

PROCEEDINGS

**5TH ANNUAL
DIABETES
CONTROL
CONFERENCE**

1982

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DIABETES
CONTROL
CONFERENCE**

**LEXINGTON, KENTUCKY
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Centers for Disease Control
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Kentucky Diabetes Control Program

PREFACE

This publication, *Proceedings of the Fifth Annual Diabetes Control Conference*, is a collection of papers and abstracts presented during the conference held May 10-13, 1982 in Lexington, Kentucky. The conference was sponsored by the Centers for Disease Control and the Kentucky Department for Health Services. Approximately 200 health professionals and individuals from public, private, and voluntary sectors participated in the conference, the theme of which was "Our Challenge: Care and Control of Diabetes in the Community."

As recommended by the National Diabetes Commission in 1975 and funded by Congress since 1977, the Centers for Disease Control established diabetes control programs in 20 states. During the first phase of the program, all project states defined and assessed the nature and extent of their diabetes problems; most of these states are now conducting problem-specific intervention programs designed ultimately to reduce diabetes morbidity, premature mortality, and health care costs. As diabetes education, care, and control strategies are developed and advanced, better mechanisms for their delivery, evaluation, and funding are being implemented in these states.

This publication contains state-of-the-art information on diabetes care and control in many communities within the 20 project states. The organization of the conference, the synthesis papers, and the proceedings focus on the following key elements of community diabetes control programs:

1. Data Assessment and Problem Identification
2. Community Alternatives
3. Program Implementation
4. Program Evaluation

We hope that this publication will stimulate ideas and dialogue for better diabetes care and control through shared strategies, experiences, results, and recommendations. Special thanks are in order to the Centers for Disease Control, especially to Dr. J. William Flynt, Jr., chief of the Diabetes Control Activity; the Kentucky Department for Health Services; the conference planning committee; the conference speakers; and the staff and participants involved in the 20 project states comprising the CDC-State Diabetes Control Program.



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INTRODUCTORY PAPER

CDC AND STATE DIRECTION IN COMMUNITY DIABETES CONTROL

J. Michael Lane, MD

The Centers for Disease Control and State and local health departments have had an effective historic partnership in the control of acute communicable diseases. As most of you know, the public health movement was originally based upon environmental sanitation and the control of infectious diseases. The organized health agencies have only recently become interested in the control of chronic illness, or in direct participation in medical care other than in such specific areas as sexually transmitted diseases and tuberculosis. The watchword of traditional public health has been prevention, and prevention is still the banner under which most of public health travels. CDC's interest in diabetes, which I believe is shared by most State and local health departments, stems from our belief that complications of diabetes can ultimately be prevented by prudent case management. Prevention is still the name of the game.

Those of you who are card-carrying members of the diabetes community know better than I that the assumption that diabetic complications can be prevented requires a leap of faith. It makes intuitive sense that control of blood glucose, bringing the diabetic individual near a natural physiologic state, will control the onset of diabetic complications. However, intuition is a dangerous rock upon which to found public policy, and the scientific debate about good control continues. Last Monday I learned from Dr. James Wyngaarden, the new Director of NIH, that NIH is hoping to spend upwards of \$80 million over five to ten years to answer the question whether tight control reduces mortality via a classical clinical trial. While we await such data eagerly, we should not allow the debate about good control to stand in the way of developing public health programs. Even if the onset of diabetic complications is not significantly retarded by "good control," I believe that data are in hand which show that hospitalization and medical care costs can be dramatically reduced by a humane public health approach to the diabetic population. For instance, the development of peripheral vascular insufficiency may not be delayed,

but unnecessary hospitalization for amputations should be avoided. Severe ketoacidosis and many of the complications of pregnancy should be amenable to reduction by good patient education coupled with easy access to appropriate care.

This Conference is occurring at a critical juncture in the history of public health and medical care. Five factors, in addition to the scientific debate about the promise of tight control in diabetes, are coming together to present us with a tremendous challenge. The first factor is the search by the public health establishment for a mission outside of acute communicable diseases. Second is the recognition that many potential improvements in medical care have not been translated into routine practice in either the medical care or the public health establishments. By the way, the National Diabetes Advisory Board has charged CDC, and therefore you who are our partners, with specific responsibilities in the translation of research results into practice. Third is the growing cynicism about medical care, and particularly disease care, in both the lay and professional communities in the United States. Fourth is the drive throughout much of the medical establishment to put most of routine preventive care, including direct one-on-one patient education, into the hands of paramedical personnel. Last is the tremendous push for cost containment; our society simply cannot afford to continue our current level of investment in disease care.

These five factors, when coupled with the studies in such settings as Los Angeles, Atlanta, Memphis, and here in Lexington, give us a marvelous opportunity to carve out a role for ourselves, and also present us with an exciting challenge. Perhaps some of our frustrations in the initial years of this program stem from the fact that we have allowed ourselves to be given too many roles at the same time. Indeed, we have been asked to do, with a tiny fraction of the resources given to the research establishment, many of the things they have failed to do to date. Specifically, we find ourselves being asked to describe fully the nature and extent of the problem of diabetes, to isolate all specific risk factors associated with development of complications, and to prove the

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efficacy of a number of different interventions on reduction of a specific group of complications, and by implication develop data on the benefits of tight control of the diabetic individual.

While we may have been asked to do too much with too little, as I review the accomplishments you've made in your State programs, I cannot fail to be extremely impressed with what you have accomplished to date. We are not researchers, and I must constantly remind myself that much of your work has been devoted to creating a structure for delivery of services, creating a constituency within your States and indeed within your State governments, convening relevant experts, pooling resources, and providing advice about your programs. In addition, however, you have made a variety of satisfying strides in science. Certainly we know much more about the quality of available records, the utility of the vital record data base, the availability and nature of hospital discharge information, and the public expenditures for diabetes care than was known three or four years ago. As is often the role of the epidemiologist early in the study of a new problem, you have placed quantitative limits on classical clinical statements. Specifically, you have developed some initial data about the risk factors leading up to decompensation of the juvenile onset diabetic, the risk factors for hospitalization in geriatric populations, and the distribution and determinants of hospitalization within populations of maturity onset diabetics. You've started a fascinating variety of interventions, some based soundly on the recommendations of clinical diabetologists, and others based on your own data about the determinants of disease in your States.

We now come back to the challenge I mentioned before and the important work that will consume much of your time and the time of many of us at CDC over the next two or three years. Specifically, we now come to the challenge of the program evaluation.

You have built your programs, but time is running out on the luxurious period during which we can attract resources without proving that we are doing a good job. We must begin to develop data to show that our programs are cost-beneficial. If we in diabetes, and our colleagues in related chronic disease programs such as hypertension control, cannot show our State legislators and congressmen that our programs save money, then we will retard the development of a role for public health agencies outside of acute communicable diseases. If we cannot claim that we can bring the improvements in diabetic care into the public health arena, then we cannot advocate a role for State health agencies in translation of research results. If we cannot demonstrate reductions in hospitalization, expenditures, morbidity, and mortality, then we will add rather than detract to the cynicism about medical care in this country. If we cannot show that health educators, nutritionists, public health nurses, and other such personnel can do good patient education and routine patient supervision, those services will continue to be provided, inadequately and expensively, by hospital-based physicians. If we cannot show that prevention pays and that our programs reduce public expenditures for unnecessary hospitalizations, we cannot expect Congress and State legislators to fund the

development of our programs.

How do we accomplish these goals? We must recognize that it won't be easy. The necessary studies must be well controlled, flawlessly designed, and carefully executed. This will require scrutiny of study design, data gathering instruments, and research protocols. We must recognize the danger of the easy study, quickly done by well-intentioned activists who let unconscious biases creep into the study design or data analysis. We must invite examination by outsiders who have nothing to gain by proving that our programs work. We must have data that are fully immune to scientific criticism.

The benefits of good program evaluations are legion. They will help us attract money and develop our programs. If we can show, and I believe we can, that our programs help reduce public expenditures for diabetic hospitalizations, then money and political backing will be ours for the asking. Good program evaluations will also help us replicate our best program elements. If one State can show that some specific intervention works, then others will pick up the idea, and indeed within each State the program will spread. I assume that some of our interventions are less effective than others; we should not worry about this — we are still in a demonstration phase. Program evaluation should help us identify the frills and unnecessary elements in our programs. Good program evaluation will help us identify the kinds of patients most in need of our services, and those most likely to benefit from them. Good program evaluations will help build our scientific credibility with our colleagues in the disease care establishment, so that people will turn to us for advice and help as other chronic disease control programs are added to hypertension and diabetes in coming years.

Fortunately, many of you are already well along the path to sound program evaluations. Most of you have good indicators of your level of effort and excellent ways to describe your processes. Such indicators as numbers of patients served and numbers of professionals trained are good process indicators. Now we need to move towards indicators of outcome. During this Conference, we will hear about exciting studies in progress in Maine, Colorado, New York, Kentucky, and Michigan. Indeed, there are undoubtedly others which I don't know about as yet. We should listen closely to the presentations about measurement of program outcomes and benefits. Many of us have made mistakes in the past year or two, and others can benefit from these mistakes. Rarely is a study perfect, but one of the delightful things about man as a scientific animal is that he learns from mistakes as well as from victories. I am confident that next year we will have a program full of good studies on cost-benefit and other direct analyses of program outcomes.

What are the respective roles of CDC and of State health department personnel in meeting this challenge? First, let us remember that we are partners in this venture; we do not label our efforts cooperative agreements for nothing. We at CDC don't want to be the bad guys, coming in from outside to evaluate your programs. You should do your evaluation studies yourself. Second, ideally CDC would provide epidemiologic and statistical

backopping to help you develop your evaluation protocols and analyze your data. Certainly we wish we had a course ready and waiting for you to take which would make you all capable chronic disease epidemiologists. Such a course has been requested, and we are starting the lengthy and arduous task of developing it. We have an early draft of a handbook to assist in planning and evaluating programs, which some of you are currently critiquing to make it useful, digestible, and relevant. Meanwhile, we will try to stretch our thin human resources and provide at least a few consultations to selected States whose programs are sufficiently well developed to be ready for careful and all-out evaluation.

I assume, and perhaps even hope, that some of you will request consultative services from CDC which we cannot provide. I hope this may be the case because it would

occur if each State project wanted a full-fledged CDC participation team to help develop and conduct evaluation studies. While we could not provide such services to all of you with our current resources, your request for such assistance would mean that you have developed your programs to the point where they are ready for formal evaluation. You would presumably have discussed the risks and benefits of conducting such studies with the appropriate people in your State health agency and your Advisory Board. This alone would be a major victory, and could help us argue for more assistance to State diabetes programs in the future.

This will be an exciting conference. I believe you will pick up ideas here that you can take back and implement in your own States and make this an exciting year. Together we will meet the challenge of program evaluation.

OUR CHALLENGE:

**CARE AND CONTROL OF DIABETES IN THE
COMMUNITY**

PLENARY PAPERS

CARE AND CONTROL OF DIABETES IN THE COMMUNITY

I. DATA ASSESSMENT AND PROBLEM IDENTIFICATION

UTAH

Strategy Used by Utah's Diabetes Coordinating Council to Identify Diabetes Problems for Intervention

Gayle E. Reiber, RN, MPH

RHODE ISLAND

Epidemiology of Insulin-Dependent Diabetes Mellitus (IDDM): The Rhode Island Registry

Howard A. Fishbein, DrPH; and Gerald A. Faich, MD

MINNESOTA

A Population-Based Epidemiologic Study of Diabetes Mellitus in Wadena, Minnesota

Alan P. Bender, DVM, PhD; J. Michael Sprafka, MS; Helen G. Jagger, RN, MPH; and Julia Wannamaker, PhD, MPH

CDC - DIABETES CONTROL ACTIVITY

Assessment of Diabetes Morbidity/Mortality Data in Diabetes Control Program States

Pomeroy Sinnock, PhD; Robert C. Holman, MS; Randi Most, MPH; and Steven Teutsch, MD

SYNTHESIS OF SESSION I

Data Assessment and Problem Identification: Reviewing the Experience

Richard F. Hamman, MD, DrPH

STRATEGY USED BY UTAH'S DIABETES COORDINATING COUNCIL TO IDENTIFY DIABETES PROBLEMS FOR INTERVENTION

Gayle E. Reiber, RN, MPH

A group of 33 health professionals, consumers and representatives from agencies with interest in diabetes was identified in early 1980 as the State Diabetes Coordinating Council. When the Utah proposal was funded in September 1980, ten professionals were selected as program consultants to co-chair the following five Task Forces: 1) Data; 2) Provider Education; 3) Diabetes Resources; 4) Patient Education; and 5) Special Public Services. All members of the Coordinating Council selected their preference for Task Force involvement, thus the Council and Task Forces were functional within the first month of program operation. Specific objectives for each Task Force were directed toward identifying gaps by Task Force area, between the state of the art in diabetes services and the existing situation. After identifying and prioritizing the gaps between ideal and real, the Task Forces made recommendations on bridging those gaps.

Task Force recommendations and concerns were subsequently validated by diabetics through conducting a population based diabetic patient survey. Recommendations are being implemented through either program core capacity, as part of specific intervention strategies, or by referral to other agencies/resources.

After the intervention strategies were identified in mid-1981, the Coordinating Council realigned the Task Forces around those strategies. The areas for intervention will be briefly described and include: 1) Reducing Renal Failure in the Ute-Ouray Indians; 2) Reducing Premature Diabetes Mortality in the Central Utah District; and 3) Decreasing Excess Hospitalization Among Diabetics in Salt Lake County.

Numerous researchers, agencies, and clinics in Utah had been working to better control diabetes, but

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coordination and networking among them were minimal. The State Department of Health, although interested in community diabetes control, had no state resources available to begin a diabetes control effort. Therefore, when the Centers for Disease Control (CDC) funding was announced, Utah responded. In 1979 and again in 1980, the Bureau of Chronic Disease Control, Utah State Department of Health, together with respected leaders from the Utah diabetes community, jointly planned a Diabetes Control Program and requested CDC funding. Program objectives, structure, and consultants for Phase I, were identified early in our planning process. We used the HAPPS (Health Assessment and Planning for Preventive Services) planning model, where problem identification, intervention, and evaluation follow an orderly progression.

In our application for funding, available diabetes data were reviewed and the diabetes problems in Utah were characterized. Major groups with allied interests in diabetes were contacted and requested to support and participate in our efforts. The response was very positive, with most agencies nominating one or several individuals to serve on the Statewide Diabetes Coordinating Council or participate later in the Phase II implementation phase.

Upon notice of award of our second application in September 1980, 33 professionals and agency representatives, including those who earlier participated in planning our application, were invited to participate in an advisory group to the program, the Statewide Diabetes Coordinating Council. Their responsibilities included:

- sharing their expertise and experience in diabetes,
- networking with others in the diabetes community, and
- networking in the political community.

These 33 individuals included program consultants and represented diabetes leaders from throughout the state. Coordinating Council membership included:

- multidisciplinary health professionals with diabetes interests from the public and private sectors.

professionals from academic settings, including medicine, nursing, health science, family life, epidemiology, and dietetics,

- diabetic individuals and parents of diabetic children, and
- other important groups including the Indian tribes, voluntary agencies, state hospital association, and insurance companies.

Dr. Roger Williams, a cardiovascular geneticist from the University of Utah and the father of a diabetic child, was selected to chair the Coordinating Council and Dr. Gregory Christenson, University of Utah Research Design Specialist, was named as program evaluator. Ten experts from the Coordinating Council representing various professions were selected and agreed to be paid program consultants and to serve as chairpersons or co-chairpersons of one of our five Task Forces:

1. Data Base
2. Provider Education
3. Resources
4. Patient Education
5. Public Education, Public Relations, and Special Public Services.

Our consultants were also responsible for writing Phase I Report for their Task Force. Other Coordinating Council members serve as volunteers.

Each Task Force had a specific objective to accomplish during the scheduled nine-month planning period and the program staff were assigned to each Task Force to facilitate work and coordination. For instance, the objective for our Data Task Force was to assemble, by March 15, 1981, a diabetes mellitus data base and to identify morbidity and mortality problems.

Prior to our first Statewide Coordinating Council meeting, all 33 members were contacted and requested to select one of the five Task Forces they wished to work on. At our first meeting, Dr. Karl Sussman, who chaired the Colorado Diabetes Program Advisory Board, shared with us his experience, enthusiasm, and ideas on paths to follow and pitfalls to avoid. That day, enthusiastic Task Force members began the work to meet their objectives.

In each of the five Task Force areas, the state of the art and the current Utah situation were documented. We then compared the ideal with the real situation, examined the differences, and then prioritized them. Some differences between the ideal and the real were worth considering; others were not. The Task Forces worked over a seven-month period to develop and rank their recommendations. Periodic meetings with consultants provided opportunities for Task Force chairpersons to share progress and coordinate work.

As data became available from the Data Task Force, they were shared with other Task Forces and as more questions were formulated, requests for answers were sent to the Data Task Force.

The Data group reviewed existing data including:

- Mortality data (both underlying and contributing causes)
- PSRO data
- Medicaid data
- Patient records from a large private practice for diabetes complications

- Diabetes literature
- Other chronic diseases and Utah researchers' data, where information on diabetes was included.

To better assess the Utah situation, some Task Forces conducted independent or joint surveys with health professionals or special service groups when data were not otherwise available, including:

- A statewide Professional Education and Resources Task Force survey of health professionals involved in diabetes care. The purpose was to assess past diabetes education and future interest of health professionals in diabetes education. It also assessed actual levels and perceived needs for diabetes-related personnel and resources.
- A statewide survey of outpatient clinics, group practices, and nursing homes to determine where outpatient diabetes services, education, and resources were offered on more than a one-to-one basis.
- A statewide dietary survey of school lunch programs.
- An emergency medical services (EMS) survey in one geographic area of Utah.
- A survey of school teachers in one geographic section of Utah.
- A statewide survey of diabetes related needs of senior citizens.

Documentation was also obtained on the content of all hospital inpatient education programs in Utah.

For our first conference session on data assessment and problem identification, our mortality findings revealed that, over a 40-year period:

1. Death rates for all causes and for both sexes in Utah are lower than the U.S. rate between 1940 and 1980. The differences are statistically significant for both crude and standardized rates.
2. Diabetes mortality was lower in Utah than in the U.S. for 1940, 1950, and 1960, but an inverse relationship was observed in 1970 and 1980 in terms of age-standardized rate.
3. Males had lower diabetes mortality than females in all ages before 1970, but since 1970, the diabetes mortality for males 25 to 64 years old is significantly higher than for females.

Mortality data from 1975 to 1979 show that in rural communities, males had the highest mortality rate and females, while having the lowest rate in 1975-79, had the second highest rate in 1980 — which may be due to yearly fluctuation and small numbers rather than an actual change in mortality patterns. (See Table 1) Findings for 1980 indicate that males in rural communities consistently have mortality in excess of other groups.

Further analysis of rural mortality by county of residence for 1975-79 revealed that the highest death rate for both sexes among non-Indian populations occurred among residents of the Central Utah District.

Toward the end of our planning phase as more data became available, the consultants and program staff worked together to analyze, interpret, and synthesize findings. Reports and recommendations for each Task Force were written and signed by the Task Force chairpersons before presenting them to the entire Coordinating Council for approval and direction. For

example, the Data Task Force identified and prioritized three problems — two for inclusion as part of an intervention strategy and one for inclusion in the program's core capacity. One recommendation from several Task Forces was to determine the statewide diabetes prevalence. Other recommendations included quantifying diabetes problems as diabetic individuals see them and also collecting data on American Indian populations.

Thirty-five recommendations from the five Task Forces comprised the major part of our Phase I Report. They were prioritized as high, medium, or low by their respective Task Forces, which also indicated whether the recommendation should be in an implementation strategy, implemented as part of core capacity, or referred to another agency. Early recommendations which could be handled by the core capacity staff were implemented. For example, a statewide and district Resource Directory was completed, largely through the assistance of University of Utah student preceptors.

With the morbidity, mortality, and survey data from our various sources assembled, consultants and some Coordinating Council members and staff participated in fitting together the pieces of the diabetes puzzle in Utah.

A transition period between Phase I and Phase II allowed time to better define some of the problems and collect or refine additional data based on the recommendations of the Task Forces. One recommendation, to obtain diabetes information of Native Americans in Utah, resulted in a special chart review of diabetic Ute Indians by CDC and the Utah Diabetes Program staff in July 1981. This study revealed a diabetes prevalence among 1,715 tribally enrolled Utes, four times that of the balance of the state. Also documented was the relative risk of diabetic nephropathy, which is 43 times that of other diabetic persons in Utah. Of the 132 diabetic Ute Indians, 24% have significant renal involvement and 8.3% have renal failure requiring dialysis.

Coordinating Council members and program staff wanted solid diabetes prevalence data not only for diabetes but also for other chronic diseases; therefore, all the programs in the Bureau of Chronic Disease Control contributed financially to conduct a statewide random digit dialing telephone survey in May and June 1981. This survey, which was conducted by a research group from Utah State University, elicited information on age, sex, and status with regard to eight chronic diseases including diabetes for each member in the households sampled. Names and addresses of the respondents or household heads were also obtained for follow-up inquiry and for an in-depth patient survey. Of the 4,870 private households surveyed consisting of 15,248 persons ages 0-96, a 92.7% completion rate was achieved. The index of dissimilarity between sample age structure and the 1980 Utah Census age structure was very small.

Among the 314 diabetic persons initially identified by the telephone survey, 12% (39 cases) were reclassified as non-diabetics, according to information provided by them in the second-stage patient survey. Interviewer's mistakes, Diabetes Insipidus, or erroneously identified as diabetics by family members accounted for one-fourth of

the misclassifications and the remainder were borderline diabetics or former diabetics.

This survey revealed the prevalence of diabetes for Utah's civilian, non-institutionalized population in 1981 as 1.85% (S.E. 0.11%). Utah has an estimated 27,200 diabetic individuals, of which approximately 5.5% are under age 25.

The overall prevalence rate for females (2.23%) is significantly higher than that for males (1.4%) ($P < .01$). Prevalence rates for each of the eight health planning districts in Utah are shown in Figure 1. The age-adjusted rates are based on the broad age groups (i.e., 0-19, 20-44, 45-64, 65 and over) of the age structure of the state population. Districts with prevalence rates 10% or more above the state rate, 10% or more below the state rate, and within $\pm 10\%$ of the state rate are shown. Except for District 4, the age-adjusted rates for all districts are close to their crude rates. The strong difference between crude and age-adjusted rates for District 4 is due to its older population.

The response rate for our follow-up mail survey of diabetic individuals identified was 87%. By completing a 71-item questionnaire, valuable information was gained on complications, patterns of provider use, monitoring by physicians of their diabetic patients' physical conditions, hospitalization patterns, knowledge and attitudes, and diabetes-related health care practices.

Program consultants, some Coordinating Council members, and program staff met again in August and in September 1981 to interpret and synthesize findings for intervention. This group agreed on priority problem areas and contributing factors and presented this information to the entire Coordinating Council for approval.

The three areas agreed upon for intervention were:

- 1) diabetes in a rural area, a particular concern of which is the excess premature male mortality under age 55.
- 2) diabetic nephropathy in Ute Indians, and
- 3) apparent excess hospitalization among the diabetic population in urban areas.

Since our program focus was to be different in Phase II, and our coordinating Council needed to be better aligned with the problems we were addressing, the five Task Forces were reformulated to four — three to address the intervention areas and one to deal with epidemiology, evaluation and long range planning.

In planning for our first intervention, we met with health care providers, members of local boards of health, consumers, and public health personnel in the Central Utah District to design a long-term intervention directed to address diabetes mortality in rural areas. The long-term objective is:

By 1985, the mortality rate from diabetes in the under-55 age group in the Central Utah District will be maintained at or below a rate of 4.3-per 100,000. This objective is stated in view of the continuing influx of migrants to this area because of energy developments and limitations in the health care system.

Our second intervention, to reduce excess rates of diabetes-associated complications, among the Ute Indians, is a collaborative effort between CDC, the Ute Tribe, Indian Health Services, and the State Health

Department — with the Ute Tribal Health Program retaining lead responsibility and control. The long term intervention objective is:

By 1985, to reduce by 50% the number of *new* tribally enrolled Utes who will require hemodialysis as a result of diabetes-associated End Stage Renal Disease.

Specific contributing factors being addressed include blood glucose control, blood pressure, and weight.

This community diabetes intervention has emphasis in five areas:

- 1) Patient/family education in each of the five geographic community areas on the Reservation,
- 2) Clinic structure and protocol for diabetic Utes, especially those with constant proteinuria,
- 3) Professional and paraprofessional education,
- 4) Community education and awareness, and
- 5) School education in conjunction with risk reduction programs.

The Utes have secured limited revenue sharing funds, hired a dietitian, and will soon hire a nurse to assist in this effort. Two groups of Utes with common ancestry were separated from the Utah Utes and have remained in Colorado for the past 80 years. This population offers a good group for comparison.

Our third strategy focuses on problem identification for excess hospitalization among persons with diabetes in an urban Utah area, where we want to further characterize the problem of excess hospitalization. Documented in our survey of diabetic individuals in urban areas and

confirmed in our PSRO data analysis is an increased frequency of hospitalizations and length of stay. Our survey showed that in 1981, 20% of persons with diabetes in the urban counties of Utah were hospitalized, while only 12% of their rural counterparts were hospitalized. Diabetic men and women in urban areas average ten days in the hospital for each admission, while diabetics in rural areas spend an average of only six hospital days per admission.

Considering Utah's 27,200 diabetic population and the survey frequency for hospitalizations, a costly situation exists regarding diabetic hospitalizations. Available data suggest a review of hospital and medical records on our population-based group of diabetic individuals to document and determine admissions, length of hospitalizations, complications, and other characteristics such as insurance coverage, third-party payments, and elective procedures.

By involving diabetes leaders statewide in planning and implementing our diabetes control program, our three targeted interventions are proceeding as a coordinated community effort.

The Utah Legislature is well aware of our efforts and will be looking forward to seeing us in FY 1984 and 1985 budget cycles with specific program outcomes and recommendations. Our community approach to planning and intervention allowed council members and project staff to agree on the problems, then work together on their solutions.

TABLE 1. Diabetes Mortality Under Age 55 in Utah, by Sex and Geography

Sex & Place	UTAH 1975-1979			UTAH 1980		
	Number Of Deaths	Crude Rate*	Age-Adjusted Rate*	Number Of Deaths	Crude Rate*	Age-Adjusted Rate*
Urban Males	65	2.97	3.30	10	2.10	2.06
Rural Males	27	4.17	5.79	7	4.87	6.76
Urban Females	51	2.36	2.58	6	1.25	1.35
Rural Females	9	1.41	1.90	5	3.52	5.50

*Rates per 100,000

SOURCES: Utah State Department of Health

FIGURE 1. Diabetes Prevalence Rates by Multicounty District