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Data
Collection

Assessing the health of the Guilford County involved collecting and considering of a wide range of health and health-related measures, including data on morbidity and mortality, health behaviors, clinical care, social and economic factors and environmental factors. Assessment data included primary and secondary data collected from a variety of sources. Both quantitative and qualitative data were collected and assessed. Whenever available, quantitative data were assessed at the county -level and sub-county geographic levels of census tract and zip code. Primary data collection included participation in the Behavior Risk Factor Surveillance System (BRFSS) and Youth Risk Behavior Survey (YRBS), focus groups and surveys conducted through community meetings and online. Secondary data were integrated throughout the process.

Community Engagement

Throughout the community health assessment process, multiple methods sought out engagement from the community, inclusive of providers, patients and community members at large. These methods included community meetings, key informant interviews, focus groups and an online prioritization survey.

Methods of
Primary Data Collection

- Participation in the NC BRFSS
- Local Administration of the Youth Risk Behavior Survey
- Community Meetings
- Key Informant Interviews
- Focus Groups
- Online Health Issue Prioritization Survey
- Connect-the-Dots Community Meeting

Community-wide meetings were advertised in the newspaper and on the local news, and attendance was open to the public at large. At these meetings, GCDPH staff presented secondary data and *County Health Rankings* data. Participants were then asked to rank the health issues and note any additional factors they felt impacted them or their communities, using the Health Issue Prioritization Survey. Hospital Service Area Community Meetings were held in the same format but solicited participation from persons within that hospital's service area outside Guilford County. The community meetings began in October 2012 and lasted through the end of January 2013.

Beginning around the same time as the community meetings, UNC Greensboro's CSCHRE staff conducted focus groups with administrative personnel, medical doctors, nurses, case managers and healthcare consumers and patients. Focus groups took place at service provision sites and participants were strategically sampled and solicited for responses regarding a number of health and service delivery issues. Respondents were prompted about issues that arise during service provision, including frequently occurring health issues, hindrances to service provision and needs, and current effective service strategies that should continue to be supported.

Health and service providers were asked about access to care issues experienced by their patients as well as any services that they were unable to provide due to various funding and logistical constraints. They were also asked about the existing and needed resources in their service sector as well as their current and desired partnerships toward improved service provision. Women's health and mental health providers were asked to address issues specifically related to their service provision. Healthcare consumers were asked to provide information about access to care issues and resources as well as issues specific to their needs. Consumers included low-income persons, immigrants and refugees and persons receiving mental health services.
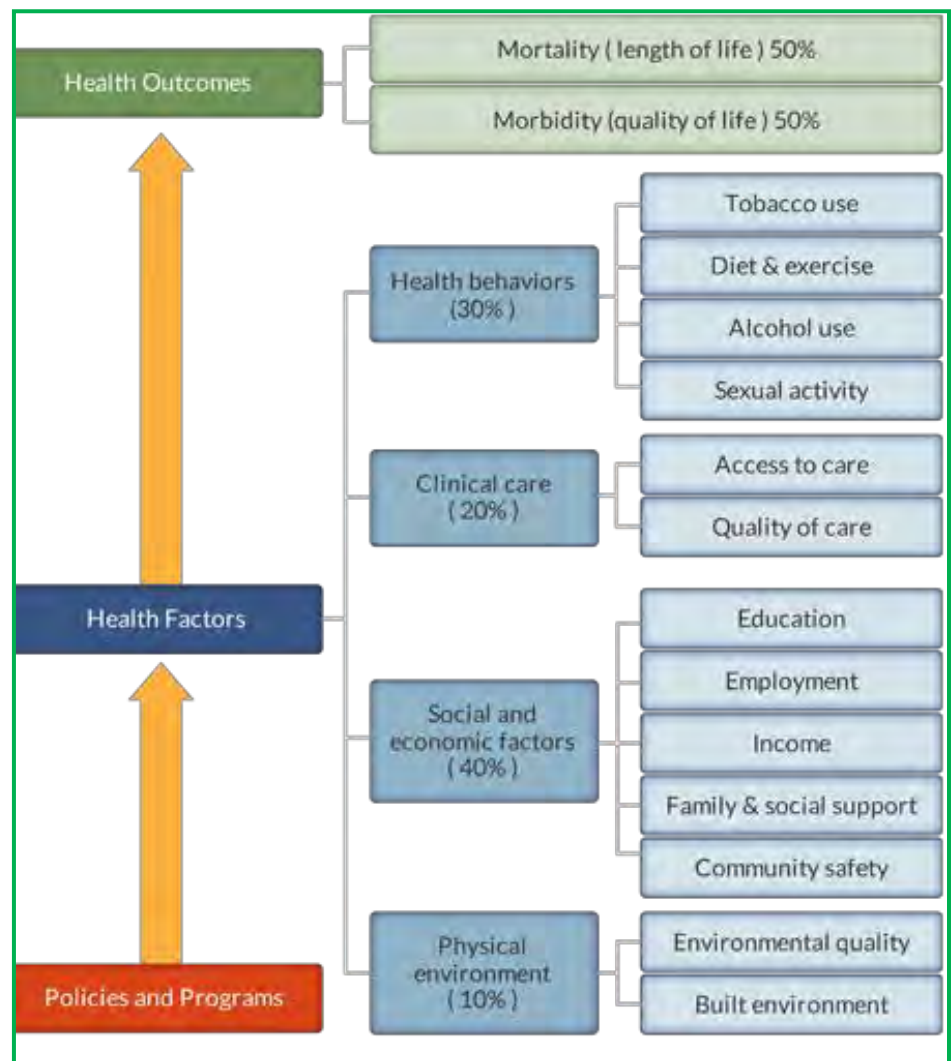
County Health Rankings

Each year, the University of Wisconsin Population Health Institute and the Robert Wood Johnson Foundation collaborate to publish the County Health Rankings for all counties in the United States. The *County Health Rankings* help us to understand what influences our community's health and the health of its residents. These rankings recognize that our health outcomes, such as how long we live and how healthy we feel, are influenced by our own health behaviors, our access to and experience with clinical care, social and economic factors and the physical environment in which we live, work and play. Local, state and federal policies and programs can also influence health outcomes through impact on health factors.

This *County Health Rankings'* research-based model of health provides an instructive way to frame an understanding of community health needs and a framework for organizing the assessment of health data. As a result, the County Health Rankings were integrated into the assessment process of the 2012-2013 Community Health Assessment.

The *County Health Rankings* uses a model of community health that represents health outcomes—morbidity and mortality—as functions of several health factors:

County Health Rankings Model

- The first health factor, health behaviors, consists of indicators of tobacco use, diet and exercise, alcohol use, and sexual activity. Health behaviors comprise 30% of variation in health outcomes.

- The second health factor, clinical care, includes indicators for access to care and quality of care. Clinical care makes up 20% of variation in health outcomes.

- The third health factor, social and economic factors, includes measures of education, employment, income, family and social support and community safety. Social and economic factors make up 40% of variation in health outcomes.

- The last health factor, physical environment, includes measures of environmental quality and the built environment, including air quality, access to exercise facilities and access to healthy food. Physical environment makes up 10% of variability in health outcomes.

Source: County Health Rankings Model ©2012 University of Wisconsin Population Health Institute.

The following table provides Guilford County's 2013 County Health Rankings as compared to North Carolina, and Alamance, Forsyth, Randolph, Rockingham counties

	North Carolina	Guilford (GU)	Alamance (AL)	Forsyth (FO)	Randolph (RA)	Rockingham (RC)
Health Outcomes		**9**	**23**	**25**	**35**	**78**
Mortality		16	18	30	33	81
Premature death	7,961	7,345	7,481	7,938	8,171	10,226
Morbidity		11	41	28	34	53
Poor or fair health	18%	13%	19%	14%	20%	19%
Poor physical health days	3.6	2.9	3.6	3.1	3.8	3.6
Poor mental health days	3.4	3.2	3.5	3.2	3.5	4.0
Low birthweight	9.1%	9.3%	9.1%	10.2%	8.1%	9.6%
Health Factors		**24**	**47**	**21**	**42**	**90**
Health Behaviors		**16**	**55**	**22**	**40**	**98**
Adult smoking	22%	18%	24%	21%	24%	31%
Adult obesity	29%	28%	34%	26%	30%	33%
Physical inactivity	25%	23%	28%	21%	30%	31%
Excessive drinking	13%	13%	11%	13%	11%	16%
Motor vehicle crash death rate	19	14	15	13	21	28
Sexually transmitted infections	445	577	372	884	192	358
Teen birth rate	50	36	49	50	57	60
Clinical Care		**12**	**24**	**7**	**68**	**74**
Uninsured	18%	19%	19%	17%	21%	18%
Primary care physicians	1,135:1	1,015:1	1,557:1	625:1	1,985:1	2,047:1
Preventable hospital stays	64	49	58	61	68	95
Diabetic screening	87%	88%	89%	88%	87%	87%
Mammography screening	70%	73%	75%	67%	65%	66%
Social & Economic Factors		**39**	**58**	**33**	**40**	**78**
High school graduation	78%	87%	79%	82%	84%	74%
Some college	61%	65%	56%	62%	45%	48%
Unemployment	10.6%	10.9%	11.4%	9.9%	10.8%	12.9%
Children in poverty	25%	27%	29%	24%	27%	27%
Inadequate social support	21%	19%	20%	18%	21%	25%
Children in single-parent households	34%	39%	39%	37%	31%	38%
Violent crime rate	448	655	459	661	180	355
Physical Environment		**90**	**49**	**75**	**54**	**82**
Air pollution-particulate matter days	1	2	0	1	0	1
Air pollution-ozone days	6	10	2	10	1	3
Access to recreational facilities	11	13	10	15	9	12
Limited access to healthy foods	10%	9%	16%	11%	22%	29%
Fast food restaurants	49%	48%	50%	47%	49%	47%

Source: County Health Rankings

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Oversampling of the Behavioral Risk Factor Surveillance System

The Behavioral Risk Factor Surveillance System (BRFSS) is randomized telephone survey of adult state residents developed by the Centers for Disease Control and Prevention (CDC) and conducted in collaboration with state health departments. Through the financial support of the Cone Health Foundation, a CHA partner, Guilford County participates in over-sampling of adult county residents conducted by North Carolina Division of Public Health. In 2010 the NC State Center for Health Statistics surveyed 691 county residents. This primary data collection oversampling allows for sub-group analysis and makes the BRFSS data more useful for conducting community health assessment. The BRFSS sample has higher proportions of females and whites than the county population (see comparison table below).

### Comparison of Oversampled BRFSS Sample and Guilford County Demographics

Category	BRFSS, 2010		Guilford County, 2010 Census	
	Number	Percent	Number	Percent
Male	258	37.4%	232,483	47.6%
Female	432	62.5%	255,923	52.4%
White	514	74.5%	278,525	57%
Other Races	169	24.5%	209,881	43%
Total	690	100%	488,406	100%

Guilford County Youth Risk Behavior Survey

In 2011, Guilford County Department of Public Health partnered with Guilford Education Alliance, Guilford County Schools and UNC Greensboro's Department of Public Health Education to locally administer and report upon the Youth Risk Behavior Survey (YRBS) in Guilford County. The YRBS is a national survey developed by the CDC to assess the risk behaviors of our middle and high school students through an anonymously answered survey.

The survey asks questions about important health and safety topics, including: physical activity, nutrition, body weight, safety, bullying, violence related behaviors, tobacco use, alcohol and other drug use, sexual education and behavior, mental health and asthma. These data help us better understand the behaviors of our youth and inform the development of stronger prevention and intervention programs that support healthy youth development.

This is the third time the YRBS has been administered locally to students within Guilford County Schools with involvement from Guilford County Department of Public Health. Consequently, we can compare these results with 2003 and 2008 Guilford County data as well as the North Carolina findings from the Department of Public Instruction's administration. This data collection and report were made possible with a grant from Cone Health Foundation and additional in-kind support from the Guilford County Department of Public Health staff, faculty and graduate students from UNC Greensboro's Department of Public Health Education and Health & Human Sciences Office of Research and staff of Guilford Education Alliance. The full Guilford County YRBS Report is included in the Appendices.
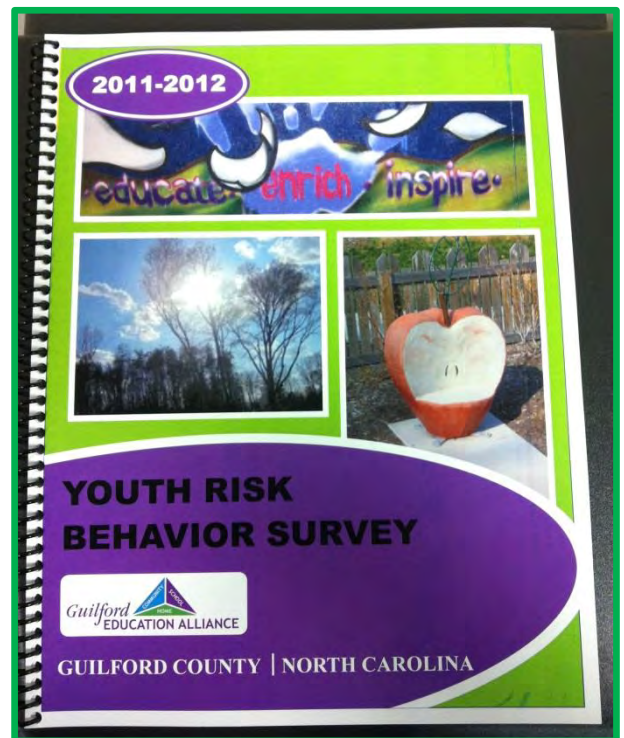
Guilford County Community Meetings

To gauge public opinion regarding the pressing health issues facing Guilford County, a series of six meetings were scheduled during October and November of 2012. GCDPH staff shared recent county and sub-county, community-specific health data based on the indicators in the 2012 *County Health Rankings* at these meetings. Attendees shared their views about health issues and health needs in their communities. All meetings were open to the public and anyone could attend any or all of the meetings. Meetings were publicized through a press release to all print and electronic media as well as through the Guilford County and Department of Public Health websites. Cone Health and High Point Regional also assisted in publicizing these meetings.

Zip Code Groupings for Guilford County Community Meetings
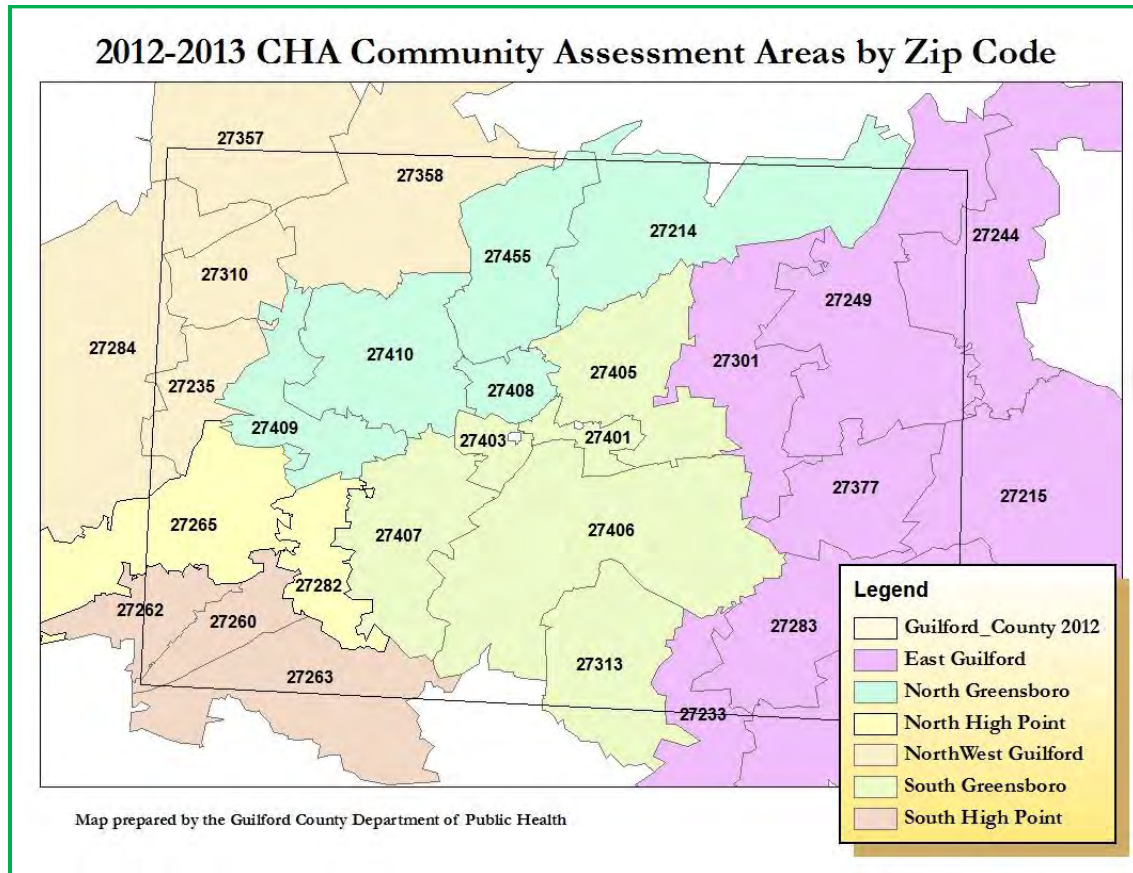
To support participation from all areas of the county and to facilitate identification of health issues specific to particular areas of the county, Guilford County was divided into six different regions, representing a range of two to eight zip codes. Whenever possible, central meeting locations were chosen within the different geographic areas and publicized within those specific regions. The map above reflects the zip code groupings that were used to organize the community meetings. To further encourage participation, a region-specific announcement was developed and distributed to local contacts.

In total, almost 100 community members participated in the community meetings. At each meeting, participants reviewed a data presentation highlighting local data on the *County Health Rankings'* thirty indicators in comparison to state and national data. When available, these data were augmented with zip code specific data synthesized by MPH students from Dr. Robert Aronson's Community Assessment class at UNCG's Department of Public Health Education. Participants then ranked the importance of each health indicator using a Likert scale questionnaire, choosing a response on a scale of 1 through 5, where 1 represents "little importance" and 5 represents "extremely important" (see prioritization questionnaire in Chapter 5). Data collected from community meeting participants were used to identify pressing health issues. Meeting participants also identified resources, assets and barriers to improvement for each health factor area as well as regional or county-wide unmet needs.

Hospital Service Area Community Meetings

Hospital service areas of Cone Health and High Point Regional Health System extend beyond Guilford County to include all or parts of Alamance, Rockingham, Forsyth, Davidson and Randolph counties. As a part of the CHNA, additional community meetings were held in the Archdale area of Randolph County and Reidsville in Rockingham

County in early December 2012. Attendees learned about county and community-specific health data and shared their views about health issues and health needs in their communities and identified the most important issues in their communities. Forsyth County and Alamance County meetings were cancelled due to low attendance.

Focus Groups

CHA qualitative data collection occurred sequentially. Key informant interviews with executives at each hospital took place prior to the focus group discussions at corresponding hospitals. This sequential ordering allowed for each focus group topic guide to be tailored based on the suggestions and feedback of the key informant for each respective hospital. Key informants helped frame the topic guides for each focus group. The topic guides for the focus groups were specifically related to the knowledge and opinions of the key informants. As with the key informant interviews, several topics were general and asked of all focus groups whereas there were also specific topics discussed that were unique to each site.

Members of UNC Greensboro's Center for Social, Community and Health Research and Evaluation facilitated both the key informant interviews and the focus group discussions. Key informant interview participants were provided with a consent form at the beginning of the interview. CSCHRE staff pointed out the main components of the consent form and then allowed time for the participant to read the form. Participants were then asked if they had any questions prior to starting the interview. The signature requirement was waived for key informant interview participants. A copy of the consent form was left with all participants.

Focus group participants were also provided with a consent form at the beginning of the discussion. CSCHRE staff pointed out the main components of the consent form and then allowed time for participants to read the form. Participants were asked if they have any questions prior to beginning the discussion. The signature requirement was waived for focus group participants. A copy of the consent form was left with all participants. Focus group discussions were recorded. Notes were also taken by another CSCHRE staff member in the room. Recordings of all focus group discussions were transcribed verbatim.

Key informant interviews were reviewed and broad categories created that encompassed the nature of each response. This was done for all participants (in which focus groups are being conducted at their institution) across all questions. Similar categories were collapsed where necessary. The frequency of each category determined the nature of the questions asked in all focus groups and those which would be institution-specific. The response categories were assigned a number in chronological order of responses. The numbers representing each category was recorded in a table denoting response patterns across institutions representing the key informants and across the entire interview conducted with a specific key informant. The summary columns showed all responses with the most frequent listed first and the least frequent last. While frequency counts in qualitative accounts are not the norm, this strategy was utilized to help determine the issues that the focus group topics cover and the order in which they were discussed.

The research team developed a-priori codes (a list of pre-set categories of information) for the focus groups and analyzed the transcripts by reading and re-reading the content. One researcher coded each transcript and a fellow researcher verified those codes. Discrepancies in coding were discussed and revised until an agreement was reached. Finalized codes were reviewed for frequency and context for each transcript. Transcripts were then compared to one another so as to identify common themes. Research team members continued to compare and discuss findings with one another to ensure inter-coder reliability. Findings from the transcripts were triangulated with quantitative data components analyzed for the larger CHA project.

Focus groups primarily took place in settings familiar to participants. Focus groups that addressed general health care issues were held with providers from Moses Cone Hospital at Cone Health in the Cone Health Administrative offices. Similarly, focus groups were held at High Point Regional with their staff and local service providers working for non-profit organizations. In the same setting, low-income clients also participated in their own focus group. An additional focus group with low-income/Medicaid clients took place at Triad Adult and Pediatric Medicine. Another focus group was held with service providers associated with Cone Health Foundation (See summary table below).

Three focus groups addressed special healthcare topics including mental health and women's health issues. One group was held with Behavioral Health Hospital social workers, administrative staff and congregational nurses in addition to providers from the Mental Health Association of Greensboro. This focus group took place at the Behavioral Health

Administrative offices. The second group addressing mental health was with clients from the Mental Health Association of Greensboro. A number of providers, primarily physicians from the Women's Hospital, also participated in a third focus group held at the Cone Health Administrative Offices.

Three focus groups were conducted with immigrants and refugees living in Guilford County. The first group was held with French-speaking African refugees at Ashton Woods Community Development Center. The second group was held with Nepali-speaking Bhutanese refugees at Glen Haven Community Development Center. A Spanish-speaking focus group also took place at St. Mary's church where most of the participants were also a part of the congregation.

Provider Focus Groups (Number of Participants)	Consumer Focus Groups (Number of Participants)
Behavioral Health (6 providers)	Health Care (9 consumers)
Cone Health Foundation (11 providers)	Immigrant: Spanish-speaking (approximately 25 participants)
High Point Regional (12 providers)	Refugee: French and English-speaking African (7 participants)
Moses Cone Hospital (6 providers)	Refugee: Nepali-speaking Bhutanese (13-18 participants)
Women's Hospital (7 providers)	Mental Health Consumer Group (8 consumers)

Guilford County Online Health Issue Prioritization Survey

To supplement community input from the Guilford County Community Meetings, GCDPH conducted an online survey regarding the pressing health issues facing residents of Guilford County. This online survey allowed for additional community input from those who may not have had an opportunity to attend one of the scheduled community meetings. This survey presented data from the 2012 County Health Rankings and respondents ranked each health indicator on a Likert scale of 1 through 5, where 1 represents "little importance" and 5 represents "extremely important." The survey was available online between mid-January 2013 and March 1, 2013. During that time, 51 persons completed the survey. Links to the survey were provided on the Guilford County website. The public was also informed of the survey via a press release that went to all county media outlets and which also included the web link to the survey.

Guilford County CHA "Connecting the Dots" Meeting

In early March 2013, GCDPH and CHA partners hosted a half-day community health assessment "Connecting the Dots" meeting. This meeting informed community partners about the community health assessment and engaged these partners in identifying potential community assets and best practice strategies for improvement to address six potential outcome areas as outlined below based on priorities identified at community assessment meetings. Participants at community meetings were invited and additional participants were identified and invited because of their particular interests, expertise and/or leadership regarding the session topic areas.

Session 1 breakout topics:
- **Healthy Mothers and Babies**
- **Sexually Transmitted Infection**
- **Chronic Disease and Premature Death**

Session 2 breakout topics:
- **Clinical Care – Primary and Preventive Care**
- **Social and Economic Factors**
- **Environmental Factors – Access to Healthy Food**

Participants attended two separate breakout sessions. For each of the six breakout sessions, participants received content area data sheets that featured key data points for that given content area. Staff from GCDPH and the CSCHRE facilitated the breakout sessions with support from student volunteers. Participants reviewed and discussed a summary sheet that highlighted best practice interventions addressing the given topic area. Participants then ranked and expanded upon these potential strategies.

Secondary Data

GCDPH's Health Surveillance and Analysis Unit (HSAU) collects and maintains a variety of secondary health data on the citizens of the county and regularly makes these data available to keep community members, health providers, policy makers and community organizations up to date on health trends. HSAU provided select secondary data, including leading causes of death and indicators related to communicable disease, chronic disease, maternal and infant health and injury mortality to inform the CHA process. Additional data for mortality, birth outcomes, communicable disease and other factors were obtained from the North Carolina State Center for Health Statistics.

The Patient Protection and Affordable Care Act (PPACA) also provides a list of required and optional hospital level measures identified by the US Department of Health and Human Services. Data on these indicators, which are regularly tracked by Cone Health and High Point Regional Health System, were synthesized by the GCDPH. Additional measures, such as diagnosis-related groups (DRGs) that had the greatest number of hospitalizations were also collected.

Data Collection Limitations

Data collection efforts stemming from the CHA/CHNA process were subject to quantitative and qualitative study limitations. Limitations in general were due to the multiple sources of data collection used throughout the assessment period. Quantitative data limitations stem primarily from some of the challenges associated with the collection and use of secondary data. Many of the larger behavioral health surveys are conducted via telephone surveys that utilize random digit dialing. One limitation of a telephone survey is the lack of coverage of persons who live in households without a listed, landline telephone number. Households without this type of connection are more likely to be younger, racial and ethnic minorities with a lower income. Therefore, many of the results of the health behaviors measured are likely to understate the true level of risk in the total population. Additionally, many of these surveys are based on self-reported data. It is expected that respondents tend to under-report health risk behaviors—especially those that are illegal or socially unacceptable. Lastly, the Youth Risk Behavior Survey is a school-based survey administered to youth attending middle and high school. This survey, therefore, is not representative of all persons in this age group and does not account for youth that may have dropped out of school or be home-schooled. Youths not attending school are more likely to engage in health risk behaviors. Additionally, local parental permission procedures are not consistent across school-based survey sites.

There were several limitations with the survey distributed at community meetings. While community meetings were held across diverse geographic locations across the county, not all meetings were well attended and thus, not always representative of residents living in that area. GCDPH implemented an online version of the prioritization survey in effort to address some of the limitations resulting from community meetings with low attendance.

Qualitative limitations also exist. Approximately half of the focus group sample was recommended and recruited by key stakeholders at each hospital site and the Cone Foundation (i.e., presidents and vice presidents). This sample included physicians, hospital staff and representatives of organizations working directly with community members. Though these participants were informed that their responses were strictly confidential, we cannot rule out the possibility that participants may have felt restricted in the responses that they provided. Health care consumer samples consisted of primary care patients and behavioral health clients that were in the networks of key stakeholders. Therefore, while important, their experiences may not apply universally to all primary care patients or behavioral health clients. Generalizations of participants' responses are further limited by the inability to account for the experiences of residents who cannot access care.

Immigrant and refugee populations were recruited through service providers and local churches. Therefore, our study may be limited to immigrants and refugees who attend church and/or have access to health care or social services. Among immigrant and refugee populations, participants were limited to Spanish-speaking immigrants, Nepali-speaking Bhutanese and French-speaking Africans. Large immigrant and refugee populations from East and North Africa, Vietnam and Burmese refugees reside within Guilford County but were not included in this study. Immigrant and refugee responses were expressed through the lens of an trained interpreter.