March 3, 2013

To Governor Haley and the General Assembly:

On behalf of The Board of Directors of the Diabetes Initiative of South Carolina, I am pleased to present our Eighteenth Annual report (calendar year 2012). The Diabetes Initiative of South Carolina Act, Chapter 39, Section 44-39, requested this report.

Diabetes mellitus is a major public health problem in South Carolina. South Carolina ranked second in the nation in the prevalence of diabetes mellitus in 2012. According to a recent report from the Centers for Disease Control and Prevention, the diabetes rate in South Carolina has doubled from 5% to 10% between 1995 and 2010. Diabetes mellitus is a chronic disorder, which is associated with complications such as blindness, kidney failure, myocardial infarcts, strokes and amputations. About one of seven African Americans in South Carolina has diabetes. The prevalence of diabetes increases with age, as seen with the most dramatic finding for individuals who are 45 years of age and older. There has been a 44% decrease in diabetes-related amputations in African Americans in Charleston and Georgetown counties, in South Carolina, since the arrival of SEA-CEED, the Southeastern African American Center of Excellence in the Elimination of Disparities in Diabetes, a program that began in 1999.

The Diabetes Initiative of South Carolina (DSC) endorsed the development of guidelines for the management of diabetes and supporting adherence to evidence-based standards for education and care. The DSC is committed to lowering the burden of diabetes in the state through translation of evidence-based standards of clinical practice, and patient and community education centered on blood glucose control, blood pressure control, healthy eating, physical activity, and foot care. With application of these aims, the DSC reports the prevalence of kidney failure, blindness, stroke, heart disease and amputations in people with diabetes in South Carolina. The DSC board has representation from numerous different sources throughout the state including a collaborative effort among academic medical centers, clinicians, certified diabetes educators, SC Hospital Association, SC DHEC, SC DHHS, and the SC Medical Association.

The DSC has developed many programs for the education of a variety of health professionals about diabetes and its complications. DSC has sponsored 18 Annual Diabetes Fall Symposia for Primary Health Care Professionals featuring education on all aspects of diabetes mellitus. The intent of the program is to enhance the lifelong learning process of physicians, nurses, pharmacists, dietitians and other health care professionals by providing educational opportunities and to advance the quality and safety of patient care. DSC also sponsors a Diabetes Strategies for the Twenty-First Century Symposium, held in the winter on an annual basis.

We are grateful to the general assembly for the establishment and support of this worthwhile initiative, and hope that you will find this to be a significant report. We continue to be enthusiastic about the DSC to combat diabetes and its complications by its programs of community outreach, education, and surveillance. We look forward to providing you the new strategies and accomplishments on behalf of DSC related activities for 2013 in next year’s report.

Respectfully submitted on behalf of the DSC Board,

Kathie L. Hermayer, MD, MS, FACE
Board Chair, Diabetes Initiative of South Carolina
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For more information, please visit our website
[http://www.musc.edu/diabetes](http://www.musc.edu/diabetes)
EXECUTIVE SUMMARY
EXECUTIVE SUMMARY

- Diabetes affects 25.8 million people, which is approximately 8.3 percent of the U.S. population.\(^1\)
- In 2012, South Carolina ranked second in the nation in the prevalence of diabetes mellitus.\(^2\)
- The rate of diabetes in South Carolina has doubled from 5 percent in 1995 to 10 percent in 2010.\(^2\)

The Diabetes Initiative of South Carolina (DSC) is charged with the development of guidelines for the management of diabetes and supporting adherence to evidence-based standards for education and care. The Diabetes Initiative is committed to lowering the burden of diabetes in the state through translation of evidence-based standards of clinical practice, and patient and community education centered on blood glucose control, blood pressure control, healthy eating, physical activity, and foot care. With application of these aims, the Diabetes Initiative reports the prevalence of kidney failure, blindness, stroke, heart disease and amputations in people with diabetes in South Carolina.

In 1998, the DSC Board published a Long Range Strategic Plan covering 1998-2008, and tracked outcomes relating to its goals and objectives on a routine basis. The plan consisted of nine major goals, and the Board reviewed evidence of progress towards achieving these goals over a ten year time span. In 2009, the DSC Board released a review of the Ten Year Strategic Plan and titled it, “The State of Diabetes in South Carolina: An Evaluation of the First Ten Year Strategic Plan of the Diabetes Initiative of South Carolina.” A new Ten Year Strategic Plan is currently under development. The report displays significant increases in the frequency of diabetes-related monitoring, including blood glucose, hemoglobin A1C, lipids, blood pressure, foot examination and eye examination from health professionals. In addition, treatment rates of associated factors, including hypertension and elevated blood lipids, have dramatically improved. These trends have coincided with the downward trends in lower extremity amputations and in heart attacks and strokes among people hospitalized with diabetes.

Programs have been in existence for people with diabetes to monitor patterns in morbidity, mortality, hospitalizations, emergency room visits, and health disparities for people with diabetes in South Carolina. DSC, along with DHEC, publishes a Burden Report of Diabetes in South Carolina every three to five years. The 2012 Burden Report of Diabetes in South Carolina is currently in the final stages of publication.

The DSC Councils have co-sponsored important legislation and policy changes, including coverage for patient education, establishing statewide guidelines for diabetes care, and assisting many centers in attaining state and/or ADA recognition for excellence regarding patient education about diabetes. DSC is observing a significant increase in the utilization of short-term measures that assist in delaying progression of diabetic complications. As the number of community-based groups, which target the treatment and prevention of diabetes in South Carolina has increased, an increasing number of health professionals have been trained to successfully deal with diabetes and its complications.

The DSC has developed a number of programs for the education of a variety of health professionals about diabetes and its complications. The Diabetes Strategies for the 21st Century programs are primarily aimed at updating practitioners who care for people with diabetes as well as providing the latest information for those who want to update their knowledge prior to taking the certification exam to become a certified diabetes educator. DSC has also sponsored 18 Annual Symposia for Primary Health Care Professionals featuring education on all aspects of diabetes mellitus. The intent of the program is to enhance the lifelong learning process of physicians, nurses, pharmacists, dietitians and other health care professionals by providing educational opportunities and to advance the quality and safety of patient care in South Carolina. This symposium is an annual two-day statewide program that supplies a comprehensive diabetes management update to all primary care professionals, and a chance for professionals to obtain
CME, CEUs, etc. at a low cost. The program involves workshops with various topics, ranging from intensive management and updates on technology to pharmacology case studies.

Continuing education credits are given for the health professionals who attend the continuing education programs: physicians, nurses, social workers, pharmacists, registered dieticians, and other health care professionals. Faculty consists of distinguished local and outside experts, and interactive workshops provide collaboration and discussion of practical topics for attendees. For the past 14 years, 30-35 individuals have submitted scientific posters each year for a very well received poster session. Attendance at these programs has grown steadily over the years, from 121 attendees in 1994 to 243 attendees in 2012. Close to 3000 health professionals have attended these programs.

Diabetes is a huge problem in South Carolina; however DSC provides a realistic mechanism to address issues on a statewide basis. DSC has achieved many positive accomplishments, such as coordination among statewide public health programs, facilities, academic institutions, patients, health professionals, and insurance organizations. The Annual Burden Report assesses progress and provides evidence of significant decreases in amputations and mortality. DSC promotes the learning process of health professionals dealing with diabetes (especially the CDE’s), sponsors major educational symposia, and proposes long range plans as guidance for health professionals and organizations. The overarching goal of DSC is for these programs and development of new targeted initiatives to continually improve the care of people at risk and with diabetes and to decrease morbidity, mortality, and costs of diabetes and its complications in South Carolina.

References
HISTORICAL BACKGROUND
HISTORICAL BACKGROUND

In 1991, the Division of Diabetes Translation, Centers for Disease Control, Atlanta, Georgia, published updated trends in diabetes and in diabetic complications in the United States, between 1980 and 1989. Major trends included an increasing prevalence of diabetes and increasing hospitalization rates among diabetic individuals for the serious complications of amputations, end stage renal disease, myocardial infarctions and cardiovascular death. The prevalence of diabetes was doubled in blacks when compared with whites. There was an increase in all major cardiovascular complications among blacks with diabetes. Diabetes was the leading cause of blindness among adults, and women with diabetes were at an increase risk for adverse outcomes of pregnancy.

These issues were magnified in South Carolina, relative to most other states in the United States. Diabetes prevalence was estimated at 6.1%, 5th among 38 states surveyed. Diabetes as a contributor to mortality was increasing in incidence in South Carolina and diabetes accounted for approximately 11% of hospital admissions. Overall, 14% of hospital beds were occupied by people with diabetes. Longitudinal data in the decade of 1980-1990 revealed increases in the prevalence of excess weight, self-reported hypertension and high blood cholesterol in individuals known to have diabetes. Hospitalization rates for renal failure, amputation, and myocardial infarction were increasing and the mortality rate for diabetes as one of the listed causes of death in South Carolina was steadily rising, from 50.7/100,000 population in 1980 to 71.1/100,000 population in 1992.

Shortages of health care professionals involved in care for people with diabetes were recognized. In particular, there were inadequate numbers of primary care physicians, endocrinologists, nephrologists, certified diabetes educators, podiatrists, and pharmacists trained in the care of people with diabetes. Major physician health professional shortages were identified by the Office of Primary Care, S.C. DHEC in 50% of the 48 countries in South Carolina and 74% of the counties in the state were designated by the S.C. State Health and Human Services Commission as medically underserved.

Crude estimates of quality of care for people with diabetes were made. In one survey of type 2 diabetes patients in 1994, 24% had not seen a medical doctor in the past year for diabetes, only 34% reported that they checked blood glucose at least once a day, and a mere 28% had ever heard of HbA1c. Of these, only 18% had an A1C check in the past year. Approximately one quarter of the diabetes individuals reported eye examinations and less than half said they had a foot examination in the past year. It was found that diabetes education had been provided to less than 50% of diabetic individuals.

Evidence was appearing from large scale collaborative clinical trials that the risks of morbidity and mortality from such cardiovascular complications as myocardial infarction and stroke could be substantially reduced by intensive management of lipid profiles and elevated blood pressure. In 1993, the seminal report from the Diabetes Control and Complications Trial (DCCT) established that intensive glycemic regulation in type 1 diabetes would substantially decrease the risks for the progression of retinopathy, nephropathy, and neuropathy. Simple, inexpensive low dose aspirin therapy produced modest risk reductions for myocardial infarction as a secondary prevention strategy. Microalbuminuria was recognized as a risk marker for cardiovascular events and for renal failure, and it was predicted that intervention trials with angiotensin converting enzyme inhibitors (ACEI) would be effective in delaying progression of these serious complications.

Thus, a serious public health problem of diabetes and its complications was recognized in South Carolina and in the United States. An undersupply of qualified health professionals was on hand to deal with the increasing demands of more intensive education and health care for people with diabetes. Ominous upward trends in mortality and morbidity statistics were present, and an increasing incidence of markers of future cardiovascular events (hypertension, cholesterol, over weight/obesity) was occurring. It was evident that an action plan was needed.
10 YEAR STRATEGIC PLAN
The Diabetes Initiative of South Carolina (DSC) was created by legislative action and signed into law by the Governor of South Carolina in July, 1994. The law established a Board of Directors with members appointed by the top officials of key organizations with an interest in diabetes and its complications. The Board has met quarterly since that time and has annually submits this Report. It is referred for progress review by the Legislature and the Governor.

The Organization Chart of the Diabetes Initiative of South Carolina is shown below:

There are three Councils; the Center of Excellence, Outreach, and Surveillance Council. There is a Diabetes Center of Excellence, established in the original legislation, based at the Medical University of South Carolina. This Center is responsible for administering the many activities and programs of DSC and its Board and Councils. It is also responsible for developing and administering professional education programs for health professionals of all varieties in South Carolina, to improve their knowledge and abilities to care for people with diabetes in our state. The Outreach Council is responsible for community interface, with a broad goal of improving diabetes care and education directed at people affected by diabetes. The Surveillance Council is responsible for acquiring, analyzing and distributing epidemiologic information about diabetes including its prevalence costs, morbidity, and mortality. This Council works closely with the Diabetes Prevention and Control Program of SC Department of Health and Environmental Control, and issues regular Burden Reports on the scope and impact of diabetes in South Carolina. A DSC site has been established in the School of Medicine at USC, and provides a critical mechanism for liaison between the two schools and for oversight of programs and activities in the midlands and upstate regions of South Carolina.

We also regularly interact with the American Diabetes Association, Carolinas Center for Medical Excellence, the Hypertension Initiative of South Carolina and the Area Health Education Consortium. Full reports from key components in the DSC structure are included in this Report.
The DSC Board developed a Long Range Strategic Plan in 1998, and has been monitoring results relating to its goals and objectives on a regular basis. The plan has 9 major goals, and The Board expects quantitative evidence of progress towards achieving these goals during the ten year time span of The Plan, 1998 - 2008. These goals are:

**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.

The mechanisms by which these goals may be achieved are given in the following outline.
In calendar year 2004, we completed a review of 5 years of progress, which concentrated on the first 3 goals of the 10 Year Strategic Plan. We recognized that the legislation had created a uniquely successful statewide collaborative effort. Programs were generally on target and were productive. Examples were community outreach, professional and patient education programs, and surveillance of trends in diabetes care. It was recognized, however, that prevalence of diabetes and obesity was increasing, and that comorbidities such as hypertension and altered blood lipids complicated overall management. Major extramural grant funding for community-based programs and clinical trials had been acquired at MUSC and at USC. Overall, progress with that unique combination of public and private resources (federal, state, regional and local support) had been exciting.

In 2011 the Diabetes Initiative of SC evaluated the 10 Year Strategic Plan for improving diabetes in South Carolina. Programs that have been operative for a sufficient time to see trends in morbidity, mortality, hospitalizations, emergency room visits, and health disparities among people with diabetes in South Carolina were assessed. After this analysis by the Board, Councils, and major partners, we published a monograph “The State of Diabetes in South Carolina: An Evaluation of the First Ten Year Strategic Plan of the Diabetes Initiative of South Carolina.” Areas of defined advances were described as well as issues which require further attention. Since diabetes mellitus is a chronic disease with very long-term complications, it is likely that another decade (or more) of work will be needed to be certain that promising trends are sustained and real.
BUDGET
AND
RESEARCH GENERATED IN PARTNERSHIP WITH DSC
DSC OPERATING BUDGET

FY 2011 – 2012

State Appropriation $ 289,088
Less Cuts 192,782
Total Budget $ 96,306

RESEARCH GENERATED IN PARTNERSHIP WITH DSC

We are pleased to report major partnership opportunities in diabetes research for fiscal year 2011.

   SC DHEC’s Diabetes Division is funded by the Centers for Disease Control and Prevention and focuses on reducing the burden of diabetes in South Carolina. It is a statewide program working to prevent complications, disabilities, and burden associated with diabetes through health systems change and quality improvement. The Diabetes Initiative of South Carolina Board of Directors provides clinical oversight to the program whose goals and aims are integrated into and complementary of DSC's Strategic Plan.
   PI: Joe Kyle (R. Hill)

2. LOOK-AHEAD: This study addresses questions of macronutrient intake in relation to cardiovascular risk factors and clinical events in persons with type 2 diabetes under conditions of either usual care or intensive weight loss intervention. USC holds a subcontract for the study wide dietary assessment and is responsible for the collection, quality control, and analysis of dietary data from the 20 clinical centers nationwide. PI: Michele Nichols

3. Epidemiology of Diabetes Intervention and Complications (EDIC) is a follow-up study of the course of patients enrolled in the Diabetes Control and Complications Trial (DCCT) in Charleston. Along with patients from 27 other centers in United States and Canada, this is a study of vascular complications after long-term glycemic control in type 1 diabetes. Another 10 year follow-up (2006 – 2015) is approved.
   PI: Jeremy B. Soule, MD

4. REACH US: Center of Excellence for Eliminating Disparities (REACH SeaCEED) is funded by the Centers for Disease Control and Prevention and focuses on community-based participatory approaches to eliminating disparities in African Americans at risk and with diabetes. Each year, the Center offers Legacy funding for 2/3 counties to address diabetes prevention and control in African Americans. DSC serves as the scientific review group for the Center.
   PI: Carolyn Jenkins, DrPH

5. Nutrition and Metabolic Status in Youth with Type 1 DM: SEARCH Ancillary Study (SNAS): SNAS uses both cross-sectional and longitudinal designs, with the overall study goal being to examine associations of nutritional factors with 1) the progression of insulin secretion defects, and 2) the presence of CVD risk factors in youth with DM.
   PI: Angela Liese, PhD

6. Diabetes Reversal by Gastric Bypass – Microbiome, Hepatic and Endocrine Mechanisms: PI: Leonard Egede, MD; Co-PI: Jyotika Fernandes, MD

7. LEADER Trial: To assess the effect of treatment with liraglutide compared to placebo for at least 3.5 years and up to 5 years on the incidence of cardiovascular events in adults with type 2 diabetes who are at high risk for cardiovascular events.
   PI: Ali Rizvi, MD

   PI: Ali Rizvi, MD

9. Telephone delivered behavioral skills intervention for Blacks with type 2 Diabetes: R01 from National Institutes of Health, NIDDK.
   Co-PI: Carolyn Jenkins, DrPH

    PI: Kathie Hermayer, MD
### SUMMARY OF RESEARCH GENERATED IN PARTNERSHIP WITH DSC

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<td>EDIC</td>
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<td>168,605</td>
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<td>REACH SeaCEED</td>
<td>C. Jenkins</td>
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<td>$2,895,072</td>
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**Comment**

Yearly funding of programs in education, care, and clinical research focus on improving outcomes for people with diabetes in SC. Total funding is now at $17 million, and yearly funding exceeds $3 million. This yearly extramural funding is more than 10 times our current state budget. Thus, the modest investment that the state has provided for the Diabetes Initiative of South Carolina’s core funding has paid very impressive dividends in attracting extramural support for 10 long-term projects which address a wide variety of issues relating to diabetes and its complications.
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:
1. Promoting adherence to national standards of education and care.
2. Ongoing assessment of patient care, costs, and reimbursement issues for persons with diabetes in South Carolina.
3. Preparing an annual report and budget proposal for submission to the Diabetes Initiative of South Carolina Board.

Ongoing Outreach Council Meetings and Activities
The Outreach Council of the Diabetes Initiative of South Carolina met 4 times in 2012. Additionally, the Statewide Coalitions met in Fall, 2012. The Coalitions presented posters at the Annual DSC Primary Care Symposium in September 2012.

WEBSITE: www.musc.edu/diabetes

Prominent Activities 2012
Promoting adherence to national standards of education and care
❖ Guidelines: To promote adherence to national standards of education and care, the South Carolina Guidelines for Care 2012 summarized the national standards in a 2 page document. (See http://musc.edu/diabetes)

These guidelines were distributed to providers of diabetes care who attended the following workshops including:
• DSC Annual Primary Care Symposium
• DHEC 10th Annual Diabetes/Heart Disease and Stroke Prevention Winter Symposium
• Diabetes Educator Update: Diabetes Strategies for the 21st Century
• REACH Coalition Meetings (2)
• SC Dietetic Association Spring Meeting
• Experiential Diabetes Workshop for Medical Students at USC
• Physical, Rehab Therapy Students at MUSC
• DNP Students at MUSC
• Undergraduate Nursing Students at MUSC-CON
• Physical Therapy Students at USC
• Vocational Rehabilitation staff training
• ADA Recognition Diabetes Advisory Group, Lexington Medical Center

❖ Outreach to Persons at Risk and with Diabetes:
• Prevention Partners, Employee Insurance Program, SC Budget and Control Board –150 state employees; Educators: Elizabeth Todd Heckel, MSW, CDE; Sharm Steadman, PharmD, CDE; Ramsey Makhuli, MPH
• Family Practice Diabetes Education Groups: 1st and 3rd Tuesday of every month; Educators: Elizabeth Todd Heckel, MSW, CDE; Sharm Steadman, PharmD, CDE; Ramsey Makhuli, MPH
• REACH Diabetes Education Groups in Charleston and Georgetown Counties: Carolyn Jenkins, DrPH; Montrese Edwards, RN, CDE; Syndia Moultire, RD, LD, CDE; Virginia Thomas, BS; Florene Linnen; Joyce Linnen
• Harvest Food Bank Diabetes Education for 30 Employees: Elizabeth Todd Heckel, MSW, CDE
• SC Legislative Screening, Individual appointments, A1C, Blood Pressure, Nutrition Counseling
• MISSION 2012, State Fairgrounds, 8/17/2012, 615 medical pts., 1,456 dental pts., 459 eye pts. 445 prescriptions filled

❖ Ongoing assessment of patient care, costs, and reimbursement issues:
Hospital Costs for People with Diabetes: From July 2010 to June 2011:
• 119,827 person/s with diabetes hospitalized in South Carolina (not including those within the VA systems) with an average length of stay of 5.4 days. Of those, 9,458 were admitted for primary diagnosis of diabetes and all others had diabetes complications.
• Total costs of hospitalizations for persons with diabetes were $4,713,812,919.00 and average cost per visit of $39,338.00.
• 18.8% of these patients were readmitted within 30 days.
• Sources of payment were Medicare: 56.4%; Medicaid: 8.7%; Insurance: 27.1%; and Self-Pay or No Source of Payment: 7.8%.
• For further information and data table, see http://www.scha.org/diabetes-in-south-carolina and look for diabetes (left side) or http://musc.edu/reach/news.htm and scroll down to Overview of Patients with Diabetes Data and Costs: July 2010 - June 2011

Reimbursement for Diabetes Care and Education:
• Coverage for diabetes education continues to be an ongoing problem. Currently, while Medicare, Medicaid, Federal Blue Cross Blue Shield and private insurers reimburse for coverage of diabetes education programs, the **SC State Employees Blue Cross Blue Shield Program provides no coverage for diabetes education.** Many programs cost $350-$450 for education.

Amputations for Persons with Diabetes:
• A study on the changes in amputations was completed for REACH by REACH PI and South Carolina DHEC Epidemiology.
• Key findings are, in 1999, the overall LEA rate was almost 6 times as high in African Americans as in Whites, but by 2011, after more than ten years of REACH, the rate ratio had narrowed to 3.7. Among African American women the rate ratio decreased from 7.0 in 1999 to 6.5 in 2011, and among African American men from 4.7 to 2.9. Since beginning REACH, rates for diabetes related hospitalizations and emergency department visits (combined) for African Americans have decreased by 54% and in 2011, and rates for African Americans were actually lower than for Whites. Overall, amputations in South Carolina are decreasing; however, in the REACH intervention area, the changes for African Americans are significantly improved compared to the overall changes at the state level.

Grants and Other Activities:

Grants Awarded:
• 2012-2013 REACH U.S. SEA-CEED: Creating Health Equity for Hypertension Outcomes in African Americans in Georgetown County. (Carolyn Jenkins, Principal Investigator) $112,000 from Centers for Disease Control and Prevention through National REACH Coalition
• 2012-2013 REACH U.S. SEA-CEED: Improving Hypertension and Obesity Outcomes for African Americans in Bamberg, Orangeburg, Williamsburg and Georgetown Counties. (Carolyn Jenkins, Principal Investigator) $205,000 million from Centers for Disease Control and Prevention through National REACH Coalition
• 2012-2013 The Role of the South Carolina Food Banks and their Community Partners in Improving Hypertension and Diabetes in Persons with Food Insecurity. (Carolyn Jenkins and Carrie Whipper, Co-Principal Investigators) $10,000 from South Carolina Translational Research Institute (CTSA)
• 2011-2012 Employee Wellness Model Option and Feasibility of Comprehensive Medical and Health Surveillance System for Workers at Savannah River Site (Lawrence Mohr, Principal Investigator and Carolyn Jenkins and Dan Lackland, Co-Investigators) from Department of Energy
• 2009-ongoing Technology Center for Healthful Lifestyles (Steve Blair and Carolyn Jenkins, Co-Principal Investigators) $6 million with $3 million to MUSC CON from Centers of Economic Excellence and $600,000 from Health Sciences South Carolina. (Note: Frank Treiber, PhD is the Endowed Professor and is now leading research efforts at MUSC.)
• 2008-2012 Telephone delivered behavioral skills intervention for Blacks with type 2 Diabetes (Leonard Egede, Principal Investigator and Carolyn Jenkins, Co-Investigator) $2,412,941 R01 from National Institutes of Health, NIH-NIDDK.
• 2007-2012 REACH US: Southeastern African American Diabetes, Hypertension and Stroke REACH US Center of Excellence for Eliminating Disparities (Carolyn Jenkins, Principal Investigator and Leonard Egede and Kathie Hermayer, Co-Investigators) $4.25 million from Centers for Disease Control and Prevention
Grants in Review:

- 2013-2015 R34--Coordinated Action for Transitional Care from Hospital to Home (CATCHH) (Carolyn Jenkins and Kathie Hermayer Co-Principal Investigators) to NIH-NIDDK

- 2012-2013 Transforming Patient-Centered Medical Homes into Medical Communities for Underserved Rural Patients (Bamberg County) (Carolyn Jenkins and Samuel Cykert, Co-Principal Investigators) $104,000 to CTSA of Medical University of South Carolina and University of North Carolina Chapel Hill

Awards for Diabetes Efforts:

- Certified Diabetes Educator of the Year Award: Elizabeth Todd Heckel. 10th Annual Diabetes/Heart Disease and Stroke Winter Symposium

- Diabetes Champion of the Year: Sharm Steadman, PharmD, CDE, 10th Annual Diabetes/Heart Disease and Stroke Winter Symposium

- Distinguished Faculty Service-MUSC: Carolyn Jenkins, DrPH, MSN, RD, LD, FAAN

- Community Engaged Scholar: Carolyn Jenkins, DrPH, MSN, RD, LD, FAAN

Publications: In Press or In Review in Peer-Reviewed Journals


Other:

- Diabetes presentations ---2 at Southern Nursing Research Society in New Orleans (1 poster presentation and 2 hour workshop on community partnerships for improving diabetes outcomes) Carolyn Jenkins

- AAN and ANA representative on the Advisory Board for Quality Measures and Emerging Payment Models for Diabetes and attended first meeting on December 16-17 in New York: Carolyn Jenkins

- Diabetes and Hypertension/Blood Pressure Module for National Cooperative Extension Website: Carolyn Jenkins

- Centers for Medicare and Medicaid Innovations: REACH Charleston and Georgetown Diabetes Coalition presented as Exemplar in Population Health Integrator (1 of 3 presented): Carolyn Jenkins

- REACH funded 1 South Carolina sites (Columbia College), and sites in Mississippi and North Carolina to improve diabetes in African American communities: Carolyn Jenkins
Diabetes Initiative of South Carolina
Diabetes Center Council
2012 Annual Board Report

Professional Education Activities:
- Completed:
- Planned:
  2. 19th Annual Diabetes Fall Symposium for Primary Health Care Professionals; September 19 and 20, 2013, North Charleston Convention Center, North Charleston, SC.

Professional Presentations:
- Diabetes Care in Nursing Homes, Beaufort, SC, 4/26/12.

Meetings:
- MUSC Hospital Diabetes Task Force.
- MUHA Hospital Operations.
- MUSC ADA Diabetes Advisory Committee for Patient Education.
- MUHA Joint Commission.
- MUHA Education Roll Out Committee (EROC).

Projects:
- MUSC Diabetes Awareness Day at MUSC, November 2012, screened #104.
- Joint Commission Diabetes Inpatient Certification (Intracycle Conference Call - December 2012).
- University Hospital Consortium – MUSC Diabetes Representative.

Clinical:
- MUSC Diabetes Management Service.

Professional Publications:


Chahal H, Backlund JYC, Cleary PA, Lachin JM, Polak J, Lima JAC, Bluemke DA, and the DCCT/EDIC Research Group. Relationship between Carotid Intima-Media Thickness and Left Ventricular Mass in Type 1

• Beatrice J. Hull, Ashwini Gore, Aberrantly Elevated TSH level due to Human Anti-Mouse Antibodies (HAMA) interference with thyrotropin assay, The Journal of the South Carolina Medical Society, 2012; 1:12-13


• METABOLIC SYNDROME AND EXTENT OF SEVERE PERIODONTITIS IN GULLAH AFRICAN AMERICANS WITH TYPE 2 DIABETES MELLITUS. Nicoleta D. Sora, Nicole M. Marlow, Dipankar Bandyopadhyay, Renata S. Leite, Elizabeth H. Slate, Jyotika K. Fernandes, Journal of Clinical Periodontology, submitted for publication.
Diabetes Initiative of South Carolina
Surveillance Council
January 1, 2012 – December 31, 2012
Annual Board Report

Functions
The Surveillance Council was established 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 interventions and control programs. The Council consists of diabetes care providers, epidemiologists, program specialists and researchers, and is staffed by data specialists at the South Carolina Department of Health and Environmental Control and the Medical University of South Carolina. The Council operates with formal meetings and communications.

The Council has established the following objectives:
• 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. This includes evaluation of patient and professional education programs. Specific efforts include:
  • 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.
  • 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 DHEC and other organizations involved in diabetes control.
  • Develop and maintain an Internet Website for distribution of information regarding diabetes in South Carolina.
  • Establish a scientific forum to showcase diabetes research and projects in South Carolina.
  • Establish a methodology to estimate the prevalence of diabetes in South Carolina based on clinical data.
  • Establish a methodology to assess trends in diabetes-related outcomes and clinical practices.

Summary Report
The Surveillance Council was involved with numerous major achievements during 2012 (year 18). The evaluation of the Diabetes Initiative Ten-Year Strategic Plan was completed and finalized. The report and slides are available on the DSC website. These measures are being used to design the updated strategic plan. The updated strategic plan is being developed jointly with the Diabetes Advisory Council. This plan has seven focus areas, including Capacity Building, Surveillance and Evaluation, Prevention, Education, Access to Care, Quality of Care, and Advocacy.

Surveillance activities included diabetes-related outcomes trends, management of diabetes, and the continued use of the DSC webpage as a source of information and data regarding diabetes in South Carolina. The surveillance activities for outcomes trends identified several key findings focused on diabetes prevalence, mortality, amputations, cardiovascular disease hospitalizations, stroke hospitalizations, and emergency department utilization, identifying significant improvement in amputations and diabetes mortality. These results and more detailed analysis are reported in the 2012 Burden of Diabetes Report. Amputation rates have been a particular emphasis, with surveillance of amputations used as an outcome measure for the evaluation of the REACH SEACCEED program. The results are published in Family and Community Health and an upcoming issue of Morbidity and Mortality Weekly Report.

The Council has worked with the professional education activities to identify gaps in knowledge, behavior, and outcomes regarding the management of diabetes. Evaluations have identified the DSC professional education programs as effective regarding education and behaviors associated with the management of diabetes. Gaps have been identified and used to direct the professional education programs and efforts from DSC. In addition to the traditional education needs regarding the clinical guidelines and best practices associated with the management of diabetes, needs in the patient education and the involvement of providers in the delivery of education materials and information.

The Council continued to coordinate the scientific poster session for the Diabetes Symposium in 2012. This event continues to increase in numbers and quality of research findings, and functions as a forum for describing diabetes research in South Carolina. The Diabetes Initiative has been invited to publish the Symposium proceedings in an upcoming special issue of American Journal of the Medical Sciences.
Likewise, the DCS webpage continues to be a major resource for information and data regarding diabetes in South Carolina. The number of contacts increases each month and the addition of a dedicated webmaster has increased this use. The major accomplishment of the Surveillance Council for 2012 has been the increase of the collaborative network of investigators and professionals focused on the assessment of diabetes in South Carolina. The Council has initiated an effort to enhance the DSC Webpage and will implement strategies in 2013.

**Accomplishments**

The summary of the major accomplishments follows:

- 2012 update of the Burden of Diabetes in South Carolina report to be distributed in hard copy and through the webpage.
- Development and maintenance of a diverse group of investigators in South Carolina who focus their work on the study of diabetes.
- Development and maintenance of DSC Webpage.
- The Council has organized several reports and manuscripts focused on lower extremity amputations, cardiovascular disease, stroke hospitalizations, and hypertension in South Carolina and associated trends that identified a possible positive effect from DSC interventions.
- Production of trends reports
- Production and distribution of data slides which are available in hard copy or can be downloaded from the webpage
- Coordination of the scientific poster session in conjunction with the 2012 Diabetes Symposium. Nineteen abstracts and posters were presented with three SC students receiving cash awards, three community cash awards, and three DSME programs cash awards.
- Establishment of a working committee to identify a methodology to assess trends in clinical practices, patient behaviors and outcomes related to diabetes.
- Maintenance of a working committee to use clinical databases to estimate the prevalence of diabetes in South Carolina.
SOUTH CAROLINA DIABETES PREVENTION AND CONTROL PROGRAM
S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
JANUARY 1, 2012 – DECEMBER 31, 2012
The South Carolina Department of Health and Environmental Control (DHEC) is dedicated to the prevention of chronic disease disparities such as diabetes. The overarching goals of the Diabetes Division and other diabetes efforts at DHEC are to prevent complications, disabilities, and burden associated with diabetes as well as to eliminate diabetes-related health disparities.

**Prominent 2012 Diabetes Related Initiatives That Have Assisted Us In Meeting Our Goals:**


I. State and Federal Updates:

DHEC’s Role on Obesity in SC
DHEC’s Director, Ms. Catherine Templeton, invited public health advocates, food industry leaders and others with a vested interest, to the first quarterly obesity council meeting in Columbia on November 13, 2012. She called it “Unified! A Voice Against Obesity.” Director Templeton declared that DHEC would focus its attention on the state’s pockets of extreme obesity. She stated, “Statistics indicate obesity rates are highest in a few rural areas. Often those areas don’t have the large corporations, major medical facilities or universities that push health initiatives in larger cities.” The Director said she will ask DHEC staffers to take the lessons learned from successful initiatives into Bamberg, Lee and Fairfield counties, poor counties with fewer resources. More info to come as this initiative continues.

CDC Site Visit
The Diabetes Division hosted two of their project officers from the Centers for Disease Control and Prevention’s Division of Diabetes Translation (DDT) on September 13 - 14, 2012. Several internal and external partners attended throughout the two days to share how they have partnered with our division on several goals and objectives. CDC stated the site visit was very productive and helped them gain an understanding of the program’s current level of capacity, interventions being implemented, and future work being undertaken.

Collaborative Chronic Disease, Health Promotion, and Surveillance Program Announcement: Healthy Communities, Tobacco Control, Diabetes Prevention and Control
The CDC released the continuation application for the Diabetes and Tobacco Divisions on November 21, 2012. The Tobacco Prevention and Control programs will apply for a full 12-month funding to bring their 5-year cycle to a close on March 29, 2014. The guidance for the Diabetes Prevention and Control Programs is to request three months of funding to support an orderly closeout of existing activities to be conducted March 29, 2013 through June 30, 2013. The purpose of the funding is to complete projects that were approved during the initial 04 year budget period (March 29, 2012 – March 28, 2013).

CDC has stated the shortened grant period for the Diabetes Programs is to bring them in line with the funding cycle of the Division of Nutrition, Physical Activity, and Obesity and the Heart Disease and Stroke Prevention Programs. The understanding is that there will be new funding opportunities released in early 2013 that will be collaborative in nature.

South Carolina Statewide Diabetes Advisory Council (DAC)
The Diabetes Division facilitated the DAC policy and advocacy subcommittee sponsored policy calls this summer. The policy call series showcased national experts and local policy makers on policies that affect people living with diabetes in South Carolina. Topics included a fresh look at ERISA, the state’s new health insurance co-op, and the operations of federal exchange. Informational handouts are available from all calls and can be requested from Sheena Cretella (cretels@dhec.sc.gov).
II. Diabetes Surveillance Systems:
Goal: Monitor the statewide diabetes burden and identify gaps to assist with planning, decision-making, and evaluation

The 2012 Diabetes Burden Report has been completed and is in the end stage of the review process. Upon completion there will be an electronic version available on DHEC’s and partner websites. The chapters include an Overview of Diabetes, Diabetes Management and Control, Complications of Diabetes, Health Care Costs, and Mortality.

III. Health Systems Improvement:
Goal: To increase the number of health care providers engaged in professional education on recommended standards of care.

South Carolina Primary Health Care Association (SCPHCA)
The SCPHCA held its annual Clinical Network Retreat June 8-10, 2012 with the Diabetes Division sponsoring two speakers in the concurrent sessions. Beatrice Hull, MD, endocrinologist and Associate Professor of Medicine with the MUSC, presented South Carolina Guidelines for Diabetes Care 2012. Bruce Latham, MD, Associate Professor of Medicine, USC, and endocrinologist with the Greenville Hospital System, presented Treatment of Type 2 Diabetes: What Have We Learned? The Health Systems Coordinator served on the SCPHCA CNR planning committee and facilitated three sessions at the conference.

The South Carolina Quality Improvement Process
Four sites associated with three FQHCs in South Carolina have been chosen to participate in the national CMS Advanced Primary Care Demonstration. These sites will be privileged to educational resources including educational opportunities on NCQA standards and financial resources such as a care management fee developed to facilitate their efforts to transform practices into Patient Center Medical Homes (PCMH). Demonstration sites are expected to apply for PCMH recognition from NCQA by October 31, 2014. Despite not being chosen for the demonstration project many of our state's FQHC sites wish to take advantage of the educational resources available to pursue PCMH recognition and are planning to change practice and apply for recognition.

The Diabetes Division staff attended the Community Health Center Quarterly Network Meeting hosted by our state's primary health care association. This event enabled the program to meet with medical directors and clinical quality improvement staff to invite further communications on collaborations to improve diabetes care in the health care system. Dr. David Stevens with the National Association of Community Health Center advised our staff on how to engage FQHCs as partners for this event. This event was followed by a state wide PCMH workshop presented by NCQA speakers held for FQHCs across the state.

The division is working closely with at least two centers to offer time and resources to support them in transforming their practices into PCMH through the promotion and implementation of evidenced-based guidelines for chronic disease care, continuous clinical quality improvement, self-management support. There are additional sites interested in establishing or expanding a DSME program. We are participating on PCMH standards calls facilitated by the SC Primary Health Care Association to market our resources and to remain attentive to the needs of our state's FQHCs.

Likewise, the Diabetes Division is collaborating with DHEC’s Division of Heart Disease and Stroke Prevention on a work site wellness program and is looking to offer the program in at least one of these locations. In addition, the DPCP has reached out to a local YMCA to begin a dialogue on establishing a recognized Diabetes Prevention Program, promoted by the CDC's Division of Diabetes Translation.

SC DHEC's "Don't Guess - Get Answers" Diabetes Self-Management Education/Training (DSME/T) Program
SC DHEC's DSME/T maintains recognition with the American Association of Diabetes Educators (AADE). The program was first recognized by AADE in 2009. The SC DHEC program is offered at four sites in Region 8, once each in Colleton and Jasper Counties and two sites in Hampton County. During 2012, 152 assessments were completed with 91 of those in Hampton County, 25 in Colleton County, and 36 in Jasper County.

In addition to the series of classes offered through the DSME/T program there is a diabetes support group that meets under the direction of the DHEC DSME Program Director. A clinical outcome measure tracked each year is the change in A1C pre-education to post-education. For 2012, the drop in A1C was an average of 1.12 percentage points. The average pre-education A1C was 8.47% and the average post-education A1C was 7.35%. A 1 percentage point drop in A1C has been shown to reduce the risk of developing long-term complications of up to 40%.
The symposium was held March 9-10, 2012 at the Sheraton/Myrtle Beach Convention Center. This year's theme was Standards of Care: Evidence from the Field brought together speakers from a variety of practice fields. There were 154 attendees from across South Carolina as well as Georgia, Minnesota, New York, North Carolina, and Ontario, Canada.

The keynote speaker was Edward Shahady, MD. Dr. Shahady is Medical Director of the Diabetes Master Clinician Project of the Florida Academy of Family Physicians Foundation. He demonstrated an interactive group visit for people with diabetes using volunteers from the symposium audience. Awards were presented for the Certified Diabetes Educator of the Year to Elizabeth Todd-Heckel, MSW, CDE; Diabetes Champion of the Year to Sharm Steadman, PharmD, BCPS, FASHIP, CDE; and AHA/ASA Get With the Guidelines Distinguished Hospital of the Year to Palmetto Health Richland.

Evaluation results showed that community health centers were the most frequently reported “primary work setting”; and 40% of attendees were first timers. Ninety percent of participants, who responded to the Friday evaluation and 84% of participants, who responded to the Saturday evaluation, indicated that they intended to use the information from the symposium in their practice. Nine of ten respondents replied that they will implement tobacco use screening and intervention in their practice. Lastly, 98% of the participants who attended the session on The South Carolina Guidelines for Diabetes Care strongly agreed or agreed that the knowledge and skills gained from this session will be useful to their job. The symposium’s format includes a provider track in addition to the general sessions.

IV. Community Awareness and Outreach:
Goal: Increase diabetes knowledge and awareness across disparate and hard to reach communities.

Palmetto Health Triple Aim Project
The Diabetes Division is working with Palmetto Health on their LiveWell Columbia campaign, a triple aim diabetes and obesity project in the 29203 zip code. The pilot project is in the Greenview Community to work with K5-5th grade students at Greenview Elementary School as well as their parents and other adults in the overall community. This action oriented group has developed a one-year strategic plan that is a collaborative effort committed to reducing obesity in Columbia by promoting healthy eating and active living choices.

Walk With Ease Leader Training
Michelle Moody participated in the Arthritis Foundation’s Walk With Ease Leader Training in collaboration with the Division of Healthy Aging on August 28 in Columbia. The Diabetes Division plans to utilize this evidence based program with our community partners to help them work towards prevention of diabetes and diabetes complications in regards to risky behaviors such as limited physical activity and poor eating habits.

Diabetes Today Advisory Council (DTAC)
The Diabetes Division is partnering with DTAC to sponsor diabetes mini conference in communities across the state. Eligible community groups can apply for $500 - $1000 to implement a one-day event on diabetes prevention and control and related risk factors. The mini-grant funding was a way to still provide diabetes education programs in the community since the 2012 SC Conference on Diabetes held each November had to be canceled. However, DTAC does plan to reconvene the conference in November 2013. To date, four community groups (Williamsburg Diabetes Coalition, G-town CORE GROUP, and WISEWOMAN Programs in both Florence and Sumter Counties) have received funds to implement activities. All funded groups must have activities completed by March 2013.

IMARA Woman Partnership (Diabetes Awareness Education)
IMARA Woman Magazine hosted their Circle of Influence Leadership Summit 2012, “Leadership In a Time of Crisis” on March 30-31, 2012. Rhonda Hill co-presented at Friday’s Concurrent Workshop, Health Crisis: "Chronic Disease: What Is It Costing Us?” with Ms. Amy Edmond from Young Stroke Survivors. The featured speaker for the day was Mr. Ray Nagin, Former Mayor of New Orleans, who spoke on "Crisis Leadership". Saturday’s agenda featured a panel discussion and strategy session on "Health, Education and Safe Communities” with Dr. Pamela Wilson, President, Allen University; Ms. Shauna Hicks, Director Office of Minority Health, SC DHEC; and Capt. Estelle Young, Columbia Police Dept. (retired).

Second Joint Partnership Meeting
DHEC's Diabetes Division and REACH US SEA-CEED held their second joint partnership meeting September 19, 2012 in Charleston, SC. There were 20 participants representing four community groups from SC, NC, and MS. The
day was filled with community presentations, partner updates, and professional development. The Community Partnership Coordinator presented a session on diabetes related resources such as awareness initiatives and campaigns that could be implemented and the Program Evaluator led a workshop on program sustainability. Three of the groups entered their work into the 12th Annual Scientific Poster Session held during the Fall Diabetes Symposium and received a certificate and monetary award.

National and Local Presentations, Articles, and Awards

- In collaboration with DSC and the SC Dietetic Association (SCDA), the DHEC Diabetes Division provided technical assistance to the SCDA to improve their annual member survey to obtain information from licensed dietitians interested in providing diabetes education. The SCDA Board of Directors launched the survey in June, which asked members of the SCDA if they would be willing to be added to the state's list of licensed dietitians that is available to medical providers and the public. There were 11 dietitians who identified as medical nutrition therapy (MNT) providers for diabetes and/or chronic kidney disease and five who identified as providers of DSME/T. There were 28 dietitians who allowed their contact information to be added to the state's list but do not provide DSME/T or MNT for diabetes and/or chronic kidney disease.

- The Diabetes Division Program Evaluator, Sheena Cretella, presented a poster at the Society of Perinatal Epidemiology Research and the Society of Epidemiology Research in June 2012 in Minneapolis, MN on The Effect of Timing of First Anxiety and Depression Disorder on the Onset of Hypertension in Pregnancy. This was her first poster presentation of her Master's thesis.

- The SC Academy of Family Physicians (SCAFP) held it’s Summer Getaway Conference June 10-15. Sarah Smith, RD, LD, CDE attended as exhibitor for the American Academy of Family Physicians (AAFP). The exhibit was showcasing an educational toolkit on diabetes, “Highlight on Diabetes.” The toolkit contained a power point presentation appropriate for medical professionals and can be adapted for the general public. Also included were educational resources for both professionals and patients.

- Ms. Sarah Smith presented a program for Lowcountry AHEC on Diabetes Care in the Acute Care Setting on June 26. The presentation was part of the AHEC "SCHOOLS" program and was broadcast across the state in 10 locations.
DIABETES INITIATIVE OF SOUTH CAROLINA
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John A. Colwell, MD, PhD, CDE
Past DSC Board Chair;
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### Outreach Council

**Members**

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<tr>
<th>Name</th>
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<td>Elizabeth Todd Heckel, MSW, CDE</td>
<td>(Chair)</td>
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<td>Pamela Arnold, MSN, APRN, BC-ADM, CDE</td>
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<td>Yaw Boateng, MS, MPH, RD, LD, CDE</td>
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<td>Blue Choice HealthPlan</td>
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<td>Cyglinda Boykin, LPN, BS</td>
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<td>James Coleman, EdD</td>
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<td>Past DSC Board Chair; Professor Emeritus, MUSC</td>
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<td>John Colwell, MD, PhD, CDE</td>
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<td>SC DHEC – Program Evaluator</td>
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<td>Sheena Creteleta, MSPH</td>
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<td>Gwen A. Davis, MN, RN, CDE</td>
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<td>Susan Frost, MS, RD, LD</td>
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<td>Maria Gibson, MD</td>
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<td>Andrea Cantey Miller</td>
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Odessa Ussery, Med, CCMEP

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