Diabetes Initiative of South Carolina

2014 Annual Report

Kathie L. Hermayer, MD, MS
Chair, Board of Directors
Diabetes Initiative of South Carolina
People with Diabetes
- South Carolina had the 4th highest prevalence of diabetes among adults in the nation in 2013. Approximately 1 in 6 African-Americans in South Carolina has diabetes.
- One-in-four over the age of 65 has diabetes in South Carolina, with an additional 12% with pre-diabetes in this growing aging population.
- One in five South Carolinians with less than $15,000 household income has diabetes.

Diabetes Death
- Diabetes is the 7th leading cause of death in South Carolina. In 2013, 1,239 South Carolinians died from diabetes, or three deaths every day. African-Americans had more than two times higher mortality rate compared to Whites.

Hospitalization and Cost of Diabetes
- In 2013, around 25,000 diabetes hospitalization and ER visits occurred in SC costing more than $367 million.
- The cost of care for all South Carolinians with diabetes is estimated to exceed three billion dollars in 2015 and more than four billion dollars by 2020. Less than one quarter (23.7%) of this cost has been paid by private insurance. The public portion will exceed three billion dollars in 2020 (Source CDC Cost Calculator).

Diabetes Risk and Complications
- 4 out of 5 diabetics in South Carolina are overweight or obese.
- 7 out of 10 diabetics have hypertension.
- 2 out of 3 diabetics have high cholesterol
- Cases of end-stage renal disease attributable to diabetes have increased by 50% in the last 10 years.
- 2 out of 5 persons with diabetes have not taken a diabetes self-management class.
March 25, 2015

To Governor Nikki Haley and the Members of the General Assembly:

On behalf of the Board of Directors of the Diabetes Initiative of South Carolina (DSC,) I am pleased to present our Twentieth Annual Report (calendar year 2014). This report was requested in the Diabetes Initiative of South Carolina Act, Chapter 39, Section 44-39.

Diabetes mellitus is a major public health problem in South Carolina. In 2013, South Carolina ranked fourth highest in the nation in the percent of adult population with diabetes.

The DSC is committed to the reduction of excess economic and health burdens linked to the diabetes epidemic in our state. DSC works to partner with other programs that facilitate activities and interventions creating a cost efficient network for diabetes care throughout South Carolina. The DSC sponsors many programs, which focus on the importance of blood glucose control, blood pressure control, healthy eating, weight control, physical activity, foot care, and reducing disparities in health care delivery. The DSC reports the prevalence of kidney failure, blindness, stroke, heart disease, and amputations in people with diabetes in South Carolina. The DSC board is composed of members from numerous sources throughout the state, including academic medical centers, clinicians, certified diabetes educators, the South Carolina Hospital Association, SC DHEC, SC DHHS, and the South Carolina Medical Association.

A major function of DSC is the organization of several educational programs for various health professionals about diabetes and its complications. DSC has sponsored twenty Annual Diabetes Fall Symposia for Primary Health Care Professionals highlighting education and different aspects relating to diabetes mellitus. This symposium is an annual 2-day statewide program that supplies both a comprehensive diabetes management update to all primary care professionals and an opportunity for attendees to obtain CMEs, CEUs, and other continuing education credits at a low cost. Additionally, DSC sponsors a Diabetes Strategies for the Twenty-First Century Symposium annually in the winter. In March, DSC offers a Diabetes Under the Dome Day that occurs at the legislature to provide screening for diabetes and educational input about diabetes for our state’s representatives and other professionals at the state house.

We thank you for your past support and hope that you will accept the DSC accomplishments as part of your administration. We look forward to providing you the new 2015 strategies and successes on behalf of the DSC related activities 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
EXECUTIVE SUMMARY
EXECUTIVE SUMMARY

- Diabetes affects 29.1 million people, which is approximately 9.3 percent of the U.S. population. There are about 21.0 million people diagnosed with diabetes and 8.1 million people undiagnosed with diabetes.¹

- In 2013, South Carolina ranked fourth highest in the nation in the percent of adult population with diabetes.²

- Approximately 1 in 6 African-Americans in South Carolina has diabetes. South Carolina had the 3rd highest rate of diabetes among African-Americans in the nation.²

- About 81 percent of adults with diabetes have high blood pressure.²

The purpose of the Diabetes Initiative of South Carolina (DSC) is to develop and incorporate a comprehensive statewide plan of community outreach programs, health professional education, and diabetes surveillance. The Diabetes Initiative is committed to lowering the severe complications and cost burden of diabetes in the state by providing the tools for management of the disease.³

The partnerships, via the effort of three Councils (Outreach, Diabetes Center, and Surveillance), achieved great successes during 2014.

The Outreach Council:

The mission of the outreach council is to oversee and direct efforts in patient education for primary care to include: promoting adherence to national standards of education, ongoing assessment of patient care, costs, and reimbursement issues for persons with diabetes in South Carolina. The DSC continues to work closely with the Diabetes Advisory Council to assess community needs and maintain an efficient and consolidated outreach effort. These programs have increased diabetes awareness and continue to motivate patients with diabetes to maintain their care. Over 210 children and youths with diabetes attended Camp Adam Fisher, where they learned the latest news about diabetes management from their peers and from volunteer health professionals. The DSC sponsored the Diabetes under the Dome Day at the Legislature on March 20, 2014. The purpose of this program is to increase awareness related to diabetes and associated risks and to screen the general assembly members and other legislative professionals for diabetes or prediabetes with a finger stick glucose, A1C, height, waist circumference, BMI, and blood pressure.⁴ People who are identified with risks or prediabetes can reduce their chances of developing diabetes by increasing physical activity and losing a small amount of weight. The program was met with great success and overall 57 people were screened.

The coalition of the Racial and Ethnic Approaches to Community Health (REACH), continued to work diligently with Georgetown and several rural counties in its efforts for diabetes prevention and control. Led by Dr. Carolyn Jenkins, DSC and the College of Nursing, with funding from Sanofi, a screening program to identify risks for diabetes in rural SC is currently underway in Bamberg County and surrounding areas. The program uses the American Diabetes Association Risk Test and will screen up to ~1000 persons for risk factors for diabetes, including A1C, blood pressure, lipids, BMI, and waist circumference. Results are discussed with participants, action plans developed, and (with permission), the data are shared with the participants’ primary care provider (PCP). If participants have no PCP, they are linked to health care providers in the area.
Diabetes Center Council:
The mission of the Diabetes Center Council is to develop and implement a comprehensive statewide plan of community outreach programs, professional education, and health & diabetes surveillance. The 20th Annual Diabetes Fall Symposium for Health Care Professionals was held on September 18 & 19, 2014 in North Charleston. The total attendance for the Symposium was 225 participants. The Diabetes Strategies Program took place on February 3 & 4, 2014 at the North Charleston Convention Center. The total attendance for the Strategies Program was 86 participants.

MUSC had a Joint Commission telephone conference call in December 2014 for an update by JC-ADA regarding advanced inpatient diabetes management and passed with no citations.

The Surveillance Council:
The mission of the surveillance Council is to acquire, analyze and distribute epidemiologic information about diabetes. Dr. Patsy Myers resigned as Chair of the Surveillance Council and a search is currently underway to find a suitable replacement. Dr. Myers and the Surveillance Council members reviewed the individual goals for the Council and the goals were reorganized and rewritten to consolidate and update for the current measures.

Diabetes is a huge problem in South Carolina; however, the DSC provides a realistic mechanism to address issues on a statewide basis. The Burden Report assesses progress and provides evidence of significant decreases in amputations and mortality. The overarching goal of the DSC is for these programs and the development of new targeted initiatives which will lead to continuous improvements in the care of people at risk and with diabetes, along with a decrease in 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, overweight/obesity) was occurring. It was evident that an action plan was needed.
ORGANIZATION CHART
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.
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.

In 2012 the Diabetes Initiative of SC began writing its second 10 Year Strategic Plan. It is hoped that the Plan will be completed by mid-2015.
BUDGET
AND
RESEARCH GENERATED IN PARTNERSHIP WITH DSC
RESEARCH GENERATED IN PARTNERSHIP WITH DSC

We are pleased to report major partnership opportunities in diabetes research for fiscal year 2014.

1. 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. PI: Louis M. Luttrell, MD, PhD

2. 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


4. LEADER: Liraglutide Effect and Action in Diabetes: Evaluation of Cardiovascular Outcome Results: A Long-term, Multi-centre, International, Randomized Double-blind, Placebo-controlled Trial to Determine Liraglutide Effects on Cardiovascular Events. PI: Kathie Hermayer, MD

5. REACH U.S. SEA-CEED: Improving Hypertension and Obesity Outcomes for African Americans. PI: $1.138 million from Centers for Disease Control and Prevention through National REACH Coalition. PI: Carolyn Jenkins, DrPH, APRN-BC

6. Technology Intensified Diabetes Education Study in African Americans with Type 2 Diabetes Mellitus (TIDES). The proposed K24 application is designed to support the career and research trajectory of the candidate by providing protected time to conduct patient-oriented research on interventions to reduce complications and deaths from diabetes in ethnic minority groups and mentor the next generation of women and minority clinical investigators in health disparities research. Sponsor: NIH/NIDDK. PI: Leonard E. Egede, MD

7. Technology-Intensified Diabetes Education/Skills Intervention in AAs with DM-2 (TIDES). The major goals of this project are to study the effectiveness of telephone delivered diabetes knowledge/information and motivation/behavioral skills for improved glycemic control in diabetic patients. Sponsor: NIH/NIDDK PI: Leonard Egede, MD

8. Tablet-Aided Behavioral Intervention Effect on Self-Management Skills (TABLETS) The major goal of the proposed research is to conduct a randomized clinical trial to test the effectiveness of a telephone-delivered behavioral lifestyle intervention on improving self-management behaviors in rural populations at high risk of cardiovascular disease. Sponsor: NIH/NIDDK. PI: Cheryl Lynch, MD. Co-I: Leonard Egede, MD

9. Charleston Health Equity and Rural Outreach Innovation Center (HEROIC) Goal: To improve access and equity in health care for all Veterans by eliminating geographic, racial/ethnic, and gender-based disparities. VA HSR&D Center Award. Center Director: Leonard Egede, MD

10. National Chronic Disease Screening Program (NCDSP): Screening for Diabetes in Underserved Rural Communities in South Carolina
This study will document the primary barriers and facilitators for diabetes screening and actions to reduce risks for diabetes in Bamberg County through formative focus group and key informant interview research with community members, ministers, and leaders; people with diabetes and their families; primary care, specialist providers, and public health practitioners.

11. **Transforming Patient-Centered Medical Homes into Medical Communities for Underserved Rural Patients (TPCMH-MCURP)**
   The purpose of this study is to improve diabetes management from hospital to home.
   Research specific aims are to document the primary barriers and facilitators of diabetes management and transitional care in Bamberg County through formative research with local hospital staff (at Orangeburg Regional Hospital as local hospital closed), primary care and specialist providers, public health practitioners, and high risk diabetes patients and their families. PI: Carolyn Jenkins, DrPH, APRN-BC

12. **South Carolina Division of Diabetes, Heart Disease, Obesity, and School Health –DHEC (Two sources of funding):**
   SC DHEC’s Division of Diabetes, Heart Disease, Obesity, and School Health is funded through two grants by the Centers for Disease Control and Prevention. In collaboration with multiple partners, contractors and community organizations, the division proposes to implement targeted strategies that will have statewide reach and impact multiple population groups to achieve improved chronic disease outcomes. The initiatives are focused on health systems interventions to improve the effective delivery and use of clinical and other preventive services; and community-clinical linkages to support heart disease and diabetes prevention and control. The Diabetes Initiative of South Carolina is a major clinical partner to the program and their goals and objectives are complementary. PI: Rhonda L. Hill, PhD, CHES

13. **Greenville Hospital System Employees with Uncontrolled Diabetes Mellitus, Disease Management Pilot with Wireless Meter and CDE Co-management.** PI: John Bruch, MD

### SUMMARY OF RESEARCH GENERATED IN PARTNERSHIP WITH DSC

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<th>PROJECT</th>
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<th>(APPROXIMATE SUPPORT)</th>
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<tr>
<td>2. LEADER Trial</td>
<td>A. Rizvi</td>
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<td>3. SPRINT</td>
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<td>4. LEADER Trial</td>
<td>K. Hermayer</td>
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<td>5. REACH SEA-CEED</td>
<td>C. Jenkins</td>
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<td>6. TIDES</td>
<td>L. Egede</td>
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<td>9. HEROIC</td>
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<td>10. NCDSP</td>
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<td>11. TPCMH-MCURP</td>
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<td>12. SC DHEC</td>
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<td>13. GHS Pilot Program</td>
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<td>TOTAL</td>
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<td>$7,089,937</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 $34.7 million, and yearly funding is $7 million. This yearly extramural funding is more than 24.5 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 12 long-term projects which address a wide variety of issues relating to diabetes and its complications.
Diabetes Initiative of South Carolina  
Outreach Council  
January 1, 2014 – December 31, 2014  
Annual Board Report  

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 3 times in 2014.  

Prominent Activities  
- DSC website updates (www.musc.edu/diabetes).  
- SC Guidelines for Diabetes Care, revised and updated.  
- SC Inpatient Guidelines for Diabetes Care final review.  
- Links established to American Diabetes Association (ADA), American College of Endocrinology (ACE), American Association of Diabetes Educators (AADE), Joint Commission on Accreditation of Healthcare Organizations (JACHO), Juvenile Diabetes Research Foundation (JDRF), and Agency for Healthcare Research and Quality (AHRQ).  
- Definition of who can be a provider and guidelines for billable diabetes care.  
- Information on how to become a Certified Diabetes Educator (CDE).  
- Patient literature provided by governmental websites.  

Programs and Activities of Outreach Council Partners to Address Diabetes  
- South Carolina Vocational Rehabilitation Department has taken 305 new referrals, served 894 cases, and rehabilitated 204 people with diabetes disability.  
- Diabetes education provided for 15 deaf mental health patients.  
- South Carolina Hospital Association continues to focus on improving diabetes control in hospitals in South Carolina. SC Inpatient Guidelines scheduled to be released in early 2015.  
- Camp Adam Fisher, South Carolina’s largest overnight camp for children with diabetes held on Lake Marion, June 14-21, 2014 had 200 campers this year.  
- Provided diabetes education for over 150 state employees in locations throughout the state in 2014.  
- “Diabetes,” SC Department of Revenue, 20 participants, 11/20/14.
• Planning Committee: DHEC 12th Annual Diabetes/Heart Disease and Stroke Prevention Winter Symposium, Myrtle Beach, March 7-8, 2014.
• “Diabetes Education,” 20 USC Physical Therapy students, 2 hour class.
• Family Practice Diabetes Education (Group) – 1st & 3rd Tuesday of every month.
• Family Practice Diabetes Education (Individual) – 2nd & 4th Tuesday and Wednesday
• Diabetes Today Advisory Committee (DTAC), 3rd Wednesday of every month; sponsor of SC Conference on Diabetes, Brookland Baptist Church, 285 participants November 3, 2014.
• Bamberg Transitions in Care for People with Diabetes—Focus groups to learn about needs from the perceptions of people with diabetes, their family, health care providers and community leaders with 20 participants and 3 groups
• MUSC College of Health Professions students from physical and occupational therapy-- 75 participants for 1 hour
• Georgetown Diabetes CORE Group—15 consultations to further improving diabetes outcomes for people at risk and with diabetes
• South Carolina Rural Health Conference November 19, 2014, Diabetes and Improving Health Disparities 2 hours
• Diabetes Related Lower Extremity Amputations Planning Meeting for PCORI—November 4, 2014 Invitation and Participation
• Community Organizing for Diabetes Prevention and Control---October 3-4, 2015 Mentoring Workshop. Invited presentation for Centers for Disease Control and Prevention
• Consultations with community groups and faculty related to community interventions and grant funding for diabetes: 42 consultations for 2014
• 5 PhD dissertations on diabetes/diabetes prevention/obesity
• Developed Guidelines for Community Screening in collaboration with others. Integrative review of screening programs under development. Screened approximately 400 persons from rural and underserved areas in SC for diabetes risks.

Programs/Grants

National Chronic Disease Screening Program:
Screening for Diabetes in Underserved Rural Communities in South Carolina

PI: Carolyn Jenkins, DrPH, APRN-BC
2014 Funding: $97,000 Total funding: $126,772 Years: 2014-2015

Short description: Sanofi Diabetes Screening Program

Aim 1: Document the primary barriers and facilitators for diabetes screening and actions to reduce risks for diabetes in Bamberg County through formative focus group and key informant interview research with community members, ministers, and leaders; people with diabetes and their families; primary care, specialist providers, and public health practitioners.

Aim 2: Based on findings from the research literature on screening for diabetes and Aim 1, develop diabetes screening and action program for community residents that includes:
• Public awareness and recruitment of ≥ 700 residents of Bamberg County and ≥ 300 residents of surrounding areas (Allendale County) to complete a “state of the science” self-assessment for risks of prediabetes and diabetes.
• Developing mobile health technologies for direct linking of screening data to primary care.
Screening > 500 (goal of 600) persons who are at increased risk for prediabetes and diabetes based on self-assessment of risk factors (using instrument developed in 2.a above). Screening will include: i) weight, height, waist circumference, BMI; ii) A1C and capillary glucose; iii) blood pressure; iv) lipids.

- Linking participants with community programs, primary care and follow-up for abnormal findings.
- Evaluation based on RE-AIM model and presentation of findings to community partners, participants, and scientific/practice communities.

Aim 3: Dissemination: Develop and disseminate a manuscript and toolkit to promote “best practices” for community screening of diabetes in rural communities.

Transforming Patient-Centered Medical Homes into Medical Communities for Underserved Rural Patients

PI: Carolyn Jenkins, DrPH, APRN-BC
2014 Funding: $78,000        Total funding: $150,000        Years: 2014-2016

The purpose of this study is to improve diabetes management from hospital to home.

Research specific aims are to:
Aim 1: Formative development of research: Document the primary barriers and facilitators of diabetes management and transitional care in Bamberg County through formative research with local hospital staff (at Orangeburg Regional Hospital as local hospital closed), primary care and specialist providers, public health practitioners, and high risk diabetes patients and their families. Using focus groups (FG) (i.e., qualitative approach), the following research questions will be addressed:
   A. What are the individual, interpersonal, health system, and community barriers and facilitators to diabetes and associated disease management and discharge from hospital to home among Bamberg residents?
   B. What are the recommended intervening strategies for reducing unnecessary hospital re-admissions and associated costs, and improve self-management success among individuals in Bamberg County?

Aim 2: Based on findings from the research literature and Aim 1, develop a medical home/community extender community health worker (CHW) intervention for high risk diabetes patients and their families that includes training in:
   • monitoring and tracking A1c and blood pressure
   • simple self-management coaching strategies
   • accessing/enhancing resources supporting medication management, discharge plan adherence, problem solving, and improved diet and physical activity.
   • addressing barriers and facilitators identified in Aim 1.

Aim 3: To test the impact and feasibility of a 3 month medical home/community extender CHW intervention for reducing unnecessary hospital re-admissions and associated costs, improve self-management success among individuals in Bamberg County, and conduct cost analyses of the intervention through a 3-group randomized control trial (RCT) feasibility pilot including:
   a) CHW in-home intervention;
   b) equipoise telephonic care by an RN;
   c) usual care.

10
Professional Education Activities

The Diabetes Strategies for the 21st Century program is intended to assist professionals in meeting the CE requirements for a non-CDE to work as a primary instructor in an ADA recognized program. This course reviews state-of-the-art diabetes care from pathophysiology to current trends in diabetes management and principles of teaching and learning, and will supplement study for certification as a diabetes educator.

- January 28, 2014 - attendance 92
- January 29, 2014 – cancelled due to inclement weather

Diabetes Under the Dome focuses on raising awareness of diabetes and its complications in the state of South Carolina. Free measurements will be performed for blood glucose levels, A1C levels, lipids, weight, blood pressure, and BMI. Representatives from the Diabetes Initiative of South Carolina, Medical University of South Carolina, Ralph H. Johnson VA Medical Center, REACH U.S. Diabetes Coalitions, American Diabetes Association, and PhRMA will be on hand to discuss diabetes and its complications with the SC legislators and statehouse staff.

- March 20, 2014 – 57 individuals were screened/educated
  - Volunteers included 7 people from the Diabetes Initiative of SC; 5 people from Presbyterian College of Pharmacy, 1 person from MUSC and 1 person from industry
  - Press conference held at 10am – Dr. Hermayer addressed the press
  - Pharma provided financial support for the testing supplies
  - DSC 2012 Annual Report distributed to governor and legislators

AHEC Diabetes Management in the Hospital – 4 hour program presented by Pamela C. Arnold, MSN, APRN, BC-ADM, CDE

- May 29, 2014 in Charleston
- June 20, 2014 in Hilton Head

20th Annual Diabetes Fall Symposium for Primary Health Care Professionals is an annual 2 day state wide program that not only provides a comprehensive diabetes management update to all primary care professionals, but also an opportunity for professionals to obtain CME, CEUs, etc at a low cost. Continuing education credits are provided for these health professionals who attend the Symposium: physicians, nurses, social workers, pharmacists, and registered dietitians. Outstanding local and national experts comprise the faculty, and interactive workshops provide exposure to and discussion of practical topics for attendees. For the past 19 years, 30-35 individuals have submitted scientific posters each year for a very popular poster session. Attendance at these symposia has grown steadily over the years, from 121 in 1994 to 272 attendees in 2013. Close to 3000 health professionals have attended these Symposia.

- September 11 & 12, 2014, North Charleston Convention Center, North Charleston, SC.
- Attendees: Day 1 - 225; Day 2 - 178

Hospital Guidelines for Diabetes Management – workshop at 20th Annual Diabetes Fall Symposium for Primary Health Care Professionals
Presented by Pamela C. Arnold, MSN, APRN, BC-ADM, CDE & Kathie L. Hermayer, MS, MD, FACE.
Certifications

Joint Commission Advanced Certification/MUSC Inpatient Diabetes Program
- Joint Commission Advanced Certification Intra-cycle call

MUSC – ADA Outpatient Education Recognition Program (2 sites)
- Annual Report - January 2014
- Random Audit performed in May 2014 – No Findings!

Screening for Diabetes in Underserved Rural Communities in South Carolina
Community Health Screening Program participation:
- April 2, 2014
- April 30, 2014
- August 1, 2014
- November 14, 2014

Regularly Scheduled Meetings

MUSC Hospital Diabetes Task Force
- Hospital Quality Committee
- MUSC ADA Committee: Pamela Arnold, MSN, APRN, BC-ADM, CD
  Chair, Diabetes Advisory Committee

Publications

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 quarterly meetings and communications via email, reports, and conference presentations.

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 the evaluation of patient and professional education programs. Specific efforts include:
  - 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.

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. Emergency department visit rates for diabetes are continuing to rise at an alarming rate.

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 have been identified in 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 2014. 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 DCS webpage continues to be a major resource for information and data regarding diabetes in South Carolina. The number of hits continues to increase each month. A major accomplishment of the Surveillance Council for 2014 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 continue to review and implement strategies for improvement in 2015.

**Accomplishments**

A summary of the major accomplishments follows:

- Developed and maintained a diverse group of investigators in South Carolina who focus their work on the study of diabetes.
- Maintained the DSC Webpage.
- 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.
- Produced trends reports
- Produced and distributed data slides which can be downloaded from the webpage
- Coordinated the scientific poster session in conjunction with the 2014 Diabetes Symposium. Thirty-one abstracts and posters were presented with three SC students receiving cash awards, three Community cash awards, three Clinical Practices cash awards, and three DSME programs cash awards.
- Maintained a working committee to utilize clinical databases to estimate the prevalence of diabetes in South Carolina.
The South Carolina Department of Health and Environmental Control (DHEC) is dedicated to the prevention of chronic disease disparities such as diabetes. DHEC’s overarching diabetes goals are to prevent complications, disabilities, and burden associated with diabetes as well as to eliminate diabetes-related health disparities.

Prominent 2014 Diabetes Related Initiatives That Have Assisted Us in Meeting Our Goals

I. State and Federal Updates:

DHEC’s Role on Obesity in SC

On September 24, 2014, the Obesity Action Plan was launched at the State Farmers Market amid several committed partners, media, and the community. The new five-year plan (2014-2019) is broken down into four targets – communities, work sites, health care and schools/child care. An online resource directory has been developed to help connect organizations working on similar obesity prevention initiatives. However, you are encouraged to complete the online form to be listed among the partners who are working to reduce and prevent obesity in South Carolina as well as check out the full state plan by going to scaledown.org. In addition, if you are interested in joining the mailing list or want more information on the plan, you can send an email to info@scaledown.org.

The Diabetes, Heart Disease, Obesity and School Health Division Grant Funds

DHEC has received $5,973,034.00 in funding through the Centers for Disease Control and Prevention (CDC) to support cross-cutting programs to prevent and control chronic diseases—the leading causes of death and disability in the United States. These funds support prevention and management activities across the state. Community strategies will support prevention efforts, focused particularly on those at high risk, to prevent diabetes, heart disease, and stroke. Health system interventions and efforts to link community programs to clinical services will aim to improve health care and preventive services to populations with the largest disparities in high blood pressure and prediabetes.

II. Diabetes Surveillance Systems:

Goal: Monitor the statewide diabetes burden and identify gaps to assist with planning, decision-making, and evaluation

Chronic Disease Fact Sheets

The 2014 Diabetes Fact Sheet has been updated and is now available on the DHEC website. If you are interested in other Chronic Disease Fact Sheets, you can contact the Division of Chronic Disease Epidemiology at 803-898-0570.

III. Health Systems Improvement:

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

Federally Qualified Health Center (FQHC) Clinical Symposium

The SC Primary Health Care Association (SCPHCA) partnered with DHEC to host a symposium for the FQHCs titled Clinical Symposium: Innovations for Improved Care on June 24, 2014. There were 42 participants representing 10 centers with presentations and panel discussions from clinical experts addressing clinical innovations related to blood pressure self-monitoring, the importance of screening for prediabetes, EHR modification, and team-based care strategies to improve quality of care for patients diagnosed with high blood pressure and diabetes.
Diabetes Self-Management Education/Training (DSME/T)  
Provider Recognition - DHEC is assisting with FQHCs and family medicine practices (FMPs) seeking recognition through the American Association of Diabetes Educators (AADE) to provide DSME/T. Through the 1305 grant funding, two FQHCs (Eau Claire Cooperative Health Centers and Beaufort, Jasper, Hampton Comprehensive Health Services) have become accredited DSME programs since March 2014. We are currently assisting two FQHCs (in Sumter and McClellanville) and four FMPs (in Lancaster, Columbia [2], and Rock Hill) that are currently teaching their first series of classes to complete the application process. Contracts are in development with an additional two FQHCs in SC. Discussions are continuing with two hospitals that are interested in expanding the reach of their DSME/T programs into additional counties. With the assistance of the SC Primary Health Care Association and the SC Academy of Family Physicians, the division will continue to identify other FQHCs and FMPs with an interest.

DSME/T Program Registry  
The annual updated registry of DSME/T programs in SC has been completed. The information collected has been used to GIS map the location of the sites. When completed, the updated registry and map will be disseminated to each of the DSME/T programs and will be available for distribution during professional continuing education meetings.

DSME/T Programs  
The division updated the DSME/T survey and contacted all of the DSME/T programs in SC. A map has been prepared to show the location of each site and whether the DSME/T program is associated with the American Diabetes Association (ADA) or the American Association of Diabetes Educators (AADE). There are currently 51 DSME/T programs in South Carolina, but there are still many areas within the state where residents do not have access to DSME/T classes. The survey results and map will be used to assist the division in targeting FQHCs and FMPs across the state who may be interested in developing a DSME/T program in areas that do not have access.

The division has supported four FQHCs in achieving recognition as a DSME/T program. These programs are now able to bill Medicare, Medicaid and private insurance for the DSME/T educational sessions. DHEC has a contract with the FQHCs, which entitles us to data on the number of patients seen through their programs and pre-and post-education A1C levels, showing improvement in blood glucose control and behavioral goals met.

The South Carolina Quality Improvement Process  
The division’s Health Systems Coordinator, presented at the Patient-Centered Medical Home (PCMH) Collaborative on February 28 and March 1 at the invitation of Blue Cross-Blue Shield of SC (BCBSSC). This collaborative brought together medical providers working with BCBSSC to become patient-centered medical homes. Information presented included the requirements for establishing an accredited/recertified DSME/T site, offer of technical assistance to work with BCBSSC member providers to facilitate the process and a toolkit developed for applying for accreditation/recognition.

Working with providers seeking PCMH recognition through increased access, referrals and reimbursement for DSME/T across SC is part of the division’s grant deliverables. DSME/T meets the National Committee for Quality Assurance standard for recognition as a PCMH by providing patient self-management and support programs. In addition to meeting this standard, DSME/T programs are reimbursable services through Medicare, Medicaid and many private insurers. Educating providers on the DSME/T program may increase their patient referrals to an existing program as well as interest providers in applying to establish their own DSME/T site.

The 12th Annual Chronic Disease Prevention Winter Symposium  
The 12th Annual Chronic Disease Prevention Symposium, Integrated Chronic Disease Prevention and Management: Taking Action Together was held on March 7 - 8, 2014 at the Sheraton Myrtle Beach Convention Center Hotel in Myrtle Beach, SC. There were 101 health care providers from
across the state of South Carolina as well as participants from North Carolina, and Colorado. Annual recognition awards were made in three categories and the 2014 recipients were: Diabetes Champion of the Year: Edward M. Behling, MD; Certified Diabetes Educator of the Year: Constance Hopkins, RN, CDE; and Hypertension Champion of the Year Award: Jan N. Basile, MD, FACP, FASH.

The 13th Annual Chronic Disease Symposium will be held on March 13 - 14, 2015. The symposium theme is Professional Collaboration for Chronic Disease Management: Innovative Approaches. For more information, contact Sarah Smith at (803) 898-1646 or smithsp@dhec.sc.gov.

IV. Community Awareness and Outreach:

Goal: Increase diabetes knowledge and awareness across disparate and hard to reach communities.

Diabetes Prevention Recognition Program (DPRP)

South Carolina currently has three programs pending recognition on the National Registry of Recognized Diabetes Prevention Programs list. They are Beaufort Jasper-Hampton Comprehensive Health Services in Beaufort, Palmetto Primary Care Physicians in North Charleston, and the Phoenix Wellness Center in Sumter. Pending recognition status means that they have agreed to the curriculum, duration, intensity, and reporting requirements described in the DPRP Standards and agreed to provide data reports to DPRP every six months. Programs remain in pending recognition status for 24 months at which time full recognition is awarded to programs that meet the performance requirements described in the DPRP Standards.

One of the division’s goals is to provide technical assistance in the identification and recruitment of sites within underserved counties that have the capacity to establish a DPRP. Therefore, the Lifestyle Intervention Coordinator has been meeting with community-based organizations to scale their capacity to implement and sustain an active DPRP.

Diabetes Prevention Program (DPP)

FQHCs and Faith-based Organizations: The Lifestyle Intervention Coordinator is following up with three Federally Qualified Health Centers (one in the Midlands - Eau Claire and two in Pee Dee - Hope Health and Care South) that completed our capacity assessment tool stating that they are interested in implementing the DPP onsite. Likewise, three faith based organizations expressed interest in implementing the DPP after an engaging presentation at The Faith-In-Action Roundtable for Health Ministries sponsored by Hold Out the Lifeline: A Mission to Families.

YMCA’s

The Lifestyle Intervention Coordinator is working with the Community Systems Directors (CSDs) in the four DHEC public health regions to determine organizations in their communities that have the capacity to implement and sustain a DPP. One notable organization that the division is partnering with is the YMCA. CDC funded YMCA USA $9M last year to rollout pilots using NDPP strategies in pockets nationally due to reach and impact of YMCA’s. Several SC YMCA’s have expressed interest in implementing the Y-DPP, such as the Upper Palmetto YMCA in Rock Hill and the Sumter YMCA. However, the Columbia YMCA (serving Richland, Lexington, Orangeburg, Fairfield, Bamberg, Kershaw and Calhoun counties) is the only YMCA in SC that has submitted their capacity application to the YUSA headquarters and has demonstrated the capacity to implement the Y-DPP.

WISEWOMAN Partnership

The division is collaborating with DHEC’s WISEWOMAN (WW) program to identify healthcare centers, YMCA’s, and community-based organizations with the capacity to implement and sustain a DPP. Identified sites will designate two persons each, up to 28, to become lifestyle coach trainers. Technical assistance will be provided to the WW program to schedule up to four facilitator trainings (YDPP and/or DPP), assist with inputting participant data information, and other activities related to program recognition. This activity allows the WW Program to offer an evidence-based lifestyle program to their WW participants.
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Kathie L. Hermayer, MD, MS  
Endocrinology, MUSC

Carolyn Jenkins, DrPH, APRN, RD, CDE  
College of Nursing, MUSC

Louis M. Luttrell, MD, PhD  
Director, Diabetes Center of Excellence, Division of  
Endocrinology, Diabetes & Medical Genetics,  
MUSC

**Advisory Member:**
John A. Colwell, MD, PhD, CDE  
Past DSC Board Chair;  
Professor Emeritus, MUSC
Outreach Council

Members
Elizabeth Todd Heckel, MSW, CDE (Chair) DSC Midlands Site, USC
Pamela Arnold, MSN, APRN, BC-ADM, CDE Chair, Diabetes Center of Excellence Council, MUSC
Yaw Boateng, MS, MPH, RD, LD, CDE Carolina Diabetes and Kidney Center, Sumter
Cyglinda Boykin, LPN, BS Blue Choice HealthPlan
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Rhonda Hill, PhD, CHES SC DHEC, Division of Diabetes, Heart Disease, Obesity, and School Health
Angela D’Antonio Hitch USC, Epidemiology & Biostatistics, School of Public Health
Kelly Hunt, PhD MUSC, Dept. of Biostatistics & Epidemiology
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Tommy Johnson, PharmD, BC-ADM, CDE Presbyterian College, School of Pharmacy
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Daniel Lackland, DrPH Piedmont Medical Center
Louis M. Luttrell, MD, PhD MUSC, Dept. of Biostatistics & Epidemiology
Diane Mathews, MS, MT (ASCP)SH Director, Diabetes Center of Excellence, Division of Endocrinology, Diabetes & Medical Genetics, MUSC
Edi McNinch, RN, CDE Lowcountry AHEC
Andrea Cantey Miller SC DHEC, Home Health Services
Michelle Moody, BA SC DHHS, Office of Minority Health
Aunyika Moonan, PhD SC DHHC, Division of Diabetes, Heart Disease, Obesity, and School Health
Patsy Myers, DrPH, RD, MS SC Hospital Association
Jennifer O’Donnell, MHA SC DHEC – Chronic Disease Epidemiology
Marla Riley Palmetto Physicians Research Group
Ali Rizvi, MD, CDE SC DHHS
Carmen Santiago USC School of Medicine, Internal Medicine
Sarah P. Smith, MAT, RD, LD, CDE Chair, SC Hispanic/Latino Outreach
Wendy Taylor, RN, CDE SC CHEC, Health Systems Coordinator
Eileen DeBauche Ward, PharmD Palmetto Community Health Network
R. Anne Woodward, MSN, MHA, BSN Presbyterian College, School of Pharmacy
Nurse Manager, Trident Medical Center

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### Members

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<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Patsy Myers, DrPH (Chair)</td>
<td>SC DHEC – Chronic Disease Epidemiology</td>
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<tr>
<td>Robert Adams, MD</td>
<td>Department of Neurology, MUSC</td>
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<td>SC DHEC – Diabetes &amp; Disparities</td>
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<td>Chris Finney</td>
<td>SC Office of Research &amp; Statistics</td>
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<td>K. Sue Haddock, RN, PhD</td>
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<td>Kelly Hunt, PhD</td>
<td>Dept. of Biostatistics &amp; Epidemiology, MUSC</td>
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<tr>
<td>Edward C. Jauch, MD</td>
<td>Division of Emergency Medicine, MUSC</td>
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<td>Carolyn Jenkins, DrPH, APRN, RD, CDE</td>
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<td>Blue Cross Blue Shield of SC</td>
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<tr>
<td>Aunyika Moonan, PhD, MSPH, CPHQ</td>
<td>SC Hospital Association, Director of Quality Measurement Services</td>
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<td>Jennifer O’Donnell, MHA</td>
<td>Palmetto Physicians Research Group</td>
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<td>Lisa Wear-Ellington</td>
<td>SC Business Coalition on Health, President/CEO</td>
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<td>Odessa Ussery, Med, CCMEP</td>
<td>Director, Office of CME, MUSC</td>
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<tr>
<td>Jenifer H. Voeks, PhD</td>
<td>Department of Neurosciences, MUSC</td>
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SC DHEC
Division of Diabetes, Heart Disease, Obesity, and School Health Staff

Kristian G. Myers, MPH, CHES
Rhonda L. Hill, PhD, MCHES
Kay Lowder, MPH, CHES
Tiffany Mack, BS, CHES
R. Michelle Moody, MPH, CHES
Patsy Myers, DrPH
Teresa Robinson, MBA
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Division Director
Community Clinical Linkages Coordinator
Program Assistant
Lifestyle Intervention Coordinator
Chronic Disease Epidemiologist
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