January, 1999

To Governor Hodges and the General Assembly:

On behalf of the Board of Directors of the Diabetes Initiative of South Carolina, I am pleased to present our fourth annual report. This report was requested in Chapter 39, Section 44-39 of the Diabetes Initiative of South Carolina Act.

In accordance with the provisions of the act, we have established the Diabetes Initiative of South Carolina Board and the Diabetes Center, Outreach and Surveillance Councils. Close liaisons have been developed between our Initiative and The Diabetes Control Program of the Department of Health and Environmental Control and the American Diabetes Association, South Carolina Affiliate, Carolina Medical Review, and The Area Health Education Consortium (AHEC).

In 1996, we jointly issued a report “The Burden of Diabetes in South Carolina”. This report established that South Carolina ranks second in the U.S. in the prevalence of diabetes. Over 310,000 of our citizens have diabetes, but only 50% have been diagnosed. Major complications of diabetes (heart attacks, amputations, end stage renal disease, visual complications) are increasing at rates of 52-100% year over the past decade. Total cost of diabetes exceeds $1 billion in South Carolina each year.

Based upon these baseline statistics, the DSC Board has developed a long range Strategic Plan, which defines 9 major goals and specific steps to be taken to combat this devastating disease. Ongoing surveillance will document the impact of the many programs we have developed. We recognize that specific risk markers and guidelines for care are now in place, and we are implementing a statewide program that will bring those to the attention of health care providers and people with diabetes. We are confident that this Initiative will eventually reduce costs of care and result in fewer complications and an improved quality of life for people with diabetes in our state.

We are enthusiastic that the Diabetes Initiative of South Carolina will be successful in combating this serious disease by its innovative programs of community outreach, education, and surveillance. We are grateful to the General Assembly for establishing this Initiative and sincerely hope that you will find that this report is responding to the needs of the people in South Carolina.

John A. Colwell, MD, PhD
Chair, Diabetes Initiative of South Carolina Board
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<td>23</td>
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</table>
Executive Summary

Diabetes mellitus affects over 310,000 people in South Carolina, 50% of whom are not diagnosed. Our state ranks number 2 in the US in the prevalence of diabetes. Costs are in excess of $1 billion yearly, and the major complications which lead to these high costs are increasing at rates of 50-80% over the past decade. The rate of progression of these complications can be slowed markedly (or prevented) by (high) quality patient education, simple testing, and access to health care professionals with modern training in diabetic management.

Since the original legislation which established the Diabetes Initiative of South Carolina (Chapter 39, Section 44-39-30 of the Diabetes Initiative of South Carolina Act, June 1994), we have successfully established a system with many innovative programs to address these issues. Specific programs are fully described in this Year 04 report.

The major accomplishment of the Diabetes Initiative of South Carolina in its fourth year has been the implementation of programs addressing the Long Range Strategic Plan. This plan squarely addresses major barriers to care, implements procedures to improve care, and measures the outcomes of this coordinated program.

We are enthusiastic that under the guidance of the DSC Board, with the collaboration of the S.C. Diabetes Control Program-DHEC, the American Diabetes Association, Carolina Medical Review, Area Health Education Consortium (AHEC), Southern Region, and other organizations which regularly deal with diabetes and its complications, that we can make a measurable impact upon this devastating disease in South Carolina in future years.
The S.C. Diabetes Control Program- Department of Health and Environmental Control (S.C. DCP-DHEC) and the Diabetes Initiative of South Carolina (DSC) have collaborated in a thorough study of the scope, costs, and impact of diabetes mellitus in our state. South Carolina ranks number two in the U.S. in the prevalence of diabetes. Over 310,000 of our citizens have the disease, and 50% do not know it. Annual costs exceed $1 billion yearly, and over the past decade we have experienced a significant increase in hospitalizations for the major complications of diabetes: heart attacks (+68%), amputations (+61%), end stage renal disease (+85%), disease of leg vessels (=100%), and eye complications (+52%). All of these late stage complications can be prevented or their progression slowed down by early recognition and institution of intensive, well defined, preventive strategies.

The DSC Board has recognized these issues and has developed a Long Range Strategic Plan to address them. The Plan has nine major goals.

**Goal I:** To improve knowledge of diabetes, quality of life, and access to prevention and intervention services for people at risk and those affected by diabetes.

**Goal II:** To increase the utilization of short-term (surrogate) measures which lead to actions that will delay progression of complications of diabetes.

**Goal III:** To address the needs of persons at risk and with diabetes by increasing services and education in health professional shortage areas in South Carolina.

**Goal IV:** To reduce the morbidity rates from diabetes-related complications.

**Goal V:** To reduce the age-adjusted mortality rates from diabetes and its complications.

**Goal VI:** To decrease risks for select groups of people with diabetes where the prevalence and complication rates exceed those of others.

**Goal VII:** To reduce preventable hospital admissions and charges for diabetes.

**Goal VIII:** To reduce preventable visits to the emergency room by people with diabetes.

**Goal IX:** To improve the statistical basis for estimating the prevalence of diabetes in South Carolina.

For each goal, we have defined the major issues that are presently recognized, and have indicated major quantifiable objectives. Specific tasks and programs of the DSC Outreach, Diabetes Center of Excellence, and Surveillance Councils are defined, and integration of the programs with the S.C.DCP - DHEC, and with the activities of the American Diabetes Association, South Carolina office is described. Oversight is provided by the Diabetes Initiative of South Carolina Board.
Major Goals of Strategic Plan

Diabetes Initiative of South Carolina

People at Risk or with Diabetes

Expand HMO/Insurance Coverage for Diabetes Care, Supplies and Education

 Improve Public Awareness Through Media Channels

Improve Knowledge and Access to Prevention, and Intervention Services for Diabetes

Improve Quality of Life

Health Professional

Utilization of Measures and Actions that Decrease Risks and Complications

Costs for Complications

Unnecessary Hospital Admissions

Premature Deaths

ER Visits for Preventable Complications

Morbidities & Disabilities

Community-Based and Patient Education
Diabetes Initiative of South Carolina

Organizational Chart

DSC Board

Center of Excellence Council

Outreach Council

Surveillance Council

MUSC Center

S.C. Diabetes Control Program-DHEC

ADA-SC Outreach Program

USC Site
Diabetes Initiative of South Carolina Board

Highlights of Year 04

Administration

The Diabetes Initiative offices and the MUSC Diabetes Center made a major move into newly renovated space in Rutledge Towers, Room 273, P.O Box 250565, Charleston, S.C. 29425 (Telephone (843)876-0968; Fax (843)876-0998. Our previously cramped facilities were approximately doubled. Excellent new staff additions are Cheryl Stepka-Tracey, RN, MA, CDE (Statewide Outreach Coordinator) and William Robinson (Historically Black Colleges and Universities (HBCU) Program).

The Board has a 4 year rotation scheme. William Putnam, Pamela Arnold, RN, MSN, CDE, CCM and Carolyn Jenkins, RD, RN, CDE, DrPH rotated off, and Ms. Arnold and Jenkins were re-appointed to four year terms. Mr. Putnam’s at large post was filled by Elizabeth Todd. Under the Bylaws, the Board was expanded by the appointments of William Price, MD, Fran Wheeler, PhD, Ken Trogden, and Beth Revell for four year terms. Elizabeth Myer-Davis, PhD, was appointed to replace Michael Samuels.

A new DSC site was started at the University of South Carolina School of Medicine, under the direction of David Keisler, MD. It is staffed by Elizabeth Todd, and provides the means to continue to expand our programs into the mid and upper state areas.

Task Groups and Programs

Board-approved Task Groups and Programs which are currently implemented are listed according to Councils that provide oversight for activities:

Diabetes Initiative of South Carolina Board:

• Insurance and Managed Care Task Force
• Media Task Force

DSC Outreach Council:

• Model Diabetes Education Programs
• Diabetes Head to Toe Patient Education Program
• Diabetes Today: Columbia, Orangeburg, Anderson, Myrtle Beach, Catawba Nation
• Diabetes Information and Action Line (D.I.A.L.)
• Enterprise Hypertension and Diabetes Management and Education
• Diabetes Alert
• Diabetes Sundays
• ADA Camp Fisher for children with diabetes
• African American Initiative
• Historically Black Colleges and Universities (HBCU) program
• Catawba Indian Program
• Low Country AHEC Community-Oriented Primary Care Program

**DSC Diabetes Center of Excellence Council:**

• Health Professional Education:
  - Certified Diabetes Educators
  - Pharmacists Diabetes Disease Management Program
  - Nursing Students (graduate and undergraduate)
  - Medical Students
  - Rural Interdisciplinary Program (SCRIPT)
  - Diabetes Advanced Practice Nurses
  - Dietetic Intern Program
  - Foot Care Course for Nurses
  - Emergency Medical Technicians
  - Eye Care Specialists

• Annual Symposium for Primary Care Health Professionals
• Office-Based Primary Care Diabetes Education and Evaluation Program
• Health Professional Education in Community Health Centers
• Health Professional Education in Companion Health Care
• Quality Improvement Program: Ambulatory Care in Diabetes
• Newsletter: Initiative News

**DSC Surveillance Council:**

• Behavioral Risk Factor Survey Supplement for Diabetes
• Quality Improvement Program: Ambulatory Care in Diabetes
• Secondary Analysis of Databases
• DSC Internet Home Page
• Analysis of Medicaid Utilization and Costs
• Burden of Diabetes in South Carolina

Full descriptions of these programs may be found in the 10 Year Strategic Plan (1998-2008). As indicated in the organizational chart and in the reports to follow, many of these programs are integrated with programs of S.C. DCP-DHEC and ADA-S.C. Affiliate.
BUDGET AND SUPPLEMENTAL SUPPORT
### Budget

<table>
<thead>
<tr>
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<th>97-98</th>
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<td>$396,000</td>
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<td>S.C. DCP-DHEC</td>
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<tr>
<td>Total</td>
<td>$521,000</td>
<td>$496,000</td>
<td>$436,000</td>
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</table>

### Supplemental Support

The establishment of the Diabetes Initiative of South Carolina contained a commitment to obtain matching funds, as a supplement to the core state support. We have exceeded this goal each year, through a combination of extramural support through the S.C. DCP-DHEC, community grants, foundation and federal grants, major research support for clinical research in diabetes at MUSC, and registration fees and corporate donations for our education programs.

### Education and Care

1. **S.C. Diabetes Control Program-DHEC:** This is a 5 grant from the Centers for Disease Control and Prevention (CDC) to S.C. DCP-DHEC for a statewide diabetes control program. Its goal and objectives are developed so as to integrate and complement the Diabetes Initiative of South Carolina. Oversight is provided by the DSC Board of Directors. This program is funded at $250,000 yearly, from 1994-1999. Total = $1,250,000.

2. **Hypertension and Diabetes Management and Education Program:** Charleston’s Enterprise Community. In July, 1997, we were informed that DSC had received funding of $652,697 from the MUSC Healthy South Carolina Initiative for 7/1/97 - 6/30/00. Funding for Year 1 $229,270. Total funding for 3 years is $652,697. The program offers community-based education and linkages with ongoing care, medication management, foot care, eye screening, and case management for those with high resource utilization. Successful components will be replicated in other communities.

   This new source of funding is supplemented by $60,000 in Year 01 from US-HUD to train community volunteers to address priority health problems.

3. **Partners in Wellness:** A collaborative program of SC’s Historically Black Colleges and Universities (HBCU), AHEC, and MUSC to document and reduce risks for hypertension and diabetes through student research, teaching, and service to communities was funded by MUSC’s Healthy South Carolina Initiative for $178,500 for Year 1 and total funding for 3 years is $466,500. The program goals are to reduce risks and recruit African Americans into careers in health by engaging undergraduate students in a course that involves research, teaching, and service for students enrolled at SC State University, Claflin College, Voorhees College, Morris College, and Benedict College.
4. Community-Oriented Diabetes Care Program (CODCP): This is a 3 year award from the NIH to Alec Chessman, MD and David Garr, MD, Department of Family Medicine, MUSC, to develop a community-based training program of diabetes education and care for all third year medical students at MUSC and USC. The Diabetes Initiative prepares curricular material and interacts with faculty and students in this innovative program. Year 1 funding: $244,208, total: $595,863 July 1, 1998 - June 30, 2001.

5. Reducing The Impact of Diabetes in Northeastern South Carolina: This is a 3 year award to The Palmetto Community Health Network, PCHN (President: Ned Schlaefer) to develop a program about diabetes and its complications for health professionals and people with diabetes in the 7 county, 10 hospital Pee Dee area of South Carolina. Professional education programs will be delivered by The Diabetes Initiative to over 200 physicians and other health professionals. Year 1/funding: $192,629, total: 655,887 (Duke Endowment: primary support).

Total Supplemental Support (Education and Care)

<table>
<thead>
<tr>
<th>Grant</th>
<th>1 Year</th>
<th>Total Grant</th>
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<tbody>
<tr>
<td>S.C. DCP-DHEC</td>
<td>$ 250,000</td>
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<td>Enterprise</td>
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<td>$ 712,597</td>
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<tr>
<td>HBCU</td>
<td>$ 178,500</td>
<td>$ 466,500</td>
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<tr>
<td>CODCP</td>
<td>$ 244,208</td>
<td>$ 595,863</td>
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<tr>
<td>PCHN grant</td>
<td>$ 192,629</td>
<td>$ 655,887</td>
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<tr>
<td><strong>Total</strong></td>
<td>$1,154,607</td>
<td>$3,680,847</td>
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**Clinical Research (MUSC)**

MUSC has nationally recognized basic and clinical research programs which address diabetes mellitus from a variety of perspectives. Clinical research is most likely to lead to early translation into efforts by the Diabetes Initiative. Only the major programs in this are reported (Direct costs):

- “Markers and Mechanisms of Macrovascular Disease in IDDM”. P.I. - W.T. Garvey, MD. $669,778/year 1, 9/1/96 - 8/31/01. Total award $3,619,851. This major award combines the research expertise of 20 members of the MUSC and USC faculty under one program. These investigators will study mechanisms which may cause accelerated vascular disease in patients with type I diabetes. The patients are long term participants in the Diabetes Control and Complications Trials (DCCT).

- “Genetic Markers for NIDDM and Pathogenic Metabolic Traits”. P.I. - W.T. Garvey, MD. $160,000/year 1, 9/1/93 - 8/31/98. Total award $800,000. This program studies genetic markers for NIDDM and provides education and risk factor screening and referral, with concentration on the Gullah population of the South Carolina sea islands.

- “Epidemiology of Diabetes Intervention and Complications”. P.I.’s - J. Colwell and R. Mayfield. $77,373 year 1, 4/8/96-3/28/01. Total award $423,853. This study is a follow-up study of the course of patients enrolled in the DCCT in Charleston. Along with patients from 27 other centers, this group of type I diabetic patients provide a patient group for study in program no.1, above.
Total, clinical research: $907,151/year

**Professional Education Programs**

Professional education programs are supported by registration fees and by corporate donations. Our balance for Year 04 in this account is: $57,544.

**Summary**

<table>
<thead>
<tr>
<th>Year 04 FY 98-99</th>
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<tbody>
<tr>
<td>Supplemental Funding</td>
</tr>
<tr>
<td>Education and Care: $1,154,607</td>
</tr>
<tr>
<td>Research $ 907,151</td>
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<tr>
<td>Professional Ed. Programs $ 57,544</td>
</tr>
<tr>
<td>Total: $2,119,302</td>
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</table>

<table>
<thead>
<tr>
<th>State Funding</th>
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</thead>
<tbody>
<tr>
<td>Total: $396,000</td>
</tr>
</tbody>
</table>

Ratio: Supplemental / State >5:1
Functions

As defined by Section 44-39-50 amendment to 1976 Code of Laws for South Carolina, the Diabetes Outreach Council shall oversee and direct efforts in patient education and primary care including:

- Promoting adherence to national standards of education and care.
- Ongoing assessment of patient care, costs, and reimbursement issues for persons with diabetes in South Carolina.
- Preparing an annual report and budget proposal for submission to the Diabetes Initiative of South Carolina Board.

Major Accomplishments (related to promoting adherence to national standards of education and care):

- **The DSC Internet Home Page** is updated routinely to include the latest recommendations for diabetes care and education. Statistics related to diabetes in South Carolina, current educational programs, all publication, and information on improving diabetes care and education can be obtained from the DSC Home page. There have been a total of 2,598 “hits” or persons accessing this information.

- **Carolina Medical Review (CMR):** The DSC staff continued their collaboration with Nelson Gunter, M.D., Board Member and Medical Director, CMR, to determine adherence to national standards and to assist hospitals and health care organizations improve care. Dr. Gunter has an excellent outcome evaluation effort, the Data Quality Improvement program (DQIP), which surveys Medicare data for practice trends and outcomes. Diabetes is the major focus of this program, and it will continue to be used to improve care in the Palmetto Community Health Network programs as well as to other efforts around the state.

- **Palmetto Community Health Network** covers 7 counties, 9 hospitals, and over 200 physicians in the Pee Dee area. The Board has identified diabetes as a major problem for the area. This need is documented by our surveillance data which show this area to be a medically underserved area with very high mortality, morbidity, and costs from diabetes and its complications. In 1998, 27% of the area’s hospital beds were occupied by people with diabetes in this region. A grant for $655,887 was submitted and approved by Duke Endowment to improve diabetes outcomes. DSC is providing in kind leadership for these efforts. Kick-off for the activities will be in February, 1999.

- **National Diabetes Education Program** is currently under development. DSC and S.C. DCP-DHEC are coordinating efforts in South Carolina.

- **Statewide Media Plan** for diabetes is currently under development. DSC has joined with Communi-I-Care to examine possibilities for using the media to reach persons at risk and those with diabetes.
“Partners in Wellness, A Collaborative Program of South Carolina’s Historically Black Colleges and Universities, South Carolina Area Health Education Consortium, and the Medical University of South Carolina to Document and Reduce Risks for Hypertension and Diabetes through Student Research, Teaching, and Service to Communities” was begun in Fall, 1998. A wellness course that will focus on diabetes and hypertension is currently under development and will begin in January, 1999 with 70 students from South Carolina State University and Voorhess College.

Major Accomplishments (for ongoing assessment and interventions related to patient care costs/reimbursement/education issues for persons with diabetes):

- **Charleston’s Enterprise Community**: The Hypertension and Diabetes Management and Education grant (HAD-ME) for Charleston’s Enterprise Community was funded for $652,000 for 7/1/97 through 6/30/00, and $60,000 was received for US-HUD for FY 98 to train community volunteers to address priority health problems. The program is currently operational and about 250 persons are enrolled. The focus is on interdisciplinary education and care related to diabetes and hypertension. An interdisciplinary team provides education and case management for persons with diabetes and hypertension. Currently, the group is working with the cities of North Charleston and Charleston to build a primary care clinic that will initially focus on diabetes and hypertension. Funding for initial work has been received from both groups and from Healthy South Carolina, MUSC.

- **Bamberg County**: Initial collaboration is underway to work with physicians, community groups, and Blue Cross/Blue Shield to address diabetes as a priority health problem.

- **Hampton County Diabetes Connection**: In March, 1998, DSC worked collaboratively with the Diabetes Connection to conduct a county-wide assessment of risk factors for diabetes. Approximately 160 persons were screened for diabetes and its complications. Roughly 25% of those at risk had fasting plasma glucose values > 110 mg/dl. In those with previously diagnosed diabetes, referrals to care were made for more that 80% of the participants (Results published in Journal of South Carolina Medical Association, November, 1998). Follow-up of participants revealed that more than 75% of participants have received the recommended follow-up care.

A risk factor identification and intervention program is currently under development, and is being developed by DSC, Low Country Area Health Education Center, Hampton Regional Hospital, and Harrison Peeples Health Center. The Program will be available to other communities in 1999.

- **Vocational Rehabilitation**: Collaboration with South Carolina Department of Vocational Rehabilitation continues with Vocational Rehabilitation providing services for persons with diabetes who are at risk for complications of diabetes affecting their ability to work.

- **African American Diabetes Program**: This ADA sponsored program continues to expand. The Second Annual Conference was held with 320 persons attending. The conference was co-sponsored by S.C. DCP-DHEC and Providence Hospital.

- **S.C. Affiliate, American Diabetes Association**: Education programs, materials, media,
and support groups sponsored by The South Carolina Affiliate reached an estimated 13,000 persons during Diabetes ALERT in March, 163 youth with diabetes who attended Camp Fisher in June, and an estimated 267,000 during Diabetes Month in November.
Functions

As defined by Section 44-39-70. (A) A Diabetes Center of Excellence is established at the Medical University of South Carolina. The center shall develop and implement programs of professional education, specialized care, and clinical research in diabetes and its complications, in accordance with priorities established by the Diabetes Initiative of South Carolina Board.

The activities of the Center are overseen and directed by the Center of Excellence Advisory Council. The Council’s purpose is to:

- Review programs in professional education, specialized care, and clinical research developed by the center.
- Assist in the development of proposals for grant funding for the center’s activities.
- Prepare an annual report and budget proposal for submission to the Diabetes Initiative of South Carolina Board.

Major Accomplishments

- Conducted the following professional education programs:

<table>
<thead>
<tr>
<th>Program</th>
<th>No. Courses</th>
<th>No. Attendees</th>
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</thead>
<tbody>
<tr>
<td>Fourth Annual Diabetes Symposium</td>
<td>1</td>
<td>144</td>
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<tr>
<td>Certified Diabetes Educator Programs</td>
<td>2</td>
<td>246</td>
</tr>
<tr>
<td>Foot Care courses for nurses</td>
<td>10</td>
<td>93</td>
</tr>
<tr>
<td>Formal course on diabetes for practicing pharmacists (with academic credit)</td>
<td>1</td>
<td>24</td>
</tr>
</tbody>
</table>

- Established the following materials for professional education:

  **Office-based provider education by S.C. DCP-DHEC**, with Diabetes Center Council oversight, started in December 1995, and began with managed care providers in early 1997. As of November 30, 1998, a total of 209 presentations had been made in 157 offices for 1303 attendees, including 288 physicians, 4 medical students, 52 nurse practitioners; 16 physician’s assistants; 135 RN’s; 262 LPNs; 294 other clinical staff, and 252 administrative staff. Thus, a total of 757 health care professionals and 546 other clinic and administrative staff have been directly reached with new information on guidelines for care for people with diabetes. The Board believes that this method of delivering and discussing care guidelines and diabetic management strategies directly to office sites is the most effective way to get our message across to primary care health professionals. We will expand this program in 1999, and will incorporate an evaluation component to determine if outcomes are improved.

A professional committee, chaired by Dr. Colwell, has developed a practical up to date **manual on diabetes management for primary care health professionals**. This manual was introduced at our Fourth Annual Diabetes Symposium in October, 1998, and will be given to all primary care health physicians and other health professionals in calendar year 1999. It will be presented and discussed at major regional medical meetings and will be used in the office-based provider education program.
A special issue in *The Journal of South Carolina Medical Association* (1998;94:467-508) focused on diabetes and includes six articles:

“Overview of the Diabetes Initiative of South Carolina” by Colwell JA et al.
“Epidemiology of diabetes in South Carolina” by Lackland DT et al.
“Diabetes patient education” by Arnold P et al.
“Physician office-based diabetes care: Comparison to guidelines for care” by Hermayer KL
“Community programs and screening related to diabetes its complications” by Jenkins C et al.
“Diabetes research in South Carolina: Past, present and future” by Willi SM et al.

Coordinated ongoing programs in specialized patient education and care include:

**Intensive Diabetes Education, Awareness, and Lifestyle (IDEAL) Program**: Type I and Type II patients.


**The Model Diabetes Patient Education Program**: to assist hospitals, clinics, and home health agencies in meeting national standards for patient education. Recognized programs are:

- Columbia Grand Strand Regional Medical Center
- DHEC Home Health Services - Appalachia I District
- DHEC Home Health Services - Palmetto District
- St. Francis Home Health

Thirteen sites continue to work toward recognition. DCP State Committee which supports these efforts is ongoing.

**Diabetes Related Eye Disease Education and Prevention Program**: Diabetes and Blindness 2000 Project, Commission for the Blind.

**Third Year Medical Student Program**: Third year medical students are rotated into defined communities, with monthly assignments in the offices of carefully chosen primary care physicians. All students receive orientation and detailed curricular material from the MUSC Department of Family Medicine and the Diabetes Center Staff. They concentrate on diabetic patients in the assigned practice. They also develop community projects directed at people with diabetes as part of the rotation. In 1999, the program will expand to USC School of Medicine, and by 2000, it is planned that all 3rd year students in South Carolina will receive this experience.

**Pharmacist Training Program**: The Colleges of Pharmacy at MUSC and USC have collaborated with the Diabetes Center and DSC in the development of an intensive course on diabetes and its complications for practicing pharmacists. Under the direction of Deborah
Carson, DrPH and James Sterrett, DrPH (60) practicing pharmacists have now taken a comprehensive course on diabetes and have adapted this to their pharmacy practices. The course has an excellent syllabus, and consists of 2 day didactic and working sessions at the beginning and end of an 8 week practical period. Pharmacists identify several cooperative diabetic patients, discuss issues with their physicians, and adapt new knowledge about diabetes to their day-by-day needs (i.e. glucose testing, insulin types and administration, different oral drugs, need for BP, foot, eye, lipid care, diabetes control, etc.).

- Participated in the following clinical research proposals:
  
  “Markers and Mechanisms of Macrovascular Disease in IDDM”.

  “Genetic Markers for NIDDM and Pathogenic Metabolic Traits”.

  “Epidemiology of Diabetes Intervention and Complications”.

  Total, clinical research: $907,151/year

- Presented the goals and programs of the Diabetes Initiative of South Carolina at five professional meetings.

- Developed or assisted in the development of six proposals for grant funding to assist with outreach activities.

- Negotiated Medicaid Contract (State Health and Human Services Finance Commission) with MUSC Diabetes Center for $20,000 for 1998-1999.

- Successfully petitioned National Certification Board for Diabetes Educators Board to establish a Certified Diabetes Education(CDE) examination site in Columbia for the state of South Carolina.
Functions

The Surveillance Council was organized in 1995 to develop and implement a state-of-the-art system for the assessment of diabetes in South Carolina, and to provide a mechanism to evaluate intervention and control programs. The Council consists of diabetes professionals in South Carolina and is staffed by data specialists from the South Carolina Department of Health and Environmental Control. The group operated with formal meetings and communications.

The Council consists of a geographic diverse group representing the leaders in diabetes research, clinical practice, and public health. The major objectives of the Council are to:

- Develop, implement and evaluate surveillance protocols and methodologies to assess diabetes awareness and knowledge, prevalence of diabetes, access to primary care, quality of diabetes self-management, and utilization of monitoring guidelines.

- Evaluate patient and professional education programs.

- Develop and maintain a mechanism to analyze mortality, morbidity, hospitalization and survey data in production of reports to describe the burden of diabetes in South Carolina.

- Develop, establish and maintain a registry of blind South Carolinians which identify diabetic individuals.

- Analyze the effects of co-morbidities with diabetes.

- Establish and maintain an ongoing evaluation of the role of insurance and managed care companies in control of diabetes.

- Function as a central unit composed of multiple organizations and disciplines involved in the surveillance of diabetes in South Carolina.

- Function as a data and information resource for DSC and other organizations involved in diabetes control.

- Develop and maintain an Internet website for distribution of information regarding diabetes in South Carolina.

Major Accomplishments

The Diabetes Surveillance System for South Carolina:

- Organized a diverse and comprehensive group of investigators and clinicians to plan and implement a diabetes surveillance system in South Carolina.

- Established and maintained a website which includes data regarding diabetes in South
Carolina.

- Completed assessments and reports on **diabetes mortality** in South Carolina.
- Completed analyses of **re-admissions for primary and secondary hospital discharges** for diabetes.
- Completed analyses of **emergency room usage for diabetes**. Included in the analyses is an assessment of transport to emergency room and disposition from emergency room (used as an indicator of control distinguishing routine care vs. emergency).
- Completed preliminary analyses of **end-stage renal disease** database in South Carolina identifying diabetes related ESRD. Trends in geographic patterns were assessed.
- Maintained a collaborative arrangement with **Carolina Medical Review** to evaluate patient compliance with diabetes treatment, as well as provider practices in diagnosis and treatment.
- Established a plan to analyze the **South Carolina Medicaid database**, with particular focus on outcome4s, costs, and “appropriate” care.
- Established a process to incorporate **Medicare Part A and Part B** in the surveillance effort.
- Established a sub committee to implement a **blindness database for diabetes**. This “registry” will utilize multiple existing administrative databases. In addition, forms with the Commission for the Blind will be modified. Also registration will be proposed.
- Made formal **presentations and publications** at the Diabetes Symposium as well as several professional and lay groups on the burden of diabetes in South Carolina.
- Made a presentation at the **CDC Division of Diabetes Translation** conference. The title of the presentation is “Diabetes and hospital expenditures,” authored by Zheng D, Macera CA, Addy CL, Wheeler FC, Ainsworth BE, Boateng Y, Learner RM, Colwell JA.
- Proposed special course **“Epidemiology of Diabetes”**. It is approved by the MUSC Department of Biometry and Epidemiology and will be available for students and staff in Spring, 1999.
A program director, Elizabeth Todd, MSW, CDE was hired for the University of South Carolina in July 1998. The goal of this position is to identify, coordinate and integrate existing healthcare and research resources within the USC system. This position is administratively located in the USC School of Medicine, Department of Family/Preventive Medicine (Chairman: David Keisler, MD). To accomplish this goal, a governing committee has been established composed of representatives of the healthcare disciplines interacting with people with diabetes.

A Diabetes Interdisciplinary Collaborative Research Consortium has been established and will be meeting throughout 1999 establishing goals and developing joint research projects.

Five USC Faculty members have become active members of the 3 Councils of DSC and 3 are members of The Board. All program activities of the USC Site are being coordinated and integrated with the existing and evolving infrastructure of the Diabetes Initiative of South Carolina.

Goals for 1999:

- Expansion of current Governing Committee (8 members to 11 members)
- Development of Collaborative Research Interests and development of grant sources
- Expansion of USC Faculty participation on the Councils of Diabetes Initiative of South Carolina
- Development of a dissemination system to keep USC healthcare professionals abreast of Current Standards of Care and latest developments in treatment of people with diabetes

The program director has written an education book, “The Simple Things About Diabetes” with illustrations provided by a local physician. This is available at no charge to communities in South Carolina.

Working collaboratively DSC/MUSC and DSC/USC have and are developing model programs to make a difference in the lives of people living with diabetes in South Carolina.
The South Carolina Diabetes Control Program (SCDCP) is housed and managed within the South Carolina Department of Health and Environmental Control (DHEC), Division of Community Health, Chronic Disease Prevention and Control Branch. The Program is administered by a core staff that comprise of a Program Director, Coordinator, Epidemiologist, Community Educator, Professional Educator, and a Administrative Assistant. It is part of the Centers for Disease Control and Prevention’s (CDC) National Diabetes Control Program.

**Core Staff:**

- **Director** Brenda Nickerson, R.N., M.S.N.
- **Coordinator** Yaw Boateng, M.S., M.P.H., R.D.
- **Community Educator** Lisa Ellis, M.P.H.
- **Provider Educator** Ellen Babb, M.P.H., R.D.
- **Epidemiologist** Tim Aldrich, Dr. Ph.
- **Admin. Assistant** Sylvia Major

The goal of the program is to reduce the burden of diabetes in South Carolina. The objectives include:

1. Defining and monitoring the burden of diabetes in SC (Surveillance)
2. Developing new approaches to reduce the burden of diabetes
3. Implementing specific approaches to reduce the burden
4. Coordinating and integrating efforts to reduce the burden.

**Major Accomplishments**

- Established a **contract with the Medical University of South Carolina** (MUSC) to provide various services including maintaining the Diabetes Initiative of South Carolina (DSC) Board and its committees; and providing technical assistance, consultation, and training for institutions and organizations that provide diabetes patient education.

- Collaborated with the DSC, the American Diabetes Association (ADA), and other partners to publish an disseminate a document titled “10 Year Strategic Plan” for the state of South Carolina.

- Signed two **Memoranda of Agreement (MOA)**: one with the Pee Dee Minority Health
Office to collaborate in raising public awareness about the importance of early diagnosis, education and monitoring of diabetes in the Pee Dee and surrounding areas of the state; and one with the MUSC Division of Endocrinology - Project Sugar Program, to collaboratively recruit and train community leaders to implement Diabetes Today Programs at their communities.

This brings to five the number of agreements signed and binding since the inception of the SCDCP in April of 1994. The other three are: (1) Companion Healthcare (CHC), a 114,000 member statewide HMO; (2) The South Carolina Primary Care Association (SCPCA), to provide office-based provider diabetes education to their providers; and (3) The Medical University of South Carolina (MUSC), to coordinate and conduct surveillance activities and annual reports about “Diabetes in South Carolina”. The office-based provider education with CHC started in December, 1995, and began with SCPCA providers in early 1997. As of November 30, 1998, a total of 209 presentations had been made in 157 offices for 1303 attendees. Out of 288 physicians, 4 medical students, 52 nurse practitioners; 16 physician’s assistants; 135 RNs; 262 LPNs; 294 other clinical staff, and 252 administrative staff. Thus, a total of 757 health care professionals and 546 other clinic and administrative staff have been directly reached with new information on guidelines for care for people with diabetes.

- The SCDCP/DSC Model Diabetes Patient Management Project, a joint program between the DSC and SCDCP made tremendous progress this year. The following programs were recognized in 1998:

  St. Francis Home Health (Charleston County)
  DHEC Home Health Services - Appalachia I Health District (Oconee and Anderson Counties)
  DHEC Home Health Services - Appalachia II Health District (Greenville and Pickens Counties)
  DHEC Home Health Services - Palmetto Health District. (Richland County)

  Anderson Area Medical Center and DHEC Home Health Services in DHEC Trident Health District were recognized last year, for a total of six institutions in the state that have been formally recognized as institutions providing the state-of-art diabetes education to the citizens of the state who have diabetes. Thirteen more programs are currently developing their programs to obtain recognition next year.

- The Diabetes Today Program: Diabetes Today is a CDC signature program designed to equip community leaders/representatives with skills to conduct community-based programs about diabetes. The program is designed to be community-based and community-owned. A total of 116 community leaders and representatives, from 20 of the 46 counties in the state participated in Diabetes Today Trainings. Eleven communities in these counties identified goals and objectives for their community diabetes program activities. The 11 communities are located in Anderson, Georgetown, Orangeburg, Richland, York, Sumter, and Florence counties. Ongoing technical assistance is provided to these community groups.

- A one-day retreat was conducted for all active Diabetes Today Programs on July 11, 1998 in Columbia. The event, which was attended by 30 people from all of the nine active programs, provided opportunity for sharing of successes and challenges of individual programs. All of the nine programs presented the kinds of activities in which they had been involved. This included formation of community exercise clubs, organization of workshops to discuss
diabetes related issues led by local health professionals, nutrition and cooking classes, and inserting diabetes information in church bulletins, among other activities. Diane Kennedy of The Pro-Hampton Diabetes Connection shared ideas on community organization and systematic planning of community activities in a presentation. The Pro-Hampton Diabetes Connection is a model for Diabetes Today Programs in the state.

- **The South Carolina Diabetes Control Program** worked with the American Diabetes Association and Providence Hospital in Columbia, SC, to co-sponsor the Second Annual African American Program Diabetes Conference. The conference was organized for people with diabetes and their significant others, allied health professionals and other interested community members. *Diabetes: What To Know, Head To Toe* was the conference theme. Carl Christian, National Chair, American Diabetes Association African American Program, and Dr. Charles Raines of the Diabetes Control Center in Orangeburg, SC, were the keynote speakers. The Conference was attended by 300 people.

- **National Diabetes Education Program:** The S.C. DCP presented a summary of NDEP information and packets of NDEP information and handouts to the DSC Diabetes Media Task Force. A list of potential partners and materials available so far have been prepared. The S.C. DCP distributed NDEP patient information/materials at the Diabetes Today retreat held in Columbia. An article written by the SCDCP PE on the National Diabetes Education Program appeared in the July issue of the DHEC newsletter distributed to approximately 6000 employees. Approximately four people responded with phone calls/questions and requests for further information for their use professionally and/or personally. The SCDCP distributed copies of the NDEP’s “Guiding Principles for Health Care Providers” at the DSC’s Fourth Annual Diabetes Symposium for Primary Care Providers at a display in Charleston, SC, on October 1-2.

- **The Life Preservers’ Flu Campaign:** The South Carolina Diabetes Control Program coordinated the Life Preservers Flu Campaign in this state. Staff and other interested individuals, including a representative from Companion Health Care, participated in the national satellite training conducted by CDC on July 14, 1998, in preparation for the campaign. Staff gave presentations to various groups and organizations including eight County Health Departments across the state. The S.C. DCP has teamed up with the DHEC Immunization Division and the Carolina Medical Review (a professional review organization), to target adults and people with diabetes and encourage them to get the flu and pneumonia shots. Additional, two members of S.C. DCP staff and the DHEC agency director of Media Relations conducted separate radio interviews to encourage people with diabetes and their family members to get the flu shot. The campaign brochures and posters received from CDC were modified to be more culturally friendly for the state and were distributed statewide.

- **The DHEC DATALINE News Letter Covers Diabetes:** The entire spring edition of the DATALINE Newsletter published by DHEC Division of Community Health was devoted to diabetes issues in South Carolina. About one thousand copies of the newsletter have been distributed state and nationwide. The majority of the articles were about the activities of the S.C.DCP and the DSC which included; (1) Diabetes Sixth Leading Cause of Death in South Carolina, (2) Health Department Focuses on Diabetes Control, (3) Model Diabetes Management Program, (4) HMO Takes Action to Improve Diabetes Care, (5) Diabetes Today Program Trains Community Leaders in Diabetes Education, (6) Tracking Diabetes in South
Carolina: Surveillance Reveals Diabetes Profile, (7) Office- Based Diabetes Updates for Primary Care, (8) Diabetes- The Invisible Epidemic and (9) South Carolina Administers Behavioral Risk Factor Surveillance System for 12 Years.

- Analysis of data received previously, including the 1995-1996 South Carolina hospital discharge data, 1996 emergency room visit data, 1996 mortality data, and 1995-1996 Behavioral Risk Factor Surveillance System (BRFSS) data, has been completed. The 1997 hospital discharge and the BRFSS data were received and are being analysis. The Burden of Diabetes in South Carolina report is currently being updated and will contain the results of these analysis. This report update, when completed, will contain specific county information to make it more useful to communities across the state.

**PUBLICATIONS:**

The following have been published and/or submitted for publication or presentation in medical/scientific journals or at national scientific meetings:

- Three abstracts have been submitted to CDC to be presented at the 1999 Diabetes Translations Conference in Albuquerque, New Mexico. The titles and authors are:

  1) **Indicators of Influenza Vaccination Among SC Persons with Diabetes**

     Tim Aldrich, Dr. Ph., Jerry Gibson, MD., Yaw Boateng, M.S., M.P.H., R.D., Lisa Ellis, M.P.H., Manxia Wu, M.P.H., Brenda Nickerson, R.N., M.S.N., Division of Community Health, SC DHEC.

  2) **An Evaluation of the Effectiveness of Influenza Vaccination Promotion to Persons with Diabetes, in South Carolina**

     Lisa Ellis, M.P.H., Yaw Boateng, M.S., M.P.H., R.D., Brenda Nickerson, R.N., M.S.N., Tim Aldrich, Dr.Ph.,

  3) **Reaching Persons with Diabetes About Influenza Vaccinations in South Carolina**

     Yaw Boateng, M.S., M.P.H., R.D., Lisa Ellis, M.P.H., Manxia Wu, M.P.H
     Brenda Nickerson, R.N., M.S.N.

- SCDCP staff completed a manuscript entitled “Self Reported Prevalence of Diabetes and Preventive Health Care Practices Among People with Diabetes in South Carolina.” Co-authors were Deyi Zheng, James E. Ferguson, Yaw Boateng, Sally Temple, and Fran Wheeler all of SCDHEC, and Caroline A. Macera of the USC. This manuscript was published in the *Journal of the South Carolina Medical Association.*

- An abstract entitled “Diabetes and Hospital Expenditures,” was accepted for presentation at the Centers for Disease Control and Prevention, Division of Diabetes Translations (CDC DDT) Annual Conference to be held in April, 1998 in Tampa, Florida. Co-authors were D. Zheng, C.A. Macera, C.L Addy, F.C. Wheeler, B.E. Ainsworth, Y. Boateng, R.M. Learner, and J.A. Colwell.

- An abstract entitled, “Office-based Diabetes Education for Primary Care Providers,” was
presented at the CDC DDT Annual Conference in Tampa, FL, in April, 1998. Co-authors were E. Babb, Y. Boateng, J. DuMont, M. Nolf, M. Learner, P. Arnold, and J. Colwell.


**REPORTS**

- Evaluation of a Diabetes Professional Education Program Using HMO Claims Data  
  Deyi Zheng, P.h.D., Ellen Babb, M.P.H., R.D.

- Barriers to Diabetes Care and Management. This is a report of 18 focus groups conducted throughout the state in 1996 that describes the availability of resources for and barriers encountered by people living with diabetes in South Carolina.

- Patient Education for Persons with Insulin Dependent Diabetes by Primary Care Physicians: A Survey Report. This report describes the level of patient education provided by Primary Care Physicians, barriers to physician provision of patient education, physician characteristics affecting diabetic care patterns, and education materials available for patients consumption.

- Pharmacy Practice and Type 2 Diabetes in South Carolina: A Survey Report of Registered Pharmacists. This report documents patient education behaviors as reported by pharmacists, barriers they face when contemplating patient education, and their interest in expanding their role in the care of persons with diabetes.

**MANUALS**

- Model Diabetes Management Program  
  This manual outlines a step by step approach to “the how to” of setting up a diabetes management program in any institution.

- Camp Adam Fisher: a Unique Training Experience  
  This is a training manual for professionals interested in the state-of-the-art management of diabetes using a diabetes camp as a training site.

- Provider Education in Diabetes Management  
  This is a manual of procedures and handouts for providing diabetes management training for primary care physicians and their staff.
## Diabetes Initiative of South Carolina
### Board of Directors and Council Members

### Board of Directors

**Members**

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<tr>
<th>Name</th>
<th>Position/Institution</th>
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<tr>
<td>John A. Colwell, MD, PhD, CDE</td>
<td>Chair, Diabetes Center, MUSC</td>
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<tr>
<td>Pamela Arnold, RN, MSN, CDE, CCM</td>
<td>Diabetes Center, MUSC</td>
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<td>Doniece Bagley, RN</td>
<td>Catawba Indians</td>
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<td>Catherine Haselden</td>
<td>Governor’s Office</td>
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<td>Ira Horton, MD</td>
<td>SC HHS Finance Comm.</td>
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<td>Carolyn Jenkins, RD, RN, CDE, DrPH</td>
<td>Outreach Council, MUSC</td>
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<td>David Keisler, MD (Co-Chair)</td>
<td>SC Academy of Family Physicians</td>
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<td>Ophthalmology, MUSC</td>
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<td>SC Medical Association</td>
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<td>Internal Medicine</td>
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<td>ADA, SC Affiliate</td>
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<td>George Rosebrock, MD, CDE</td>
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<td>Gardenia Ruff, MSW, LISW</td>
<td>SC DHEC</td>
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<td>Elizabeth Todd, MSW, CDE</td>
<td>USC School of Medicine</td>
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<td>Kenneth Trodgon</td>
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<td>Lisa Waddell, MD, MPH</td>
<td>SC DHEC</td>
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<td>Fran C. Wheeler, PhD</td>
<td>Public Health</td>
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<td>Academic Center</td>
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<td>Nelson Gunter, MD</td>
<td>Carolina Medical Review</td>
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<td>John Little, MD</td>
<td>Companion, HMO</td>
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<td>Sabra Slaughter, PhD</td>
<td>SC AHEC</td>
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<tr>
<td>Yaw Boateng, RD, MS</td>
<td>S.C.DCP-DHEC</td>
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<td>Walker Coleman</td>
<td>MUSC</td>
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<td>James B. Edwards, DMD</td>
<td>President, MUSC</td>
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<td>Stephen Smith</td>
<td>ADA</td>
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