**People with Diabetes**

- Every year an estimated 28,000 people in South Carolina are diagnosed with diabetes.\(^1\)
- South Carolina had the 7th highest prevalence of diabetes among adults in the nation in 2014. One in nine adults has diabetes.\(^2\)
- Approximately one in six African-Americans has diabetes, compared to one in ten white adults.\(^2\)
- One in four over the age of 65 has diabetes in South Carolina. Additionally, one in six has prediabetes in this growing age group. Additionally, one in seven has prediabetes in this growing age group.\(^2\)
- One in five adults with an annual household income of less than $15,000 has diabetes.\(^2\)

**Diabetes Death**

- Diabetes is the 7th leading cause of death in South Carolina.\(^2\) In 2015, three people died each day from diabetes, about one death from diabetes every 8 hours.\(^2\) The death rate from diabetes for African-Americans was two times higher as compared to whites.\(^2\)

**Hospitalization and Charges for Diabetes**

- In 2015, around 26,000 diabetes hospitalization and ER visits occurred in SC, with charges of more than $419 million.\(^2\)
- The cost of care for all South Carolinians with diabetes and prediabetes is estimated at over five billion dollars each year. Less than one quarter of this cost is paid by private insurance, and the public portion is expected to exceed three billion dollars in 2020.\(^3\)

**Diabetes Risk and Complications**

- 4 out of 5 adults with diabetes in South Carolina are overweight or obese.\(^2\)
- 8 out of 10 adults with diabetes have hypertension.\(^2\)
- 2 out of 3 adults with diabetes have high cholesterol.\(^2\)
- Prevalent cases of end-stage renal disease attributable to diabetes in adults have increased by 32% in SC in the last 10 years.\(^4\)
- 4 out of 9 persons with diabetes have not taken a diabetes self-management class.\(^2\)

---

March 9, 2018

To Governor Henry McMaster 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 twenty-third Annual Report (calendar year 2017). The report was requested in the Diabetes Initiative of South Carolina Act, Chapter 39, Section 44-39.

Diabetes is a major public health problem in South Carolina; however, the Diabetes Initiative of South Carolina (DSC) provides a realistic mechanism to address issues on a statewide basis. In 2017, South Carolina ranked 7th highest in the nation in the percent of adult population with diabetes. The prevalence of diabetes increases with age, particularly among those 45 years of age and older. About 1 in 6 African-Americans in South Carolina has diabetes. In the US, South Carolina had the 17th highest rate of diabetes among African-Americans in the nation.

DSC has a wide variety of representation on the DSC Board of Directors, and the Center of Excellence Council, Surveillance Council, and Outreach Council. Different individuals throughout the state are on the DSC board, such as representatives from academic medical centers, clinicians, certified diabetes educators, SC Hospital Association, SC DHEC, SC DHHS, and the SC Medical Association. This past November DSC published a 10-year Strategic Plan for statewide goals relating to diabetes from 2017-2027.

The DSC has developed several programs for the education of a variety of health professionals about diabetes and its complications. DSC has sponsored 22 Annual Diabetes Fall Symposia for Primary Health Care Professionals featuring education and all aspects of diabetes mellitus. This symposium is an annual statewide program that supplies 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. DSC also sponsors a Diabetes Strategies for the Twenty-First Century Symposium, held annually in the winter. Additionally, the DSC sponsors a Diabetes Under the Dome day, which is a day in March at the SC State House providing assessments for diabetes and educational input about diabetes for our state’s representatives and other professionals.

Thank you for your past support, and we hope you will accept these achievements as part of your administration. We look forward to providing you the successes for 2018 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

Enclosure
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>1</td>
</tr>
<tr>
<td>Historical Background</td>
<td>3</td>
</tr>
<tr>
<td>Organization Chart</td>
<td>4</td>
</tr>
<tr>
<td>Budget and Research Generated</td>
<td>6</td>
</tr>
<tr>
<td>Outreach Council Annual Report</td>
<td>11</td>
</tr>
<tr>
<td>Diabetes Center Council Annual Report</td>
<td>13</td>
</tr>
<tr>
<td>Surveillance Council Annual Report</td>
<td>15</td>
</tr>
<tr>
<td>S.C. DHEC Statewide Diabetes Activities</td>
<td>18</td>
</tr>
<tr>
<td>Board of Directors and Council Members</td>
<td>20</td>
</tr>
</tbody>
</table>

For more information, please visit our website

http://www.musc.edu/diabetes
EXECUTIVE SUMMARY

- Diabetes affects 30.3 million people, which is approximately 9.4 percent of the U.S. population. There are about 23.1 million people diagnosed with diabetes and 7.2 million people undiagnosed with diabetes.\(^1\)
- In 2014, South Carolina ranked seventh in the nation in the prevalence of diabetes mellitus.\(^2\)
- About 1 in 6 African-Americans in South Carolina has diabetes.\(^2\)
- The prevalence of diabetes increases with age, particularly in those 45 years of age and older\(^2\)
- About 79 percent of adults with diabetes have high blood pressure.\(^2\)
- Uncontrolled diabetes can lead to many complications including blindness, kidney failure, heart attacks, strokes and amputations.\(^2\)
- Diabetes is the seventh leading cause of death in South Carolina after heart disease, cancer, chronic lower respiratory disease, accidents, stroke, and Alzheimer’s.\(^2\)
- In 2015, three people died each day from diabetes, about one death from diabetes every 8 hours.\(^2\)
  The death rate from diabetes for African-Americans was two times higher as compared to whites.\(^3,4\)

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 in South Carolina. The DSC is committed to lowering the severe complications and cost burden of diabetes in the state by providing the tools for management of the disease.

The partnerships, via the effort of three Councils (Outreach, Diabetes Center, and Surveillance), achieved much success during 2017.

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 Outreach Council provides an annual report for the DSC Board. The DSC continues to work closely with the SC DHEC to assess community needs and maintain an efficient and consolidated outreach effort.

The Outreach Council supported efforts towards the national publication for primary care professionals and other subspecialists for the May/June 2017 special supplement issue of the *Journal of the South Carolina Medical Association*: Diabetes in South Carolina, Volume 113, Number 2, Pages 81-128. Contents of this journal include an overview of the State of Diabetes in South Carolina, Diabetes Treatment Options, South Carolina Guidelines for Diabetes Care 2017, Insulin Signaling and Insulin Resistance, General Approach to the Management of Type 2 Diabetes, A Case Report about a Rapidly Progressive Insulinoma, Commentary by Dr. Gerard Wilson of the Diabetes Advisory Council, Diabetes and Mental Health, and A South Carolina Diabetes Toolkit.\(^5\) A copy of the *Journal of the South Carolina Medical Association*: Diabetes in South Carolina special supplement, is included in the package of information supplied to the members of the SC legislative body.

Outreach efforts have increased diabetes awareness and continue to motivate patients with diabetes to maintain their care.
Over 230 children and youths with diabetes attended Camp Adam Fisher from June 10-16, 2017 where they learned the latest news about diabetes management from their peers and from volunteer health professionals.

The DSC sponsored its annual Diabetes under the Dome day at the Statehouse on March 15, 2017. The purpose of this event 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, blood pressure and cholesterol/lipids. People who are identified with risks or prediabetes can reduce their chances of developing diabetes by increasing physical activity and losing weight. Even a 5-10 pound weight loss reduces risks. The event was met with great success and overall 45 people were assessed.

The Diabetes Center Council:
The mission of the Diabetes Center Council is to work with health care providers to improve care of persons with diabetes. The 23rd Annual Diabetes Fall Symposium for Health Care Professionals was cancelled due to Hurricane Irma and has been rescheduled for September 15, 2018. The Diabetes Strategies program was held on February 2-3, 2017 at the North Charleston Marriott. The total attendance for the Diabetes Strategies program was 86 participants.

The Surveillance Council:
A major accomplishment of the Surveillance Council for 2017 has been to finalize and publish the Ten-Year Strategic Plan for the Diabetes Initiative of South Carolina: 2017 - 2027. A copy of the Strategic Plan is included in the package of information supplied to the members of the SC legislative body. The Surveillance Council will analyze the data for diabetes in SC, in conjunction with other statewide organizations such as DHEC and the SC Hospital Association, in order to track progress of the goals set in the Strategic Plan. The Council will work on developing metrics for measuring and monitoring complications associated with diabetes (i.e. amputation is still an important metric). The Surveillance Council will annually track progress of the Strategic Plan goals and conduct periodic reviews every three years, with the first formal review taking place in 2020.

Conclusion:
Diabetes is a vast problem in South Carolina; however, the DSC provides a realistic mechanism to address issues on a statewide basis. The DSC continues to assess progress and provide evidence of significant decreases in co-morbidities and mortality. The overarching goal of the DSC is to provide professional education, community outreach, and the development of targeted initiatives which will lead to continuous improvements in the care of people at risk and with diabetes. These strategies will help reduce the morbidity, mortality, and costs of diabetes and its complications in South Carolina.

References:
3. Public Health Statistics and Information Services (PHSIS)
4. SC Department of Health and Environmental Control (SC DHEC), Division of Biostatistics
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 individuals with diabetes.

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.
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 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 Division of Diabetes, Heart Disease, Obesity, and School Health of the SC Department of Health and Environmental Control, and regularly examines 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.

DSC also regularly interacts with the American Diabetes Association, the Carolinas Center for Medical Excellence, the SC Vocational Rehabilitation, the SC Hospital Association, the Hypertension Initiative of SC and the SC 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 DSC 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.

The DSC recently completed and published its 2017 - 2027 10-Year Strategic Plan. The Surveillance Council and the DSC Board of Directors will continue to monitor and annually track progress of the Strategic Plan’s goals, and conduct periodic reviews every 3 years.
BUDGET
AND
RESEARCH GENERATED IN PARTNERSHIP WITH DSC
DSC OPERATING BUDGET

FY 2016 – 2017

State Appropriation $  289,088
Less Cuts      165,617
Total Budget  $  123,471

CLINICAL RESEARCH GENERATED IN PARTNERSHIP WITH DSC

We are pleased to report major partnership opportunities in diabetes research for fiscal year 2017.

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. **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 patients with poorly controlled type 2 diabetes. PI: Leonard Egede, MD

3. **Charleston Health Equity and Rural Outreach Innovation Center (HEROIC)**. Goal: The Charleston HEROIC is one of 19 nationally funded VA HSR&D Centers of Innovation (COIN). The VA HSR&D initiated the COIN program to promote innovative research, facilitate partnerships and collaboration across disciplines, and increase the impact of health services research on the health and health care of Veterans. HEROIC's mission is to improve access and equity in healthcare for all Veterans by eliminating geographic, racial/ethnic, and gender-based disparities. VA HSR&D Center Award. Center Director: Leonard Egede, MD

4. **SC DHEC’s Division of Diabetes, Heart Disease, Obesity, and School Health**

   The division is within DHEC’s Bureau of Chronic Disease and Injury Prevention’s Health Promotion and Wellness Office. The goals, strategies and activities are funded through the Centers for Disease Control and Prevention. In collaboration with multiple partners, contractors and community organizations, the division implements strategies that have targeted and statewide reach and impact on multiple population groups to achieve improved chronic disease outcomes. The division is charged to lead South Carolina’s healthy eating and active living policy, systems, and environmental approaches to reduce obesity and obesity-related chronic conditions; 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 and many of their goals and objectives are complementary. PI: Rhonda L. Hill, PhD, MCHES

5. **The Role of Sphingolipids in the Development of Diabetic Nephropathy:**

   The goal of this project is to examine the association and predictive ability of sphingolipids in relationship to diabetic nephropathy in individuals with type 1 diabetes using the DCCT/EDIC study population. Co-PIs: Maria Lopes-Virella, MD, PhD and Rick Klein, PhD

6. **Monitoring and Managing Newly Healed Chronic Leg and Foot Ulcer Skin Temperature: A Cooling Intervention (MUSTCOOL) to Prevent Ulcer Recurrence:**

   The goal of this study is to test MUSTCOOL, a home-based self-monitoring and self-management ulcer prevention intervention for patients with newly healed chronic venous leg and diabetic foot ulcers. Most ulcers recur within 3 months of healing. During the six-month randomized clinic trial, skin temperature will be monitored daily, a maintenance dose of cooling gel pack or placebo will be applied three times weekly to the affected skin, and a bolus dose of cooling will be applied for 5 consecutive
days if skin temperature becomes elevated. We will measure outcomes on the incidence of ulcer recurrence, pain, physical activity and quality of life. PI: Theresa Kelechi, PhD, RN, FAAN

7. **Novel Intervention Linking Public Housing with Primary Care to Prevent Diabetes**
The goal of this R34 two-year planning project is to develop, implement, and evaluate a pilot translational, DPP intervention. We propose to partner with the City of Charleston Housing Authority and the Fetter Health Care Network (FHCN), a federally qualified health center (FQHC) primary care network to refine and pilot test a community-based, behavior focused DPP intervention to reduce obesity and diabetes risk in public housing residents who are already eligible for FHCN/FQHC services. This 2-year R34 project will use a randomized wait list control design to allocate participants to a translational community based DPP intervention or FHCN/FQHC usual care. PI: Gayenell Magwood, PhD, RN, FAAN

8. **Community-based Intervention under Nurse Guidance after Stroke (CINGS)-Wide Spectrum Investigation of Stroke Outcome Disparities on Multiple Levels (WISSDOM) Center**
The researchers are developing a community-partnered approach (CBPR) for patients at highest risk for future stroke to design a system for a theoretical, multi-level, novel intervention to control the premier stroke risk factor, hypertension. PI: Gayenell Magwood, PhD, RN, FAAN

9. **Environmental Contributors to Child Health Originating from National Fetal Growth Study (ECHO)** is a study to follow-up children enrolled in the NICHD fetal growth studies. The proposed study provides an unprecedented opportunity to understand mechanisms of in utero exposures on risk of childhood outcomes of public health significance including obesity and neuro-behavioral outcomes. PI: John Vena and Ronald Wapner

10. **SPRINT-ASK**: an extension of the Systolic Blood Pressure Intervention Trial (SPRINT) in subjects who are either elderly or have cognitive dysfunction or kidney disease. PI: Ali Rizvi, MD

11. **South Carolina Cancer Disparities Research Center (SC CADRE) - Community Outreach Core**
This five-year U54 proposal is a collaborative, inter-institutional partnership between South Carolina State University (SCSU), an Historically Black University (HBCU), and the Medical University of South Carolina Hollings Cancer Center (MUSC-HCC), a National Cancer Institute-designated cancer center. The SC CADRE has three major themes. The first focuses on evaluating the relationship between obesity and prostate and breast cancer disparities. The second theme emphasizes evaluation of advanced glycation endproducts (AGEs) as a novel biomarker related to cancer, cancer disparities, and obesity. The third theme highlights the inclusion of a population unique to the US southeastern coastal region, the Sea Island (SI)/Gullah population. PI (CORE Lead): Gayenell Magwood, PhD, RN, FAHA, FAAN

12. **Everyone with Diabetes Counts**
The Carolinas Center for Medical Excellence, as part of the Atlantic Quality Innovation Network (AQIN-SC), implements the national Everyone with Diabetes Counts initiative in South Carolina for the Centers for Medicare and Medicaid Services. The program empowers diabetics to manage their condition; 1,352 Medicare beneficiaries completed program as of 9/30/17. Its research component focuses on lab values, weight, and blood pressure before and after receiving the education. Data are also analyzed on the frequency of professional foot exams and eye exams to determine the effect of self-management education on patient adherence to standards of care. P.I.: Sarah P. Smith, MAT, RD, LD, CDE
SUMMARY OF CLINICAL RESEARCH GENERATED IN PARTNERSHIP WITH DSC

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>P.I.</th>
<th>YEARLY</th>
<th>TOTAL</th>
<th>YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. EDIC</td>
<td>L. Luttrell</td>
<td>164,207</td>
<td>1,846,434</td>
<td>2006-2017</td>
</tr>
<tr>
<td>2. TIDES Skills Interven.</td>
<td>L. Egede</td>
<td>635,534</td>
<td>2,551,729</td>
<td>2013-2017</td>
</tr>
<tr>
<td>3. HEROIC</td>
<td>L. Egede</td>
<td>576,000</td>
<td>3,200,000</td>
<td>2013-2018</td>
</tr>
<tr>
<td>4. SC DHEC</td>
<td>R. Hill</td>
<td>5,973,034</td>
<td>34,771,238</td>
<td>2013-2018</td>
</tr>
<tr>
<td>6. MUSTCOOL</td>
<td>T. Kelechi</td>
<td>335,000</td>
<td>1,337,674</td>
<td>2015-2019</td>
</tr>
<tr>
<td>8. CINGS/WISSDOM</td>
<td>G. Magwood</td>
<td>336,970</td>
<td>1,059,400</td>
<td>2015-2019</td>
</tr>
<tr>
<td>9. ECHO</td>
<td>Vena/Wapner</td>
<td>9,241,737</td>
<td>10,818,479</td>
<td>2016-2018</td>
</tr>
<tr>
<td>10. SPRINT-ASK</td>
<td>A. Rizvi</td>
<td>11,000</td>
<td>11,000</td>
<td>2017-2018</td>
</tr>
<tr>
<td>11. SC CADRE</td>
<td>G. Magwood</td>
<td>157,074</td>
<td>1,022,639</td>
<td>2017-2022</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>$17,960,862</td>
<td>$59,089,737</td>
<td></td>
</tr>
</tbody>
</table>

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 $59 million, and yearly funding is $17.9 million. This yearly extramural funding is more than 62 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.
Basic Science Research Projects within the State

The Diabetes Initiative of South Carolina would also like to acknowledge several Basic Science Research Projects within the State (this is not an inclusive list).

**Ongoing Basic Science Research Support:**

1. Lipoproteins and PEDF and the vascular complications of diabetes. Aimed to test the general hypotheses that PEDF, LDL subtypes, have interactive effects involving PPARa, VLDLR and the Wnt pathway across both macrovascular and microvascular target organs.
   07/01/12-06/30/17
   PI: T. Lyons
   Funding: $750,000

2. A novel, simple method to find inexpensive drugs for preeclampsia treatment
   Establish a cell-based assay to screen clinically-available, mostly generic and inexpensive, drugs that may have a therapeutic effect on PE. To do this, we will utilize new scientific knowledge, showing that anti-angiogenic factors released from the placenta trigger maternal vascular injury essential for the development of PE.
   10/01/14-01/01/17
   Co-PI: T. Lyons
   Funding: $250,000

3. Oklahoma Center on American Indian Diabetes Health Disparities. This program addresses disparities affecting Oklahoma’s American Indians with diabetes.
   6/1/12 – 5/31/17
   PI: T. Lyons
   Funding: $6,895,369

4. Mentoring Diabetes Research in Oklahoma. Center of Biologic Research Excellence. Major goal:
   Mentor promising young diabetes researchers to independence.
   9/15/12 – 6/30/17.
   PI: T. Lyons
   Funding: $10,000,000

5. Role of Sphingolipids in the Development of Diabetic Nephropathy
   4/01/2014-3/31/2019
   Co-PIs: M. Lopes-Virella and R. Klein
   Funding: $362,445

6. Lipoproteins and Inflammation in the Development of Complications in Diabetes
   10/01/2013-12/31/2017
   PI: M. Lopes-Virella
   Funding: $150,000

7. Sphingolipids and Calcium Mobilization.
   The main goal of this project is to delineate the molecular mechanisms by which sphingosine kinases regulate vascular tone.
   7/01/2017–6/30/2019
   PI: H. El-Shewy
   Funding: $77,000

8. Functionality-Selective Parathyroid Hormone Analogs as Therapeutics in Metabolic Bone Disease.
   The major goals of this project are: 1) To develop new ‘anabolic’ therapies for severe osteoporosis. 2) To test whether the unique pharmacodynamic properties of a ‘biased’ agonist of the type 1 parathyroid hormone receptor enables it to circumvent the limitations of current therapeutics.
   11/01/2016–10/31/2020
   PI: L. Luttrell Co-PI: H. El-Shewy
   Funding: $150,000
9. **Mechanisms of Vascular Disease in diabetes.**

   The major goals of this project are to perform longitudinal assessment of biomarkers that predict the risk of developing microvascular and macrovascular diseases in diabetic patients, define the role and delineate the mechanisms through which CTGF contributes to the initiation/progression of diabetic complications.

   7/01/2014–6/30/2018
   Co-PI: A. Jaffa
   Funding: $15,607

10. **TLR4 Signaling and Sphingolipid Interplay in Diabetes-Associated Atherosclerosis**

    The goal of this study is to define the role of TLR4-sphingolipid interaction in diabetes-associated atherosclerosis.

    04/01/14-09/30/18
    PI: G. Virella
    Co-PI: Y. Huang
    Funding: $31,274

11. **Functionally selective parathyroid hormone analogs as therapeutics in metabolic bone disease.**

    The goal of this study is to determine whether novel arrestin pathway-selective “biased” agonists of the PTH1R offer therapeutic advantages over conventional agonists as anabolic agents for metabolic bone disease. Ligand efficacy will be tested in preclinical rodent models of continuous versus intermittent administration, estrogen deficiency, and renal osteodystrophy/secondary hyperparathyroidism.

    PI: L. Luttrell
    10/01/2016 – 09/30/2020
    Funding: $150,000

12. **Tyrosine Kinases in G Protein-mediated Signaling**

    The major goals of this project are to determine the mechanism of signaling by G protein-coupled receptor-arrestin ‘signalsomes’, determine how G protein-independent signaling affects protein phosphorylation, and study the integration of G protein-dependent and –independent signals.

    07/01/1998 – 05/31/2018
    PI: L. Luttrell
    Funding: $217,500

13. **Mechanisms of Vascular Disease in Diabetes**

    The goals of this study are: 1) Determine whether plasma CTGF levels predict future cardiovascular events and progressive retinopathy and nephropathy in individuals with type 2 diabetes. 2) Determine the role and contribution of CTGF to the initiation and progression of diabetic vascular disease. The proposed studies should establish CTGF as a pathologically-important risk factor for diabetic vascular disease that will form the basis for defining new targets for interventional therapy.

    07/01/2004 – 06/30/2018
    PI: A. Jaffa
    Funding: $359,814

14. **Alpha1 anti-trypsin enhances islet autograft survival**

    The goals of this study are to employ preclinical murine models to establish the optimal regimen for using AAT to enhance islet cell survival following transplantation, and to conduct a pilot study examining its efficacy in human subjects undergoing total pancreatectomy – islet auto transplantation.

    12/01/2015 – 11/30/2020
    PI: Y. Wang
    Funding: $44,352
Diabetes Initiative of South Carolina
Outreach Council
January 1, 2017 – December 31, 2017
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 2015.

**Prominent Activities**
- DSC website updates ([www.musc.edu/diabetes](http://www.musc.edu/diabetes)).
- SC Guidelines for Diabetes Care, revised and updated.
- SC Inpatient Guidelines for Diabetes Care, revised and updated.
- Collaborative efforts with the 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).
- Updated information on how to become a Certified Diabetes Educator (CDE).
- Updated patient literature and web links provided by governmental websites.
- 15th Annual Chronic Disease Prevention Symposium, SC DHEC, Myrtle Beach, SC. March 10-11, 2017.

**Presentations**
- Heckel, ET. “Psychosocial Issues of Living with Diabetes” on 2/7/2017 at the Diabetes Strategies for the 21st Century Program.

**Programs and Activities of Outreach Council Partners to Address Diabetes**
- South Carolina Vocational Rehabilitation Department received 457 new referrals, served 954 cases, and rehabilitated 220 people with diabetes disability.
- South Carolina Hospital Association continues to focus on improving diabetes control in hospitals in South Carolina. South Carolina Inpatient Guidelines for Diabetes Care was distributed to hospitals across the state of South Carolina.
- Camp Adam Fisher, the Carolina’s largest overnight camp for children with diabetes, siblings/friends, was held at the Cooper 4-H Leadership Center on Lake Marion, June 10-16, 2017. 28 volunteer medical staffers and 230 campers.
• Family Practice Diabetes Education (Group) – 1st & 3rd Tuesday of every month for 3rd year pharmacy students attending USC and Presbyterian College.
• Participation in Diabetes Advisory Council (DAC), Quarterly; Pillar 3, Sub-committee: Diabetes Prevention Program (DPP): Barriers, Recruitment, Participation.
• Family Practice Diabetes Education (Individual) – 2nd & 4th Tuesday of every month.
• Diabetes Today Advisory Committee (DTAC), 3rd Wednesday of every month.
• Diabetes Advisory Committee (DAC), Quarterly; Pillar 3, Sub-Committee-DPP Program: Barriers, recruitment, participation.

1. **Novel Intervention Linking Public Housing with Primary Care to Prevent Diabetes**
   PI: Gayenell Magwood, PhD, RN
   The goal of this R34 two-year planning project is to develop, implement, and evaluate a pilot translational, DPP intervention. We propose to partner with the City of Charleston Housing Authority and the Fetter Health Care Network (FHCN), a federally qualified health center (FQHC) primary care network to refine and pilot test a community-based, behavior focused DPP intervention to reduce obesity and diabetes risk in public housing residents who are already eligible for FHCN/FQHC services. This 2-year R34 project will use a randomized wait list control design to allocate participants to a translational community based DPP intervention or FHCN/FQHC usual care. PI: Gayenell Magwood

2. **Community-based Intervention under Nurse Guidance after Stroke (CINGS)-Wide Spectrum Investigation of Stroke Outcome Disparities on Multiple Levels (WISSDOM) Center**
   PI: Gayenell Magwood, PhD, RN, FAHA, FAAN
   2017 funding: $336,970        Total funding: $1,059,400        Years: 2015-2019
   The researchers are developing a community-partnered approach (CBPR) for patients at highest risk for future stroke to design a system for a theoretical, multi-level, novel intervention to control the premier stroke risk factor, hypertension.

3. **South Carolina Cancer Disparities Research Center (SC CADRE) - Community Outreach**
   PI (CORE Lead): Gayenell Magwood, PhD, RN, FAHA, FAAN
   2017 funding: $157,074       Total funding: $1,022,639       Years: 2017-2022
   This five-year U54 proposal is a collaborative, inter-institutional partnership between South Carolina State University (SCSU), an Historically Black University (HBCU), and the Medical University of South Carolina Hollings Cancer Center (MUSC-HCC), a National Cancer Institute-designated cancer center. The SC CADRE has three major themes. The first focuses on evaluating the relationship between obesity and prostate and breast cancer disparities. The second theme emphasizes evaluation of advanced glycation endproducts (AGEs) as a novel biomarker related to cancer, cancer disparities, and obesity. The third theme highlights the inclusion of a population unique to the US southeastern coastal region, the Sea Island (SI)/Gullah population.
Professional Education Activities:

- Published 2016 DSC Annual Report
- Held the annual Diabetes Strategies professional education program on February 7 and 8, 2017 at the North Charleston Marriott, North Charleston, SC. Attendance: Day 1 = 86 attendees; Day 2 = 86 attendees
- Annual Diabetes Under the Dome event was held on March 15, 2017 at the SC Statehouse.
- Updated the South Carolina Adult Guidelines for Diabetes Care – 2017
- Updated the South Carolina Adult Guidelines for Hospital Diabetes Care – 2017
- The Diabetes Initiative of SC 10-Year Strategic Plan was completed and printed (2017-2027)
- Updated and printed the Medical University Hospital Authority (MUHA) 41-page Guide for People with Diabetes – distributed to patients with diabetes in the hospital at the Medical University of South Carolina (MUSC)
- Held the 23rd Annual Diabetes Fall Symposium for Primary Health Care Professionals on September 14 & 15, 2017 at the North Charleston Convention Center – program was cancelled due to Hurricane Irma (no loss incurred with Convention Center contract)
- Updated and printed “Management of Adult Inpatients with Hyperglycemia” for all new residents and fellows starting July 1, 2017

Meetings:

- MUSC Hospital Diabetes Task Force
- MUHA Accreditation/Regulatory Meeting
- Attendance at 4 MUSC Leadership Development Institute (LDI) one-day programs - Trident Technical College, North Charleston, SC
- Review and make recommendations for diabetes related issues entered into the University Health Consortium - Patient Safety Institute
- DKA Retrospective Chart Review: Prashant Bhenswala, MD, Kathie Hermayer, MD and Pamela Arnold, MSN, APRN. IRB approval and ADA Abstract submitted for 2018 ADA Scientific Sessions June 2018

Presentations:

1. Arnold PC. Diabetes from a Public Health Perspective. MUSC Physical Therapy students, 2/6/2017, Charleston, SC.


Certifications:

Publications:
- Rizvi, AA. General Approach to the Management of Type 2 Diabetes. The J SC Med Assn. Vol. 113(2);110-118.
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.
- 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, 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.

Through quarterly meetings and action plans the Surveillance Council has identified diabetes-related outcomes trends and encourages the continued use of the DSC webpage as a source of information and data regarding diabetes in South Carolina. Coupled with declining trends in mortality and increased hospitalization and emergency department visits, the state is experiencing historical morbidity and complications due to diabetes. The preliminary data on pre-diabetes suggests that the diabetes epidemic will be formidable, suggesting that enhanced surveillance and screening are imperative.

The Surveillance Council continually investigates data options around the state for pre-diabetes, and explores ways to tie together the efforts of the Surveillance and Outreach Councils. The Council proposes that future activities assess the impact of the SC Guidelines for Diabetes Care on screening and prevalence for pre-diabetes and diabetes.

The Council promotes and coordinates the Annual Scientific Poster Session for the DSC sponsored Annual Diabetes Symposia. The Poster Session functions as a forum for describing diabetes research in South Carolina, and continues to reveal quality research findings. Participation in these events continues to increase.
The annual Diabetes Under the Dome event was held on Wednesday, March 15, 2017 at the SC Statehouse. Each year legislators and diabetes advocates gather at the Statehouse to focus attention on diabetes awareness and the increasing number of South Carolinians diagnosed with diabetes. The purpose of this event 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, blood pressure and cholesterol/lipids. People who are identified with risks or prediabetes can reduce their chances of developing diabetes by increasing physical activity and losing weight. Even a 5-10 pound weight loss reduces risks. The event is highly successful, and approximately 50 people are assessed each year.

The DCS webpage continues to be a major resource for information and data regarding diabetes in South Carolina.

**Diabetes Burden in SC**

Diabetes affects 30.3 million people, which is approximately 9.4 percent of the U.S. population. In the U.S. there are about 23.1 million people diagnosed with diabetes and 7.2 million people with undiagnosed diabetes. In 2015, South Carolina ranked eighth in the nation with a prevalence of diabetes mellitus in adults of 11.8%. Age adjusting to the 2000 US Standard Population, the prevalence of diabetes in SC counties ranged from 7.9% in Beaufort County to 15.6% in Allendale County. See the figure below for county specific estimates of diabetes 2011-2013. In 2016, South Carolina ranked nineteenth in the nation in diabetes mortality. About 1 in 6 African-Americans in South Carolina has diabetes. Hypertension is a common comorbidity of diabetes and diabetes can lead to blindness, kidney failure, heart attacks, strokes and amputations. Diabetes is the seventh leading cause of death in South Carolina after heart disease, cancer, chronic lower respiratory disease, accidents, stroke, and Alzheimer’s. In 2015, three people died each day from diabetes, about one death from diabetes every 8 hours. The death rate from diabetes for African-Americans was two times higher as compared to whites.
**Accomplishments**

The summary of the major accomplishments follows:

- Development and maintenance of a diverse group of investigators in South Carolina who focus their work on the study of diabetes
- Maintenance of DSC Webpage
- The Council has organized several reports and manuscripts focused on diabetes and prediabetes in South Carolina
- Production of trends reports
- Coordination of the Scientific Poster Session in conjunction with the annual Diabetes Symposia.
- Maintenance of a working committee to use statewide and clinical databases to estimate the prevalence of diabetes in South Carolina

**References:**

5. Public Health Statistics and Information Services (PHSIS).
6. SC Department of Health and Environmental Control (SC DHEC), Division of Biostatistics.
Annual Report
South Carolina Department of Health and Environmental Control
Division of Diabetes, Heart Disease, Obesity, and School Health
Statewide Diabetes Activities
January 1, 2017 – December 31, 2017

The South Carolina Department of Health and Environmental Control (DHEC) is dedicated to the prevention and management of chronic disease. The overarching diabetes efforts at DHEC are to prevent complications, disabilities, and burden associated with diabetes as well as to eliminate diabetes-related health disparities.

I. State and Federal Updates:

CDC Grant Applications Update
• The Diabetes, Heart Disease, Obesity and School Health Division is in their final year for both CDC funding agreements and will work with other divisions within DHEC’s Health Promotion and Wellness Office on a strategic planning process to ensure readiness for the release of several new competitive Notice of Funding Opportunities (NOFO) from CDC that is expected mid-March 2018. Once the internal process has been completed, the divisions will begin discussion with current and potential partners to include in the upcoming applications.

Diabetes Advisory Council of SC (DAC)
• DHEC continues to partner with the Diabetes Advisory Council of South Carolina to (DAC) ensure people with prediabetes achieve optimal health and delay or prevent the onset of diabetes. The following are activities under the DAC related to each Pillar:
  o DAC Pillar 1, Provider Engagement, created and piloted with four (4) medical practices, the Preventing Type II Diabetes in South Carolina Toolkit: A Diabetes Prevention Toolkit for Physicians and Healthcare Teams. Currently, information gained from the pilot is being reviewed and edited. The plan is to release the toolkit along with an educational webinar for all providers during the first quarter of 2018.
  o DAC Pillar 2, Availability, has created a brochure detailing possible barriers to successful facilitation of the National DPP at site locations and some suggested solutions to address these barriers. Once finalized, the brochure will be disseminated to current NDPP sites having difficulties, as well as new sites that may need assistance starting and gaining momentum. Pillar 2 is also finalizing an interactive map that will be able to pinpoint where NDPPs are located and how to refer to them; the map will be housed on the DAC website once completed.
  o DAC Pillar 3, Participant Engagement, completed focus groups with provider and lifestyle change coaches to identify at least three actual/perceived barriers to retention of the NDPP; waiting for final results to use to assist in engaging participants into the program.
  o DAC Pillar 4, Coverage, is in the final stages of developing and creating a SC Business Case tentatively scheduled for completion mid-March 2018. This will coincide with distribution of a SC Employer Toolkit (still under development).

II. Diabetes Surveillance Systems:
Goal: Monitor the statewide diabetes burden and identify gaps to assist with planning, decision-making, and evaluation.

• The Diabetes in South Carolina and Prediabetes fact sheets are under development incorporating 2016 BRFSS data. Once developed and approved, a link will be disseminated to all DSC members.

III. Health Systems Improvement:
Goal: To increase the number of health care providers engaged in professional education on recommended standards of care.
16th Annual Chronic Disease Symposium
• The 16th Annual Chronic Disease Prevention Symposium will be held March 9-10, 2018 at the Sheraton Myrtle Beach Convention Center Hotel in Myrtle Beach, SC. The symposium will feature presentations by state and national experts on topics including: focuses on prescribing opioids (insurers, prior authorization and limiting denials); working with millennials and chronic diseases prevention; patient navigation, (leading patients to the right resources); obesity and healthy weight management programs; lifestyle change and program sustainability; chronic kidney disease prevention; and strategies for incorporating chronic disease prevention in cancer, obesity, and diabetes. An invitation only Sustainability Bootcamp was added as a post conference to the symposium. Plans are to bring the three lifestyle change programs (Chronic Disease Self-management, National Diabetes Prevention, and Diabetes Self-Management Education) providers together for better program collaboration. The boot camp will also provide programs the ability to learn proven strategies to sustain lifestyle change programs and ensure long-term success.

Care Coordination Institute (CCI) Partnership
• The division partnered with Care Coordination Institute (CCI) to collect documentation on the use of EHRs for treatment of high blood pressure and/or diabetes from health systems and for reporting of NQF measures 18 and 59 of PQRS equivalent measures (236 and 001) within their network. As of May 2017, CCI has 1,366 clinical practice sites treating at least 25 adults. To date, 100% of the practices within the CCI network are reporting on NQF measure 18 and 59.

Health System Partnerships
• The division has worked to establish new contracts with primary care providers to assist with establishing ADA/AADE accreditation/recognition for DSME and enhance health information technology (HIT) infrastructure to support DSME referrals and communication relay, identify Medicare beneficiaries with the diagnosis of diabetes, and if able, monitor all DSME encounters through their EHR. There are a total of 30 DSME sites throughout the state, during 2017, technical assistance was provided to three of the 30 existing DSME program sites.
• The Health Systems team the division has worked to identify a resource for providers statewide to promote the adoption of the USPSTF recommendations to screen all persons aged 40-70 for abnormal blood glucose on a routine basis, at least annually as part of their blood work. The division continues to research the best resources to utilize to create a customized one-pager for providers in South Carolina.

IV. Community Awareness and Outreach:
Goal: Increase diabetes knowledge and awareness across disparate and hard to reach communities.
National Diabetes Prevention Program (NDPP)
• DHEC is an avid supporter of the NDPP and has staff across the state dedicated to increasing awareness of the program, screening of patients at high-risk and participation/completion of the program. In 2017, SC increased its number of organizations implementing the NDPP from 45 to 52 with a 101% increase in SC participants, compared to the national average increase of 66%.

V. General Division Updates
National Health Month/Day Observances
• National Healthy Lunch Day was Tuesday, September 19, 2017. DHEC promoted good nutrition as part of a healthy lifestyle and the importance of better food choices. On that day, staff were asked to pack/purchase a healthy lunch. In addition, external partners participated in the day of awareness at the Farm 2 Institution Summit, which had over 200 attendees.
• November was National Diabetes Month and November 14th was World Diabetes Day. DHEC helped bring awareness to both events through social media and agency posts. In addition, the division along with the agency’s Wellness Coordinator sponsored the Inaugural Walk for World Diabetes Day on November 14th where 81 DHEC staff from four buildings in the Midlands participated.
DIABETES INITIATIVE OF SOUTH CAROLINA
BOARD OF DIRECTORS AND COUNCIL MEMBERS
Diabetes Initiative of South Carolina

Board of Directors

Members
Kathie L. Hermayer, MD, MS (Chair) Division of Endocrinology, Diabetes and Medical Genetics, MUSC
Bryan Amick, PharmD, MS, MBA Bureau Director, SC DHHS
Pamela Arnold, MSN APRN, BC-ADM, CDE Chair, Diabetes Center of Excellence Council, Director, Diabetes Management Service, MUSC
Brent Egan, MD General Internal Medicine, Greenville Hospital System
Elizabeth Todd Heckel, MSW, CDE Chair, Outreach Council, DSC Midlands Site, USC
Rhonda Hill, PhD, CHES SC DHEC, Division of Diabetes, Heart Disease, Obesity, and School Health
Carolyn Jenkins, DrPH, APRN, RD, CDE College of Nursing, MUSC
Katherine Lewis, MD Pediatric/Adult Endocrinology, MUSC
Usah Lilavivat, MD Carolina Diabetes & Kidney Center, Sumter
Timothy J. Lyons, MD Director, Diabetes Center of Excellence, Division of Endocrinology, Diabetes & Medical Genetics, MUSC
Ronald Mayfield, MD Director, RKM Consulting, LLC, Greer
Bryce Nelson, MD, PhD SC Medical Association, Pediatric Endocrinology
Karen Reeves, BSN, MHHA, FACHE South Carolina Hospital Association
Ali Rizvi, MD USC School of Medicine, Richland Memorial
John Douglas ADA Representative – Southeastern Division

Advisory Members
Yaw Boateng, MS, MPH, RD, LD, CDE Carolina Diabetes and Kidney Center, Sumter
David Garr, MD SC AHEC, Executive Director
Stephen P. Williams Special Counsel, Greenville

Honorary Members
Edwin Bransome, MD Internal Medicine/Endocrinology, IMDH Task Force
David J. Cole, MD President, MUSC
John Colwell, MD, PhD, CDE Past DSC Board Chair; Professor Emeritus, MUSC
Daniel Lackland, DrPH Dept. of Neurosciences, MUSC
Stephen H. Smith ADA Representative – Southeastern Division
Mark S. Sothmann, PhD Vice President, MUSC; Academic Affairs & Provost
# Diabetes Center Council

**Members**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pamela Arnold, MSN, APRN, BC-ADM, CDE</td>
<td>Chair, Diabetes Center of Excellence Council, Director, Diabetes Management Service, MUSC</td>
</tr>
<tr>
<td>Kathie L. Hermayer, MD, MS</td>
<td>Division of Endocrinology, Diabetes &amp; Medical Genetics, MUSC</td>
</tr>
<tr>
<td>Carolyn Jenkins, DrPH, APRN, RD, CDE</td>
<td>College of Nursing, MUSC</td>
</tr>
<tr>
<td>Timothy J. Lyons, MD</td>
<td>Director, Diabetes Center of Excellence, Division of Endocrinology, Diabetes &amp; Medical Genetics, MUSC</td>
</tr>
</tbody>
</table>

**Advisory Member:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>John A. Colwell, MD, PhD, CDE</td>
<td>Past DSC Board Chair; Professor Emeritus, MUSC</td>
</tr>
</tbody>
</table>
## Outreach Council

**Members**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position/Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elizabeth Todd Heckel, MSW, CDE (Chair)</td>
<td>Co-Chair, Outreach Council</td>
</tr>
<tr>
<td></td>
<td>DSC Midlands Site, USC</td>
</tr>
<tr>
<td>Michelle Nichols, PhD, RN</td>
<td>Co-Chair, Outreach Council</td>
</tr>
<tr>
<td></td>
<td>College of Nursing, MUSC</td>
</tr>
<tr>
<td>Pamela Arnold, MSN, APRN, BC-ADM, CDE</td>
<td>Chair, Diabetes Center of Excellence Council, MUSC</td>
</tr>
<tr>
<td>Yaw Boateng, MS, MPH, RD, LD, CDE</td>
<td>Carolina Diabetes and Kidney Center, Sumter</td>
</tr>
<tr>
<td>Cyglinda Boykin, LPN, BS</td>
<td>Blue Choice HealthPlan</td>
</tr>
<tr>
<td>Dana Burshell, MPH, CCRP</td>
<td>College of Nursing, MUSC</td>
</tr>
<tr>
<td>John Colwell, MD, PhD, CDE</td>
<td>Past DSC Board Chair; Professor Emeritus, MUSC</td>
</tr>
<tr>
<td>Amy Curran, BS</td>
<td>SC DHEC, Health Systems Administrator</td>
</tr>
<tr>
<td>Kathie L. Hermayer, MD, MS</td>
<td>MUSC, Division of Endocrinology, Diabetes &amp; Medical Genetics</td>
</tr>
<tr>
<td>Rhonda Hill, PhD</td>
<td>SC DHEC, Division of Diabetes, Heart Disease, Obesity, and School Health</td>
</tr>
<tr>
<td>Kelly Hunt, PhD</td>
<td>MUSC, Dept. of Biostatistics &amp; Epidemiology</td>
</tr>
<tr>
<td>Carolyn Jenkins, DrPH, APRN, RD, CDE</td>
<td>College of Nursing, MUSC</td>
</tr>
<tr>
<td>Freda King, MA</td>
<td>Director of Client &amp; Community Relations, SC Vocational Rehabilitation</td>
</tr>
<tr>
<td>Angela Liese, PhD</td>
<td>Biostatistics &amp; Epidemiology, USC</td>
</tr>
<tr>
<td>Timothy J. Lyons, MD</td>
<td>Director, Diabetes Center of Excellence, Division of Endocrinology, Diabetes &amp; Medical Genetics, MUSC</td>
</tr>
<tr>
<td>Gayenell Magwood, PhD</td>
<td>College of Nursing, MUSC</td>
</tr>
<tr>
<td>Cameron Mason, MPH</td>
<td>SC DHEC, Interim Central Office Prevention Coordinator</td>
</tr>
<tr>
<td>Diane Mathews, MS, MT (ASCP)SH</td>
<td>Lowcountry AHEC</td>
</tr>
<tr>
<td>Andrea Cantey Miller</td>
<td>SC DHHS, Office of Minority Health</td>
</tr>
<tr>
<td>Michelle Moody, BA, MPH, CHES</td>
<td>SC DHEC, Division of Diabetes, Heart Disease, Obesity, and School Health</td>
</tr>
<tr>
<td>Aunyika Moonan, PhD</td>
<td>SC Hospital Association</td>
</tr>
<tr>
<td>Marla Riley</td>
<td>SC DHHS</td>
</tr>
<tr>
<td>Ali Rizvi, MD, CDE</td>
<td>USC School of Medicine, Internal Medicine</td>
</tr>
<tr>
<td>Carmen Santiago</td>
<td>Chair, SC Hispanic/Latino Outreach</td>
</tr>
<tr>
<td>Sarah P. Smith, MAT, RD, LD, CDE</td>
<td>The Carolinas Center for Medical Excellence</td>
</tr>
<tr>
<td>Wendy Taylor, RN, CDE</td>
<td>Palmetto Community Health Network</td>
</tr>
<tr>
<td>Eileen DeBauche Ward, PharmD</td>
<td>Presbyterian College, School of Pharmacy</td>
</tr>
<tr>
<td>Marquita Winder, PharmD, BCACP</td>
<td>South University School of Pharmacy</td>
</tr>
</tbody>
</table>
## Surveillance Council

### Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Vena, PhD</td>
<td>Co-Chair, Surveillance Council</td>
</tr>
<tr>
<td>Kelly Hunt, PhD</td>
<td>Co-Chair, Surveillance Council</td>
</tr>
<tr>
<td>Robert Adams, MD</td>
<td>Department of Neurology, MUSC</td>
</tr>
<tr>
<td>Pamela Arnold, MSN, APRN, BC-ADM, CDE</td>
<td>Chair, Diabetes Center of Excellence Council, MUSC</td>
</tr>
<tr>
<td>Yaw Boateng, MS, MPH, RD, LD, CDE</td>
<td>Carolina Diabetes and Kidney Center, Sumter</td>
</tr>
<tr>
<td>Dana Burshell, MPH, CCRP</td>
<td>College of Nursing, MUSC</td>
</tr>
<tr>
<td>Liwei Chen, MD&lt; PhD, MS, MHS</td>
<td>Public Health Sciences, Clemson University</td>
</tr>
<tr>
<td>Chris Finney</td>
<td>SC Office of Research &amp; Statistics</td>
</tr>
<tr>
<td>Elizabeth Todd Heckel, MSW, CDE</td>
<td>DSC Midlands Site, USC</td>
</tr>
<tr>
<td>Kathie L. Hermayer, MD, MS</td>
<td>Division of Endocrinology, Diabetes &amp; Medical Genetics, MUSC</td>
</tr>
<tr>
<td>Rhonda Hill, PhD, CHES</td>
<td>SC DHEC, Division of Diabetes, Heart Disease, Obesity, and School Health</td>
</tr>
<tr>
<td>Edward C. Jauch, MD</td>
<td>Division of Emergency Medicine, MUSC</td>
</tr>
<tr>
<td>Carolyn Jenkins, DrPH, APRN, RD, CDE</td>
<td>College of Nursing, MUSC</td>
</tr>
<tr>
<td>Kartikay Kaushik, MPH</td>
<td>SC Hospital Association, Data Translation Specialist</td>
</tr>
<tr>
<td>Angela D. Liese, PhD, MPH, FAHA</td>
<td>USC, Arnold School of Public Health, Department of Epidemiology &amp; Biostatistics</td>
</tr>
<tr>
<td>Usah Lilavivat, MD</td>
<td>Carolina Diabetes &amp; Kidney Center, Sumter</td>
</tr>
<tr>
<td>Aunyika Moonan, PhD, MSPH, CPHQ</td>
<td>SC Hospital Association, Executive Director of Data and Measurement</td>
</tr>
<tr>
<td>Shawn Stinson, MD</td>
<td>Chief Medical Officer, BCBS of SC</td>
</tr>
<tr>
<td>Jenifer H. Voeks, PhD</td>
<td>Department of Neurosciences, MUSC</td>
</tr>
</tbody>
</table>

---

23
SC DHEC
Division of Diabetes, Heart Disease, Obesity, and School Health Staff

Rhonda L. Hill, PhD, MCHES  Division Director
Sandra Anderson, MA  Program Coordinator
Jacqlyn Atkins, MPH, CHES  Health Systems Coordinator
Michelle Harris, MFA  Central Office Prevention Coordinator
R. Michelle Moody, MPH, CHES  Lifestyle Intervention Coordinator
Teresa Robinson, MBA  Division Fiscal Coordinator

Other Support Staff:
Kristian G. Myers, MPH, CHES  Office of Program Evaluation Services Director
Tangee D. Thomas, MPH  Program Evaluator
Joshua Sellner, MPH  Program Evaluator
Tiara N. Rosemond, PhD, MPH, CHES  Division of Surveillance Director; Program Manager, S.C. Environmental Public Health Tracking (EPHT), Office of
Harley T. Davis, MSPH, PhD  Public Health Statistics and Information Services (PHSIS)