

Eastern NC Stroke Network Quarterly Meeting



Area-L AHEC, Rocky Mount
January 15th, 2009

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Eastern NC Heart Disease & Stroke Prevention Coordinator

Meeting Objectives

- Inform regional stroke champions about ENCSN and invite them to join the Network
- Update members about the ENCSN Strategic Plan
- Educate participants about stroke in Eastern NC; an ideal system of stroke care; the Stroke Belt Consortium; the Rapid Response to Stroke education module; and the OEMS Stroke Plan.
- Learn about the continuum of stroke care in Eastern NC as experienced by one stroke survivor.



Overview

- Introductions
- What We Know
 - Background on Stroke in Eastern NC
- Stroke Systems of Care
 - What an ideal system looks like
 - The state of stroke care in NC
- Eastern NC (ENC) Stroke Network



What We Know

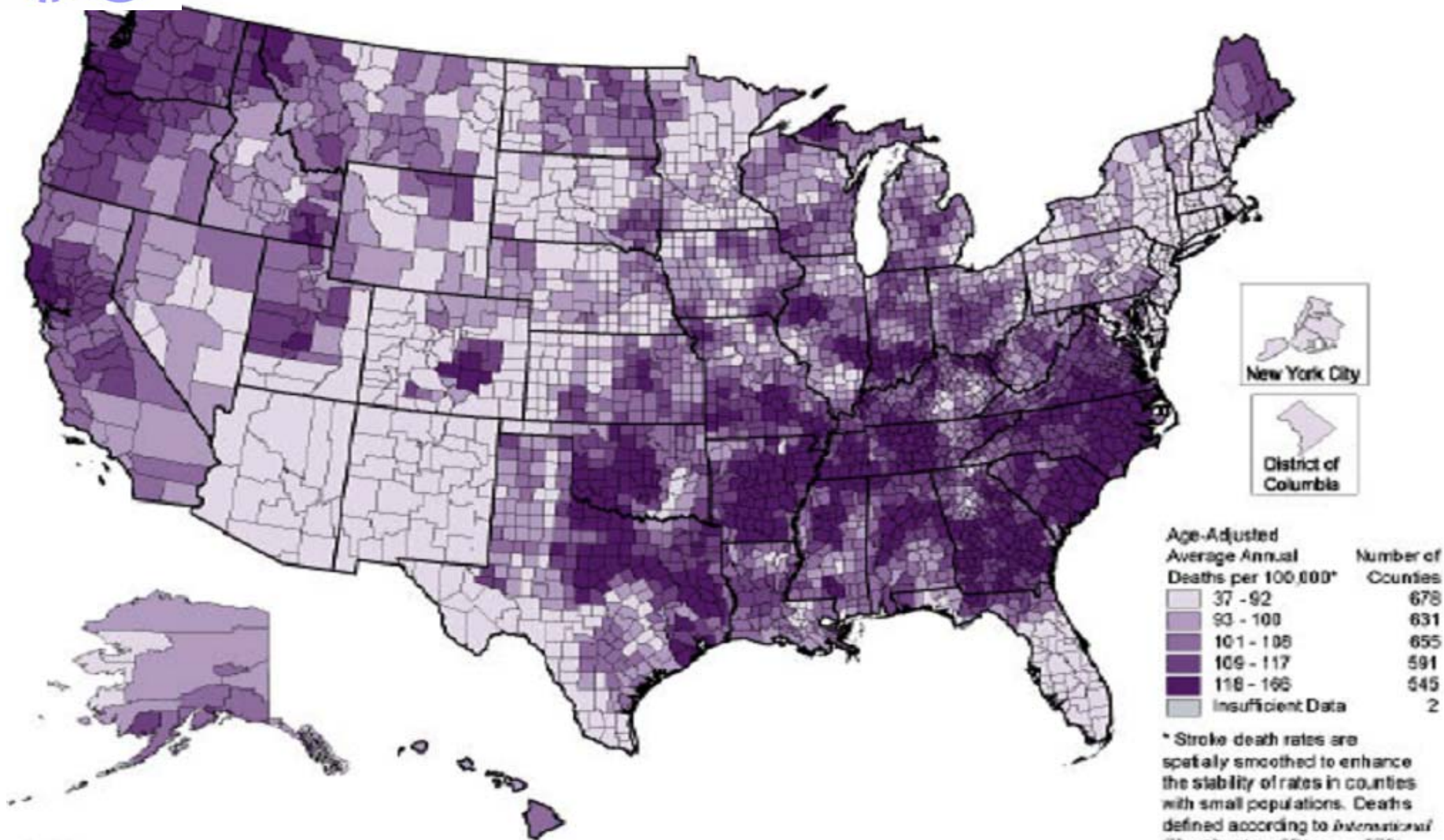
- Stroke is **3rd leading cause of death** in US and NC
- Someone suffers a stroke in the US every **40 sec.**
- NC has the **6th highest stroke death rate** in the US
- There are many **disparities** related to stroke
- NC is part of the **Stroke Belt**



Stroke Death Rates



Stroke Death Rates, 2000-2004 Adults Ages 35 Years and Older by County



Age-Adjusted Average Annual Deaths per 100,000*	Number of Counties
37 - 92	678
93 - 100	631
101 - 108	655
109 - 117	591
118 - 166	545
Insufficient Data	2

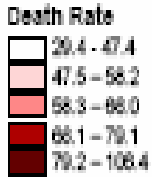
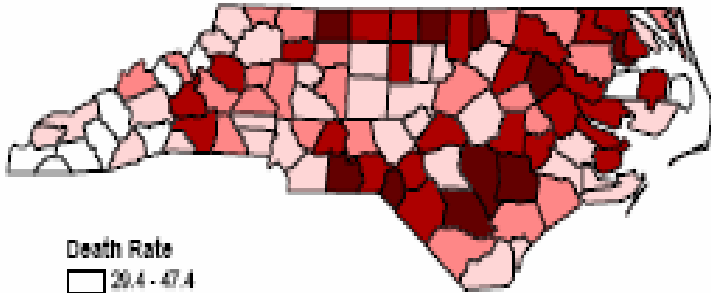
* Stroke death rates are spatially smoothed to enhance the stability of rates in counties with small populations. Deaths defined according to *International Classification of Diseases (ICD)* codes: ICD-10: I60-169.

Data Source: National Vital Statistics System, U.S. Census Bureau.

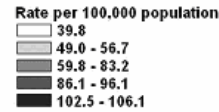
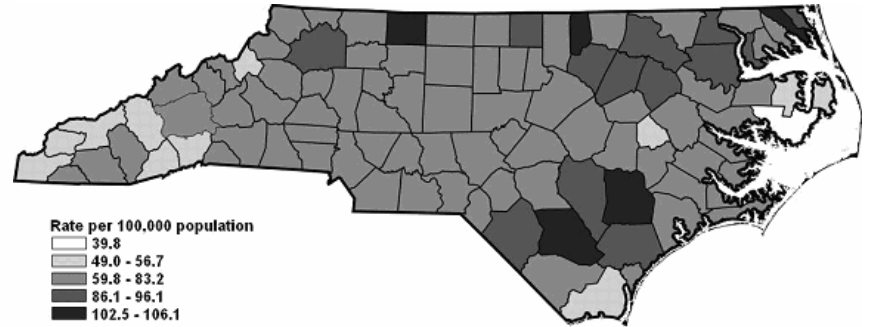


Stroke Mortality in NC

2002-2006*

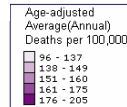
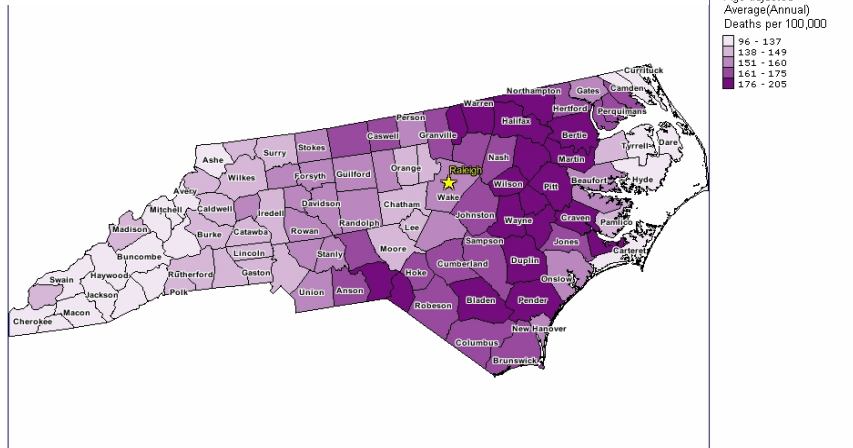


2003



Source: North Carolina Center for Health Statistics (2003)
Death rates per 100,00 population, age-adjusted to the 2000 U.S. standard population

1991-1998



NOTE: Maps are not comparable to each other due to different rate categories, and time spans.

*Stroke: ICD-10 codes I60-I69. Rates per 100,000 population, age-adjusted to the 2000 U.S. standard population.



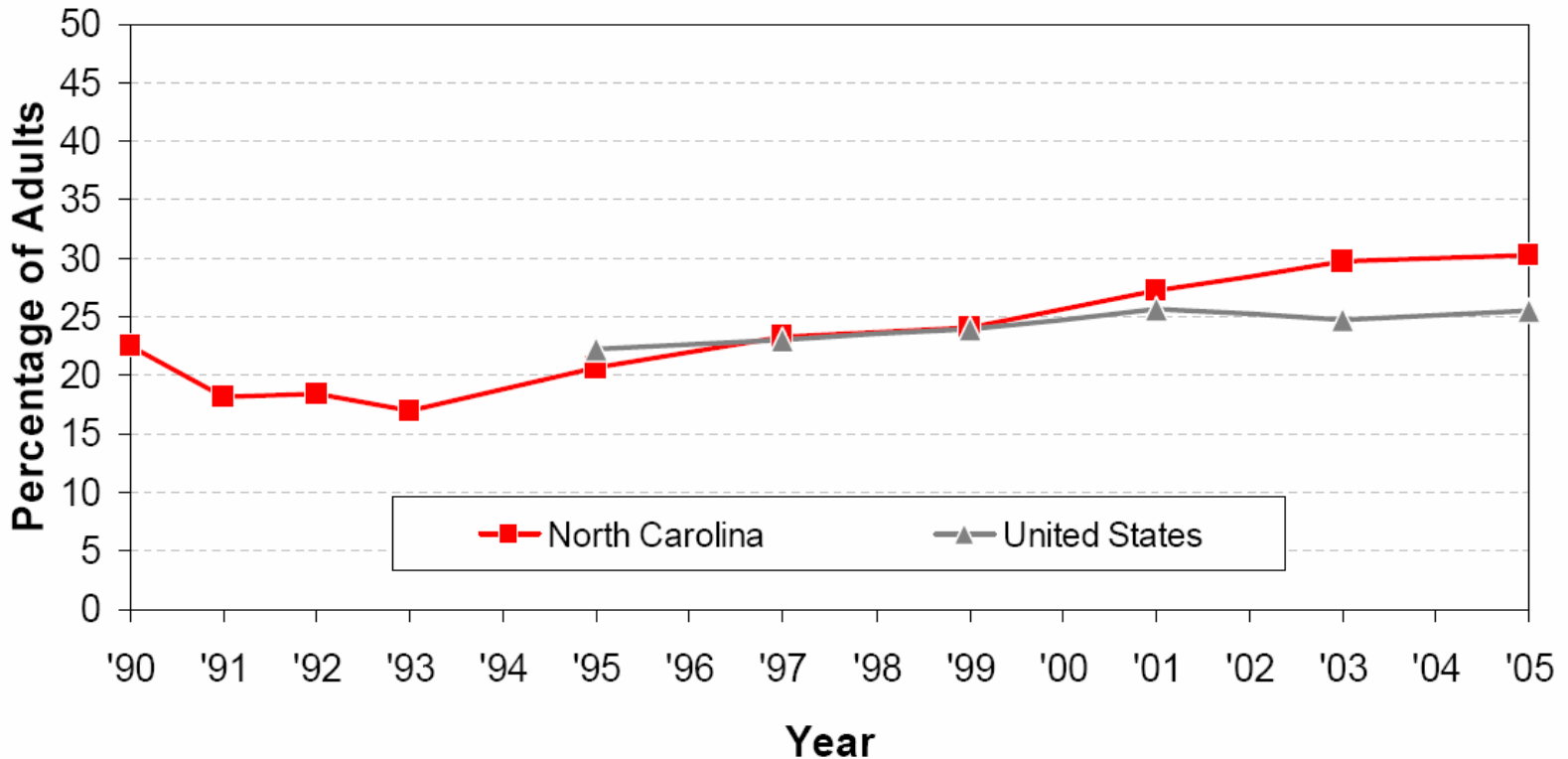
Stroke Risk Factors

- Hypertension
- High Cholesterol
- (US vs NC vs ENC)



Hypertension Prevalence

1990-2005



U.S. Data Source: National Behavioral Risk Factor Surveillance System Data, Center for Disease Control & Prevention.

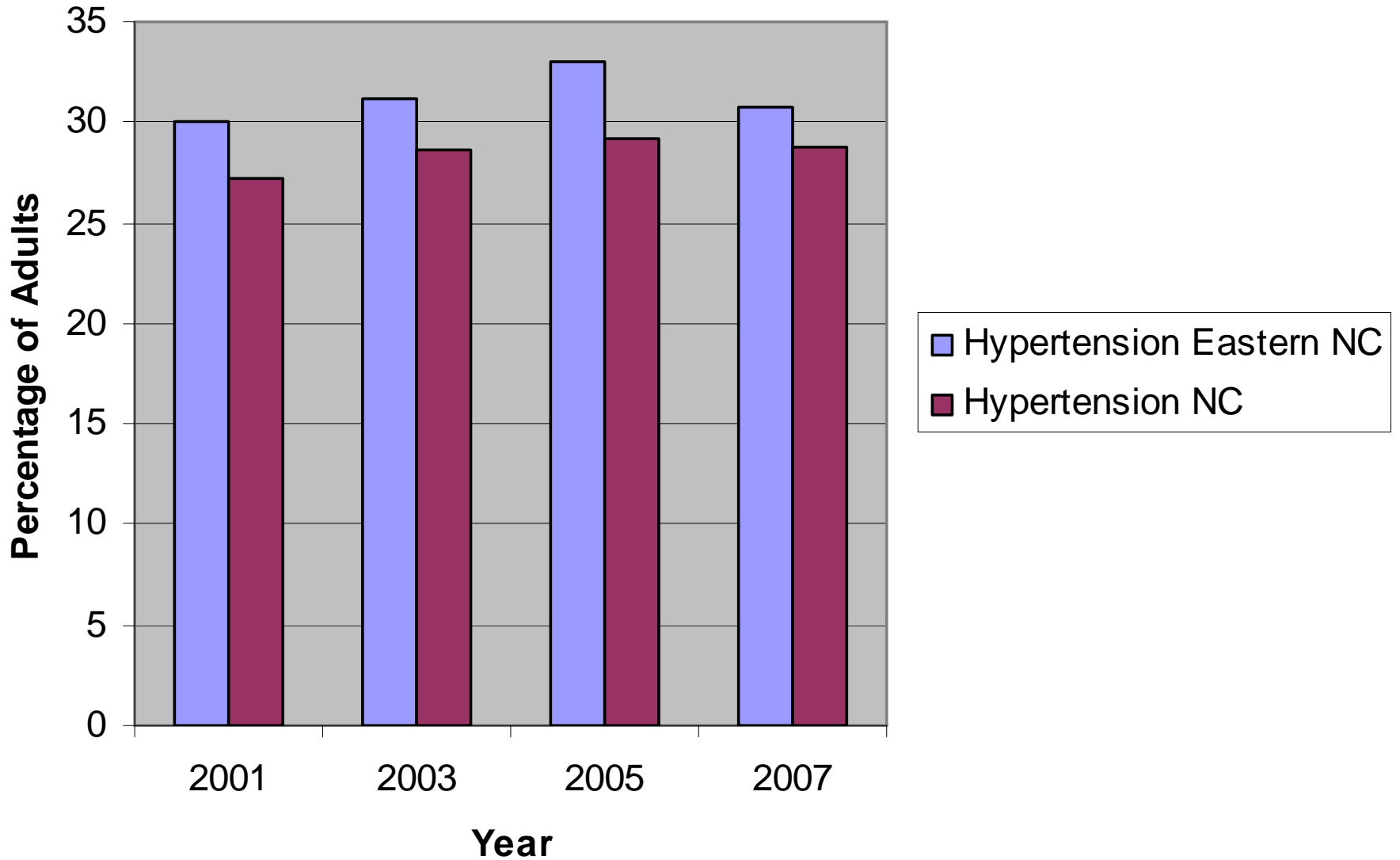
North Carolina Data Source: N.C. Behavioral Risk Factor Surveillance System.

Adults = ages 18+ years.

Data not available for N.C. in 1994, 1996, 1998, 2000, 2002, 2004; data not available for U.S. in 1990-1994, 1996, 1998, 2000, 2002, 2004.



Hypertension Prevalence (BRFSS)

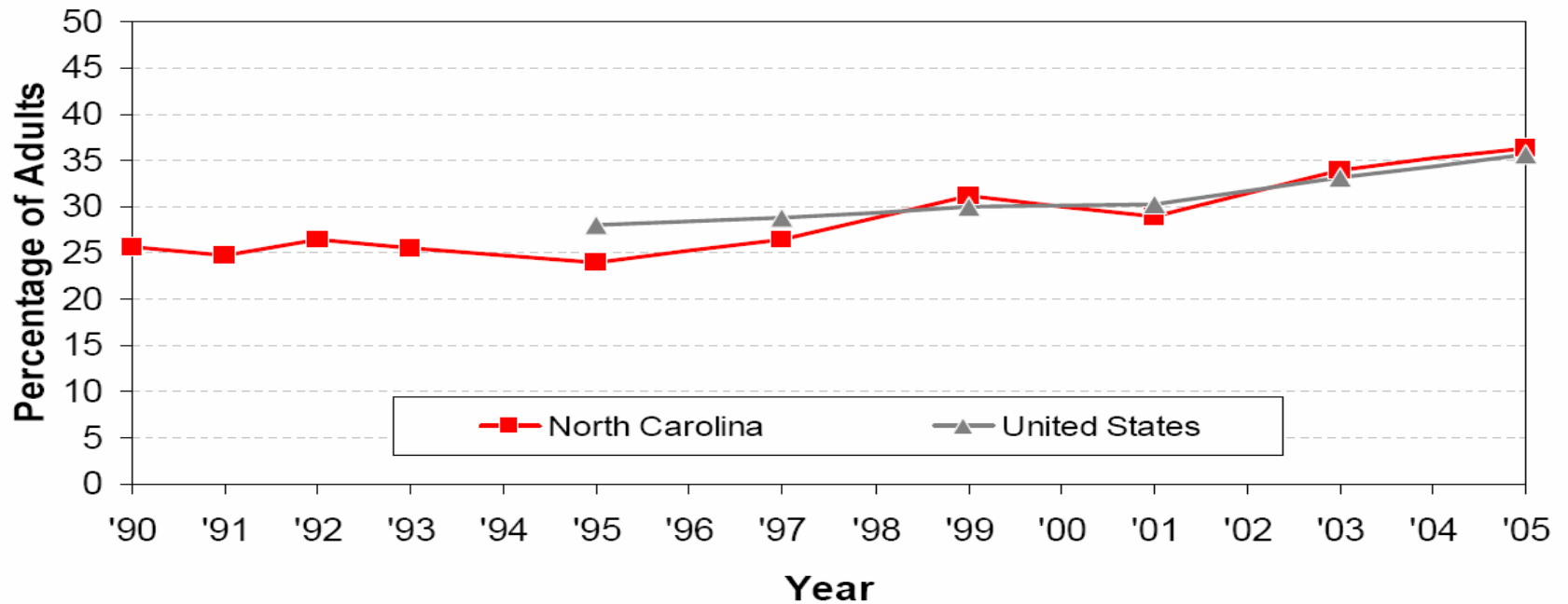


NC State Center for Health Statistics



High Cholesterol Prevalence

1990-2005



U.S. Data Source: National Behavioral Risk Factor Surveillance System Data, Center for Disease Control & Prevention.

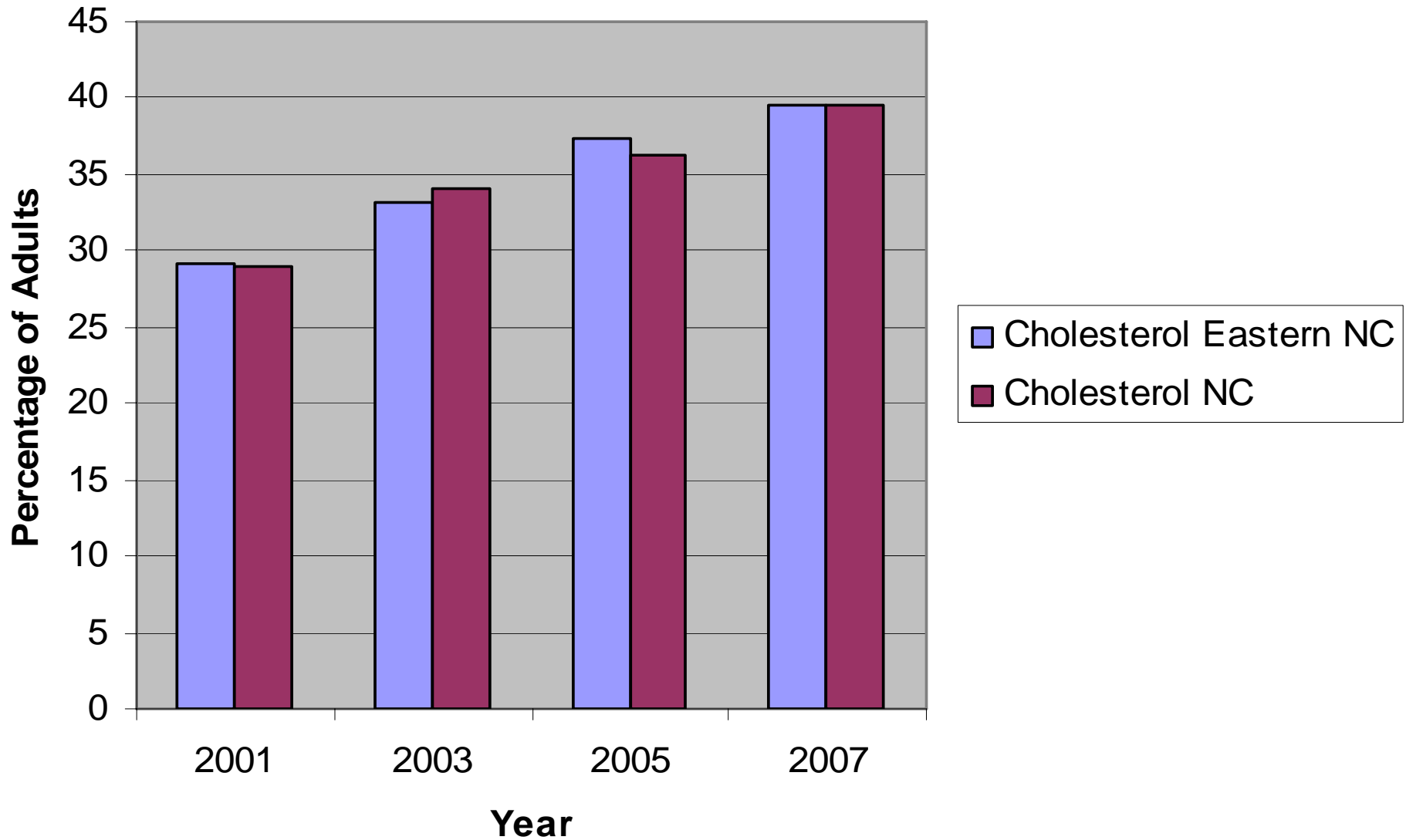
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High Cholesterol Prevalence (BRFSS)



What We Know

Economic Impact

- Hospital discharge rates for stroke have declined, but...
- **Hospital charges** for stroke have risen
- Stroke is one of the leading causes of **disability**
- In NC, stroke costs estimated at **\$1.05 billion** each year



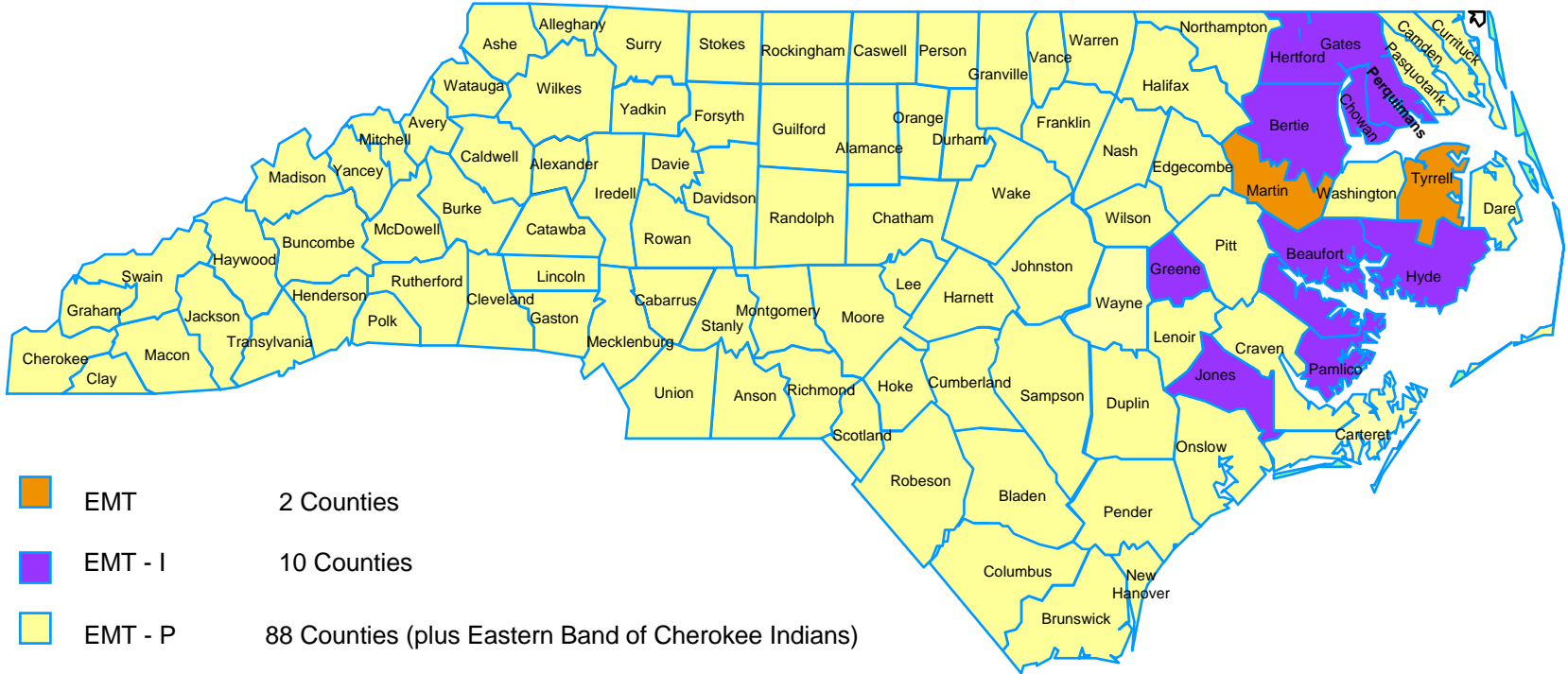
What We Know

Challenges of Prevention and Treatment

- Only 19% of NC adults can correctly identify all **stroke symptoms**
- Successful stroke intervention is **time-dependent**
- Stroke victims will most often go to or be transported to the **closest hospital**
- Hospitals/providers will have **varying capabilities** to render stroke intervention



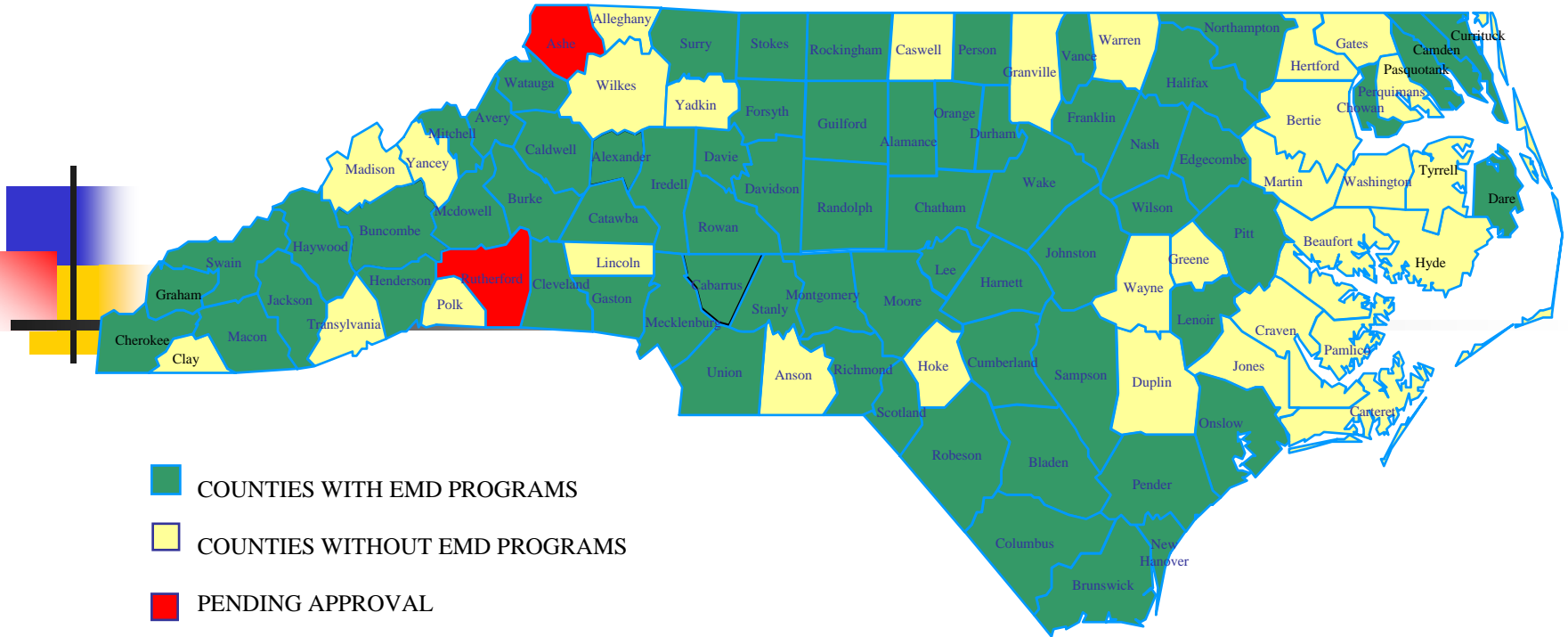
County EMS Systems (By Highest Level) As of July 17, 2008



NOTE: These figures represent the highest level of care offered within the county. Not all counties offer the level indicated throughout the entire county.



County EMS Systems with EMD Programs As of August 18, 2008



Notes: The dispatch center for Pasquotank County also serves for Camden County.



Because of inconsistent stroke care,
Stroke “White Paper” published in
early 2005 recommending the
establishment of
Stroke Systems of Care



Stroke Systems of Care

**Recommendations for the Establishment of Stroke Systems of Care:
Recommendations From the American Stroke Association's Task Force on the
Development of Stroke Systems**

Task Force Members, Lee H. Schwamm, Arthur Pancioli, Joe E. Acker, III, Larry B. Goldstein, Richard D. Zorowitz, Timothy J. Shephard, Peter Moyer, Mark Gorman, S. Claiborne Johnston, Pamela W. Duncan, Phil Gorelick, Jeffery Frank, Steven K. Stranne, Renee Smith, William Federspiel, Katie B. Horton, Ellen Magnis and Robert J. Adams



Goal: To provide the best possible outcome for every stroke patient



Recommendations:

Made by national multi-disciplinary group to:

- Reduce risk
- Improve outcomes
- Create/support collaboration
- Follow trauma and cardiac models

Stroke System of Care Continuum

OVERALL SYSTEM COORDINATION

**Primordial
& Primary
Prevention**

**EMS &
Pre-
Hospital**

**Acute
Care**

**Subacute &
Secondary
Prevention**

**Rehabilitation
& Recovery**

- State Stroke Systems Planning
- Implementation of Evidence Based Guidelines
- Quality Improvement



Stroke System of Care

Identification of Progress Markers

- **28 recommendations** extracted from Stroke Systems of Care white paper
- **Used to determine progress toward ideal environment for stroke prevention/care**

Ideal System of Stroke Care

- State Stakeholder Group
- State Plan w/ Stroke specific components
- Annual Prevention messaging
- Hospital conducted prevention education
- Stroke Public Policy agenda

Form a Stroke Network.....

Community Prevention Education...

Ideal System of Stroke Care

- E911 coverage
- EMS Dispatch protocols
- EMS Triage Assessment Tool
- EMS Treatment Protocol
- EMS Transport Protocol

Working with
EMS/pre-hospital...

EMS Stroke
Plan.....

Ideal System of Stroke Care

- Hospital Clinical Pathways
- System Map of Hospitals and Needs Identified
- Hospitals Roles & Responsibilities
- QI programs
- CEU Requirements

Hospitals' Plans of Care.....

Quality Improvement.....

Continuing Education.....

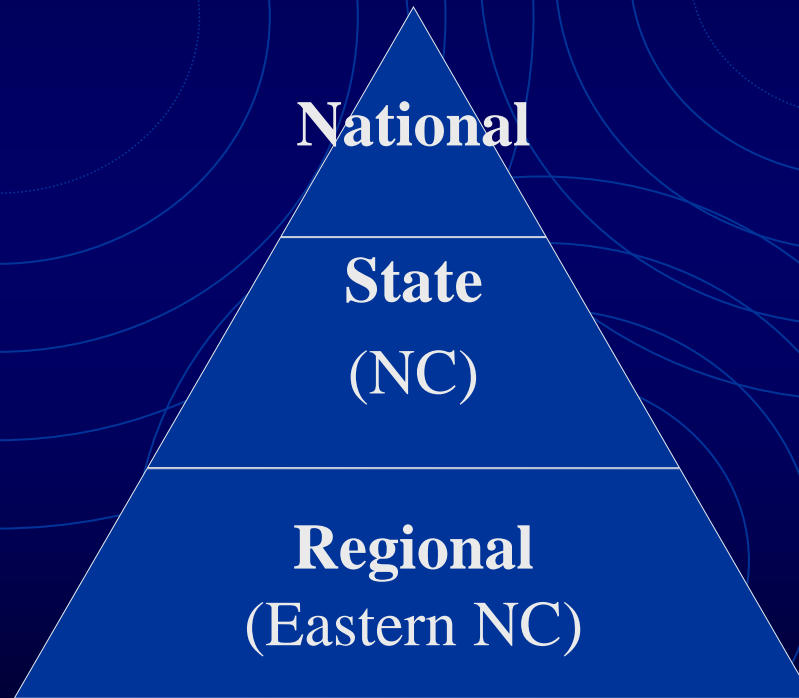
Ideal System of Stroke Care

- Standardized Discharge Packet
- Rehab screening/referral
- Rehab guidelines
- Post stroke resources

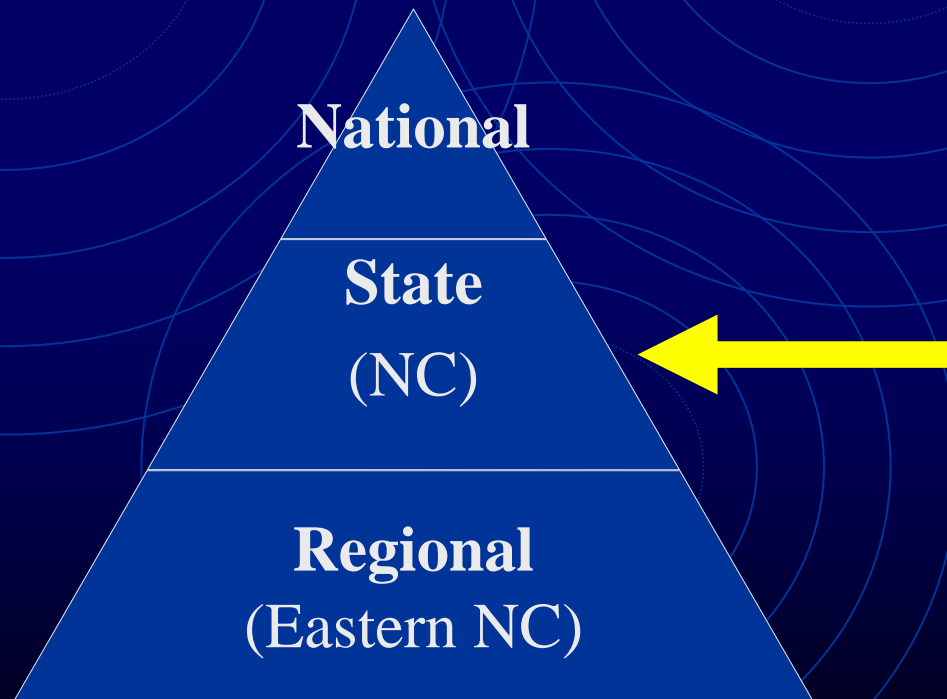
Hospitals' Plans of
Care.....

Form a Stroke
Network.....

Ideal System of Care at Multiple Levels



How are we doing with Stroke Systems of Care at the state level in NC?





TJC Primary Stroke Centers in NC

- Carolinas Medical Center - Charlotte
- Community General Health Partners – Thomasville
- Duke University Hospital – Durham
- Forsyth Medical Center – Winston Salem
- Frye Regional Medical Center - Hickory
- High Point Regional Medical Center – High Point
- Mission St. Joseph – Asheville
- Moses Cone Hospital - Greensboro
- NC Baptist Hospital – Winston Salem
- Pitt County Memorial Hospital – Greenville
- Presbyterian Hospital – Charlotte
- Rowan Regional Medical Center – Salisbury
- Stanly Regional Medical Center – Albemarle
- UNC Hospital – Chapel Hill
- Wake Med - Raleigh



Stroke Systems of Care in NC

**Establishment of Stroke Advisory Council in
2006 -**

Charged to:

*...develop strategies and policy
recommendations to enhance
stroke prevention and care across
North Carolina.*



Stroke Systems of Care in NC

In 2007, the NC SAC made recommendations focusing on acute care:

- **To work with providers across state to establish system of regionally based and locally determined stroke care networks**
- **Expanded use of Quality Improvement programs**
- **Professional workforce training and development**
- **Public awareness campaign**
- **Repeat hospital survey**
- **Continue SAC in 2008**



Stroke Systems of Care in NC

What the General Assembly awarded \$\$\$ in 2007 ...

- **\$150,000 recurring for professional education and development**
- **\$390,000 recurring to support stroke registry**
- **\$300,000 for public awareness**
- **\$50,000 to continue SAC**



Stroke Systems of Care in NC

What we received in 2008 – based on Stroke Advisory Council’s recommendations:

- 1. \$300,000 not recurring for public awareness**
- 2. \$350,000 recurring for NC Stroke Care Collaborative/ Quality Improvement and health care provider education**
- 3. \$100,000 not recurring to identify and disseminate statewide rehab services and resources**
- 4. \$50,000 not recurring to continue Stroke Advisory Council**

→ 2009.....?



Eastern NC (ENC) Stroke Network

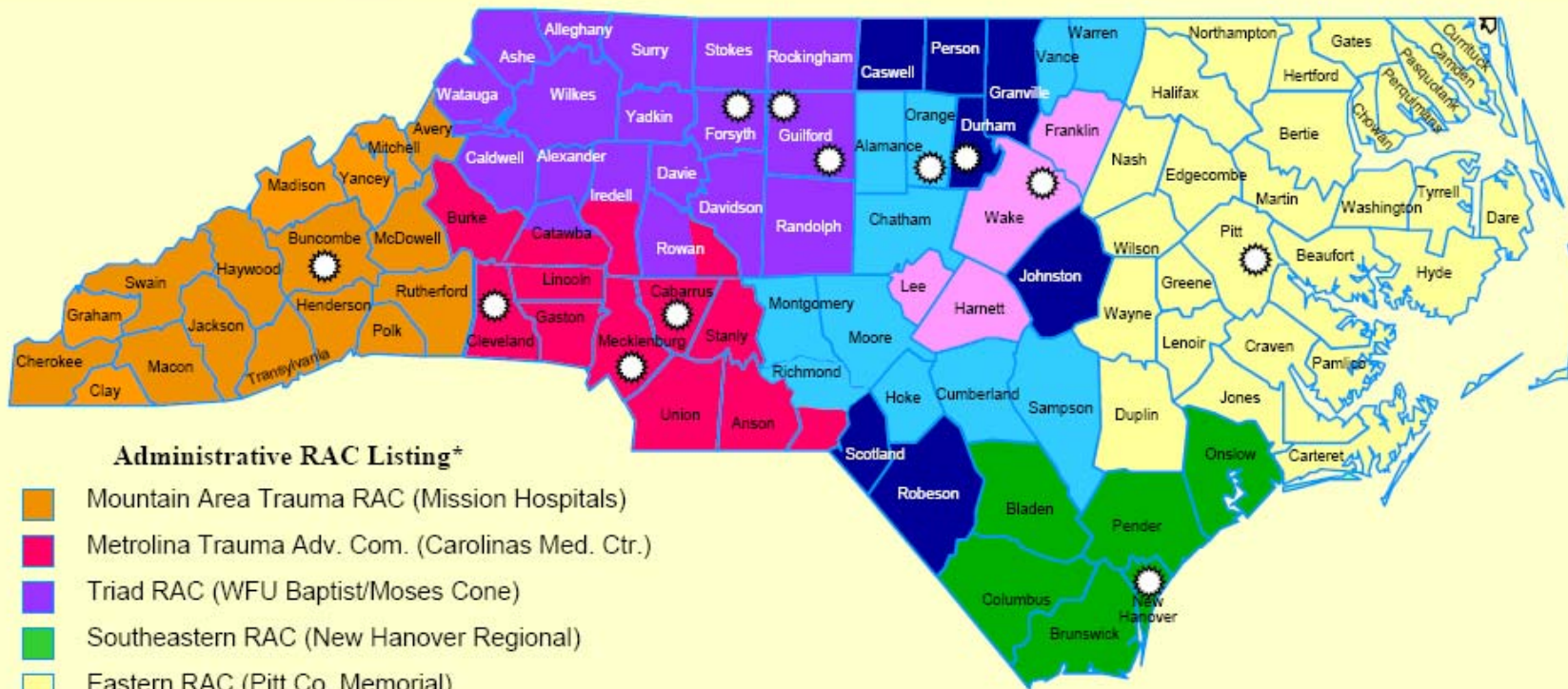
- Partners
- Map
- Past Activities
- Strategic Planning



Regional Network Partners

- Who We Are
 - NC Heart Disease & Stroke Prevention (HDSP)
 - AHA/ASA
 - Area Health Education Centers (AHEC)
 - Area Hospitals- ED, Neuro, Rehab
 - Emergency Medical Services (EMS)
 - NC Stroke Association
 - Health Departments
 - **ANYONE** who is a stroke advocate

Map of Regional Advisory Committee (RAC) Affiliations February 2008



Administrative RAC Listing*

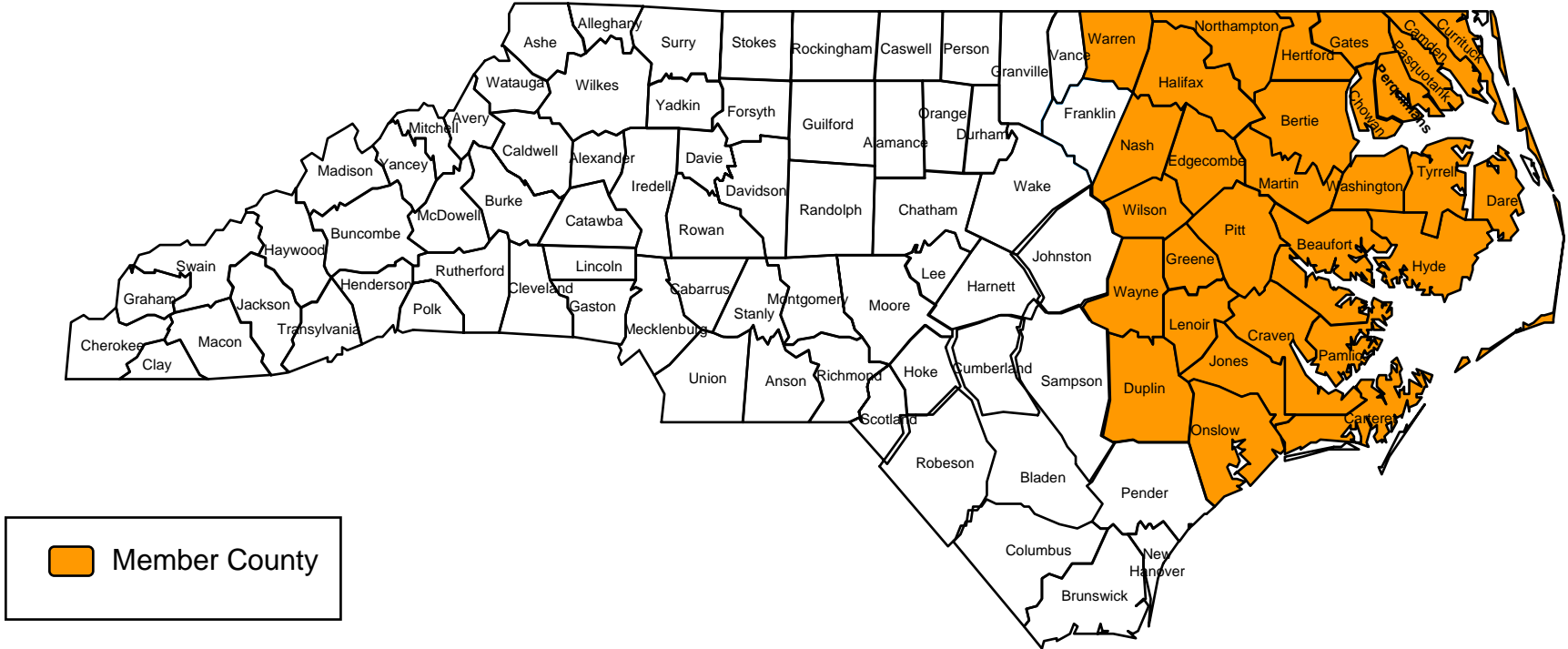
-  Mountain Area Trauma RAC (Mission Hospitals)
-  Metrolina Trauma Adv. Com. (Carolinas Med. Ctr.)
-  Triad RAC (WFU Baptist/Moses Cone)
-  Southeastern RAC (New Hanover Regional)
-  Eastern RAC (Pitt Co. Memorial)
-  Duke RAC (Duke Univ. Hospital)
-  MidCarolina Trauma RAC (UNC)
-  Capital RAC (WakeMed)

 Indicates a Level I, II, or III Trauma Center

* A county's RAC is determined by its hospital's RAC selection or, if no hospital in the county, by selection of a RAC by the primary EMS provider. A county with different colors indicates two or more hospitals with different RAC affiliations.



Target Membership Counties of the Eastern NC Stroke Network





Eastern Network Activities

- Formed ~2006
- Conducted meetings focusing on best practices and shared resources
- Rotate throughout ENC
- Topics have included: Regional concepts, Quality Improvement tools, stroke team development, and acute stroke management.

Annual Stroke Conference – Held in May of each year in Greenville

- Strategic Planning....



ENCSN Strategic Planning

- Describe the Strategic Planning Process of the Eastern Stroke Network
 - 3 meetings



Really Forming the Network

- Before Strategic Planning, Eastern Stroke Network meetings were based around trainings or conferences and membership was very loose.
 - If you attended a training, you were counted as a member (N=~60, from 27 different organizations)
- What are the Network long-term goals?
- Need for Strategic Planning



Who was at the Planning table?

- *David Napp, MPH
(consultant, facilitator)
- *Eastern HDSP/ Pitt County Health Department
- *Northeastern HDSP/
Northeastern Partnership for Public Health
- *EAHEC
- *AHA/ASA
- Regional EMS
- Pitt County Memorial Hospital, Greenville
- Chowan Hospital, Edenton
- Craven Regional Medical Center, New Bern
- Onslow Memorial Hospital, Jacksonville
- Carteret General Hospital, Morehead City
- NCSCC
- NC Stroke Association
- NC Community Care Plan

*Core Planning Group

The Strategic Planning Process: Meeting # 1, July 17, 2008

- EAHEC Monroe Center, Greenville
- ~18 Participants
- **Objectives**
 - Share background information about the Eastern NC Regional Stroke Network
 - Identify the regions' strengths and challenges with regard to stroke
 - Develop strategies to build the Network and strengthen efforts to address stroke





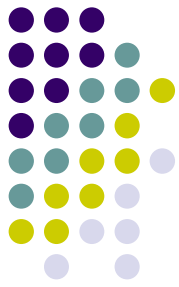
Results of the First Strategic Planning

Strengths - Small Group Discussion #1:

Thinking about stroke on the continuum from prevention, response, care, and rehabilitation, what are the Eastern regions' strengths?



First Strategic Planning--Strengths



- **Professional Education**
 - Training opportunities (e.g., ASLS, Annual Stroke Conference, EMS online)
- **Prevention**
 - Community awareness of issue from ads and hospital outreach
- **Response**
 - EMS toolkits rolled out in region
- **Care**
 - Good hospitals in our region, including a primary stroke center (Pitt Co Memorial Hospital Joint Commission Certification and several hospitals nearby)
 - Trauma network established
- **Rehabilitation**
 - Accredited rehab center in region
- **Resources**
 - Resources include the stroke belt bill, EMS toolkits, media access, AHEC, and ECU



Results of the First Strategic Planning

Challenges - Small Group Discussion #2:

Thinking about stroke on the continuum from prevention, response, care, and rehabilitation, what are the Eastern regions' challenges?



First Strategic Planning--Challenges

- **Community Awareness**
 - Low community awareness about warning signs (leads to delayed care)
- **Health Care Access**
 - Poor access to primary care and medications
- **Emergency Response**
 - Uneven EMS coverage across region (paramedic versus transport)
- **Standard of Care**
 - Lack of consensus among providers regarding standards of care
- **Silo Mentality**
 - Financial competition among providers
- **Media Market**
 - NE region is in VA media market
- **Data Issues**
 - Data challenges (e.g. some patients in region go to out of state hospitals)
- **Regional Characteristics**
 - Large rural geographic region (long response time)
- **Other**
 - Reimbursement for continued therapy



Results of the First Strategic Planning

Strategies - Small Group Discussion #3: What can we do in the next 1-2 years to strengthen the Eastern NC Regional Stroke Network (internal)?

- **Clarify Network Mission**
- **Market the Network**
- **Strengthen Network Membership**
- **Secure Funding for Network Initiatives**



Results of the First Strategic Planning

Strategies - Small Group Discussion #4: What can the Eastern NC Regional Stroke Network do in the next 1-2 years to better meet stroke needs in the region (external)?

- **Conduct Asset Mapping**
- **Promote Standards of Care**
- **Improve Data Access**
- **Convene Summit**
- **Provide Professional Education**

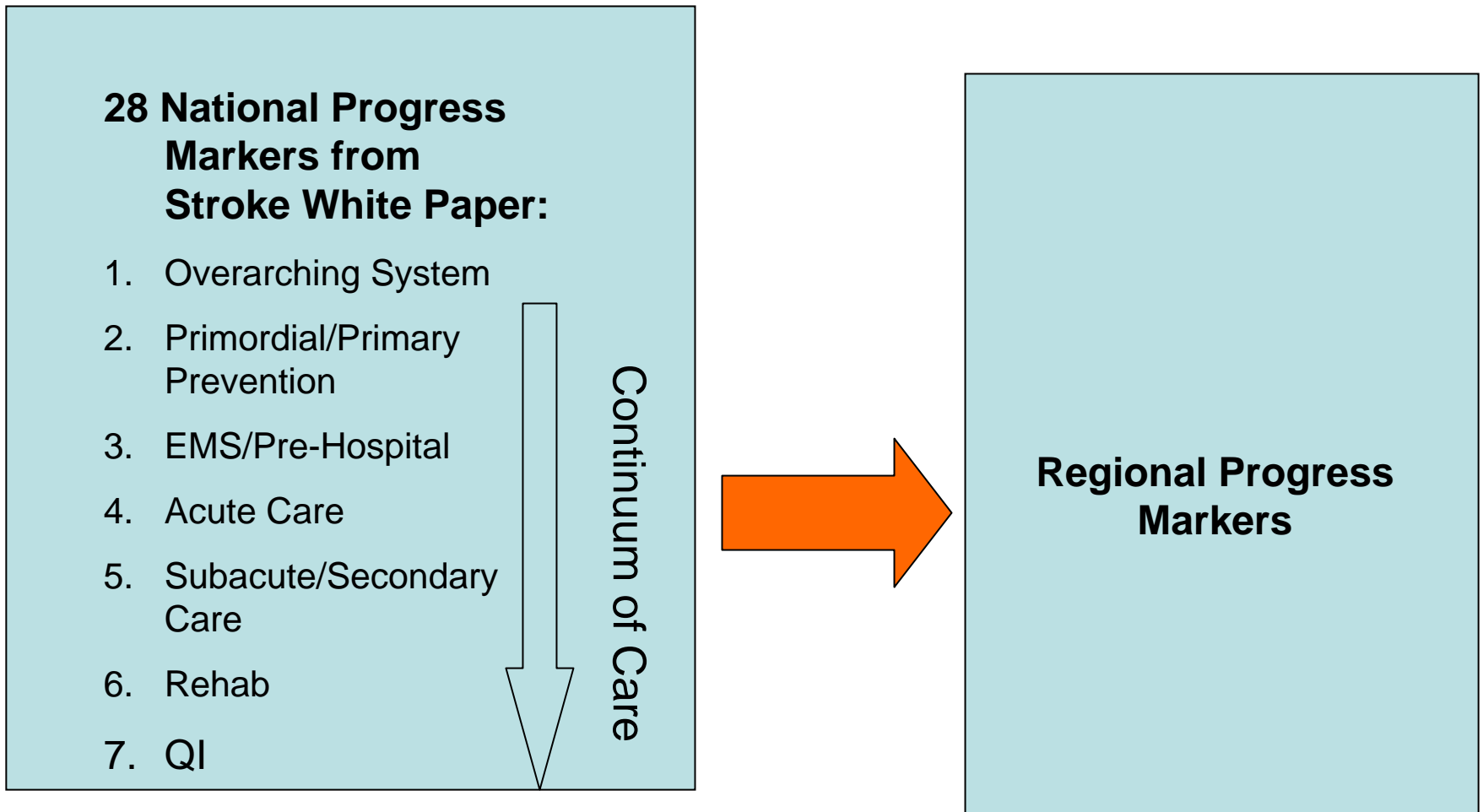
The Strategic Planning Process: Meeting #2, August 22, 2008

- Craven Regional Medical Center, New Bern
- ~19 participants
- **Objectives**
 - Define the elements of a system of care for Eastern NC
 - Review current needs assessment data for the region
 - Identify system of care priorities to be addressed by the Network



From National to Regional

- Make the National Plan applicable to the Region.





Next

- Network Mission and Vision
- Network Structure
 - Workgroups
 - Workgroup Goals
 - Workgroup Updates



Questions?

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