Year II Findings and Recommendations
April 2008

Work Groups

In January 2008, the Council formed two work groups to focus on the areas of stroke prevention and rehabilitation. The findings and recommendations of these work groups were presented to the Council during the April 14, 2008 meeting for discussion, and adoption. This section reports those findings and recommendations.

Prevention Work group

The Council decided at its February 25th meeting, that the demonstration project Proposed by Dr. DeWalt would provide the basis for the Prevention Work Group's recommendations. The work group, comprised of various experts, (see, appendix, page) met face to face on March 19, 2008, and subsequently via follow-up conference calls. At the March meeting, the work group heard a presentation from David Cline, MD on the Emergency Room-based Hypertension Registry at Wake Forest University Baptist Medical Center, and then discussed the ideas presented by Dr. DeWalt and Ms. Boone at the February meeting. The work group developed the following findings and recommendations.

Finding # 1

Timely and appropriate stroke treatment is essential to improving stroke patient outcomes. Too often, those experiencing symptoms wait too long to get to the hospital emergency room. According to the latest Behavioral Risk Factor Surveillance System (BRFSS) survey (2005), 87.5% of NC adults say they would call 9-1-1 if they thought someone was having a stroke, but only 18.8% could correctly identify all the stroke symptoms. The results of focus group sessions conducted by the NC Heart Disease and Stroke Prevention program strongly suggest that poor knowledge of stroke and its deadly consequences are some of the main reasons why people wait too long to get to the emergency room.

Therefore, there is a continued need for educating the public about the signs and symptoms of stroke, and the importance of calling 9-1-1 in the presence of those signs. HDSP funded a 2007-2008 television campaign on stroke signs and symptoms targeting 16 counties in Eastern North Carolina. The television campaign will be evaluated through pre- and post-campaign surveys, emergency department admissions, and Emergency Medical Service (EMS) data. Culturally appropriate educational materials developed with the input of community partners will reinforce the television campaign.

Research shows that mass media campaigns sustained over time are required to effectively raise awareness of stroke symptoms,[1] and to increase emergency department

[1] Silver, FL, Rubini, F., Black, D., and Hodgson, C.S. Advertising strategies to increase public knowledge of the warning signs of stroke. Stroke. 2003; 34:1965-1969.

visits for stroke.[2] Therefore, there is a need to extend the evaluated and effective components of the campaign in this and subsequent years to cover other parts of North Carolina that have high-risk, high-need populations. Awareness of signs and symptoms should also be sustained in areas that have been exposed to high-frequency awareness campaigns in previous years.

Recommendation # 1

The Council recommends that the state continue to provide funding to the Heart Disease and Stroke Prevention Branch of the Division of Public Health for the development and implementation of public awareness campaigns and communications strategies on stroke signs and symptoms, and the importance of immediately calling 911. **FUNDING REQUESTED: $350,000 PER YEAR RECURRING**

Finding # 2

Hypertension (HTN) is the leading risk factor for stroke.[3] Approximately 25.5% of Americans have high blood pressure, while in North Carolina, that number is 30.2% (40.6% for African Americans in NC).[4] If hypertensive patients were able to achieve a 12-13 point reduction in blood pressure, there would be approximately a 40% reduction in strokes.[5]

BRFSS data (2006) indicates that approximately 3% of North Carolinians report having had a stroke. In eastern NC, specifically the Northeastern NC Partnership for Public Health (NENCPPH) region – an area of high need and low resources – 4.0 % report having had a stroke.[6] Hypertension, when viewed in relation to other chronic diseases in NC (cancer, diabetes, heart disease, mental disorders, and pulmonary conditions) is as prevalent as diabetes, cancer and heart disease combined.

Several public health projects in NC have successfully developed and implemented patient self-management programs. For example, the Asheville Project and "Gift of Health" (Rocky Mount and Fayetteville) projects target diabetes and cardiovascular disease respectively. Another project successfully utilized the Chronic Disease Self-Management Program (CDSMP) model developed at Stanford University,[7] and adapted for use in a largely African-American population in North Carolina. The

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[2] Hodgson, C., Lindsay, P., Rubini, F. Can mass media influence emergency department visits for stroke? Stroke. 2007: 2115-2122.

[3] A.V. Chobanian, G.L. Bakris, H.R. Black, W.C. Cushman, L.A. Green, D.W. Izzo, B.S. Materson, S. Oparil, J.T. Wright and E.J. Roccella, The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: The JNC 7 Report, *J Am Med Assoc* 2003; 289: 2560–2571.

[4] Huston, S.L. Burden of Cardiovascular Disease in North Carolina – August 2007. Raleigh, NC. DHHS. Available at: http://www.startwithyourheart.com.

[5] He J, Whelton PK. Am Heart J 1999;138:211–19.

[6] 2006 BRFSS survey results for question regarding whether NC respondents had ever been told they had a stroke can be accessed at the NC State Center for Health Statistics website http://www.schs.state.nc.us/SCHS/brfss/2006/nc/nccr/cvdstrk3.html.

[7] For more information on the Chronic Disease Self-Management Program you can access the homepage of the CDSMP program here http://patienteducation.stanford.edu/programs/cdsmp.html.

Improving Performance in Practice (IPIP) program in the Community Care of North Carolina (CCNC) clinics, started with diabetes and asthma, but is adding hypertension and planning to add self-management support services to its program. The work group found that there is sufficient knowledge and expertise within the NC's Division of Public Health and its partners to carry out a successful demonstration project to control and reduce the rate of hypertension, which is a major risk factor for stroke.

Demonstration Project Components

Health Literacy/Patient Self-Management: The project will incorporate principles of health literacy at all levels of care with emphasis on: provider-patient collaboration in setting health goals, teach-back techniques, verbal communication, and culturally and educationally appropriate education materials.

Practice Redesign: This component will be designed after the Improved Performance in Practice (IPIP) model of continuous quality improvement. The goal will be to improve the rates at which hypertensive patients achieve control of blood pressure, using a combination of medication and patient self-management.

Pharmacy Assistance: Patient teaching and assistance in finding affordable medications are key elements of the proposed model. Components of the successful "Asheville Project" will be reviewed for incorporation.

Case Management: Case management is proven to be a key to effective chronic disease models. As part of patient outreach, case managers will be used as in other practice models (e.g., Community Care of North Carolina) for direct patient contact/education. Patient educational/behavioral interventions can be modeled on programs that meet "best practice" criteria.[8]

Public Awareness Campaign: There is low awareness about the link between hypertension and chronic diseases, and awareness of risk factors does not always lead to lifestyle change.[9],[10],[11] Public awareness messages using local and mass media would attempt to make those linkages and urge people to have their blood pressure checked and to know what the numbers mean.

Lay Health Advisor: In order to take the prevention message to the community where people live, learn, work, play, and worship, lay health advisors will be identified and recruited to work within the various networks within which they have influence. A training and intervention model will be developed/adapted to complement the clinical

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[8] Bosworth et al. *Patient Educ Couns.* 2008; 70:338-47.

[9] Oliveria, S.A., Chen, R.S., McCarthy, B.D., Davis, C.D., Hill, M.N. (2004). Hypertension knowledge, awareness, and attitudes in a hypertensive population. Journal of General Internal Medicine. 2005; 20: 219-225.

[10] Petrella, R.J., Speechley, M., Kleinstiver, W. & Ruddy, T. Impact of a social marketing media campaign on public awareness of hypertension. American Journal of Hypertension. 2005; 18 (2):270-275.

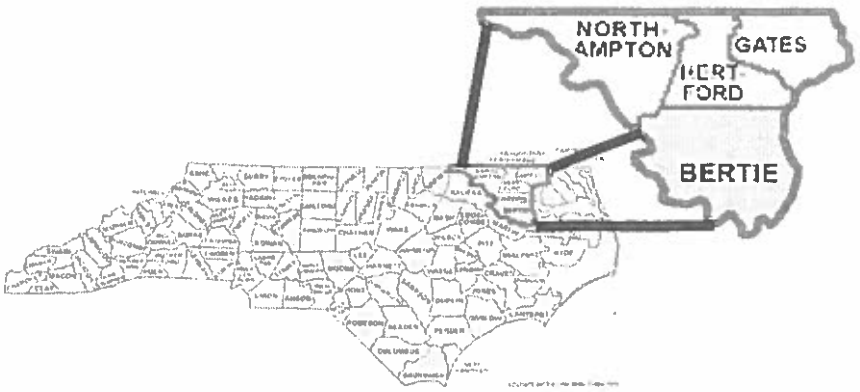
[11] Egan, B.M., Lackland, D.T., Cutler, N.E. Awareness, knowledge and attitudes of older Americans about high blood pressure. Archives of Internal Medicine. 2003;163:681-687.

intervention by disseminating a coherent and science-based message about hypertension prevention and management.

Project Evaluation

The various components of the intervention will be evaluated on a monthly and quarterly basis to ensure that project goals are being met. Existing tracking measures used by IPIP practices will be utilized to track the clinical component, while pre and post surveys will be used to evaluate the public awareness and Lay Health Advisor components.

Geographic Area



It is proposed that the demonstration project be implemented in the eastern part of the State within the NENCPPH region. Exploratory conversations have been held with several key stakeholders including the Roanoke Chowan Community Health Center (RCCHC)[12]. RCHCC believes the proposed intervention could be effectively implemented within their clinical setting. The practice participates in the IPIP diabetes track and is a high achiever in practice redesign with diabetes care. They are ready to move to hypertension management and stroke prevention as their next IPIP track, which is consistent with their strategic plan.

The Center serves one of the poorest regions of the state with offices in Murfreesboro (Murfreesboro Primary Care, Hertford Co.), Ahoskie (Roanoke Chowan Community Health Center, Hertford Co.) and Colerain (Colerain Primary Care, Bertie Co). They serve 17,000 patients among these practices with 20% living below the federal poverty level, 21% uninsured, 41% high school graduates, and 70% African American).

Proposed Timeframe:

Year 1	Initial planning in conjunction with key stakeholders
	Orientation and preliminary training
Year 2:	Implementation and evaluation of model

[12] Bertie, Gates, Halifax, Hertford, Northampton, and Warren counties.

Year 3:	Dissemination and promotion of model
	Orientation and training of interested sites
Year 4:	Replication/Adaptation of model in other sites

Recommendation # 2

The Council recommends that the state provide funding to the Heart Disease and Stroke Prevention Branch of the Division of Public Health for a hypertension prevention demonstration project to be conducted in a high stroke, low resource area of the State. The project should utilize evidence-based practices (e.g., health literacy, patient self-management, community education and outreach) and policy and systems changes that target patients and families, health care providers, and the general community, to create a successful model that can be replicated in other areas of the State.
FUNDING REQUESTED: $300,000 PER YEAR RECURRING

Rehabilitation Work group

Dr. Pamela Duncan presented the following stroke rehabilitation issues for the Council's consideration:

- Attention to recovery is required in the subacute, outpatient, and community settings for stroke care
- The quality of a patient's recovery has implications for managing chronic disability and prevention of secondary sequalae and secondary stroke
- Programs that integrate primary care, rehabilitation, and community settings are needed
- Improvements to the transitions from one stroke care setting to another are needed to improve stroke rehabilitation monitoring by a patient's physician(s) and healthcare provider(s)
- There is a need to establish performance indicators for care
- Providing care consistent with guidelines improves functional outcomes at six months, and increases probability of being discharged home
- There must be accountability for any rehabilitation guidelines implemented

Rehabilitation Work Group

The Rehabilitation Work Group (RWG), made up of professionals from various organizations (see, appendix, page), met on three occasions beginning February 14, 2008. The first meeting entailed a brief history of the 2007 Systems of Stroke Care bill, and a framing of the discussion around the immediate task. Brainstorming developed ideas of what this work group felt was needed to enhance stroke rehabilitation in NC. After the meeting, ideas were compiled and organized according to priority using a variation on the Delphi process as a way to achieve consensus.

Summary of Rehabilitation Workgroup Findings

Categories and Priority
1. Access to Services • Reimbursement - Insurance/ Insurers policies
2. Awareness of Services • Insufficient Public Awareness of Services • Insufficient Professional Awareness of Services
3. Availability of Services • Difficulty Finding Primary Care Physicians • Geographic Distribution of Services
4. Quality of Care • Gaps In Knowledge of Proper Post-Stroke Care • Insufficient Post-Stroke Care In Primary Care Setting • Transitions in Care from Acute to Post-Acute Recovery

During its second meeting, the RWG discussed the results of the Delphi process, and decided that addressing public and provider awareness of stroke rehabilitation resources in the community would be a practical first step and objective for the short term. Identifying and disseminating available resources for post acute stroke care would have a number of advantages:

1) It would establish a baseline for such services and identify gaps
2) It would address one of the Rehab Progress Markers and align with the ASA's declared legislative priority for rehabilitation
3) It would provide a public service for stroke patients, their providers and families, and
4) It would assist with the identified problem of transitions in care for the acute to the post acute stage.

The importance of awareness of available community resources was supported by a quick query to the NC Collaborative Stroke Registry's (now, NC Stroke Care Collaborative) discharge destination data (see, appendix, page), which showed that 43% of all stroke cases (excluding TIAs) were being discharged to home care or self care. This finding does not necessarily suggest that anything is wrong, but this quick query of the data does support the need for providers and families to be aware of, and have access to, information about services available in and around the patient's community.

It was suggested that the group consider using the state-funded NCcareLINK health information portal as a way to disseminate information to providers and the public about stroke rehabilitation services by county.

During its third meeting, the workgroup heard two presentations, one about the NC careLINK (see, appendix, page INSERT Doc) [13] and the other about the NC Stroke Association's patient education toolkit called "Beyond the Hospital"[14]. The RWG then began to tailor the language of the recommendation it would make to the Council.

[13] NC careLINK is a state health information portal. It can be accessed at: http://www.nccarelink.gov
[14] Beyond the Hospital is a toolkit that was developed by the NC Stroke Association.

Finding # 3

There is a pressing need to identify, publish, and share post stroke care resources and services throughout the state on a periodic basis including a list of facilities providing comprehensive inpatient rehabilitation services, outpatient rehabilitation services, home care for stroke recovery, community-based stroke rehabilitation, appropriate exercise programs, and stroke support groups.

Recommendation # 3

The Council recommends that state funding be provided to the Heart Disease and Stroke Prevention Branch of the Division of Public Health to identify stroke rehabilitation services throughout the state, to establish a partnership with the existing state-run NCcareLINK, a web-based information portal for the purpose of disseminating information, and to establish other means of publicizing this information about stroke rehabilitation services and programs to healthcare providers and the public.
FUNDING REQUESTED: $100,000 PER YEAR NONRECURRING

Stroke Advisory Council Continuation

Finding #4

Further work on the development of a system of stroke care for the state is needed. Issues identified by the Rehabilitation Work Group such as access to and quality of care, and transitions in care from acute to post-acute recovery were found to be pressing issues and will be taken up next. While regionally based, locally determined Stroke Care Networks are moving forward in Western and Eastern NC, much work remains to be done to cover the remainder of the state.

Recommendation #4

The Council recommends that state funding be provided to the Heart Disease and Stroke Prevention Branch of the Division of Public Health to support further operation of the Stroke Advisory Council so that the Council can continue to identify and address the issues needed to establish a coordinated system of stroke care for NC.
FUNDING REQUESTED: $50,000 PER YEAR RECURRING