2007 Innovations Awards Program
APPLICATION

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ID # (assigned by CSG): 07-S-07SCSENIORSCUBE

Please provide the following information, adding space as necessary:

State: _____South Carolina
Assign Program Category (applicant): Health and Human Services - Aging

1. Program Name: South Carolina Seniors' Healthcare Database Development (Seniors' Cube)
2. Administering Agency: S.C. Lieutenant Governor's Office on Aging (LGOA)
3. Contact Person (Name and Title): Bruce Bondo, Deputy Director for Policy and Planning
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7. E-mail Address: bondo@aging.sc.gov
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9. Please provide a two-sentence description of the program.
   The South Carolina Seniors' Cube is a nationally unique comprehensive and readily accessible statewide database of the senior population's health care statistics and services integrating information from multiple data systems. The database provides a quick query cross-sectional analysis of data via the internet to examine the status of seniors' healthcare for the purpose of researching senior health care issues for implementing cost effective strategies for maintaining the health and well- being of the senior population.; and for the evaluation of outcomes of program interventions.

10. How long has this program been operational (month and year)?
    Note: the program must be between 9 months and 5 years old on April 2, 2007, to be considered. Program has been operational since July 1, 2005.

11. Why was the program created? What problem[s] or issue[s] was it designed to address?
    South Carolina's senior population is expected to double in the next twenty years. The state's infrastructure is marginal at present to address the wave of aging baby boomers that will age or migrate to South Carolina between 2007 and 2030. Government's ability to pay for increased health care and long term care costs will be unsustainable as seniors age and grow more frail. The program was created to develop a mechanism to research seniors' health care usage and areas where prevention and wellness strategies could be used to limit state and federal expenditures in the future by maximizing all available information on seniors through administrative and health records. The Seniors' Cube will help to ensure the state's policy makers, business leaders and scientists have accurate, comprehensive, up-to-date and consistent information to develop policy and new service delivery patterns.

12. Describe the specific activities and operations of the program in chronological order.

- The Lieutenant Governor's Office on Aging (LGOA) and the USC Arnold School of Public Health applied to the Duke Endowment for a grant to fund Phase I of the development of the seniors' database in January 2005.
- The Duke Endowment awarded $70,000 for Phase I of the project in June, 2005.
- The LGOA contracted with the S.C. State Budget and Control Board's Office of Research and Statistics (ORS) to create the structure for a statewide seniors' healthcare database.
- A statewide steering committee was formed from major universities and senior-related organizations. The steering committee gave guidance on specific design parameters for the database and protocols for access to the database. The Office of Research and Statistics created the database from all-payer hospital acute care, emergency department and outpatient department data, Medicaid claims, and the aging client information service delivery information funded by the Older American's Act.
- The LGOA received a second award for $60,000 for Phase II of the project where additional databases were included into the cube. These include Vital Statistics data, Alzheimer's Disease Registry data, and Medicare data. Duke Endowment funding ends as of June, 2007 and the project will be sustained by access and membership fees, as well as support from the LGOA and the Office of Research and Statistics.

13. Why is the program a new and creative approach or method? South Carolina's Senior Healthcare database is unique in the United States and the envy of many states struggling to predict and plan for the needs of the aging population. Through the assistance of the Office of Research and Statistics, who has been the statistical warehouse entity for South Carolina for decades as a neutral service agency, multiple client databases from state agencies can be linked to medical data from hospitals and claims data from Medicaid and Medicare. An algorithm has been created to protect an individual's identity, yet allows for linking and tracking health and human services utilization as well as socio-economic and disparity data over multiple years.

14. What were the program's start-up costs? (Provide details about specific purchases for this program, staffing needs and other financial expenditures, as well as existing materials, technology and staff already in place.)
The Duke Endowment funded $130,000 over two years with agencies providing in-kind match of $130,000 for the same time period. The Office of Statistics and Research had the staff and technology in place. Money was needed to pay staff at ORS to build the database which involved multiple integrated web-based components (also known as "cubes"). The in-kind match came from LGOA staff to guide in the interpretation of data elements and file structure and the desired outputs. Inputs for the database included but were not limited to demographics, geographics, socioeconomic status, emergency department, outpatient care and hospitalization usage.

15. What are the program's annual operational costs? The operational costs for the first two years were $140,000 during the first year, and $120,000 during the second year. This includes both cash and in-kind support by the Duke Endowment, the Lieutenant Governor's Office on Aging, USC Arnold School of Public Health and the Office of Research and Statistics. The Office of Research and Statistics estimates that annual operational ongoing costs to be approximately $250 per gigabyte of database storage. This covers not only the storage itself, but also the size of the tape backup required, related bandwidth use, etc.

Modification/additions to the cubes are not included in this amount, since they entail development rather than maintenance.

16. How is the program funded?
The program was funded as noted in item 14 for the first two years of development. At present, the Steering Committee is reviewing access and use protocols, and developing fees for permanent membership and short term use for sustainability. The Lieutenant Governor's Office on Aging, the Office of Research and Statistics and the USC Arnold School of Public Health are committed to maintenance and enhancement of the South Carolina health care database (Seniors' Cube).

17. Did this program require the passage of legislation, executive order or regulations? If YES, please indicate the citation number**.** The uniqueness of this project is the Senior Cube is composed of aggregate data from multiple sources; meaning privacy laws governing person-level data are not applicable. South Carolina does have a state law regulating the release of health facilities names, health care provider names and health plan/insure names that is overseen by the Data Oversight Council (South Carolina Codes of Laws 44-6-170 through 44-6-180) . State agency data, in aggregate form, must also be approved by the agencies supplying information to the cube. This requirement is one based on the philosophy of the Office of Research and Statistics that the agency generating the data (data owner) retains control over the use of data, rather than specific state and federal laws.

18. What equipment, technology and software are used to operate and administer this program?
There are two main pieces of software used to operate and administer the cube. Microsoft SQL server actually serves two functions: a) the databases hold all the data in a relational form and b) by using Analysis Services (part of Microsoft SQL Server) ORS staff can then create all the data sources, dimensions, and cubes that are used to aggregate the data into an OLAP (Online Analytical Processing) environment. The second major piece of software is for presentation. Novaview software (called Panorama) allows ORS to show the cubes in an easy to understand web format.

19. To the best of your knowledge, did this program originate in your state? If YES, please indicate the innovator's name, present address, telephone number and e-mail address.
Yes, it originated in South Carolina under the leadership of Walter Pete Bailey with the Office of Research and Statistics. Development of the cubes has been a fairly recent phenomenon with the work on the first cube "Mother and Babies" beginning in 2000. However, the development of the "cubes" is dependent on the integrated data warehouse which the Office of Research and Statistics has been developing for over a decade. The integrated data warehouse currently receives from each of the major state health and human services, correctional, and educational agencies as well as from the private sector's all payer systems representing over 40 unique public and private statewide partnerships.

20. Are you aware of similar programs in other states? If YES, which ones and how does this program differ? At this time, we believe that such a program is nationally unique. We do know that several states (Florida and Rhode Island) are working to develop a similar database. A key factor of why South Carolina has been unique is that the Office of Research and Statistics has been housed in a neutral location in South Carolina state government, and not in a particular agency as the Medicaid agency or the health department. A unique trust

relationship has developed over time with an unbiased service focus which has allowed the state's many agencies and programs to be willing to share data for the benefit of the state's citizens and service recipients.

21. Has the program been fully implemented? If NO, what actions remain to be taken?
More phases remain that involve incorporating including Medicaid-waiver services, DSS, finalizing Vital Records Death databases, and the Alzheimer's Disease Registry. Data will continue to be refreshed from each of the participating organizations or agencies.

22. Briefly evaluate (pro and con) the program's effectiveness in addressing the defined problem[s] or issue[s]. Provide tangible examples.
The South Carolina Seniors' Cube project in conjunction with the Lieutenant Governor's Office on Aging's Advanced Performance Outcomes Measurement Project resulted in the state appropriating $2.9 million in new state funds for home and community based services for seniors. This is the first new state funds appropriated in ten years. Preliminary results from our evidence-based research indicate that serving meals to seniors at least four times a week may reduce emergency department visits and inpatient hospitalizations. This kind of evidence-based research convinced the legislature to provide additional state funds for seniors on waiting lists for aging services. The impact of these related efforts has the potential to save the state of South Carolina and the nation's Medicaid and Medicare programs significant funding in the future.

23. How has the program grown and/or changed since its inception?
The South Carolina health care database project (Seniors' Cube) has grown significantly from its inception in July, 2005. As word of its capability has grown, many researchers in the state's colleges and universities want to have access. The program is on the threshold of significantly greater use and sophistication in the future.

24. What limitations or obstacles might other states expect to encounter if they attempt to adopt this program?
A major limitation or obstacle for many states is the willingness of various agencies to share information about their clients and programs. Issues of ownership of information and concerns about negative findings being publicized about programs can hinder cooperation necessary to create a statewide database. Willingness to share data requires the building and trust as well as to share the data on clients who often use multiple agencies' services. The issue of confidentiality and privacy of individual information in a time of identity theft is a major obstacle. The Office of Research and Statistics uses an algorithm to give a unique identifying number to individual and personal data to protect individual identifying data. Specific state laws may be required in order to protect the information to make an effort such as this feasible.

2007 Innovations Awards Program
Program Categories and Subcategories

Use these as guidelines to determine the appropriate *Program Category* for your state's submission and list that program category on page one of this application. Choose only one.

Infrastructure and Economic Development
- Business/Commerce
- Economic Development
- Transportation

Government Operations
- Administration
- Elections
- Public Information
- Revenue

Health & Human Services
- Aging
- Children & Families
- Health Services
- Housing
- Human Services

Human Resources/Education
- Education
- Labor
- Management
- Personnel
- Training and Development
- Workforce Development

Natural Resources
- Agriculture
- Energy
- Environment
- Environmental Protection
- Natural Resources
- Parks & Recreation
- Water Resources

Public Safety/Corrections
- Corrections
- Courts
- Criminal Justice
- Drugs
- Emergency Management
- Public Safety

Save in .doc or rtf. Return completed application electronically to innovations@csg.org or mail to:

CSG Innovations Awards 2007
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This application is also available at www.csg.org, in the Programs section.

Deadline: April 2, 2007