Community Survey & Data Collection

Data for this community health assessment came from many sources, which are explained in this chapter and referenced throughout the document. One of the major sources of primary data was the 2010 Durham County Community Health Opinion Survey. Using census data and geographic information systems (GIS) technology, 210 Durham County households were selected at random to participate in a 55-question survey. Key findings from the survey were used to help determine Durham County's top health priorities. The full Community Health Opinion survey results can be found in Appendix G.

This chapter includes:

Data Sources

Data for this community health assessment came from many sources, which are referenced throughout the report. There is a great deal of information available about Durham's and North Carolina's health, but not all of it is presented in this document. If readers are interested in a particular piece of information, we encourage them to go to the original source for more details.

This section discusses the main sources for the primary and secondary data for this document. The majority of our *primary data* has been collected locally, mainly through original surveys, interviews and focus groups. Our *secondary data* has been collected by other organizations, is quantitative, and includes sources like the census, hospital discharge data and birth and death records.

As an additional resource, the Partnership for a Healthy Durham keeps updated links to reports on Durham's health and health data resources.

Why is it so important to randomize?

When carried out correctly, randomization helps to ensure that the sample population (the people interviewed) represents the target population (the community as a whole). Sample sizes that are large enough are important to allow the process of randomization to work; this means interviewing a sample population that accurately represents the target population. Most of our primary data uses randomization with a large enough sample size to generalize our results to the larger Durham community or the subgroup it represents.

Primary data came from the following sources:

1. ***Durham County Community Health Opinion Survey:*** used census data and GIS technology to select at random 210 households to participate in the survey. The survey was pre-loaded into a small handheld computer (GPS) and from June 16 - June 20, 2010, 58 volunteers drove in teams of two to those specific locations. Upon arrival, one team member administered the survey to one adult living in the household while the other team member recorded the responses in the handheld GPS. Over this four-day period, 207 surveys were completed. The full results are in Appendix G.

2. ***North Carolina Behavioral Risk Factor Surveillance System (BRFSS):*** an annual telephone survey of approximately 600 Durham County residents. The questions come from the Centers for Disease Control and Prevention's (CDC) standardized national survey. Results are available on the North Carolina State Center for Health Statistics' website at http://www.schs.state.nc.us/SCHS/brfss/.

3. ***Youth Risk Behavior Survey*** **(YRBS)**: a written survey of 460 middle school students and 489 high school students attending Durham Public Schools. A random sample of all second period classrooms was used for the 2009 survey, meaning that each classroom had an equal chance of being selected. The questions came from a national standardized survey developed by the Centers for Disease Control and Prevention (CDC) designed to

monitor priority risk behaviors related to tobacco use, unhealthy diet, inadequate physical activity, alcohol and other drug use, unintended pregnancy, sexually transmitted diseases and unintentional injuries and violence. The 2009 survey data is used in this report; the 2011 survey results should be available in mid-2012. The full results are available at www.healthydurham.org or at these links: full report summary reports

4. ***Community Listening Sessions:*** Ten sessions (n=283) were held in the summer and fall of 2011. Community members were given information about the community health assessment process and a list of the top 13 health priorities identified by this process for Durham County. Then they had guided small and large group discussions to choose the county's top five priorities.

5. ***Durham Health Innovations (DHI):*** a partnership between Duke Medicine and the Durham community that seeks to improve the health status of Durham County residents. Ten DHI teams completed an 8-month planning process in December 2009 culminating in reports that evaluated health service provision and coordination around adolescent health, asthma and chronic obstructive pulmonary disease, cancer, cardiovascular disease, diabetes, HIV and sexually transmitted diseases, maternal health, obesity, pain management and substance abuse, and seniors' health. As part of this process, focus groups, town hall meetings and interviews were conducted and these were summarized in each team's final report. More information about DHI can be found in Appendix E.

Secondary data came from many sources:

The most common secondary data sources were the U.S. Census (American Community Survey) and the North Carolina State Center for Health Statistics (SCHS) of the North Carolina Division of Public Health. The SCHS's "County-Level Data" page and "County Health Data Book" contain numerous county-level statistics. The NC State Center for Health Statistics website contains a compilation of many health data, including:

- Vital statistics (births, deaths, fetal deaths, pregnancies, marriage, and divorce)
- Basic Automated Birth Yearbook (BABY Book - summary of infant and maternal characteristics, such as prenatal visits and birth weight)
- Cancer
- Minority Health
- NC Hospital Discharge Data

Durham County Community Health Opinion Survey

Using census data and GIS technology, 210 households were selected at random to participate in a community health opinion survey. (See Figure 1.0 for an image of the 210 randomly selected locations. The survey was pre-loaded into a small handheld computer (GPS unit) and from June 16 - June 20, 2010, 58 volunteers drove around the community in teams of two to those specific points. Upon arrival, one team member administered the survey while the other team member recorded the responses in the handheld GPS. Over this four-day period, 207 surveys were completed.

Technical assistance was provided by the North Carolina Center for Public Health Preparedness; two graduate-level UNC Epidemiology students analyzed the data and wrote a summary report. The 2011 survey cost a fraction of the previous 2007 telephone survey, involved the community to a greater extent in the process, supported local businesses, and gave two students a relevant mentored experience. Most importantly, it provided better quality data since households were randomly sampled and the data can be generalized to the entire county.

A complete copy of the survey can be found in Appendix C in English and Appendix D in Spanish. The results from each question can be found in Appendix G.

Survey development

The survey was originally developed by the Office of Healthy Carolinians and has been validated and used by communities across North Carolina for community health assessments. A group of Durham stakeholders reviewed the survey; they kept the majority of original questions and added or deleted several questions. The final survey comprised 55 questions, was pre-tested, translated into Spanish and on average took 15-20 minutes to administer.

Community Survey Snapshot

- 55 questions
- Five parts:
  - Quality of life
  - Community problems & issues
  - Personal health
  - Emergency preparedness
  - Demographics

Sampling framework: two-stage cluster or "30 x 7" sample

To assess community health issues, a community population-based sample in Durham County was selected using the 30 x 7 two-stage cluster sampling method. This method was first developed in the 1960s as a tool for local health departments to conduct rapid assessments of immunization coverage.[1] The sampling method was adopted by the World Health Organization's (WHO's) Expanded Program on Immunization and later by the Centers for Disease Control and Prevention (CDC) for use in responses to natural disasters.[2,3] This efficient sampling scheme has been validated and used effectively for rapid assessment and estimation of a variety of population-level public health needs.[4,5]

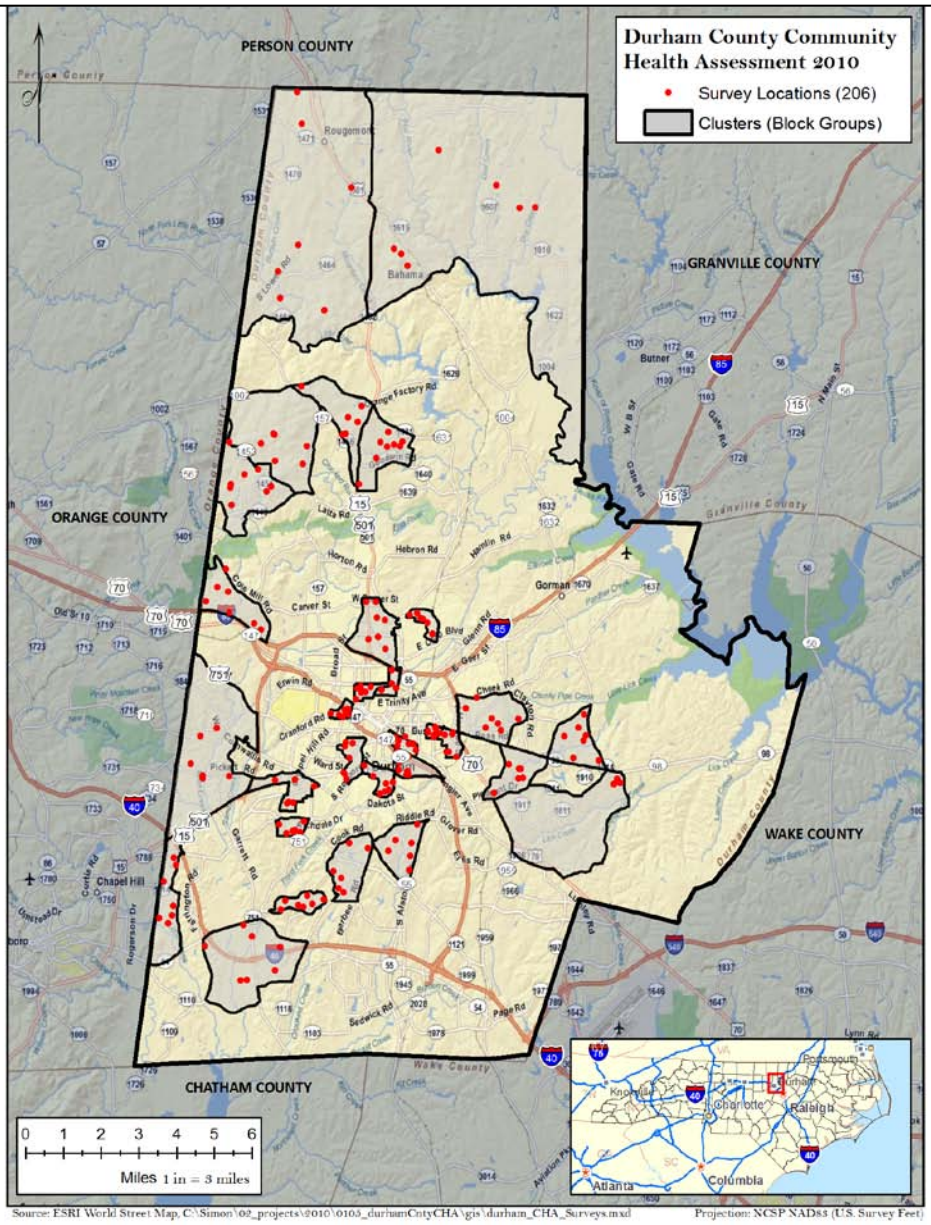
Sampling Snapshot

- Two-stage cluster ("30 x 7")
- 30 census blocks randomly selected
- 7 households randomly selected within each census block
- Resulted in 210 randomly selected households
- Overall, demographics of the survey participants reflected the general Durham County population

The 30 x 7 method is an example of what is known as a two-stage cluster sample. At the first stage, census blocks are randomly selected, while at the second stage, interview locations are randomly selected within each census block. Census blocks in stage one may be selected through a method known as "probability proportionate to size," which means that a census block with more households is more likely to be included than one with fewer households.[6]

In Durham County, 30 census blocks were randomly selected from all of the census blocks in the county and seven households were randomly selected within each census block for interviews. The random selection of these 210 points (30 x 7) was automated using a GIS-based survey site selection toolkit developed by North Carolina Department of Public Health in ESRI ArcMap 9 (Redlands, CA). Figure 1.0 is a map of Durham County that shows the 30 randomly selected census blocks, which are represented by black-bordered polygons (enclosed shapes), and the seven red points or households that were selected within each census block. Northern Durham County is more rural, which is why the census blocks are geographically larger; the central city has much smaller geographic census blocks since the population is denser. Therefore, above I-85, there are 9 clusters and below I-85, there are 21 clusters.

Figure 1.0: Census blocks and points randomly selected for survey



Generalizability

When sampling is carried out correctly, the information collected from the sample population can be generalized to the target population, meaning what is true for the people you interviewed is also roughly true for the rest of the population you are studying. There is, however, an important limitation to generalization – findings cannot be generalized to units other than those from which you sampled.[7]

When a sample has been properly drawn from the county, as it was for Durham County, one can draw conclusions such as, "Approximately 19% of the people in the county do not have health insurance." However, you cannot use this data to claim that 19% of the people in a certain neighborhood or in the entire state don't have health insurance. The 2010 Durham County Community Health Opinion Survey can be generalized to the residents of Durham County.

Were the survey participants similar to the overall Durham community?

- Yes! Overall, the demographics of the survey participants reflected the general Durham County population.
- There were some differences in the sample and the actual populations, but these differences were not statistically significant.

Surveying the community

The surveys were carried out by a team of 58 volunteers over the course of four days in June 2010 (Thursday, Friday, Saturday and Sunday). To ensure the continuity and reliability of data collected, all volunteers participated in a 90-minute training which covered safety and emergency plans, reviewed the survey and procedures for conducting surveys (i.e., techniques for conducting unbiased surveys, what to do if someone was not home or chose not to participate, and procedures for Spanish-speaking residents). Each 2-member team was assigned a specific census block and was given a list of randomly selected household addresses. Surveys were conducted door-to-door using handheld GPS units. Spanish-speaking volunteers were assigned to census blocks with a higher proportion of Spanish speakers. A paper version of the survey was also completed as a back-up in case of equipment failure or if specific volunteers did not feel confident using the handheld GPS unit. Volunteers wore safety orange T-shirts and name badges. All survey participants were given a list of community resources, hand sanitizer and a Partnership for a Healthy Durham cup. A list of all volunteer surveyors can be found in Appendix A.

If a resident was not home or chose not to participate in the survey, volunteers continued down the block until they found a willing participant. The response rate to the survey was 62%; anything over 60% is considered a good response rate. Only adult Durham residents were eligible to participate.

The selection of random points, training, maps for volunteers and technical assistance were provided by Matt Simon at the North Carolina Center for Public Health Preparedness. Volunteer recruitment and training was provided by Mel Downey-Piper at the Partnership for a Healthy Durham.

Limitations

While the quality of the data from the community survey is high and likely some of the best survey data collected on the health of Durham County residents, there are some limitations. These limitations include the following:

1) Volunteer interviewers and precision: We relied on volunteer interviewers to collect the data, some of whom were new to public health survey methods and using the handheld GPS-enabled computers. Many of the volunteers participated for one day; those who participated for two or more days were most likely to be comfortable with the survey and technology. As such, there were several discrepancies in the data.
2) Door-to-door survey: We were more likely to capture data from people at home during the day (i.e. women, elderly, unemployed/work from home, disabled, lonely, etc.). However, we were able to balance this by surveying on Saturday and Sunday.
3) Survey timing: Data was collected in July 2010, which was more than one year before the release of this document. This made some concerns, such as the quality of the roads, potentially less pertinent since many major roads have since been repaved with federal stimulus funds. We may have missed newer concerns as well.
4) Accuracy: This type of sampling puts our data within plus-or-minus 10% of the true value for the entire county. For example, a reported proportion of 20% means that the population estimate will be anywhere between 10% and 30%. This range is rather wide for some of the questions, but the method was initially developed for rapid-needs assessments, such as during disasters.

Data Analysis

Survey data was stored in the hand-held GPS units and downloaded onto the computer after data collection was complete. Data was then cleaned and analyzed. Two graduate students from UNC, Melanie Napier and Kristen Ricchetti-Masterson, coded the data and generated graphical analysis of the results. Matt Simon and Mel Downey-Piper provided supervision and guidance for these practicum students. Each topic that is addressed in this document has a section entitled "Primary Data"; if the topic relates to a question on the Health Opinion Survey, this data will be summarized in that section.

Demographics of Survey Participants

The tables below compare the demographics (age, sex, race and ethnicity) of residents surveyed in 2010 with the actual 2010 Durham County Census. The biggest differences between those surveyed and the actual population include:

- Fewer young adults and more older adults surveyed
- Fewer Hispanics and Asians surveyed; more whites surveyed
- Fewer males and more females surveyed

When calculations were done to weight the data in order to more accurately reflect the true population, there were no statistical differences in the results.

AGE	Durham Survey	2010 Census
18-24	4.4%	12%
25-34	18.0%	18.3%
35-44	16.0%	14.1%
45-54	19.4%	12.8%
55-64	23.3%	10.5%
65-74	9.7%	5.3%
75 or older	9.2%	4.6%

SEX	Durham Survey	2010 Census
Male	41.5%	47.7%
Female	58.5%	52.3%

RACE / ETHNICITY	Durham Survey	2010 Census
Black or African American	41.7%	38%
American Indian/Alaskan Native	3.4%	0.5%
Asian or Pacific Islander	1.5%	4.7%
White	54.9%	46.4%
Other, unspecified	1.9%	7.9%
Two or more races	--	2.6%
Hispanic or Latino	6.3%	13.5%

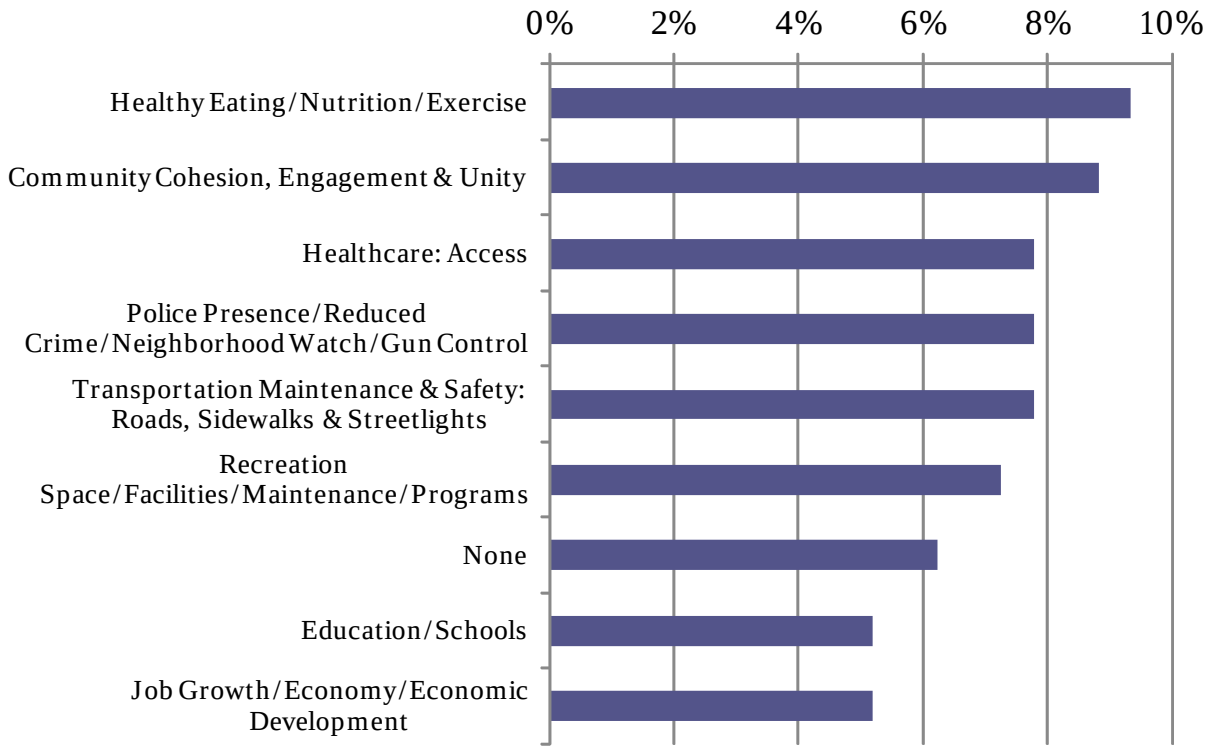
Key survey findings

Four of the survey questions asked residents, "Keeping in mind yourself and the people in your neighborhood, choose your top three: 1) environmental issues; 2) community issues; 3) risky behaviors; and 4) health problems. Residents were given a list of approximately 15-20 issues for each of these questions. The table below summarizes the top three responses for each category.

ENVIRONMENTAL ISSUES	COMMUNITY ISSUES	RISKY BEHAVIORS	HEALTH PROBLEMS
1. Safe and clean drinking water	1. Gang involvement	1. Drug or prescription medication abuse	1. Addiction drugs, alcohol or prescription pills
2. Unsafe, unmaintained roads	3. Homelessness	2. Alcohol abuse	2. Obesity and overweight
3. Population growth	3. Unemployment; lack of positive teen activities*	3. Violent behavior	3. Heart disease and heart attacks

*Note: There was a tie between unemployment and lack of positive teen activities.

Residents were also asked:
What one thing would make Durham County or your neighborhood a healthier place to live?
The top responses were categorized and are summarized below. For example, nearly 10% of those surveyed mentioned something related to healthy eating, exercise or nutrition. Some residents listed more than one response, so different responses were categorized separately. The three most popular categories were healthy eating and exercise, community unity, and access to healthcare. "None" indicates that no response was given or that residents felt everyone was healthy enough.


0%
2%
4%
6%
8%
10%
Healthy Eating/Nutrition/Exercise
Community Cohesion, Engagement & Unity
Healthcare: Access
Police Presence/Reduced Crime/Neighborhood Watch/Gun Control
Transportation Maintenance & Safety: Roads, Sidewalks & Streetlights
Recreation Space/Facilities/Maintenance/Programs
None
Education/Schools
Job Growth/Economy/Economic Development

Contributors

#	Name of Section	Name, Credentials	Affiliation
1.0	Data collection	Mel Downey-Piper, MPH, CHES	Durham County Health Department, Partnership for a Healthy Durham, Coordinator

Data Sources

[1] Serfling RE & Sherman IL. *Attribute sampling methods for local health departments: With special reference to immunization surveys.* Washington, D.C.: United States Government Printing Office; 1965.
[2] Henderson RH & Sundaresan T. Cluster sampling to assess immunization coverage: A review of experience with a simplified sampling method. *Bulletin of the World Health Organization*, 1982; *60*(2): 253.
[3] Malilay J, Flanders WD & Brogan D. A modified cluster-sampling method for post-disaster rapid assessment of needs. *Bulletin of the World Health Organization*, 1996; *74*(4): 399-405.
[4] Frerichs RR. Small-community-based surveys. *Annual Review of Public Health*, 2001; *22*(1): 231-247.
[5] Henderson RH & Sundaresan T. Cluster sampling to assess immunization coverage: A review of experience with a simplified sampling method. *Bulletin of the World Health Organization*, 1982; *60*(2): 253.
[6] NC Public Health Preparedness. A Guide to Sampling for Community Health Assessments and Other Projects. http://cphp.sph.unc.edu/PHRST5/IntroSampling.pdf. Accessed November 25, 2011.
[7] Ibid.