

STUDENT VERSION

Cases in Population-Oriented Prevention (C-POP)

Community Health Assessment: Pitt County, North Carolina

Authors:

Lloyd F. Novick, MD, MPH
Kathryn Kerkering, MD

Adapted from:

Cibula DA, Novick, LF,
Morrow CB, Sutphen SM.
Community Health Assessment:
Am J Prev Med 2003; 24 (4S): 118-123

Master of Public Health Program
Brody School of Medicine
East Carolina University
Lakeside Annex #3
Greenville, NC 27834
252-744-4079
Email: mph@ecu.edu



East Carolina University
The Brody School of Medicine

Abstract:

Community health assessment is key to understanding the health problems and priorities of a population. This case outlines a process by which the participants can complete a health assessment of a community using indicator-based methods. Students construct a set of health indicators from a variety of domains, evaluate problems and report on the health priorities for a community. The students relate identified health issues to underlying behavioral risk factors.

Recommended Reading:

- McGinnis AM, Foege WH. Actual Causes of Death. JAMA. 1993; 270 (18): 2207-2212.
- Fontaine KR, Redden DT, Wang C, Westfall AO, Allison DB. Years of life lost due to obesity. JAMA. 2003;289(2):187-193.
- Healthy People 2010 Leading Health Indicators: available online at <http://www.health.gov/healthypeople/LHI/>

Objectives: At the end of the case, the student will be able to:

- Perform a community health assessment
- Identify sources and limitations of population based data
- Select and appraise the utility of standards including Healthy People 2010
- Identify specific health indicators to assess the health status of a community
- Describe the priority health issues of a community
- Relate priority health issues to behavioral, social, and environmental health determinants

Section A: Community Health Assessment

The goal of public health is to improve the health of a population. Public health interventions such as safe water sources, immunization programs, and improved motor vehicle safety regulations account for the majority of years of life expectancy gained in the United States over the last 100 years.

A community health assessment involves obtaining and interpreting information to determine the health status of a specific community. Once community health needs are identified, public health interventions can be developed and their effectiveness evaluated using a similar approach. Information necessary for performing a community health assessment, for example data on mortality rates or behavioral risk factors such as smoking, is available from various sources.

This case deals with assessing the health of a community. Please answer the following questions using the information that you have learned from the recommended reading.

Questions:

1. How do you define “community”?

2. How would you assess the health of a community?

3. What stakeholders (groups/organizations) would you want to consult with?

4. What types and sources of data would you use?

Section B: Healthy People 2010

The Healthy People 2010 initiative is a national approach that identifies high priority health issues and establishes objectives to reduce the impact of these public health threats. (Please refer to the U.S. Department of Health and Human Services. *Healthy People 2010 Understanding and Improving Health*. 2nd ed. Washington, DC: U.S. Government Printing Office, November 2000. pp 6-24.)

Questions:

- 1. How are Healthy People 2010 standards used? What are advantages and disadvantages to applying them at a local community level?**

- 2. What other standards (national, state, or local) can be used?**

Section C: Health Indicators

For this exercise, you will use an indicator approach to develop a community health assessment. A community health assessment involves three-step feedback loop. The first step in such an assessment involves identifying important health indicators. Health indicators are measurable health outcomes, such as death rate, insurance coverage measures, immunization rates, or other data items that are relevant to the health of a community. Indicators are thoughtfully selected data points that provide useful information about the health of a community. To organize indicators, it is helpful to identify major areas of focus. For this case, we will refer to these broad categories of public health concerns as *domains*. Please refer to Table 1 below for examples of domains. For each domain, an example of an indicator is provided.

Table 1: List of Domains to Assist Developing a Community Health Assessment

<u>Domain:</u>	<u>Example of an Indicator:</u>
Communicable Diseases (including Sexually Transmitted Diseases)	Incidence of Gonorrhea
Chronic Diseases (including Cancer)	Incidence of Diabetes
Injury and Violence	Homicide rate
Maternal and Child Health	Childhood immunization rate
Environmental Health	Rates of Lead Poisoning
Access to Health Care	Rates of Uninsured

The second step in the assessment involves matching those indicators with available data. In the third step, standards such as those explored in Section B are applied to the data gathered in the first two steps to transform it into useful information about health needs of the population.

Questions:

- 1. Are there any other domains of health or health-related conditions that you would include in your community assessment?**
- 2. What criteria would you use to choose specific indicators within the listed domains?**
- 3. How would you obtain data for your indicators?**

Section D: Performing a Community Health Assessment

As a consultant to Pitt County Health Department, you are asked to perform a community health assessment for the county. Below is information about the county:

Pitt County is located in eastern North Carolina and has a population of 138,690 residents (2005 Census). Pitt County has been classified as urban for the first time in 2006. It and the surrounding counties are largely rural with a history of dependence on tobacco farming. Caucasians make up about 62.8% of the population, African Americans 33.6%, Hispanics 3.2%, Asians 1.1% and American Indians 0.3%. There are an estimated 6,606 migrant and seasonal workers or 5.4% of the population. About 18% or 26,000 adults in Pitt County adults have household incomes below the federal poverty level with a median per capita income of \$18,243 (2000). The child poverty rate is estimated to be 21.8%. Approximately 20% of adult lack health insurance.

Pitt County contains Greenville, the largest city in eastern North Carolina with a population of 67,525 (2005). Greenville is considered the hub of eastern North Carolina. The major employers are Pitt County Memorial Hospital (PCMH), Brody School of Medicine and East Carolina University. If a state was created of all the land in North Carolina east of Interstate 95, it would be the poorest of all 50 states. In addition, it would rate 48th in terms of premature mortality. Consider these factors when evaluating populations at risk and targeting resources for public health activities.

You now embark on the steps needed to perform your assessment.

STEP ONE: IDENTIFYING HEALTH INDICATORS

As noted earlier, the first step in a community health assessment is identifying health indicators. Working with a team, develop a list of 20 indicators you would want to use in your assessment.

STEP TWO: MATCHING THE INDICATORS

Now that you have chosen indicators to use for a community health assessment, use the information provided in Table 2 to match available data to your chosen indicators. In this example, residents of Pitt County constitute the community.

Question:

<p>1. What is the comparative health status of residents of Pitt County?</p>

Using the information gathered in the first two steps, please answer the following questions.

Questions:

1. What are the priority health issues for this population? What else would you want to know about this community?

2. How do your chosen priority health issues relate to behavioral, social, and environmental risk factors? For example, risk factors associated with gonorrhea include history of substance use and history of risky sexual behavior such as high number of partners or lack of condom use.

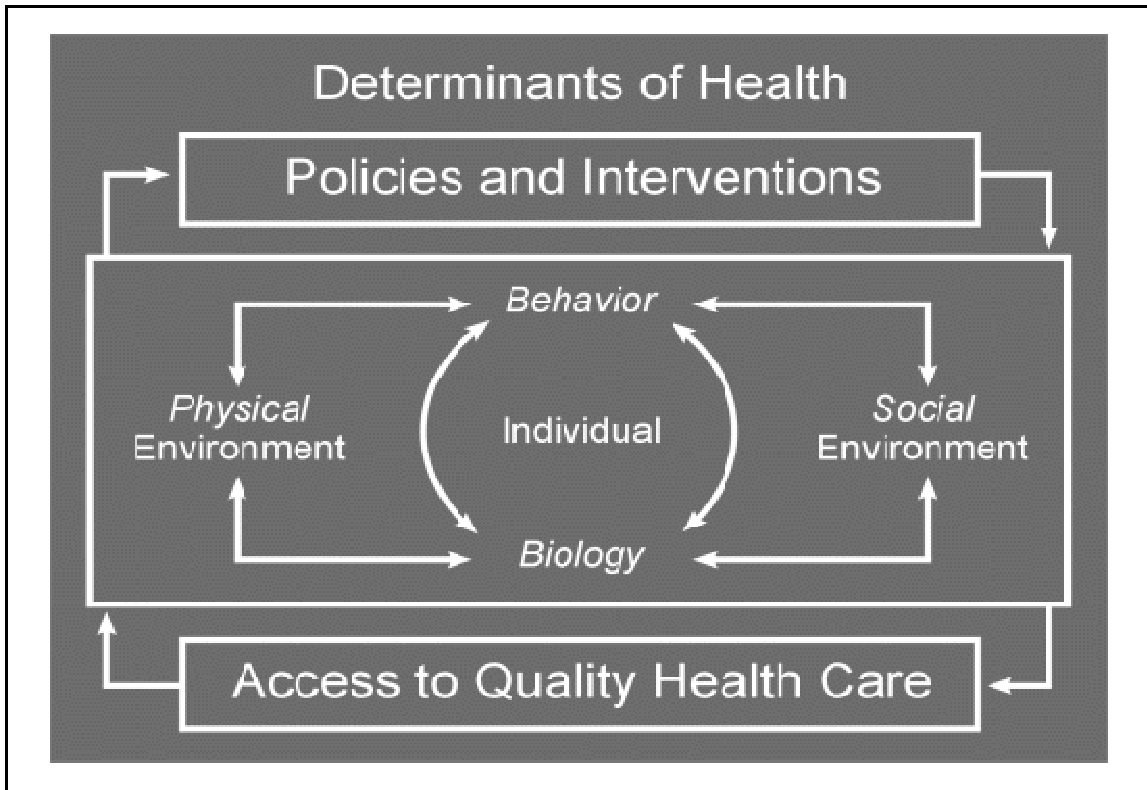
3. How do you explain the health disparities?

Section E: Putting It All Together

You have now developed a community health assessment, compared it to a national standard list of indicators, and identified priority health issues for this community.

Question:

- 1. Using the knowledge that you have gained during this exercise, how would you allocate resources to develop interventions to address these issues? What factors do you need to take into account when developing public health policy?**



Healthy People 2010

http://www.healthypeople.gov/document.gov/document/html/uih/uih_bw/uih_2.htm#goals

**Community Health Assessment Indicators Pitt County (NC),
North Carolina and the United States**

Domain: Maternal and Child Health (2004)

<u>Indicator</u>	<u>Pitt County</u>	<u>North Carolina</u>	<u>United States</u>
Infant mortality rate per 1,000 live births (2004)	7.1	8.8	6.9
Black infant mortality per 1,000 live births	8.1	15.6	14.1
White infant mortality per 1,000 live births	7.0	6.2	5.8
Neonatal infant mortality rate per 1,000 live births(<28 days of age) (2000-2004)	5.7	6.0	4.6
Black neonatal infant mortality rate	8.9	11.2	7.3
White neonatal infant mortality rate	3.3	4.1	3.8
Low birth weight (<2,500 g) per 100 births (2004)	11.6	9.1	7.9
Minority births <2500 g	15.9	13.4	13.0
White births <2500 g	8.3	7.4	6.5
Very low birth weight (<1500 g) per 100 births (2000-2004)	2.8	1.9	1.4
Minority births <1500 g	3.3	3.6	3.0
White births <1500 g	2.4		1.0
Teen pregnancy rate per 1,000 teens (ages 15-19)(2000-2004)	39.8	64.1 (11.9%)	83.6
Minority pregnancies	54.5	87.3	153.3
White pregnancies	27.0	53.6	71.4
Smoked during pregnancy	8.9	12.5	11.4
Postneonatal infant mortality per 1,000 live births (>28 days <1 year) (2000-2004)	1.4	2.8	2.3
Black postneonatal rate	1.1	4.5	4.8
White postneonatal rate	1.7	2.1	1.9
Immunization status at 2 years of age	NA	82%	
Immunization status at school entry	NA	99%	

BRFSS for 2004 Age adjusted rates	Pitt County	North Carolina
Adult disability	28.3	25.0
Current asthma	7.1	6.4
Smoking :women of child bearing age	30.4	24.4
Smoking everyday: men	32.9	37.6
Obesity	26.1	22.7
Binge drinking (child bearing age)	9.5	6.8
Binge Drinking (all)	12.0	8.4
Men	19.8	
Women	3.1	
No leisure time physical activity	26.4	26.3
Are any firearms kept in your home	39.6	40.9

<i>Domain: Access to Care</i>			
Indicator	Pitt County	North Carolina	United States
% No medical insurance	20.8	17.5	16.5
% Children with no health insurance	14.3	12.5	9.8
% Children enrolled in Medicaid	36.7	32.6	26.0
% Children enrolled in NC Health Choice	5.2	5.9	NA
Primary Care Physicians/100,000 population	149	83.5	
Dentists/100,000 population	37.8	40.5	58.4
Kindergarten Tooth Decay Rates	27.7%	22%	26% whites 36% A-A 43% Hispanic
BRFSS 2001	Eastern NC	North Carolina	
Cost as barrier to health insurance	16.5	11.5	
No usual place of care	24.0	22.1	
No dental insurance	52.7	45.3	

<i>Domain: Communicable Diseases</i>			
Indicator	Pitt County	North Carolina	United States
TB rate per 100,000 population (2004)	5.0	4.5	4.9
Hepatitis A rate per 100,000 population 2004: 17 cases	12.1 (2004)	3.65 (2003)	2.6 (2003)
Hepatitis B rate per 100,000 population 2004: 11 cases	7.0 (2004)	1.9	2.6
Hepatitis C rate per 100,000 population 2004: 4 cases	2.9	0.2	0.4

<i>Domain: Sexually Transmitted Diseases</i>			
<u>Indicator</u>	<u>Pitt County</u>	<u>North Carolina</u>	<u>United States</u>
Gonorrhea rate per 100,000 population	347.8	181.3	113.5
Black rate	848.3	673.8	629.6
White rate	52.6	38.4	33.3
Chlamydia rate per 100,000 population	645.9	313.3	319.6
Black rate	1206.4	929.7	1209.4
White rate	216.2	116.3	143.6
Syphilis rate per 100,000 population	3.2	8.9	2.7
Black rate	8.0	15.3	9.0
White rate	1.3	1.1	1.6
HIV rate per 100,000 population	18.0	25.2	20.7
Black rate	38.8	76.6	76.3
White rate	7.2	9.6	9.0

<i>Domain: Cancer (2000)</i>			
<u>Indicator</u>	<u>Pitt County</u>	<u>North Carolina</u>	<u>United States</u>
Lung Cancer			
Mortality rate per 100,000 population	68.7	61.6	54.2
Incidence rate per 100,000	78.8	69.7	67.5
Breast Cancer (Female)			
Mortality rate per 100,000 females	27.7	26.5	14.4
Female incidence per 100,000 females	167.5	149.5	132.2
Colon/Rectum Cancer			
Mortality rate per 100,000 population	22.7	20.0	19.1
Incidence rate per 100,000 males	64.7	48.4	52.0
Prostate Cancer			
Mortality rate per 100,000 males	36.7	36.9	31.5
Incidence rate per 100,000 males	154.5	152.5	166.7
Incidence All Cancer	494.3	445.3	

<i>Domain: Chronic Diseases</i>			
<u>Indicator</u>	<u>Pitt County</u>	<u>N.C.</u> (1999-2002)	<u>United States</u> (2003)
Heart disease			
Mortality rate per 100,000 population	248.5	246.6	235.4
Stroke			
Mortality rate per 100,000 population	82.1	72.0	54.3
Diabetes			
Mortality rate per 100,000 population	34.3	27.4	25.4
COPD			
Mortality rate per 100,000 population	38.4	46.5	43.4
Youth death rates (Ages 0-17)/100,000	100.6	79.9	

<i>Domain: Environmental Health</i>			
<u>Indicator</u>	Pitt County	North Carolina	United States
Lead (2004)	2.8	1.3 >1100 infants 56% tested	
Have you had an illness in the past 12 months that you think was caused by outdoor air pollutants?	9.1	12.0	
Have you had an illness in the past 12 months that you think was caused by poor indoor air quality	15.0	16.4	

<i>Domain: Injury and Violence</i>			
<u>Indicator</u>	<u>Pitt County</u>	<u>North Carolina</u> 1999-2002	<u>United States</u> 2003
Motor vehicle accidents			
Mortality rate per 100,000 population	19.6	19.2	15.2
Mortality			
Homicide rate per 100,000 population	11.2	7.6	5.9
Suicide rate per 100,000 population(10-24 yr)	10.82	11.36	10.5
Violent Crime rate per 100,000 population (2004)	617.2	446.9	
Accidents Unintentional injuries			
Mortality rate per 100,000 population	40.0	42.7	36.3
Child Maltreatment substantiated	18.1	14.5	12.3
Admissions to Juvenile Justice	38.6	34.1	

<i>Domain: Economic and Education</i>			
<u>Indicator</u>	<u>Pitt County</u>	<u>North Carolina</u>	<u>United States</u>
Premature mortality rate per 100,000 population under 75	956 years	903 years	799 years
Percent below poverty level	17.5	15.2	12.4
Percent of children below poverty level	21.8	21.9	16.9
Unemployment rate	5.2	5.0	4.7
Percent children receiving food stamps	24.9	18.2	10.6 million (14%)
Percent children receiving free or reduced lunch	48.4	44.3	41.9
Public school dropout rate (9-12 th grade)2004-5	6.95	4.86	10.3%
High School completion (%)	56	86.1	85%
Percent >25 years of age with <9 th grade education	7.6	7.8	7.5
Median Household income \$	33,734	46,335	50,046
Median per capita income \$	18,243	26,882	32,937
Migrant and seasonal workers number	6,606 (5.4%)	155,888 (2.1%)	13 million (4.4%)

Healthy People 2010

What Is Healthy People?

Healthy People 2010 is a set of health objectives for the Nation to achieve over the first decade of the new century. It can be used by many different people, States, communities, professional organizations, and others to help them develop programs to improve health.

Healthy People 2010 builds on initiatives pursued over the past two decades. The 1979 Surgeon General's Report, Healthy People, and Healthy People 2000: National Health Promotion and Disease Prevention Objectives both established national health objectives and served as the basis for the development of State and community plans. Like its predecessors, Healthy People 2010 was developed through a broad consultation process, built on the best scientific knowledge and designed to measure programs over time.

What Are the Leading Health Indicators?

The Leading Health Indicators will be used to measure the health of the Nation over the next 10 years. Each of the 10 Leading Health Indicators has one or more objectives from Healthy People 2010 associated with it. As a group, the Leading Health Indicators reflect the major health concerns in the United States at the beginning of the 21st century. The Leading Health Indicators were selected on the basis of their ability to motivate action, the availability of data to measure progress, and their importance as public health issues.

1. Physical activity
2. Overweight and obesity
3. Tobacco use
4. Substance abuse
5. Responsible sexual behavior
6. Mental health
7. Injury and violence
8. Environmental quality
9. Immunizations
10. Access to health care

Focus Areas

1) Access to quality health services	6. Food Safety	15. Occupational Safety and Health
2) Arthritis, osteoporosis, and chronic back conditions	7. Health Communication	16. Oral Health
3) Cancer	8. HIV	17. Physical Activity and Fitness
4) Chronic Kidney Disease	9. Immunization and Infectious Diseases	18. Public Health Infrastructure
5) Diabetes	10. Injury and Violence Prevention	19. Respiratory Diseases
6) Disability and Secondary Conditions	11. Maternal, Infant and Child Health	20. Sexually Transmitted Diseases
7) Educational and Community-Based Programs	12. Medical Product Safety	21. Substance Abuse
8) Environmental Health	13. Mental Health and Mental Disorders	22. Tobacco Use
9) Family Planning	14. Nutrition and Overweight	23. Vision and Hearing

http://www.healthypeople.gov/document/html/uih/uih_bw/uih_4.htm

Pitt County Municipalities Data:

Municipality	Child <5 yrs	Pop.	Persons/ square mile	White Non-Hispanic%	African-America%	Amer. Indian%	Hispanic (#) %	Asian%
Ayden	282	4,622	1992	47.6	49.5	0.2	(102) 2.2	0.2
Bethel	116	1,681	1618	40.2	58.1	0.0	(13) 0.8	0.1
Falkland	11	112	<112	68.8	30.4	0.0	(11) 9.8	0.0
Farmville	252	4,302	1431	47.4	50.1	0.1	(91) 2.1	0.2
Fountain	38	533	515	49.0	50.5	0.2	(3) 0.6	0.0
Greenville	3,361	60,476	2298	61.4	34.1	(181) 0.3	(1,244) 2.1	(1,098)1.8
Grifton	122	2,073	1188	63.2	33.2	0.0	(98) 4.7	0.2
Grimesland	19	440	850	62	29.1	0.0	(39) 8.9	0.2
Simpson	32	464	1125	56	42.5	0.0	(13) 2.8	0.0
Winterville	399	4,791	1877	58.7	38.4	0.5	(49) 1.0	0.1
Total	4,603	75,624					(1573)	
Pitt County	8,653	133,798	216	62.1	33.6	(357)0.3	(4,216) 3.2	(1,443)1.1
North Carolina				72.1	21.6	1.2	4.7	1.4
US				75.1	12.3	0.9	12.5	3.6

Municipalities County/State	Median Family Income	% < HS Education	Families below poverty	In labor force >16 years of age	Median travel to work (min)	% now married (>15 yrs of age)
Ayden	34,808	30%	21%	53.1%	X	45%
Bethel	35,278	40%	18.5%	49.2%	25	42.5%
Falkland	43,750	40%	5.0	57.4%	18	36%
Farmville	38,918	27.4%	14.6	57.5%	18.7	44.6%
Fountain	26,042	41%	35.6	51.6%	20.4	48%
Greenville	44,491	14%	9.0	66.3%	17.9	35.9%
Grifton	40,875	27%	12.2	55.9%	23.4	58.3%
Grimesland	36,250	40%	12.3	58.3%	22.9	53.5%
Simpson	47,500	23.6%	14.2	63.6%	17	56.6%
Winterville	47,167	16.6%	10.3	71.2%	25.5	56.7%
Pitt County	43,971	20%	13.5	65.8%	X	47%
North Carolina	46,335	22%	9.0	65.7%	X	56.3
US	50,046	19.6%	9.2	63.9%	25.5	54.4

<http://factfinder.census.gov>

<http://www.city-data.com/city>

Question 1: Describe the variability between and among municipalities within Pitt County?

Question 2: Indicate in what ways these differences and similarities may affect the findings in the community assessment.

Disclaimer regarding interpretation of data in this Community Assessment:

Various sources of data have been used in the development of this teaching case including but not limited to vital statistics, the 2004 BRFSS survey, N.C. Communicable Disease Control Branch reports, N.C. County Health Data Book, U. S. Census American Fact Finder, N.C. Child Advocacy Institute, N.C. Child Fatality Task Force.

The data in this report is not to be relied on for actual assessment activities because of various limitations including: different time periods for data collections and a small number of events during the reported time period. These factors subject the results to chance variation. Longer time periods of data collection are required before inferences can be made. For a full discussion of the issues and up-to-date data, refer to the report of the North Carolina State Center of Health Statistics, <http://www.schs.state.nc.us/SCHS/>

Resources for Community Assessment

Advocates for Youth

<http://www.advocatesforyouth.org>

Cecil G. Sheps Center for Health Services Research – University of North Carolina, Chapel Hill

<http://www.shepscenter.unc.edu/Data.html>

<http://www.shepscenter.unc.edu/hp/prof04.htm>

Center for Disease Control and Prevention – STD Surveillance 2004

<http://www.cdc.gov/std/stats/toc2004.htm>

Center for Health Services Research and Development, East Carolina University

<http://www.chsrd.med.ecu.edu>

CLIKS: community-Level Information for Kids

<http://www.aecf.org/cgi-bin/cliiks.cgi>

Employment Security commission of North Carolina – Labor & Wage Unit, Labor Market Information Division

<http://eslmi23.esc.state.nc.us/ew/>

Environmental Defense Fund

<http://www.scorecard.org/>

Geographic.org

<http://www.geographic.org>

Guttmacher Institute

http://www.guttmacher.org/pubs/fb_teens.html

Institute of Research in Social Science at University of North Carolina, Chapel Hill

<http://unc.edu/depts/irss/>

Log into North Carolina (LINK)

http://data.osbm.state.nc.us/pis/linc/dyn_linc_main.show

North Carolina Child Advocacy Institute

<http://www.ncchild.org>

North Carolina Child Fatality Task Force
www.preventchildabusenc.org/publications/press_releases/cftf

North Carolina Communicable Disease Control
<http://www.epi.state.nc.us/epi/gcdc.html>

North Carolina Crime Statistics
<http://sbi2.jus.state.nc.us/crp/public/default.htm>

North Carolina Department of Agriculture
<http://www.agr.state.nc.us/stats/>

North Carolina Department of Commerce
<http://www.commerce.state.nc.us>

North Carolina Department of Health and Human Services – Division of Medical Assistance
<http://www.dhhs.state.nc.us.dma/>

North Carolina Department of Health and Human Services – HIV/STD Prevention & Care Branch
<http://www.epi.state.nc.us.epi/hiv/surveillance.html>

North Carolina Department of Public Instruction
<http://www.dpi.state.nc.us>

North Carolina Department of Transportation Public Transportation Division
<http://www.dot.state.nc.us/transit/transitnet/>

North Carolina Division of Public Health – Oral Health Section
<http://www.communityhealth.dhhs.state.nc.us/dental/>

North Carolina Division of Public Health – Women’s and Children’s Health Section
<http://wch.dhhs.state.nc.us/>

North Carolina Employment Security Commission
<http://esc.state.nc.us>

North Carolina Office of State Planning
[http://www/ospi.state.nc.us](http://www.ospi.state.nc.us)

North Carolina State Bureau of Investigation
<http://sbi.jus.state.nc.us>

North Carolina State Center for Health Statistics (NC-SCHS)
<http://www.schs.state.nc.us/SCHS/index.html>

North Carolina Rural Data Bank (by county)
<http://www.ncruralcenter.org/databank/profile>

Public Schools of North Carolina
<http://www.ncpublicschools.org/accountability/reporting/sat/2005>

State of North Carolina
<http://www.state.nc.us>

University of North Carolina Highway Safety Research Center
<http://www.hsrb.unc.edu>