and no standard diagnostic criteria exist for type 2 diabetes in children. Thus, errors in

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diagnosing the disease, the missed cases, and the ill-defined ones all contribute to inadequate assessment of the magnitude of the problem. Some experts believe that a third to a half of new cases are going unrecognized.

“In the past, only a few children were diagnosed after being screened for diabetes because of a strong family history of type 2 diabetes or obesity or as a requirement for playing sports or participating in other activities,” Dr. Fagot-Campagna said. “Those without symptoms are unlikely to be diagnosed.”

Treating Youths Requires Special Skills

Treatment for children and adolescents requires a different approach than that used for adults. “Adolescents are notoriously difficult to treat,” said Dr. Fagot-Campagna. “Among youths this age, glucose levels are unstable, and compliance with strict diabetic regimens may be challenging for teenagers.”

Dr. Rith-Najarian sees rebellion and denial about diabetes among youths 12 or 13 years old. “It’s a normal testing of limits,” Dr. Rith-Najarian explained. “Kids this age have peer issues and other problems. They want to fit in and therefore do not like having a disease that identifies them as being different. We need to learn new skills to address the problem among children, and we need to involve the family and the schools.” Young people also may not understand the effects of the disease. “People with type 1 diabetes must take insulin or they soon become ill, but people with type 2 may be able to neglect diabetes care without immediate consequences,” said Dr. Fagot-Campagna. “But we know such neglect ultimately has consequences.”

Access to care also may be complicated for some youths. Dr. Rith-Najarian described some factors affecting his patients: “The child is in school. The parents may have other young children,

and the adults’ lives are already complicated, sometimes even by health issues of their own. It may be hard for them to get the child to the clinic without causing the child to miss school. The clinic visit—which includes lab work, counseling by a patient educator, and consultation with other members of the team—may take two hours. When we find nonadherence, the reasons for it are usually very good.” Also many of the most susceptible groups may be uninsured or underinsured.

Another problem is that medications used to treat type 2 in adults have not been tested for use in children to establish standard dosages and confirm the safety and efficacy of the medications.

Experts Respond


In the first of the two CDC workshops on type 2 diabetes among children, diabetes experts examined trends and rates among ethnic groups to gain insight into the magnitude of the problem and its distribution. In the second workshop, issues unique to the complications and treatment of children and adolescents were discussed. CDC continues to explore potential future projects to address the problem.

Workshop participants have recommended improved surveillance and screening, but neither step will be possible until a standard case definition is established. CDC’s efforts will help to develop a case definition. Several definitions may be developed: one for surveillance, one for epidemiologic research, one for health services research, and one for use in clinics.

The CDC, the Juvenile Diabetes Foundation International, the Canadian Diabetes Association, the International Diabetes Federation, the Indian Health Service, the American Academy of Pediatrics, the American Diabetes Association, and the National Institutes of Health are among the organizations supporting research, discussion, and dissemination to ensure that providers are informed about type 2 diabetes in

children and have guidance for primary care. The National Diabetes Education Project, which is cofunded by the National Institutes of Health and CDC, is developing a message for providers. The American Diabetes Association and the American Academy of Pediatrics are expected to issue separate consensus statements soon. Diabetes experts want to raise awareness among physicians and other health care providers, school personnel, and parents so that young people with risk factors are screened for the disease. But most importantly,

experts want to prevent obesity, by addressing issues of physical activity and nutrition.

“The emergence of type 2 diabetes in children and adolescents poses an incredible challenge but gives us many opportunities,” Dr. Rith-Najarian commented. “The crisis encourages us to work with young people and model healthy behaviors before bad ones set in. It may be that the children who are saved from developing type 2 diabetes will model healthy behaviors for the rest of the nation.” 

DDT Helps Control a Disease Without Borders

The worldwide number of diabetes cases is expected to increase from 135 million in 1995 to 300 million in 2025. Over the next three decades, the greatest increase in diabetes prevalence—170 percent—will occur in developing nations, while a 42 percent increase will occur in developed countries. Multinational efforts at understanding diabetes will yield mutual benefits. For example, in the United States, minority populations and ethnic groups are more susceptible to developing diabetes and its complications. Information about discrete populations can provide insight about comparable populations in the United States. In addition, methods and standards established in one country can sometimes be applied, or at least used as a point of reference, in another country. This transfer of information saves time, resources, and lives.

Frank Vinicor, MD, MPH, Director of the Division of Diabetes Translation, commented, “The division’s involvement in projects outside the United States responds to a call to integrate our work internationally for both scientific and humanitarian reasons.” Such work results

from government agreements, collaborations between public health departments in bordering or nearby countries, joint studies of specified populations, or aid for urgent needs.

Egypt

The Diabetes Institute and Central Health Laboratories in Cairo, Egypt, invited a CDC team of epidemiologists, clinicians, statisticians, and laboratorians to provide technical assistance for the Diabetes in Egypt Project, conducted from 1991 to 1994, and funded by the U.S. Agency for International Development. From a survey of Egyptians aged 20 years or older, the prevalence of diagnosed and undiagnosed diabetes was estimated at more than 9 percent. According to Michael M. Engelgau, MD, MS, Chief of DDT’s Epidemiology and Statistics Branch, and a member of the CDC team, this project had several important outcomes. This study found a high prevalence of diabetes and its complications in Egypt, and it brought attention to the high prevalence of diabetes in the Middle East, where subsequent studies were conducted. The Diabetes in Egypt Project led to the beginning of a national diabetes initiative and resulted in several publications on the

epidemiology of and applied research on diabetes, most importantly an evaluation of diagnostic criteria for diabetes. “This study was one of three whose results contributed to the American Diabetes Association’s decision in 1997 to revise the diagnostic criteria for diabetes,” Dr. Engelgau said.

India

Concomitant with rapid urbanization in India has come an increased prevalence of obesity, a decrease in physical activity, and a dramatic rise in the number of people with diabetes. A project begun in 1997 involves diabetes experts in India, diabetes specialists from CDC, and The World Bank in developing diabetes treatment guidelines for primary care physicians.

The challenge to these researchers is to find inexpensive but effective methods of diagnosing and treating diabetes in a population of 1 billion people. In India, access to health care is further complicated by the distribution of physicians: 80 percent of medical doctors are located in cities and near universities in urban centers, but most people live in villages and rural areas. Sixteen major languages and hundreds of dialects are spoken and several religions are practiced, and most Indians seek other types of health care in addition to or as an alternative to Western medicine.

“Developing guidelines to serve this large and diverse nation is particularly problematic,” said Venkat Narayan, MD, MPH, MBA, DDT’s Epidemiology Section Chief. “But the differences can be seen either as barriers or as opportunities. Once we determine how best to serve this population, the guidelines can be adapted for use in other countries, including our own.” Dr. Narayan notes that guidelines for standards of care are being developed within 18 months. The World Bank is likely to help test and implement these guidelines in India and also to carry them to other countries.

Taiwan

Rapid economic growth since the early 1960s has contributed to lifestyle changes and an increase in obesity among the Taiwanese. About 2 years ago, Taiwanese health officials asked for CDC’s input on scientific papers concerning diabetes, and since then DDT has contributed to interpreting data for the scientific literature.

Analyses have shown a prevalence of type 2 diabetes about 30 percent higher and a prevalence of impaired fasting glucose about 300 percent higher in Taiwan than in the United States. Additional contrasts allowed Taiwanese health officials to express the magnitude of the problem: Taiwanese tend to develop diabetes at lower levels of body mass index than Americans do, and Taiwanese with diabetes are dying of preventable complications, such as diabetic ketoacidosis, at a higher rate than are Americans with diabetes.

CDC staff hope to lend their experience to helping develop treatment guidelines to prevent and control diabetes and its complications among the people of Taiwan.

The Caribbean

CDC has been involved with public health activities in the Caribbean for more than 30 years and continues to interact with this region. During the past three decades, diabetes and other chronic diseases have become the leading causes of morbidity and death among adults in the English-speaking Caribbean. In September 1998, CDC Medical Epidemiologist Gloria L. A. Beckles, MBBS, MSc, was invited to meet with technical staff at the Caribbean Epidemiology Centre (CAREC), a subregional center of the Pan American Health Organization. Participants discussed strategies and developed a protocol for systematic, regional monitoring of risk-taking and preventive behaviors related to diabetes

During the past three decades, diabetes and other chronic diseases have become the leading causes of morbidity and death among adults in the English-speaking Caribbean.

and its complications and other chronic diseases. By providing technical assistance and through follow-up communications, Dr. Beckles helped local public health professionals write a proposal for a pilot project to initiate a regional behavioral surveillance system. Now Caribbean health officials are seeking funds to implement the project. "The protocol lays the groundwork for the collection of relevant, population-based data for the development of policy and guidelines that can contribute to a comprehensive approach to diabetes control in the Caribbean," commented Dr. Beckles.

The U.S.–Mexico Border

In collaboration with CDC, the four states (Arizona, California, New Mexico, and Texas) that share a border with Mexico established the U.S.–Mexico Diabetes Collaborative Work Group, which includes the U.S.–Mexico Border Health Association and the Pan American Health Organization (PAHO). In 1997, the PAHO Field Office reported 6,666 diabetes-related deaths in this region of about 10 million people, which translates into a rate substantially higher than that in nonborder areas. Public health professionals are, however, uncertain of the true prevalence of diabetes in the border region.

Rita Díaz-Kenney, RD, a CDC Program Development Consultant and a technical advisor to the work group, commented, "In the United States, about 5 percent of the population does not have a telephone, but in some border communities, more than 22 percent do not. Door-to-door surveys in selected communities along the border may yield more accurate diabetes prevalence information."

Educating people in the region about diabetes and caring for them is further complicated by cultural dynamics. "People in this region have strong ties to

friends and family on both sides of the border, and travel between the two countries is common," Ms. Díaz-Kenney said. "Because of this movement, surveys, standards of care, educational guidelines, and messages about diabetes must be consistent on both sides of the border."

The members of the work group want to

- conduct a door-to-door survey to increase understanding of diabetes prevalence and risk behaviors in selected communities.
- develop and implement a community-based, culturally appropriate diabetes education project that uses lay health workers, or *promotores de salud*.
- develop a strategy for involving primary care providers and lay health advisors as partners in community diabetes education.

One outcome desired from this activity is enabling people with diabetes, or at risk for diabetes, to improve their understanding of the disease and its complications as well as the importance of self-care. CDC's Division of Diabetes Translation (DDT), through the Department of Health and Human Services, Office of International Refugee Health, funded the planning effort. While the partners seek funding for the next steps, DDT will provide seed funds to recruit a diabetes binational manager to coordinate this effort.



For more information, contact Rita Díaz-Kenney, RD, Public Health Advisor, Division of Diabetes Translation, NCCDPHP, Centers for Disease Control and Prevention, Mail Stop K-10, 4770 Buford Highway, NE, Atlanta, GA 30341-3717; 770/488-5016; e-mail rvd1@cdc.gov; or Nancy Haynie-Mooney, also with DDT at 770/982-3761; e-mail nah5@cdc.gov.

TRIAD to Study More Effective Applications of Diabetes Treatments

Although medical research uncovers numerous treatments or procedures that can improve quality of life for people with diabetes, many of them do not directly benefit from these discoveries. To find out why, CDC has set up a 5-year study to evaluate the health of people with diabetes, the quality of care they receive, and the degree to which they self-manage their disease. “From a public health perspective,” said Venkat Narayan, MD, MPH, MBA, the study’s principal investigator at CDC, “what we’re trying to do is find out why recognized treatments for diabetes are not adequately applied to reduce the trauma and financial costs associated with the disease.”

The study is called *Translating Research Into Action for Diabetes* or *TRIAD*—and the acronym is not insignificant. “Three groups of people are involved,” said Dr. Narayan, “researchers, providers of health care, and patients. We want to know how best to translate researchers’ findings into information that health care systems and providers can use to help patients with diabetes.”

The study participants will come from managed care organizations (MCOs) in California, Hawaii, Indiana, Michigan, New Jersey, and Texas. “We chose to study the patients of MCOs for several reasons,” said Dr. Narayan. “One is because MCOs emphasize prevention, which is CDC’s main focus. Another is that MCOs can give us access to a large population of people with diabetes. A third reason is that MCOs are likely to have data collection systems already in place and be willing to adjust those systems so they’re useful to researchers.”

Because all participants are with MCOs, TRIAD will also look at three aspects of managed care organizations:

their structures, processes, and outcomes. According to Dr. Narayan, our traditional health care system evolved largely to respond to acute infectious diseases, not to treat or prevent chronic diseases such as diabetes. So, investigators will be examining the various systems that are in place to deliver medical treatment to people with diabetes, the various tools used to deliver these treatments, and the effects of both of those on the health of patients.

Because TRIAD is a large, multi-location study, CDC coordinates activities among the six locations. A steering committee (comprising the principal investigator from each location, CDC, and a CDC contractor) makes decisions about the design and conduct of the study.

Far-Reaching Size and Scale

“Two distinguishing aspects of this study are its size and scope,” said Ed Gregg, PhD, an epidemiologist with CDC’s Division of Diabetes Translation. “It will be conducted simultaneously in 6 locations and will have about 18,000 study participants. Investigators in each state will use the same study protocol, which will make all the study data fully compatible.”

Another distinguishing feature is the variety of MCOs involved in the study. Some are single organizations with health care providers as employees and thousands of patients with diabetes. Others are umbrella organizations that include many types of independent health care provider organizations, ranging from a primary care physician practicing alone to a group of 35 or more health care providers of various specialties.

“Because of the variety in structure, size, method of operation, and type of health services offered by the study MCOs, investigators will be able to see how these different characteristics of the MCOs themselves affect patient care,” said Carol M. Mangione, MD, University of California at Los Angeles, principal investigator for the participating MCO in Texas.

“We’ll be able to compare quality of care by type of health care provider group,” she said. “For example, we can compare large multispecialty groups with small primary care groups and see what advantages and disadvantages accrue to the patient from each type of health care arrangement. We may even be able to make comparisons by region, because we’ll have between 2,000 and 4,000 patients at each study site.”

Study Offers Potential of Reducing Health Disparities

TRIAD will have enough participants from most major ethnic groups in the United States to make the findings about each group meaningful. “We know that diabetes has different physiologic effects on different ethnic groups, but we don’t know why,” said Frank Vinicor, MD, MPH, Director, Division of Diabetes Translation. “We’ll be getting data on blacks, whites, Hispanics, Native Americans, and Asian Americans and Pacific Islanders. Such diversity gives us an opportunity to find out if any monitoring or educational programs will work for all Americans regardless of their ethnic background and, indeed, regardless of the type of health care provider they use.”

TRIAD also has the potential to help fulfill the goal of David Satcher, MD, PhD, Surgeon General, of decreasing health-related disparities between various ethnic groups in the United States. “State universities, private organizations, and a federal agency are cooperating in this large and unusual study of a disease that disproportionately affects minority groups,” said Dr. Mangione. “Any benefits that arise from our work are likely to decrease disparities.”

Surveillance, Data Analysis Are Key Components

Investigators are developing survey instruments in English and Spanish, setting criteria for study participants, and selecting statistical methods for analyzing the data.

“We’ve designed three survey instruments,” said Dr. Gregg, “one for people with diabetes, one for management personnel at the MCOs, and one for groups of health care providers at MCOs. The patients’ survey will collect information on their quality of life, distress about symptoms, self-care practices, satisfaction with health care received, and barriers to getting health care. It will also ask questions about the cultural suitability of the educational tools and self-care recommendations that health care providers give to patients with diabetes. For example, many Mexican-Americans have diabetes, yet information about the disease is sometimes available to them only in English, a language they may not understand well.”

Once planning is complete, the next step is clearance from the Institutional Review Boards and from the Office of Management and Budget. “We plan to begin data collection as soon as clearance comes through,” said Dr. Narayan, “and in 2002, we plan to do a second round of data collection from the same patients, in which case the first data set will be our baseline data.”

MCOs Will Also Reap Benefits

Managed care organizations have much to gain from this study. “MCOs have a great interest in—and a great potential for—improving the care of patients with diabetes,” said Joe V. Selby, MD, MPH, the study’s chairperson and the principal investigator at Kaiser Foundation Research Institute, California. “This study will tell us a lot about our own patients. In particular, we’ll learn how well our patients—as a group—self-manage their disease. We’ll also learn effective strategies that other MCOs are using and that we could use—or adapt—for our patients.”

That thought was echoed by William Herman, MD, the study’s principal investigator at the University of Michigan. “An important aspect of this study is that we’re conducting it *across* MCOs,


not just at one MCO. Therefore, we have a chance to learn from one another. We'll learn why some models of health care work better in certain situations than in others and with certain populations than with others." Those issues are particularly important for a disease such as diabetes, which requires a high degree of self-care by the patient to prevent or delay the long-term complications of the disease.

Study Will Look at Barriers

Because the study is still in the planning stages, hypotheses are still being finalized. However, discussions center on the structural and process barriers that prevent people with diabetes from getting top quality health care and from following their physician's recommendations for self-care.

"We'll check out the obvious suspects: language difficulties, lack of knowledge about the disease, and financial barriers such as the cost of copayments," said

Dr. Gregg. "We'll also check out several other less obvious possibilities. For example, investigators may test whether some component of a health care group can influence how well the patient does self-care. Do health care groups with case managers who work with patients produce better quality care than organizations without case managers? Do patients of health care groups with tracking and follow-up systems fare better than patients of groups without such systems?"

Investigators are open to the possibility that the study data may show new or better methods for treating or managing the disease. "If we do identify some new interventions and better ways of improving care in a sustainable manner, that will be wonderful for people with diabetes," said Dr. Narayan. 

For more information, contact, Venkat Narayan, MD, MPH, MBA, Division of Diabetes Translation, NCCDPHP, Centers for Disease Control and Prevention, Mail Stop K-68, 4770 Buford Highway, NE, Atlanta, GA 30341-3717; 770/488-1051; e-mail: kav4@cdc.gov

CDC Supports State's Diabetes Control Efforts

CDC supports state- and territorial-based diabetes control programs to reduce the complications associated with diabetes. In fiscal year 1998, CDC provided limited support (\$232,000 average) to 34 states, 8 territories, and the District of Columbia for core diabetes programs and more substantive support (\$750,000 average) to 16 states for developing comprehensive diabetes control programs.

The core programs do not address needs statewide; however, they serve as the framework on which states build more comprehensive programs. Typically, state health departments that are funded for core capacity-building work to


- develop initial expertise in diabetes control.
- provide a focal point for diabetes control.
- establish systems to define the scope of the diabetes problem.
- identify gaps in diabetes care, for both patient access and quality-of-care issues, and plan for meeting those needs.
- develop and evaluate limited intervention projects to identify partners and supporters for diabetes control activities.

Diabetes control programs in states funded for comprehensive capacity-building work to

- build on expertise in program, science, and policy areas to control and prevent diabetes.
- coordinate statewide diabetes control and prevention activities.

- expand systems to define and analyze the scope of the diabetes problem.
- improve access to diabetes care for all people and raise the quality of that care.
- use statewide public health projects to reduce diabetes-related problems.
- inform, educate, and empower external supporters to control and prevent diabetes.

Dara L. Murphy, MPH, Chief, Program Development Branch, Division of Diabetes Translation, noted that ultimately CDC wants to see all states move from receiving core funding to

receiving comprehensive funding. For states to move up, they must demonstrate that they have met the goals expected for core-capacity funding. One means of evaluating the impact DCP programs have had is through BRFSS data collected from state-specific modules. “Right now, 43 states are using the BRFSS to evaluate their progress, and we expect them to augment the BRFSS with additional evaluation efforts,” Ms. Murphy said. 

For more information, contact, Dara Murphy, MPH, Division of Diabetes Translation, NCCDPHP, Centers for Disease Control and Prevention, Mail Stop K-10, 4770 Buford Highway, NE, Atlanta, GA 30341-3717; 770/488-5046; e-mail: dlm1@cdc.gov

State-Based Diabetes Control Programs Meet Unique Challenges

Providing resources and technical assistance to diabetes control programs—which are now found within all 50 state health departments, each territory, and the District of Columbia—is a key strategy employed by CDC’s Division of Diabetes Translation in the fight against diabetes and its many serious complications. These DCPs, in turn, use this support to improve access to affordable, high-quality diabetes care and services, target high-risk populations, and increase awareness about diabetes and its treatment among their populations.

Although CDC provides oversight and funding, these programs are not based on a “one-size-fits-all” scheme, according to Dara L. Murphy, MPH, Chief, Program Development Branch, Division of Diabetes Translation. Rather each state tailors its approach on factors such as the needs of special populations, availability of partners and resources, relationships with third-party payers, and even its geography.

Florida Capitalizes on Partnerships

The experience of Florida’s DCP—which received its initial funding from CDC in September 1996—illustrates the importance of partnerships. Bonnie Gaughan-Bailey, manager of the Florida DCP, explained that “Our philosophy from the start has been to improve care and treatment of persons with diabetes by working with partners who can assist us in promoting comprehensive diabetes care.”

Initially, a steering committee “of people who understood our approach, were well connected with all facets of health care, and were ready to pitch in right away” was assembled, she noted. Next the Florida DCP staff developed an implementation work group from an assortment of public and private organizations. Kevin Frentz, also with the Florida DCP, said “the members of this working group came with ideas about how to have a statewide impact and helped us devise an agenda to achieve our plans.”

The Florida DCP staff leveraged their partnerships to make important strides in addressing diabetes. For example, in January 1998, the Agency for Health Care Administration with the support of the

Florida Medical Association released *Diabetes Medical Practice Guidelines*, which advocated care and self-management training. “We used this endorsement as a catalyst to showcase comprehensive diabetes care in a special edition journal of the Florida Medical Association, *Managing Diabetes Today*,” Mr. Frentz said.

Other highlights include

- conducting a campaign to raise awareness of the need for influenza and pneumococcal immunizations for adults with diabetes.
- conducting video teleconferences to preview the *Diabetes Medical Practice Guidelines* for members of the Florida medical community, to educate them about the self-management components of the guidelines, and to offer tips about getting reimbursement for providing self-management information.
- creating patient care diaries and chart flowsheets that allow persons with diabetes to document their care.
- developing an alliance with the Florida Peer Review Organization to promote immunizations for persons with diabetes and share information and resources about immunizations.
- teaming with the diabetes education program for pharmacists offered at Florida A. & M. University, College of Pharmacy and Pharmaceutical Science, to bolster the role of pharmacists in diabetes care.
- reactivating a governor-appointed Diabetes Advisory Council that focuses on improving policy and legislation to reduce the health disparities and burden of diabetes.

Mr. Frentz acknowledged that Florida also faces special challenges in reaching its diverse populations who speak many languages. Again, the DCP staff tapped into existing resources. “We found that community health centers were a vital link in our efforts to connect our hard-to-reach population groups. We’ve done

Peer Review Helps Florida Reach Indigent Population

On-site quality improvement peer reviews help to assure that diabetes care and treatment are provided to Florida’s potentially overlooked indigent population. A peer review is conducted with each of the 67 county public health departments every two years, enabling the Bureau of Chronic Disease and the Department of Health Office of Performance Improvement to examine service delivery outcomes and to provide a foundation for collaboration with county health departments and state bureaus and programs.

According to Bonnie Gaughan-Bailey, manager of the Florida Diabetes Control Program, each county health department evaluates client and employee satisfaction, and explores ways to improve its services. The process includes a desk review and analysis of data, an on-site review, a concluding workshop, and a six-month follow-up report. A bureau representative works with the diabetes program staff to review county-level data and to monitor and evaluate efforts to provide diabetes care to indigents. Key questions asked during the peer review include

- What is the age-adjusted death rate per 100,000 from diabetes?
- How many diabetes screenings/rechecks are provided?
- Are the county staff familiar with the *Diabetes Medical Practice Guidelines*?
- Are the guidelines in the *County Health Department Guidebook*?
- Did the county use any American Diabetes Association material in the last 30 days?
- Did the county use any Life Preserver materials for the flu shot campaign?
- Do you provide care for clients with diabetes?
- How is eligibility determined for the insulin program?
- Do you provide any diabetes education directly to clients?
- Do you use the free glucometers and reduced price test strips program?

a good job at building our infrastructure, and now we want to use these new diabetes education programs to reduce the number of people who have undiagnosed diabetes in Florida.”

For more information, contact Bonnie Gaughan-Bailey or Kevin Frentz, Florida Department of Health, Bureau of Chronic Disease, Diabetes Control Program, Bin-A18, 2020 Capital Circle, SE, Tallahassee, FL 32399-1744; 850/487-2772; fax 850/414-6625; e-mail: Bonnie_Gaughan-Bailey@doh.state.fl.us or kevin_frentz@doh.state.fl.us)

West Virginia Overcomes Geographic Isolation

Joyce Holmes, Associate Director of Health Promotion and Program Director for the West Virginia DCP, admits “we have some definite issues trying to reach people with diabetes in West Virginia, many of whom remain isolated because of geography.” Despite collaboration with the West Virginia Association of Diabetes Educators that nearly doubled the number of Certified Diabetes Educators (CDEs) in the state and worked to place CDEs in the areas of greatest need, the coverage was still not uniform. Ms. Holmes cited West Virginia’s diabetes survival skills workshops and its Diabetes Cooking School Program as two programs that have effectively extended the reach of the state’s DCP.

The diabetes survival skills workshops are half-day programs held in each of the state’s five regions as apportioned by the West Virginia Association of Diabetes Educators. “We mailed information about the workshops to nurses, LPNs, nurse practitioners, dietitians, social workers, and support staff in doctors offices, health departments, rural clinics, and hospitals,” noted Sharon Murray, RN, MSN, CDE, program coordinator. “If we can deliver basic information and training to those people who are really in the trenches, then we can help them gain experience and knowledge that they in turn pass along to the people with diabetes they see. For example, a receptionist can remind a patient who is checking out to schedule an eye examination.”

Last year, the course, which is delivered in three one-hour modules, focused on nutrition and exercise; complications to eyes, feet, and kidneys; and new diabetes medications. Although there is no charge for attending the program, “our evaluations showed that program content was the main reason people attended,” she added.

The West Virginia Diabetes Cooking School Program is a three-session cooking school offered through West Virginia

University Extension Service. “We decided to work with the Cooperative Extension Service because the extension agents are already skilled as educators and organizers of community-based programs. We link each extension agent with a registered dietitian, Certified Diabetes Educator, or local diabetes health professional,” explained Carol Olson, MS, RD, LD, CDE, Extension Diabetes Education Specialist, who coordinates this program. “So far we have held 62 schools and reached 1,960 persons in 45 of the state’s 55 counties,” she said. The program is collecting data on follow-up behaviors six months after the schools for evaluations.

“We are using these and other programs to try to reduce the burden of diabetes and improve standards of care,” Ms. Holmes said. “If health providers better understand standards of care for persons with diabetes, then the levels of care will improve.”

For more information, contact Joyce Holmes, Diabetes Control Program, West Virginia Bureau of Public Health, 1411 Virginia Street East, Charleston, WV 25301; 304/558-0644.

Maine Bridges Gaps in Diabetes Service Delivery

The Maine DCP staff are turning to health care providers in the private sector to bridge the gap in diabetes service delivery. “There has been a progression in the level of awareness about diabetes control in Maine, not only by persons with diabetes, but also by health professionals,” explained Lucinda A. Hale (Cindy) MS, RD, CDE. “This awareness is due in large part to the relationship the DCP has built with health care providers in the community over the years,” she said.

Maine has also formulated a health systems approach that is working to reduce the complications of diabetes. The linchpin of these efforts is an outpatient program called the Ambulatory Diabetes Education and Follow-up Program (ADEF), which is available in more than 40 hospitals and health centers across Maine. This program assists persons with

“If health providers better understand standards of care for persons with diabetes, then the levels of care will improve.”

diabetes in learning the knowledge, skills, attitudes, and behavior changes necessary to achieve and maintain healthy diabetes control, thereby preventing complications and unnecessary hospitalizations.

“This program allows for comprehensive, coordinated, and individualized care throughout Maine. Patients see nurses, dietitians, go to classes, set goals to change behaviors, and are referred to other health care team members such as eye care providers. ADEP program sites have also identified other partners in their local communities, including schools and businesses providing external resources and support for persons with diabetes,” Ms. Hale said.

“The ADEF program has made a huge difference in Maine,” she added. In the early 1980s, the program participated in a reimbursement pilot study with Blue Cross and Blue Shield of Maine, Medicare, and Medicaid. The study demonstrated a greater than 30 percent reduction in hospitalizations for persons who participated in the study and received follow-up one year later. The Maine DCP advocates preventing diabetes’s complications by promoting annual eye examinations, regular foot checks, and diabetes control before pregnancy. “We are letting people know about the importance of prevention activities such as being physically active, choosing appropriate foods and portions, and requesting state-of-the-art diabetes management from their health care providers,” she explained.

Because of its success, Blue Cross and Blue Shield of Maine, Medicare, and Medicaid each made reimbursement for the ADEF Program a matter of policy in 1983. Effective in 1996, Maine Public Law 592 mandates coverage of the ADEF Program as an outpatient self-management training and educational service.

“Our vision is to see improved outcomes and standards of care in place here in Maine,” Ms. Hale said. Core ADEF Program instructors (nurses, dietitians, and physicians) are expanding

their teams to include social workers, vision rehabilitation teachers, and home health care staff. ADEF collaborations with health care providers and community partners sends the message that diabetes is serious but can be controlled.

For more information, contact Lucinda A. Hale, MS, RD, CDE, Nutrition Consultant, or Maryann Zaremba, Project Director, Maine Diabetes Control Project, 151 Capitol Street, 11 State House Station, Augusta, ME 04333; 207/287-5180; fax 207/287-4631; e-mail: lucinda.a.hale@state.me.us or maryann.m.zaremba@state.me.us

Raising Awareness about Diabetes in Utah

The Utah Diabetes Control Program, which was awarded a comprehensive state-based diabetes program grant in 1998, started with an agenda that included raising awareness of the scope of diabetes, updating professional education, and improving the quality of primary care.

“Our public awareness campaign used materials from the National Diabetes Education Program to help improve the public’s understanding of diabetes,” noted Barbara A. Larsen, RD, MPH, Director of Utah’s DCP. The campaign included television and radio PSAs, an eight-page newspaper insert, a toll-free resource line for information and referrals, and posters and brochures in English and Spanish distributed through community outlets.

Ms. Larsen said the campaign’s effectiveness is being evaluated using the BRFSS. Three months before the campaign, Utah’s DCP staff added to the survey nine questions that asked respondents about their understanding of the seriousness, signs, symptoms, and risk factors for diabetes. They added seven of those questions, plus two new ones targeting the campaign components, to the survey for three months following the completion of the campaign. “The DCP staff plan to use these data to develop year 2 of the campaign,” she added.

Utah’s DCP Professional Education project works to update the practices and awareness of primary care providers

“We are letting people know about the importance of prevention activities such as being physically active, choosing appropriate foods and portions, and requesting state-of-the-art diabetes management from their health care providers.”

through several venues, including a day-long conference developed by Robert E. Jones, MD, School of Medicine, University of Utah, that is presented in rural communities; a one-hour diabetes session presented at hospital CME meetings; and presentations made at existing conferences (e.g., Utah Academy of Family Physicians, Utah Nurses Association). The Utah DCP is also working with HealthInsight, Utah's Peer Review Organization, to improve primary care through continuous quality improvement projects and updates provided to clinic teams. Ms. Larsen said that project seminars have included new oral diabetes medicines, foot care, cardiovascular disease and diabetes, and prevention of nephropathy. The training also covers collecting and analyzing patient data and clinical care processes, identifying and using strategies to improve the clinical processes, and measuring outcomes.

"The health plan project also includes a professional education component," she added. A program consultant, Larry Staker, MD, presented the Utah Diabetes Practice Recommendations to the medical directors of the health plans. The health plans were then asked to adopt and promote the recommendations with their provider panels. Several have included articles in their newsletters, initiated diabetes quality improvement projects, and invited speakers to their CME sessions.

The Utah DCP has also formed a partnership with field representatives of several pharmaceutical companies. "They received training and materials from the DCP and were given copies of the Utah Diabetes Practice Recommendations manuals to take to providers during their sales visits" Ms. Larsen explained. "This intervention is being evaluated but so far, the response from the pharmaceutical reps has been positive."

For more information, contact Barbara A. Larsen, RD, MPH, Utah Diabetes Control Program, Utah Department of Health, PO Box 142107, Salt Lake City, UT 84114-2107; 801/538-6221; fax: 801/538-9495; e-mail: blarsen@doh.state.ut.us

Minnesota Works Together with Health Care Systems

Minnesota has had an active Diabetes Control Program since 1980. Among its goals are "expanding our collaborations to create a seamless system of health care in Minnesota," according to Martha Roberts, MPH, Acting Coordinator of the Minnesota DCP. Toward that end, the Minnesota DCP has collaborated with health care systems—including managed care, long-term care trade organizations, medical groups, the Minnesota Peer Review Organization (Stratis Health) and county public health agencies—that broadly reach Minnesotans with diabetes.

"This systemwide focus allows the Minnesota DCP to have a greater impact on larger populations. The Minnesota DCP provides expertise and technical support and encourages health systems to give priority and shift resources to addressing the needs of people with diabetes," Ms. Roberts noted. Key activities of this collaboration have included

- convening a steering committee of stakeholders for developing and implementing the Minnesota Plan to Prevent Disability from Diabetes.
- developing and validating data sources for monitoring and assessing diabetes.
- preparing statewide diabetes objectives and strategies published in *Healthy Minnesotans 2004*.
- partnering with three Minnesota health plans to implement and test diabetes quality improvement programs in primary care settings.
- working with populations at risk for diabetes—racial and ethnic groups, rural populations, and the elderly.


"Minnesota's health plans are dedicating funding and resources and are interested in applying public health principles and methods to improve the health and well-being of Minnesotans. We have successfully collaborated with health systems because we are viewed as a neutral partner and convener (not in competition

with other health plans), because we can provide quality improvement, epidemiologic, and public health expertise, as well as resources, information, and access to both state and national experts,” she said.

Ms. Roberts said that they “are working with long-term care trade organizations and the Minneapolis/St. Paul Diabetes Educators (local chapter of the American Association of Diabetes Educators) to develop a set of long-term care diabetes guidelines and facilitate their use in nursing home settings.”

For more information, contact Martha Roberts, MPH, Minnesota Diabetes Control Program, Minnesota Department of Health, Division of Family Health, Center for Health Promotion, 85 East 7th Place, Suite 400, St. Paul, MN 55164-0882; 651/281-9842; fax: 651/215-8959

Taking Stock of DCPs

Although acknowledging that the DCP program overall has made important strides in developing an infrastructure through these state-based programs, Ms. Murphy emphasized that much of the hard work still lies ahead. “Our focus has to shift to demonstrate that we are reducing the burden of diabetes. Consequently, we are looking at preventive health care practices and checking for specific changes. For instance, are more people with diabetes doing their blood monitoring and getting their routine eye and foot examinations? We are committed to such improvements on a national level and expect to see all states show improvements,” she said. 

Minnesota Targets Diabetes in American Indian Youths

Minnesota’s Work Out Low Fat—WOLF program, an eight-week curricula for grades 1–4, promotes the American Indian traditional lifestyle to encourage greater physical activity and less consumption of dietary fat. The goal is to reduce risk factors for type 2 diabetes, including obesity among American Indian schoolchildren, whose risk of developing diabetes has increased alarmingly.

The teacher-friendly curricula uses characters such as Turtle and Crane from American Indian legends. The lessons address physical activity and nutrition, including health behavior goal setting.

The program began when NIH’s National Institute for Diabetes and Digestive and Kidney Diseases funded a research project on primary prevention of diabetes for urban American Indian youths in grades 1–4. After the program was instituted, the state senate majority leader sponsored a bill to create an American Indian advisory task force to make the WOLF curricula appropriate for statewide use. As a result, the program received state funding. In support, several tribes gave matching funds for year 2 of state funding.

The Minnesota Department of Health requested representation from federally recognized Minnesota tribes to serve on the advisory task force. This is the first time that all Minnesota American Indian tribal communities have collaborated to address a specific health issue. Tribal councils have encouraged community staff to be involved in WOLF activities.

Originally program planners had targeted children aged 10 years and older, the age when type 2 begins to appear. But the community insisted the curricula start at grade 1, before the children had developed poor health behaviors. The curricula has now been taught in both rural and urban tribal and public schools.

Parental involvement and at-home activities with parents or caregivers and students together are stressed. Some teachers reported that children were sharing information from the curricula with their parents and influencing the adults to improve their health behaviors.

Anne Kollmeyer, RD, MPH, project manager, has worked to bring together state agencies, researchers, school districts, tribal governments, and communities to address the health of young people. “The WOLF project is an important step in improving health behaviors of children” she said.

Commentary

► *CONTINUED FROM PAGE 2*

this network in the coming years. We are also working to heighten the public's awareness of diabetes. A key component of this strategy is the National Diabetes Education Program, a consortium comprising CDC, the National Institutes of Health, and more than 100 private and public partners jointly working to improve the treatment and outcomes for people with diabetes, to promote early diagnosis of diabetes, and ultimately to prevent the onset of the disease.


Pediatricians are diagnosing more cases of type 2 diabetes in our nation's children and adolescents, a disturbing trend related to increasing patterns of obesity, poor diet, and physical inactivity.

We are making gains through those and other current programs; we must, however, develop and implement additional dimensions to CDC's diabetes programs in the near future. For instance, correctable health disparities in the prevalence of diabetes exists between majority and minority communities. Greater emphasis on surveillance efforts to better define the reasons for these disparities, as well as community-based interventions directed toward eliminating those same disparities, must become an integral part of public health's response to diabetes.

We must also be poised to develop and use effective methods to prevent and treat this disease among our young people. Pediatricians are diagnosing more cases of type 2 diabetes in our nation's children and adolescents, a disturbing trend related to increasing patterns of obesity, poor diet, and physical inactivity. CDC has already begun efforts to increase awareness of type 2 diabetes in children and to determine the scope of this problem.

Simultaneously, as managed care becomes the dominant health system for delivering preventive diabetes services, CDC must increase its interactions with such systems of care and with the major public and private purchasers of health plans for diabetes management. These efforts will provide opportunities for the diabetes public health community to broaden its partnership linkages with many organizations and individuals from the private sector. We are laying the groundwork in this area by participating with managed care organizations in a five-year study, Translating Research Into Action for Diabetes or TRIAD, to improve the care and information persons with diabetes receive from their health care providers.

Finally, CDC's public health program presently focuses on secondary and tertiary prevention programs, interest in science about primary prevention for both type 1 and type 2 diabetes is increasing. The apparent emergence of type 2 diabetes in children clearly underscores the need to better understand genetics, screening issues, and laboratory components of a public health strategy for diabetes.

Although we have accomplished much during the last several years in better understanding the burden of diabetes and in developing initial public health approaches for controlling this burden, we must continue building new national programs that we can integrate with our current efforts to reduce the substantial health and economic burden of diabetes. 

1999 | **PREVENT
CHRONIC
DISEASES**

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Communications

DCPC Launches Second Annual Choose Your Cover Campaign

Bolstered by supporting statements from Donna E. Shalala, PhD, Secretary of Health and Human Services and Jeffrey P. Koplan, MD, MPH, Director of CDC, NCCDPHP's Division of Cancer Prevention and Control announced its second Choose Your Cover skin cancer prevention campaign in May 1999. The campaign seeks to change social norms concerning skin protection and sun tanning and to influence adolescents and young adults to practice sun protective behaviors. Campaign collaborators determined the target population based on CDC research and used focus groups to test the core messages: avoid sun exposure during peak hours or seek shade, wear protective clothing, and regularly apply sunscreen with an SPF of 15 or higher. Public service announcements will broadcast and appear in print and on Web sites frequented by young adults.

For more information, contact Brian Southwell or Dr. Cynthia Jorgensen in the Communication and Behavioral Sciences Branch, Division of Cancer Prevention and Control, NCCDPHP, CDC, Mail Stop K-48, 4770 Buford Highway, NE, Atlanta, GA 30341-3717; 770/488-3250; Web site <http://www.cdc.gov/ChooseYourCover>.

Conferences

14th National Conference on Chronic Disease Prevention and Control

The 14th National Conference on Chronic Disease Prevention and Control—Prevention Success 2000: Better Health for All will address chronic disease issues related to public health advocacy, policy, and communication; successful partnerships; training and infrastructure development; reaching diverse populations; emerging intervention research and best practices; and using and communicating data. The conference will take place November 30–December 2, 1999, in Dallas, Texas.

Participants—including federal, state, and local public health professionals; members of affiliated health professional associations; partners in prevention and control activities; leaders from health management organizations; physicians, nurses, nutritionists, physical activity specialists, and health educators; and academic research staff from educational institutions—will have the opportunity to develop new working relationships and build and strengthen partnerships for the prevention and control of chronic diseases as we move into the 21st century. The Centers for Disease Control and Prevention, Association of State and Territorial Chronic Disease Program Directors, and the American Heart Association are jointly sponsoring the conference.

For information about registration, contact Estella Lazenby at the KEVRIC Company, Inc., at 301/588-6000, e-mail elazenby@kevr.com. For additional information visit NCCDPHP's Web site at <http://www.cdc.gov/nccdphp/99cdconf.htm>.

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1999 Maternal, Infant, and Child Health Epidemiology Workshop

The 1999 Maternal, Infant, and Child Health Epidemiology Workshop will be held December 8–9, 1999, in Atlanta, Georgia. The workshop theme, “Building Data Capacity in Maternal and Child Health,” reflects its focus on successful efforts in developing a workforce that has technical expertise and experience needed to acquire, analyze, and apply data for making decisions in maternal and child health.

For more information, visit the Web site <http://www.cdc.gov/nccdphp/drh/micheshop.htm> or contact Michelle Scott at 770/488-5187; e-mail lms0@cdc.gov. You may register online at http://www.desainc.com/Conf_Details_d.htm

Diabetes in Indian Communities: Creating Partnerships for Prevention in the 21st Century

The national conference will convene October 27–29, 1999, in Albuquerque, New Mexico, and will feature plenary sessions and presentations on prevention strategies, clinical interventions, research programs, and skills-building. Members of the professional diabetes community, tribal leaders, tribal health department personnel, and Indian health program workers are encouraged to participate. Sponsoring partners include the Centers for Disease Control and Prevention, the University of Arizona, the National Institutes of Diabetes and Digestive and Kidney Diseases, the American Diabetes Association, and the Indian Health Service.

For additional information, contact Fred Hill at 301/493-9674 or e-mail fhill@computercraft-usa.com.

Education

Texas Launches New Diabetes Awareness and Treatment Project

State officials in Texas announced a two-year pilot project to identify and treat persons with diabetes, with special emphasis on helping children who have this disease. This initiative is funded by a \$1 million donation from Bristol-Myers Squibb Company. Texas will spend \$200,000 to inform residents about symptoms and to fund prevention efforts. Public awareness programs will be directed toward black and Hispanic communities, who are disproportionately affected by diabetes, and at-risk children. Another \$400,000 is earmarked for diabetes screening to identify the thousands of Texans that do not know they have the disease. Diabetes screening and treatment may begin as soon as October. The remaining \$400,000 will be used to educate health care providers in the latest treatment technologies.

For more information, contact Doug McBride, Public Information Officer, Texas Department of Health at 512/458-7524 or e-mail doug.mcbride@tdh.state.tx.us.

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Information Sources

BRFSS State Publications Database Now Online

This database contains citation information for official state publications that include Behavioral Risk Factor Surveillance System data such as *Healthy People 2000* reports, annual reviews, and newsletters. Visit the BRFSS Web site at <http://www.cdc.gov/nccdphp/bfrss/> and select "State Publications." An overview of the BRFSS is also found at this Web site as part of a BRFSS training component that is being developed.

For more information, contact David E. Nelson, MD, MPH, Behavioral Risk Factor Surveillance Branch, Division of Adult and Community Health, NCCDPHP, CDC, Mail Stop K-47, 4770 Buford Highway, NE, Atlanta, GA 30341-3717; 770/488-2411; e-mail den2@cdc.gov.

Screen for Life National Colorectal Cancer Action Campaign Web Site

Screen for Life, a national campaign to educate men and women aged 50 years or older about the importance of colorectal screening, was launched in spring 1999. CDC is collaborating with the Health Care Financing Administration and the National Cancer Institute to influence social norms surrounding colorectal cancer screening and to increase the use of screening services by targeted populations. So far 21 states, one territory, the District of Columbia, and four American Indian/Alaska Native organizations have committed to support the *Screen for Life* education campaign.

For more information, visit the Web site <http://www.cdc.gov/cancer/screenforlife> or contact Brian Southwell or Cynthia Jorgensen, PhD, Communication and Behavioral Science Branch, Division of Cancer Prevention and Control, NCCDPHP, CDC, Mail Stop K-48, 4770 Buford Highway, NE, Atlanta, GA 30341-3717; 770/488-3250.

NCCDPHP News

Dr. Janet Collins Named New NCCDPHP Deputy Director

On September 1, 1999, Janet L. Collins, PhD, left her position as Chief, Surveillance and Evaluation Research Branch, Division of Adolescent and School Health, to assume her new role as NCCDPHP Deputy Director. Dr. Collins has been with CDC and NCCDPHP since 1990 and has established herself as a nationally recognized expert in adolescent and school health. She also has been key to developing surveillance, research, and evaluation toward improving adolescent and school health throughout the nation. Dr. Collins served as Acting Director, Division of Nutrition and Physical Activity, NCCDPHP, from 1996 to 1997, and helped found and later chaired the Behavioral and Social Science Working Group at CDC.

Dr. Collins received an MS in Clinical Psychology from San Diego State University and a PhD from Stanford University in Educational Psychology.

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DCPC Associate Director for Science Selected as New DCPC Director

Nancy C. Lee, MD, is now the Director, Division of Cancer Prevention and Control. After serving 6 years as the Division's ADS and working as a CDC medical epidemiologist with special emphasis on women's health issues such as cancer screening and early detection, reproductive system cancers, contraceptive safety, and HIV infection among women. Dr. Lee's accomplishments include leading the effort to develop a clinical surveillance system for CDC's National Breast and Cervical Cancer Early Detection Program, serving as coproject manager of the Cancer and Steroid Hormone Study (the largest study of the relationship between the use of oral contraceptives and risk of reproductive cancers), authoring more than 60 publications, and selection for several prestigious awards from the Public Health Service.

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