*Unless otherwise noted, data included in this report cover the period January 1, 2004 through December 31, 2004, the most current period with available and comprehensive data.
~ Table Of Contents ~

EXECUTIVE SUMMARY......................................................................................................... 1

ACKNOWLEDGMENTS............................................................................................................. 3

INTRODUCTION ...................................................................................................................... 4

Scope of the Alzheimer’s Disease Problem........................................................................... 5

Projections of Alzheimer’s Disease in South Carolina......................................................... 6

History of the Registry .......................................................................................................... 7

CHARACTERISTICS OF ADRD IN SOUTH CAROLINA, 2004

Type and Location of ADRD........................................................................................... 8

Dementia in Other Medical Conditions ..................................................................... 10

Age ....................................................................................................................................... 11

Gender ............................................................................................................................... 12

Race ..................................................................................................................................... 13

Deaths ................................................................................................................................. 14

Population-based ADRD Rates...................................................................................... 15

Comparison of Registry diagnosis to Physician visit data in State Health Plan ........... 17

Hospital Utilization Charges ........................................................................................ 18

Prevalence of AIDS Dementia .................................................................................. 19

Prevalence of Dementia Associated with Parkinson’s Disease ................................... 20

REGISTRY PROCEDURES ................................................................................................... 21

Core data items................................................................................................................ 22

RESEARCH PROJECTS AND OTHER ACTIVITIES ............................................................. 23

STAFF.................................................................................................................................... 27

AFFILIATED PROFESSIONALS .......................................................................................... 28

OFFICE FOR THE STUDY OF AGING PUBLICATIONS ...................................................... 30

OFFICE FOR THE STUDY OF AGING PRESENTATIONS .................................................... 33

FURTHER INFORMATION.................................................................................................... 36
Table 1 Registry Cases by Dementia Type and Community, Nursing Facility, or Unknown Location ................................................................. 8
Table 2 Registry Cases in Other Medical Conditions by Type and Age Group ................................................................................................. 10
Table 3 Registry Cases by Age Group and Dementia Type ......................................................................................................................... 11
Table 4 Registry Cases by ADRD Type, Gender, and Age Group .................................................................................................................... 12
Table 5 Registry Cases by Race and ADRD Type .............................................................................................................................................. 13
Table 6 Length of Time from Entry to Death, by ADRD Type ......................................................................................................................... 14
Table 7 Mean Number of Months from Initial ADRD Diagnosis to a Diagnosis in a Registry Data Source ........................................................................ 17
Table 8 Characteristics of the Study Population ............................................................................................................................................ 18
Table 9 Classification of ADRD by ICD-9-CM Codes ................................................................................................................................. 21
Table 10 Core data items .................................................................................................................................................................................. 22
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Registry Data Sources</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>ADRD Prevalence Projections in South Carolina</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Registry Cases by Community, Nursing Facility or Unknown Location</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>Registry Cases in Community, Nursing Facility or Unknown Location by Dementia Type</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>Registry Cases by Age Group</td>
<td>11</td>
</tr>
<tr>
<td>6</td>
<td>Registry Cases by Age Group in Community, Nursing Facility or Unknown Location</td>
<td>11</td>
</tr>
<tr>
<td>7</td>
<td>Registry Cases by Gender</td>
<td>12</td>
</tr>
<tr>
<td>8</td>
<td>Registry Cases by Gender and ADRD Type</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>Registry Cases by Race</td>
<td>13</td>
</tr>
<tr>
<td>10</td>
<td>Registry Cases by Race in Community, Nursing Facility or Unknown Location</td>
<td>13</td>
</tr>
<tr>
<td>11</td>
<td>ADRD Prevalence by Age</td>
<td>15</td>
</tr>
<tr>
<td>12</td>
<td>Percentage of Living Persons Age 85 or Over with ADRD, by County (Map)</td>
<td>16</td>
</tr>
<tr>
<td>13</td>
<td>ADC Prevalence among Age Groups for Persons with HIV/AIDS</td>
<td>19</td>
</tr>
<tr>
<td>14</td>
<td>Prevalence of Dementia among Individuals with and without Parkinson’s Disease</td>
<td>20</td>
</tr>
</tbody>
</table>
Executive Summary

The Office for the Study of Aging in the Arnold School of Public Health of the University of South Carolina (USC), in cooperation with the South Carolina (SC) Department of Health and Human Services, the SC Department of Mental Health, the USC School of Medicine, and the SC Office of Research and Statistics of the Budget and Control Board, maintains a statewide Registry of SC residents diagnosed with Alzheimer's disease or related disorders.

This report uses the abbreviation ADRD to indicate “Alzheimer's disease or related disorder.” The “related disorders” refer to dementias associated with vascular disease, mixed dementia and other medical conditions such as Parkinson’s disease. Where we refer specifically to “Alzheimer’s disease” (AD), we limit the analysis to individuals with AD only.

Since January 1, 1988, the Registry has identified 113,886 cases of ADRD. During calendar year 2004, the Registry maintained information on 52,741 individuals alive on January 1, 2004.

Registry Goals:

- Maintain the most comprehensive and accurate state registry of ADRD in the nation.
- Provide disease prevalence estimates to enable better planning for social and medical services.
- Identify differences in disease prevalence among demographic groups.
- Help those who care for individuals with ADRD.
- Foster research into risk factors for ADRD.

Population Prevalence of ADRD, South Carolina, 2004:

Based on the Registry and population estimates from the United States Census,

- 9% of South Carolinians age 65 or over have ADRD.
- 27% of South Carolinians age 85 or over have ADRD.
- Alzheimer’s disease prevalence rates vary notably among SC counties.
- African Americans are at notably higher risk of an Alzheimer’s disease diagnosis than are non-Hispanic whites. At ages 65 and older, for example, African American South Carolinians are almost twice as likely to have ADRD as are non-Hispanic whites.
2004 Registry Overview:

Of South Carolinians with diagnosed ADRD:
- 64% have Alzheimer's disease.
- 16% have a dementia due to stroke.
- 20% have a dementia related to other chronic conditions.
- 37% live in a nursing facility.
- 66% are women.
- 33% are African American.
- 35% of those with AD are 85 years or older.

South Carolina ADRD Projection:

Based on methods commonly used to estimate prevalence, the number of South Carolinians with Alzheimer's disease and related disorders will increase by 150% in the next fifteen years. (see Figure 1).

Office for the Study of Aging Promotes Brain Health

In partnership with the Centers for Disease Control and Prevention, the Alzheimer’s Association, the National Institutes of Health, the AARP, and other brain health partners, OSA is helping to lead efforts to reduce the future prevalence of Alzheimer’s Disease and Related Disorders in South Carolina and the nation. Read more about OSA’s role in these efforts on page 26.

Other Activities of the Office for the Study of Aging:

In addition to maintaining the Registry and conducting research using this valuable state resource, the Office for the Study of Aging works to provide South Carolina’s older persons and their families with access to quality, reliable health and long term care service delivery systems. We:

- Provide education on ADRD management.
- Contribute technical assistance for programs for older South Carolinians.
- Help to evaluate programs for older South Carolinians.
- Conduct research on aging issues.
- Promote brain health.
Acknowledgments

The South Carolina Alzheimer’s Disease Registry has developed into one of the nation’s most important resources for understanding ADRD. The growth and development of the Registry and the related research program in aging at the Office for the Study of Aging has been due to the support of many individuals and organizations. We particularly want to acknowledge the contribution of:

- The Arnold School of Public Health at USC, for core support;
- The Office of Research and Statistics of the State Budget and Control Board, for its extensive cooperation in maintaining the Registry;
- The USC School of Medicine (Department of Medicine, Division of Geriatrics), for providing collaboration;
- The SC Department of Mental Health, for access to data;
- The SC Department of Health and Human Services, for core support and access to data;
- The SC Department of Health and Environmental Control, Vital Records and Public Health Statistics; and
- The Lieutenant Governor’s Office, Office on Aging, for their continued support.
Introduction

Alzheimer's Disease: The Insidious and Progressive Disease with Great Costs to South Carolina

"The U.S. Census Bureau predicts the 65 and older population will grow from one in eight Americans today to one in six by 2020. The mature adult population will total 53.7 million, representing a 53.8 percent increase over today's 34.9 million mature adult population." South Carolina’s older residents show the same trends. Adults 65 and older in South Carolina showed a 22.3% growth rate between 1990 and 2000. In 2000, South Carolina boasted 485,333 residents 65 and older, a number that has increased by approximately 100,000 each decade from 1970-2000.2

With this increase in the aging population comes an increase in age related diseases. Alzheimer's Disease and Related Disorders (ADRD) are a major robber of quality of life among this older population as the prevalence of Alzheimer's Disease (AD) doubles every five years beyond age 65.3

ADRD is an umbrella term that encompasses many types of cognitive impairment. The Diagnostic and Statistical Manual of Mental Disorder (Third Edition) (DSM-III-R) defines Alzheimer's disease as an impairment of intellectual abilities such as memory, abstract thinking, judgment, other disturbances of higher cortical functions and behavior and personality change severe enough to interfere significantly with everyday activities. Alzheimer's disease (AD) is a type of ADRD with an insidious onset and a generally progressive deteriorating course for which all other specific causes have been excluded. Other types of ADRD include those related to stroke, mixed dementia (with both Alzheimer's and Vascular dementia) and dementias associated with medical conditions such as Parkinson's Disease, Huntington's Disease, AIDS, and alcohol or drug abuse.

This report covers calendar year 2004 (those alive on Jan 1, 2004), the most recent full year of data available from all reporting sources. Registry cases in this report are defined as Alzheimer's Disease (AD), vascular ADRDs (Vascular), mixed dementias (Mixed) and ADRDs in medical conditions (Other). Registry cases are identified by location of residence, either in a facility (nursing facilities, residential care facilities), in the community (home or adult day care) or in an unknown location. Exclusions of some demographic information are due to the voluntary method of data collection. It should be noted that many cases may be identified at a late stage of the disease rather than at onset. This affects the time from entry into the Registry until death.

This Alzheimer's Disease Registry Annual Report provides information about persons with ADRD in South Carolina for the calendar year 2004.

1 The South Carolina Mature Adults Count Report.
2 US Bureau of the Census
The prevalence of ADRD in the United States in 1989, was estimated to be over 10 percent among persons aged 65 and older, and about 47 percent among those aged 85 and older.\(^4\)

In 1990, South Carolina residents 75 years and older were 4.3% of the total population; their numbers totaled 151,000. By 2000, there were 215,000 South Carolina residents 75 years and older, representing 5.4% of the total population or a 42% increase.\(^5\)

We cannot know the total number of persons with ADRD in South Carolina with certainty. National estimates of ADRD prevalence vary widely from one study to another. Individuals who have mild forms of the disease that are not yet diagnosed do not appear in our Registry data. Previous studies suggest that the number of individuals with ADRD may be nearly 50% greater than the number with diagnosed ADRD.\(^6\) What we do know is that the South Carolina Alzheimer’s Disease Registry is the best population-based Registry of ADRD in the country. There are only two other such registries in existence. One, in New York, is in practice limited to records from in-patient hospital stays.\(^7\) A second, in West Virginia, is just now under development. Our South Carolina Registry uses data from a wide variety of sources to capture as many diagnoses as possible. The Registry uses data from a variety of data sources, as shown in Figure 1.

Figure 1
Registry Data Sources
South Carolina Alzheimer's Disease Registry, 2004

Duplicates occur because individuals often use more than one name, social security number, or other identifying information when using health or social services.


\(^5\) South Carolina Mature Adults Count Report.


The projections are based on age- and gender-specific prevalence rate estimates from the Registry. The projections assume a constant ADRD rate over time. This approach is consistent with generally accepted national ADRD projections. However, this approach may over- or under-estimate the actual growth of ADRD in South Carolina. As obesity, hypertension, and diabetes are known risk factors for ADRD, notably increasing rates of these conditions in our population may raise actual rates considerably above those suggested by the projections. Similarly, minorities have higher rates of ADRD; if the proportion of South Carolina seniors who are minorities grows notably, this would also be likely to raise the rates above the projections shown in the figure. On the other hand, our state may be enjoying in-migration of relatively highly educated seniors, with relatively high incomes. These individuals would be likely to have lower ADRD risks than the general U.S. population, and considerably lower risks than the SC population. A larger proportion of these individuals with lower ADRD risks in our senior population would tend to moderate the rise in ADRD prevalence.

It should be noted that the prevalence projections are for the Registry. The population prevalence of ADRD will be higher than the projection shown in the figure in any given year, because the Registry includes records only for individuals diagnosed by Registry data sources. The Registry includes records for individuals using health care and social services. Individuals who do not use such services, primarily those with early stages of cognitive impairment, are not represented in the Registry or in the projections.
The Alzheimer’s Disease Registry, previously the Statewide Alzheimer’s Disease and Related Disorders Registry, was established in 1988 to record specific information about South Carolinians who develop Alzheimer’s disease and related disorders. The registry is currently located in The Arnold School of Public Health, USC. From July 1993 to May 1996, the Registry was located at the James F. Byrnes Center for Geriatric Medicine, Education, and Research, a geriatric research hospital jointly sponsored by the USC School of Medicine and the SC Department of Mental Health. This project has received widespread support and interest from the academic community, lay support groups, state agencies, and other public and private organizations as part of a statewide effort to study the growing impact of Alzheimer’s disease on the health and welfare of older South Carolinians. On May 31, 1990, Governor Carroll A. Campbell, Jr., signed a state law authorizing the Registry. This law (R653, H4924) amended Title 44, Code of Laws of South Carolina 1976, relating to health, by adding Chapter 36 establishing a voluntary Statewide Alzheimer’s Disease and Related Disorders Registry in the Arnold School of Public Health. The law has strict confidentiality requirements but does allow registry staff to contact the families and physicians of persons diagnosed as having Alzheimer’s disease or a related disorder to collect relevant data and to provide information about public and private health care resources available to them.
CHARACTERISTICS OF ADRD IN SOUTH CAROLINA—BASED ON 2004 ALZHEIMER’S DISEASE REGISTRY DATA

Since January 1, 1988, 113,886 cases of Alzheimer’s disease and related disorders (ADRD) have been identified in South Carolina. This report describes demographic characteristics and medical information for the 52,741 cases alive on January 1, 2004 displayed by type of ADRD.

Type of ADRD

Among the 52,741 current Registry cases, 64 percent had a diagnosis of Alzheimer’s disease, and 13 percent had a diagnosis of vascular dementia, which is often associated with stroke. In the event of records showing both Alzheimer’s disease and vascular dementia the case was reported in a Mixed disease category. Three percent of all Registry cases are in the Mixed category. The additional 20%, for the total number of “Other Conditions,” had a dementia related to other medical conditions, such as Parkinson’s disease (see Table 2 for complete listing). The diagnosis shown represents the most current diagnosis in the data received.

Location

More registry cases resided in the community (56%) than in a nursing facility (39%) or unknown locations (7%) (Figure 3). As shown in Figure 4, the distribution of the types of ADRD was similar in the community and in nursing facilities.

Table 1
Registry Cases by Dementia Type and Community, Nursing Facility or Unknown Location
South Carolina Alzheimer’s Disease Registry, 2004

<table>
<thead>
<tr>
<th>Dementia Type</th>
<th>Community</th>
<th>Nursing Facility</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Alzheimer’s Disease</td>
<td>18,660</td>
<td>63</td>
<td>13,077</td>
<td>67</td>
</tr>
<tr>
<td>Vascular dementia</td>
<td>3,445</td>
<td>12</td>
<td>2,867</td>
<td>15</td>
</tr>
<tr>
<td>Mixed dementia</td>
<td>892</td>
<td>3</td>
<td>844</td>
<td>4</td>
</tr>
<tr>
<td>Other conditions</td>
<td>6,479</td>
<td>22</td>
<td>2,754</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>29,476</td>
<td>56</td>
<td>19,542</td>
<td>37</td>
</tr>
</tbody>
</table>
Figure 3
Registry Cases by Community, Nursing Facility or Unknown Location
South Carolina Alzheimer's Disease Registry, 2004

Figure 4
Registry Cases in Community, Nursing Facility or Unknown Location, by Dementia Type
South Carolina Alzheimer's Disease Registry, 2004
~ Dementia in Other Medical Conditions ~

In addition to Alzheimer’s disease, the Registry tracks dementias that are associated with other medical conditions, such as Parkinson’s disease, alcohol and drug abuse, and HIV/AIDS. In the 2004 Registry, there are 10,338 persons with a dementia associated with one of these conditions, who do not also have a diagnosis of Alzheimer’s disease or vascular dementia. Nine percent of them have dementia associated with Parkinson’s disease, and 57% have an indication of dementia associated with some other medical condition (please see Table 2 footnote). The cell counts in the table are not mutually exclusive, due to the fact that some persons’ records indicate that they have more than one medical condition. A few individuals have as many as three such conditions.

Table 2
Dementia in Other Medical Conditions by Age Group
South Carolina Alzheimer's Disease Registry, 2004*

<table>
<thead>
<tr>
<th>Condition</th>
<th>Under 65</th>
<th>65-74</th>
<th>75-84</th>
<th>85+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol dementia</td>
<td>16%</td>
<td>7%</td>
<td>2%</td>
<td>1%</td>
<td>763</td>
</tr>
<tr>
<td>Drug-induced dementia</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>49</td>
</tr>
<tr>
<td>Organic brain syndrome</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>4</td>
</tr>
<tr>
<td>Other cerebral degenerations*</td>
<td>24%</td>
<td>34%</td>
<td>24%</td>
<td>17%</td>
<td>2,899</td>
</tr>
<tr>
<td>Parkinson’s disease</td>
<td>2%</td>
<td>8%</td>
<td>13%</td>
<td>11%</td>
<td>1,064</td>
</tr>
<tr>
<td>Huntington’s disease</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>13</td>
</tr>
<tr>
<td>HIV/AIDS dementia</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>160</td>
</tr>
<tr>
<td>Dementia with Lewy bodies</td>
<td>0%</td>
<td>3%</td>
<td>3%</td>
<td>2%</td>
<td>234</td>
</tr>
<tr>
<td>Dementia with other conditions*</td>
<td>51%</td>
<td>47%</td>
<td>58%</td>
<td>68%</td>
<td>6,757</td>
</tr>
</tbody>
</table>

Total (N)                             | 2,886    | 2,285 | 3,944 | 2,828 | 11,943 |

* Dementia with other conditions includes those with an ICD-9-CM code in 294.1 (dementia in conditions classified elsewhere) on their medical record. This code is listed along with the ICD-9-CM code of the dementia-causing condition. However, the dementia-causing condition may not be identifiable from the record, and therefore, may not be in the above table.
Age and ADRD in South Carolina

Table 3 shows that 35% of persons with Alzheimer’s disease are 85 years of age or older. Figure 5 shows this information graphically for all dementias included in ADRD, with 31% of persons over 85 years of age. Figure 6 indicates that for people with ADRD, over half of those 75 years of age or older are being cared for in the community. Living in the community is the location of choice for the individual and family. However, as Figure 6 indicates, with age comes an increase in movement to nursing facilities.

Table 3
Registry Cases by Age Group and Dementia Type
South Carolina Alzheimer's Disease Registry, 2004*

<table>
<thead>
<tr>
<th>Age Group</th>
<th>AD N</th>
<th>VASCULAR N</th>
<th>MIXED N</th>
<th>OTHER N</th>
<th>TOTAL N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 65</td>
<td>2,337</td>
<td>7</td>
<td>889</td>
<td>14</td>
<td>5,375</td>
</tr>
<tr>
<td>65 - 74</td>
<td>5,930</td>
<td>18</td>
<td>1,422</td>
<td>22</td>
<td>9,767</td>
</tr>
<tr>
<td>75 - 84</td>
<td>13,337</td>
<td>40</td>
<td>2,344</td>
<td>36</td>
<td>19,793</td>
</tr>
<tr>
<td>85 +</td>
<td>11,595</td>
<td>35</td>
<td>1,767</td>
<td>28</td>
<td>16,033</td>
</tr>
<tr>
<td>Total</td>
<td>33,199</td>
<td>65</td>
<td>6,422</td>
<td>13</td>
<td>50,968</td>
</tr>
</tbody>
</table>

*1,773 records for individuals have missing values for the variables required for inclusion in this table or have ages either less than 50 or greater than 110.
AD=Alzheimer’s disease or senile dementia; VASCULAR=Vascular dementia; MIXED=both Alzheimer’s disease and Vascular dementia; OTHER=dementia in other medical conditions.
~ Gender and ADRD in South Carolina ~

Table 4 shows Registry cases by gender, dementia type, and age group. For each dementia type, the number of women is notably larger than the number of men in all but the youngest age category. In particular, among those age 85 or over, the number of women with ADRD is more than 3.5 times the number of men with ADRD.

More women than men in this population were diagnosed with ADRD (Fig. 7). This is likely due to the larger number of women alive after age 75. The differences in the ADRD diagnoses by gender are shown graphically in Figure 8.

### Table 4

<table>
<thead>
<tr>
<th></th>
<th>AD</th>
<th>VASCULAR</th>
<th>MIXED</th>
<th>OTHER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N %</td>
<td>N %</td>
<td>N %</td>
<td>N %</td>
<td>N %</td>
</tr>
<tr>
<td>MEN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 65</td>
<td>1,028</td>
<td>11</td>
<td>492</td>
<td>20</td>
<td>1,264</td>
</tr>
<tr>
<td>65 - 74</td>
<td>2,345</td>
<td>24</td>
<td>665</td>
<td>28</td>
<td>1,026</td>
</tr>
<tr>
<td>75 - 84</td>
<td>3,885</td>
<td>40</td>
<td>844</td>
<td>35</td>
<td>1,198</td>
</tr>
<tr>
<td>85 +</td>
<td>2,432</td>
<td>25</td>
<td>419</td>
<td>17</td>
<td>535</td>
</tr>
<tr>
<td>WOMEN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 65</td>
<td>1,302</td>
<td>6</td>
<td>390</td>
<td>10</td>
<td>765</td>
</tr>
<tr>
<td>65 - 74</td>
<td>3,564</td>
<td>15</td>
<td>754</td>
<td>19</td>
<td>201</td>
</tr>
<tr>
<td>75 - 84</td>
<td>9,421</td>
<td>40</td>
<td>1,489</td>
<td>37</td>
<td>521</td>
</tr>
<tr>
<td>85 +</td>
<td>9,093</td>
<td>39</td>
<td>1,342</td>
<td>34</td>
<td>402</td>
</tr>
</tbody>
</table>

*Records for 1,957 individuals have missing values for gender or age.

AD=Alzheimer’s disease or senile dementia; VASCULAR=Vascular dementia; MIXED=both Alzheimer’s disease and Vascular dementia; OTHER=dementia in other medical conditions.

**Figure 7**

Registry Cases by Gender

South Carolina Alzheimer’s Disease Registry, 2004

Male 34%

Female 66%

**Figure 8**

Registry Cases by Gender and ADRD Type

South Carolina Alzheimer’s Disease Registry, 2004
~Race and ADRD in South Carolina~

Compared with whites, African Americans, who comprise nearly 21% of the adult South Carolina population 65 years and older, were over-represented in Vascular dementia (44%) and in the overall Alzheimer's Disease Registry with 33% (Table 5). Sixty-one percent of African Americans with ADRD reside in the community, compared to 53% of whites living in the community (Figure 10).

Table 5
Registry Cases by ADRD Type, Gender and Age Group
South Carolina Alzheimer's Disease Registry, 2004*

<table>
<thead>
<tr>
<th>RACE</th>
<th>AD</th>
<th>VASCULAR</th>
<th>MIXED</th>
<th>OTHER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>22,602</td>
<td>67</td>
<td>3,591</td>
<td>54</td>
<td>1,169</td>
</tr>
<tr>
<td>African-American</td>
<td>10,585</td>
<td>31</td>
<td>2,928</td>
<td>44</td>
<td>597</td>
</tr>
<tr>
<td>Hispanic</td>
<td>166</td>
<td>&lt;1</td>
<td>28</td>
<td>&lt;1</td>
<td>12</td>
</tr>
<tr>
<td>All Others</td>
<td>620</td>
<td>2</td>
<td>79</td>
<td>1</td>
<td>26</td>
</tr>
</tbody>
</table>

Total
AD=Alzheimer's disease or senile dementia; VASCULAR=Vascular dementia; MIXED=both Alzheimer's disease and Vascular dementia; OTHER=dementia in other medical conditions

Figure 9
Registry Cases by Race
South Carolina Alzheimer's Disease Registry, 2004

Figure 10
Registry Cases by Race in Community, Nursing Facility or Unknown Location
South Carolina Alzheimer's Disease Registry, 2004
Deaths among Individuals in the Registry

The Alzheimer's Disease Registry data are linked with death certificates to summarize the deaths occurring among persons in the Registry. Of those people identified with ADRD since 1988, 61,145 have died. The individual's first date of diagnosis may not be known to the Registry in every instance. For example, if an individual is first diagnosed during a physician office visit, that diagnosis is not available to the Registry. We use the first date that a person entered one of the systems reporting to us as their entry date (Table 6).

Table 6
Length of Time from Entry to Death, by ADRD Type
South Carolina Alzheimer's Disease Registry, 2004*

<table>
<thead>
<tr>
<th>ENTRY to DEATH</th>
<th>AD</th>
<th>VASCULAR</th>
<th>MIXED</th>
<th>OTHER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>&lt;2 years</td>
<td>25,980</td>
<td>68</td>
<td>7,806</td>
<td>70</td>
<td>237</td>
</tr>
<tr>
<td>2–5 years</td>
<td>8,521</td>
<td>22</td>
<td>2,414</td>
<td>22</td>
<td>75</td>
</tr>
<tr>
<td>5+ years</td>
<td>3,678</td>
<td>10</td>
<td>915</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>38,179</td>
<td>62</td>
<td>11,135</td>
<td>18</td>
<td>336</td>
</tr>
</tbody>
</table>

AD=Alzheimer's disease or senile dementia; VASCULAR=Vascular dementia; MIXED=both Alzheimer's disease and Vascular dementia; OTHER=dementia in other medical conditions.
Population-based ADRD Rates in South Carolina

These estimates are of population disease rates for South Carolina. These rates are calculated using the 2003 Registry information linked with the 2003 United States Census. Among our findings from these data:

- **8.1% of South Carolinians over the age of 65 have ADRD.** 4.9% of South Carolina residents have a diagnosis of Alzheimer’s disease. Previous research suggests that the number of individuals with some cognitive impairment may be nearly 50% greater than this estimate, because diagnosed cases do not include individuals with Mild Cognitive Impairment, a condition that can develop into Alzheimer’s disease.

- **27.3% of South Carolina residents age 85 or older have ADRD.**

- Figure 11 shows how the prevalence of Alzheimer’s disease increases with age. Although about 21.5% of those at ages 85 or older have Alzheimer’s disease (not including related memory disorders), the risk for individuals in their 80s is considerably smaller than this summary number suggests. At age 85, the prevalence is about 12.5%. By age 90, it is about 21%. As the figure illustrates, the greatest risk comes at much older ages.

- The figure also shows the prevalence of ADRD. Related disorders include vascular dementia and dementias associated with medical diseases such as Parkinson’s disease. The prevalence of these related disorders also rises with age. About 67% of those who reach age 100 have at least one type of dementia.

- The figure provides the nation’s first look at an age distribution of Alzheimer’s disease and related disorders that is not based merely on projections from small samples. No other data source in the United States enables researchers to accurately calculate the age distribution of Alzheimer’s disease.

- **African Americans are at notably higher risk of an Alzheimer’s disease diagnosis than are non-Hispanic whites.** At ages 55 through 64, African Americans are about 3 times as likely to have Alzheimer’s disease, and 3.8 times as likely to have ADRD. The risk is particularly great for African American men at these ages, who are 4.9 times as likely to have ADRD as are white men. At ages 65 through 84, African Americans are about 2.1 times as likely to have Alzheimer’s disease or ADRD. At ages 85 and over, African Americans are about 1.8 times as likely to have Alzheimer’s disease or ADRD. The declining difference with age may be due to earlier onset or diagnosis of Alzheimer’s disease for African Americans, combined with earlier death for African Americans with the disease. No previous research has
had access to a sufficiently large sample to reveal this phenomenon. These findings illustrate the rich research capabilities of the South Carolina Alzheimer's Disease Registry.

- According to the U.S. Census, there were only 2,727 Hispanics/Latinos age 65 or over in South Carolina in 2000. This group is of interest because of the state’s growing Hispanic population. The 2002 Registry indicates ADRD prevalence for these Hispanics was 3.8%, compared with 7.8% for the total population at those ages. The average age of Hispanics in the Registry did not differ notably from the average age for others; however, among those without ADRD, the age profile of older Hispanics and others may differ. This could account for the prevalence difference. Also, if many older Hispanic South Carolinians are immigrants, they may represent a relatively healthy population, as immigrants generally come to this country in good health.

- The prevalence of Alzheimer's disease and related disorders (ADRD, all dementias) may vary notably among SC counties. For example, Figure 12 shows the percentage of individuals age 85 or over with ADRD in 2002. The county prevalence rates vary from a low of about 20.10%, to a high of about 53.5%. We examined the possibility that some of these rates for border counties might be affected by South Carolina residents obtaining hospital care in North Carolina or Georgia; few older South Carolinians with an ADRD diagnosis use hospital services in bordering states. This county variation provides an important starting point for epidemiological studies of Alzheimer's disease and related memory disorders.

It should be noted that counties where residents enjoy particularly long lives are likely to have greater percentages of individuals with ADRD. This is so because the risks of ADRD rise dramatically at older ages. Thus, the map should not be interpreted to suggest that the incidence of ADRD is higher in counties with higher prevalence. However, the map is useful because it illustrates where the greatest service needs are for the oldest old, who are more likely than others to require institutional care.
Comparing the Registry to Physician visits using the State Health Plan in South Carolina

We compared the 2002 Alzheimer’s Disease Registry with the State Health Plan data, using records from those alive in both datasets at the beginning of 2002.

South Carolina State Health Plan (SHP) members include active employees of the state, retired state workers, and families of these employees and retirees. They represent about 8.5% of the state’s population ages 50 and over. SHP members represented in our data were age 50 or over in 1995 (n=75,687). Our study obtained records for these individuals from 1995 through 2002. The data represent individuals that are widely distributed geographically. These individuals also provide a reasonably good representation of most socioeconomic levels in the state, excepting only the poorest and most affluent state residents.

Nearly 8% of individuals with an ADRD diagnosis from any source, including physician office visits, enter the Registry before 1 full month has passed. Within the first year after an initial diagnosis, 46% of all individuals have also been diagnosed in a Registry data source. A total of 70% of all individuals with any ADRD diagnosis receive a Registry data source diagnosis within the first two years after their initial diagnosis. The proportion who receive a diagnosis in a Registry data source more than two years after their initial diagnosis is notable.

Table 7. Mean number of months from initial ADRD diagnosis to a diagnosis in a Registry data source.

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>(SD)</th>
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</thead>
<tbody>
<tr>
<td>50 - 64</td>
<td>173</td>
<td>21.8</td>
<td>(21.1)</td>
</tr>
<tr>
<td>65 - 74</td>
<td>669</td>
<td>21.5</td>
<td>(21.1)</td>
</tr>
<tr>
<td>75 - 84</td>
<td>835</td>
<td>18.2</td>
<td>(18.0)</td>
</tr>
<tr>
<td>85 +</td>
<td>210</td>
<td>16.1</td>
<td>(17.1)</td>
</tr>
<tr>
<td>All</td>
<td>1,887</td>
<td>19.5</td>
<td>(19.4)</td>
</tr>
</tbody>
</table>

Dementia type %

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alzheimer’s</td>
<td>88.6</td>
</tr>
<tr>
<td>Vascular</td>
<td>4.8</td>
</tr>
<tr>
<td>Other</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Following their initial diagnosis. Nonetheless, even among those who are ages 85 and older, a diagnosis in a Registry data source does not occur until an average of 16 months following first diagnosis.

Conclusion

It is not unexpected that individuals with an ADRD diagnosis would often be diagnosed in a Registry data source some time after their initial diagnosis. The Registry only rarely captures diagnoses from physician office visits. Thus, an individual can be diagnosed in an office visit, and may not appear in the Registry until some time after that diagnosis, at a time when they are hospitalized, or evaluated for Community Long Term Care, or receive a diagnosis in some other registry data source. The mean lag time between diagnosis for those in the State Health Plan and entry into the Registry is 19.5 months.
~ Hospital Utilization and Charges: A Study of Persons with Dementia by Place of Residence ~

Few studies have compared healthcare use and charges for persons with dementia by their place of residence. Based on previous studies suggesting that nursing home residents experience fewer hospital stays, we expected community residents with dementia to have higher utilization rates and charges than nursing home residents with dementia.

The Study Population

13,367 individuals with dementia from the 2002 SC Alzheimer's Disease Registry, were included in the study. Inclusion criteria:
- Alive on January 1, 2002
- Diagnosis prior to January 1, 2001
- Same place of residence on January 1, 2002, as on January 1, 2001
- 65 years of age or greater

Methods

We examined, for each individual, total number of hospital stays and ED visits, and total charges for those utilizations, for years 2001-2002. Regression analysis with a negative binomial model was used. Results were adjusted for age, race, sex, urban/rural status of county of residence, and death. Each model accounted for each individual person's length of time in the study period which varied depending on vital status.

Results

Unadjusted for other covariates, place of residence was a significant predictor of overall utilization and ED visits. Community residents had higher rates of both. After higher adjustment, nursing home residents had higher rates of hospitalization, while community residents had higher rates of ED visits and ED charges. Overall community residents had a higher rate of utilization. Vitality was also a significant variable in the analysis, with those who died during the second year having higher utilization rates and higher rates of charges. The total annual charge for all individuals' utilizations was $157,300,706, 58% incurred by community residents.

Conclusions

Our results suggest that community residents experience higher rates of overall utilization, ED visits, and charges for ED visits; NH residents have higher hospitalization rates. Irrespective of residence, care for persons with dementia is expensive. These results should be considered in healthcare planning.
Prevalence of AIDS Dementia: Results from the South Carolina Alzheimer’s Disease Registry

Highly active antiretroviral therapy (HAART) has altered the course of AIDS Dementia Complex (ADC). Researchers generally agree that the incidence of ADC has declined since the introduction of HAART in mid-1990’s. HAART has also extended the survival time for those living with HIV/AIDS. However, estimates of ADC prevalence vary notably. Some researchers believe that prevalence has increased, while others believe it remains unchanged.

This preliminary study examined ADC prevalence using the South Carolina Alzheimer’s Disease Registry. Since 1988, the Registry has identified 400 ADC cases. The analysis primarily focused on the 188 individuals living with ADC in 2003. Data on these individuals was combined with 2003 US Census population estimates and 2003 South Carolina HIV/AIDS Surveillance Reports to calculate prevalence.

Characteristics of those with AIDS Dementia Complex

- 68% African American
- 71% Male
- 33% Age 50+ at Diagnosis
- Average Age on January 1, 2003 = 47 Years
- Average Age at Diagnosis = 46 Years
- 40 of 188 died during 2003
- Average Age of Death = 48 Years
- 50% died within 4.5 months of entering Registry

Prevalence among the General Population

In the general population, including those with and without HIV/AIDS, ADC prevalence among African Americans (AAs) was 10.3 cases per 100,000 persons. Their prevalence differed significantly from non-Hispanic whites, whose prevalence was only 1.96 cases per 100,000. Prevalence among men also differed from the prevalence among women. In terms of age, prevalence was highest among those 40-49 years of age, with 10.9 cases per 100,000 persons.

Prevalence among Those with HIV/AIDS

The results differed when examining prevalence solely among those with HIV/AIDS. There was some indication that ADC prevalence may have been higher among non-Hispanic whites than among AAs; however, this was not a statistically significant finding. There was also some indication that the prevalence of ADC in this population may have been higher for men than for women; again, however, this was not a statistically significant result.

Prevalence of ADC among those with HIV/AIDS increased steadily across increasing age groupings, with the prevalence highest among those over age 50. Those over age 50 had a prevalence of 74.8 cases per 1000 person with HIV/AIDS.

![ADC Prevalence Among Age Groups for Persons with HIV/AIDS](image)

Remarks and Future Work

These results imply that racial and gender differences may exist in the prevalence of AIDS dementia complex, as well as a strong relationship with increasing age. Future work will continue to examine the prevalence of ADC to determine if these relationships persist, or if they change over time.
Parkinson's disease is the second most common neurodegenerative disorder, following Alzheimer's disease. There is evidence that individuals with Parkinson's disease are more likely to develop cognitive decline and dementia. Most studies of this phenomenon have been limited to small samples. One useful community-based prospective study examined a sample of 86 non-demented individuals ages 65 and over with a diagnosis of clinically probable Parkinson's disease, with 102 similarly aged controls (Hobson & Meara, 2004). After 4 years, 7% of the controls had developed dementia, compared with 35% of those with Parkinson's disease, and in general the risk of developing dementia among those with Parkinson's disease was found to be about 5 times larger than the risk among the others. After 8 years, 78% of the Parkinson's group that was available for follow-up had developed dementia (Aarsland et al., 2003). In most studies, cerebrovascular risk factors are not found to be associated with incident dementia associated with Parkinson's disease (Levy et al., 2002; Salganik & Korczyn, 1990), nor is cerebrovascular neuropathology associated with Parkinson's disease (Jellinger, 2003; Papapetropoulos, Gonzalez, & Mash, 2005). Thus, it appears that disease-related degenerative brain changes are the main causes of dementia in Parkinson's disease. So, while we have an increasing opportunity to notably reduce the risk of Alzheimer's disease and vascular dementia through lifestyle change, it does not appear to be the case that a corresponding opportunity exists for reducing the risk of dementia with Parkinson's disease.

Our goal for this analysis was to identify the Prevalence of Dementia Associated with Parkinson's Disease. This is a useful question, because no previous study has had adequate numbers of individuals represented to identify age-specific rates of dementia associated with Parkinson's disease. Our South Carolina Alzheimer's Disease Registry, and also data from the SC State Health Plan (SHP), enabled us to conduct such an analysis.

Figure 14 shows the main results of this study. The dotted line shows the age-specific population prevalence of dementia unrelated to Parkinson's disease. The solid line shows the prevalence of dementia among those with Parkinson's disease. At ages 75-79, approximately 16% of the SC population without Parkinson's disease has a diagnosis of dementia. At those same ages, among those with Parkinson's disease about 45% also have a dementia diagnosis. In all, the SC Alzheimer's Disease Registry reports 2,062 cases of dementia associated with Parkinson's disease; this includes individuals who also have Parkinson's disease and diagnoses of other dementias, such as Alzheimer's disease or vascular dementia. Because the Registry does not capture diagnoses from physician visits unless those same individuals are also diagnosed through a Registry data source, this number of cases under-estimates the actual prevalence of dementia associated with Parkinson's disease. For this reason we present the SHP results, which should reasonably reflect the prevalence of dementia associated with Parkinson's disease in SC. As Figure 13 clearly illustrates, the burden of dementia for individuals with Parkinson's disease is great.

**Conclusion**

Individuals with Parkinson's disease are at particularly high risk of dementia. On average, the onset of this dementia is at much earlier ages than the comparable onset of dementia associated with Alzheimer's disease.

Unfortunately there is little evidence that risks for these dementias associated with Parkinson's disease may be notably reduced by lifestyle change.
~ Registry Procedures ~

A definitive diagnosis of ADRD is difficult, especially in the early stages. The registry staff is not directly involved in diagnosis; the physician's diagnosis is collected from the individual's medical records through codes using the International Classification of Diseases, 9th revision, Clinical Modification (ICD-9-CM, 1980). An individual is then classified into four general categories for reporting purposes as shown in Table 7.

Individuals with ADRD are usually identified, as they (or their family members) require provider services. Since no single system identifies all newly diagnosed patients with ADRD, cases are collected from several sources: the SC Department of Mental Health, the Community Mental Health Centers, the Medical University of South Carolina, Community Long-Term Care, Nursing Homes and Residential Care Facilities, the SC Department of Health and Environmental Control, Vital Records and Public Health Statistics and the South Carolina Budget and Control Board.

Table 7
Classification of ADRD by ICD-9-CM Codes
South Carolina Alzheimer's Disease Registry, 2004

<table>
<thead>
<tr>
<th>Category</th>
<th>ICD-9-CM Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALZHEIMER'S DISEASE</td>
<td>290.0 - 290.3, 290.8 - 290.9, 331.0</td>
<td>Senile or presenile dementia, Alzheimer's disease</td>
</tr>
<tr>
<td>VASCULAR DEMENTIA</td>
<td>290.4 - 290.43, 435 - 438</td>
<td>Arteriosclerotic dementia, Cerebrovascular disease (with a dementia code*)</td>
</tr>
<tr>
<td>MIXED DEMENTIA</td>
<td>Both Alzheimer's disease and Vascular dementia</td>
<td></td>
</tr>
<tr>
<td>DEMENTIA IN OTHER MEDICAL CONDITIONS (see note below)</td>
<td>291.2, 292.82, 294.1, 331.82</td>
<td>Alcohol dementia, Drug-induced dementia, Dementia with other conditions, Dementia with Lewy bodies</td>
</tr>
<tr>
<td>The following conditions are included with a dementia code*:</td>
<td>310.1, 331.1 - 331.9, 332.0 - 332.1, 333.4, 042</td>
<td>Organic brain syndrome, Other cerebral degeneration, Parkinson's disease, Huntington's disease, HIV</td>
</tr>
</tbody>
</table>

NOTE: In the case where a person's record contains multiple indicators of the above categories, Alzheimer's disease and vascular dementia take precedence, except in the case where there are indications of both Alzheimer's disease and vascular dementia. In this case, the person is classified as having mixed dementia. Those classified with dementia in other medical conditions have no indications of Alzheimer's disease or vascular dementia.

*One of the following dementia codes must also be present: 290.0-290.3, 290.8-290.9, 331.0, 290.4-290.43, 291.2, 292.82, 294.1, 331.82.
Core Data Items

The registry core data set (Table 8) consists of case-identifying data and diagnostic data (ICD-9-CM codes), caregiver contact data for follow-up, and the place from which the records were obtained. Other information collected, if available, includes other medical diagnoses, educational status, and marital status.

Table 8
Registry Core Data Items
South Carolina Alzheimer's Disease Registry, 2004

| Identification of case (for matching purposes only) |
| Location of case (for follow-up) |
| Name and location of caregiver/contact person (if available) |
| Sociodemographic data (education, marital status, gender, race, age) |
| Diagnosis (current dementia diagnosis and other medical diagnoses) |
Research Projects & Other Activities

In addition to registering and tracking individuals with ADRD, the staff of the Alzheimer's Disease Registry and Office for the Study of Aging (OSA) also conduct other activities focused on aging issues of older individuals, training of direct care staff and professionals in topics on ADRD, and exercise.

Community Outreach

The staff of the Office for the Study of Aging provides expertise and technical assistance to the community through the involvement on committees that include: Alzheimer's Resource Coordination Center, CM Tucker Citizen's Advisory Committee, Caregiver Coalition of the Midlands, Family Caregiver Coalition of South Carolina, New Advisory Committee for Nurse Aide Training, Nurse Aide Training Coordinator's & Instructors Annual Workshop, SC Special Needs Task Force of the South Carolina Emergency Management Division and the Nursing Home Quality Initiative, Quality Committee.

Consumer Directed Care

Consumer directed care is a philosophy and orientation to the delivery of home and community-based services whereby informed consumers make choices about the services they receive. The Office for the Study of Aging has provided technical assistance, training and evaluation services to the South Carolina Department of Health and Human Services as a Community Long Term Care pilot program. It is now an established option in the Community Long Term Care program.

Dementia Dialogues

"Dementia Dialogues" consists of 5 parts, each approximately 1.5 hours in length, which allows participants to integrate new ideas with information they already possess. Part 1 consists of "The Basic Facts", an overview of ADRD, Part 2 "Keeping the Dialogue Going", strategies for effective communication, Part 3 "It's a Different World", understanding the impact of the environment and ways to promote independence in activities of daily living, Part 4 "It's Nothing Personal", addressing challenging behaviors and Part 5 "Now What Do I Do", creative problem solving. Each participant receives a certificate of participation for each unit and a Dementia Specialist Certificate upon completing all five Units. This program is offered at no cost to participants and is held regionally. Over 7,000 professional, non-professional and family caregivers in South Carolina have received this training.
**Dementia Dialogues Train-The-Trainer**

A "Train-The-Trainer" curriculum for "Dementia Dialogues" has been developed and implemented for those who have completed Dementia Dialogues and wish to conduct these trainings in their communities. For further information please contact: Jan Merling, MA, Office for the Study of Aging, Arnold School of Public Health, University of South Carolina, 803-318-1601, jmerling@sc.edu.

**Disaster Preparedness in Long Term Care**

In collaboration with the Department of Health Services Policy and Management in the Arnold School of Public Health, the OSA staff has collected information regarding readiness for disasters from nursing homes, homes health agencies and home care agencies in South Carolina and also sheltering nursing homes in Mississippi after Hurricane Katrina. The information has been utilized to develop educational modules for master's and doctoral level students.

**Elder Mistreatment Prevention Training**

The OSA, in collaboration with the Center for Child and Family Studies in the College of Social Work and with the support of the SC Department of Health and Human Services are developing Elder Mistreatment Prevention Training in nursing homes. This training will be offered to nursing homes statewide upon completion of development and piloting.

**Functional Status Measurement**

A study in cooperation with the Department of Exercise Science is in progress to develop a simple, reliable, objective assessment tool for evaluating and monitoring functional status that would complement and expand the current assessment of activities of daily living in community dwelling frail elderly.

**Medication Adherence Management Service Evaluation**

In collaboration with the College of Pharmacy, a study is being conducted to assess the effectiveness of a service to improve medication adherence and potentially reduce health care utilization and cost. A prospective cohort design with 300 cases and approximately 1200 match controls will be utilized to evaluate the effectiveness of this service.
Placemat Strength Training Program

Training home care workers to assist clients in maintaining independence by improving physical functioning through strength training has resulted in the Placemat Strength Training Program (PSTP). This exercise program has been specifically designed for the person who has met nursing home level of care and has chosen to remain at home. This program is being implemented through Community Long-Term Care.

Recruitment and Retention

OSA staff is conducting discussion groups with administrators of Community Residential Care Home and Personal Care Provider agencies and interviews with direct service workers to identify issues of recruitment and retention of direct service staff. The goal is to provide a training package to administrators that would include an assessment and measurement tool and intervention strategies to improve their ability to recruit and retain good direct service staff. This project is through a technical assistance grant obtained by the South Carolina Department of Health and Human Services.

Current Research Using the Registry

Several projects are underway to further develop and use the Registry:
- Providing estimates of the overall success of the primary health care system for individuals with Alzheimer’s disease.
- Conducting research on access to health care and social services for individuals with Alzheimer’s disease and their families.
- Examining the epidemiology of dementia related to Parkinson’s disease.
- Examining Causes of Death for persons in the registry.
Promoting Brain Health

Recent scientific advances strongly suggest that lifestyle measures aimed at improving brain health may notably reduce the risk of Alzheimer's disease, vascular dementia, and cognitive decline. The OSA is helping to lead efforts to reduce the future prevalence of Alzheimer's disease and related disorders in South Carolina and the nation. We are working with the Centers for Disease Control and Prevention (CDC), the Alzheimer's Association, the National Institutes of Health (NIH), the AARP, and other brain health partners, to change knowledge, attitudes, and behavioral intentions about brain health, and to promote brain-healthy lifestyle choices.

As part of this work, the OSA is helping to develop a national public health "Roadmap" for brain health. The Roadmap will include agendas for policy, surveillance, communications, and research, all designed to mobilize the public health community into action. Dr. Laditka co-chaired a national research meeting, held at the CDC in May of 2006, which gathered 60 of the nation's leading scientists studying brain health issues. Dr. Laditka also serves on the national Steering Committee of the brain health initiative, as well as a committee that is developing plans for a national surveillance effort on brain health. The OSA is also assisting the Alzheimer's Association in the development of a program specifically designed to promote brain health among African American baby boomers. We know from our work with the Registry that African Americans are at high risk of developing Alzheimer's disease and related disorders. One of our goals is to eliminate this brain health disparity.

The OSA is also leading 9 research universities in the Healthy Aging Research Network in a four-year project to better understand how people in various demographic groups think about brain health issues, and to design and implement a national public health intervention to promote behaviors that will protect brain health. In South Carolina, the OSA staff participates in this work by conducting focus groups designed to understand how people think about brain health issues, and how we can intervene to improve health behaviors that are related to the risks of developing brain problems.

Obesity, diabetes, hypertension, and being physically inactive are all known risk factors for brain diseases and cognitive decline. Our research at the Registry suggests that learning about the connection between lifestyles and the risks of brain problems may motivate many South Carolinians to improve their lifestyles. This will have far-reaching effects on individual health, on families, and on our state's financial well-being. We are proud that the OSA is helping to lead this developing effort to improve brain health in South Carolina and our nation.
Researchers of the Office for the Study of Aging have conducted numerous research projects, using the Registry and other data sources to study aging processes. In addition to several studies of Alzheimer's Disease in South Carolina, these have included research published in *American Journal of Alzheimer's Care and Related Disorders and Research, American Journal of Alzheimer's Disease and Other Dementias, American Journal of Psychiatry, Annals of Epidemiology, Creative Forecasting, Evaluation and the Health Professions, The Gerontologist, Home Care Provider, International Journal of Aging and Human Development, Journal of American Geriatrics Society, Journal of Clinical Epidemiology, and The Journal of the South Carolina Medical Association*. Complete citations appear later in this report. The subjects of these research articles have included:

- Use of capture-recapture methodology to determine the prevalence of ADRD in South Carolina.
- Comorbidity associated with ADRD.
- The value of strength training for older adults.
- Location of death as an indicator of end-of-life costs for the person with ADRD.
- Functional health status as a predictor of mortality in men and women over 65.
- Risk of institutionalization among community long-term care clients with ADRD.
- Major depression and all-cause mortality among white adults in the United States.
- A functional fitness workshop.
- Survival of Alzheimer’s disease patients with regard to pattern of care in South Carolina.
- Epidemiology of Alzheimer’s disease.
- Perceived burden among caregivers.
- The association of positive and negative events with depressive symptomatology among caregivers.
- Ethnic differences in the burden of caregiving.
- Sensitivity and specificity of death certificate diagnoses for dementing illnesses.
- Problems in establishing case definitions for Alzheimer’s disease registries.

In addition, our current researchers have published aging-related studies of caregiving, health services supply, active life expectancy, hospitalization risks, effects of recent widowhood on health, protective effects of social contacts on health, health care use by individuals with diabetes, home and community-based services, eligibility for long-term care services, managed care, medical savings accounts, ethnicity and preventable hospitalization, and the compression of morbidity. These studies have appeared in *Archives of Internal Medicine, Home Health Care Services Quarterly, Health and Place, The Journal of Applied Gerontology, The Journal of Health and Social Policy, The Journal of Women and Aging, Medical Care Research and Review, Research on Aging, and Social Science and Medicine, Ethnicity and Health*. 
~ Registry Staff ~

Kimberly Butler, B.S., Graduate Research Assistant, is a masters student in Health Promotion, Education and Behavior. Her research interests are in brain health and qualitative analysis.

Maggi Chandlee, M.P.H., Graduate Research Assistant, is a Ph.D. student in Epidemiology and Biostatistics. Her research interests are in aging and exercise.

Carol B. Cornman, B.S., R.N., P.A., Director of the Alzheimer’s Disease Registry and related projects. She handles all requests for information from the registry. Her research interests include ethnic differences in ADRD, incorporating wellness activities that maintain independence in the elderly, and consumer directed care.

Courtney Davis, M.H.A., Research Associate, provides technical assistance and program evaluation for activities related to the office for the Study of Aging and conducts research and training in the area of long term care. Her interests include consumer-directed care, disaster preparedness for vulnerable adults, elder mistreatment, and quality improvement in facility and community-based health services.

Dorothy Davis, B.A., serves as Data Manager for the Alzheimer’s Disease Registry, including Community Long Term Care (CLTC), vital records, Department of Mental Health, and other registry databases.


Marcia J. Lane, M.P.H., Associate Director of the Alzheimer’s Disease Registry, provides program coordination and evaluation. Her research interests include older women’s health issues, physical activity, ADRD, medication adherence, elder mistreatment, quality of life in long-term care, and consumer directed care.

Rui Liu, M.P.H., Graduate Research Assistant, is a Ph.D. student in Epidemiology and Biostatistics. Her research interests are in brain health and qualitative analysis.

Jan Merling, M.A., CTRS, Education Coordinator, is the trainer for “Dementia Dialogues” and the Placemat Strength Training Program. Her interests include adult learning and quality of life for older persons.

Dale Morris, A.S., Administrative Assistant, coordinates administrative activity and data entry for all projects.

Archana Pande, M.S., Graduate Research Assistant, is a Ph.D., student in Epidemiology and Biostatistics. Her research interests focus on frailty in older persons.

Candace N. Porter, M.S., Statistical Research Associate for the Alzheimer’s Disease Registry and related projects. Her research interests include AIDS dementia, Alzheimer’s disease and related disorders as causes of death, survival analysis, and longitudinal data analysis.
~ Affiliated Professionals ~

Cheryl Addy, Ph.D., is Executive Associate Dean, Arnold School of Public Health.

Sam Baker, Ph.D., is an Associate Professor, Department of Health Services Policy and Management, Arnold School of Public Health.

Shawn Chillag, M.D., is Chairman and Professor, USC School of Medicine, Department of Internal Medicine, Division of Geriatrics.

Sara Corwin, Ph.D., is an Assistant Professor and Interim Director, Office of Public Health Practice, Arnold School of Public Health.

Ramie Cox, M.D., is an Assistant Professor, USC School of Medicine, Department of Internal Medicine.

Keith Davis, Ph.D., is Professor, Department of Psychology.

Dana DeHart, Ph.D., is with the Center for Child and Family Studies, College of Social Work.

Keith Elder, Ph. D., is an Assistant Professor, Health Services and Policy Management, Arnold School of Public Health.

Paul G. Eleazer, M.D., F.A.C.P., is Director, Division of Geriatrics, Department of Internal Medicine, USC School of Medicine.

Elaine Frank, Ph.D., is Chair and Associate Professor, Department of Communication Sciences and Disorders, Arnold School of Public Health.

David Greenhouse, M.D., CMD., is Associate Professor, USC School of Medicine, Department of Family Practice.

Joyce Gossard, M.S., is an Instructor, Department of Exercise Science, Arnold School of Public Health.

Greg Hand, Ph.D., is an Associate Professor, Department of Exercise Science, Arnold School of Public Health.

Victor A. Hirth, M.D., is an Assistant Professor of Medicine in the Division of Geriatrics, Department of Internal Medicine, USC School of Medicine.

Vijaya Korrapati, M.D., is an Assistant Professor, USC School of Medicine, Department of Internal Medicine.
Sarah Laditka, Ph.D., is an Associate Professor, Department of Health Services and Policy Management, Arnold School of Public Health.

Bruce McClenaghan, PED, MPT, is Professor, Department of Exercise Science, Arnold School of Public Health.

Robert McKeown, Ph.D., is an Associate Professor, Department of Epidemiology and Biostatistics, Arnold School of Public Health.

Nancy Richeson, M.D., is Professor, USC School of Medicine, Department of Internal Medicine.

Richard M. Schulz, Ph.D., is Professor in the USC College of Pharmacy.

M. Shawn Stinson, M.D., is Associate Professor, USC School of Medicine, Department of Internal Medicine.

Beck Sullivan, M.M.A., is with the Center for Child and Family Studies, College of Social Work.

John Vena, Ph.D., is Chair, Department of Epidemiology and Biostatistics, Arnold School of Public Health.

Kenneth Watkins, Ph.D., is an Associate Professor in Health Promotion, Education and Behavior, Arnold School of Public Health.

Darryl Wieland, Ph.D., M.P.H., is Professor, Division of Geriatrics, Department of Medicine, USC School of Medicine.

Sara Wilcox, Ph.D., is an Associate Professor in Exercise Science, Arnold School of Public Health.

Harriet G. Williams, Ph.D., is a Professor, Department of Exercise Science, Arnold School of Public Health.
Office Publications

The following is a list of the manuscripts and reports generated by the Registry staff. Reprints of these articles can be obtained from the registry office.


Laditka SB, Fischer M, Laditka JN, Segal DR, Attitudes about Aging and Gender among Young, Middle Age, and Older College-Based Students. *Educational Gerontology*, 30, 403-421, 2004.


~ 2006 OSA Presentations ~


This Annual Report is available on line at http://osa.sph.sc.edu/alzheimers_registry.html. Any state or local agency may request the registry staff to provide specific data summaries (without identifiers). These requests are handled on an individual basis and will be provided free of charge, as time allows. Contact the registry staff at (803) 777-5337 for further information, or e-mail Carol Cornman at: ccornman@sc.edu.