ORIGINAL ARTICLE

Community Health Needs Assessment in Wake County, North Carolina:
Partnership of Public Health, Hospitals, Academia, and Other Stakeholders

Edie Alfano-Sobsey, Sue Lynn Ledford, Kasey Decosimo, Jennifer A. Horney

BACKGROUND Hospitals and other health care agencies are required to conduct a community health needs assessment (CHNA) every 3 years to obtain information about the health needs and concerns of the population. In 2013, to avoid duplication of efforts and to achieve a more comprehensive CHNA, Wake County Human Services, WakeMed Health and Hospitals, Duke Raleigh Hospital, Rex Healthcare, Wake Health Services, United Way of the Greater Triangle, and the North Carolina Institute for Public Health partnered to conduct a joint assessment for Wake County.

METHODS Information was collected from the community through opinion surveys and focus groups. To understand the social, economic, and health status of Wake County residents, statistics were also collected from state, county, and local sources. Analysis of all data sources allowed 9 areas of community concern to be identified. Five community forums were held simultaneously at locations in east, south, west, north, and central Wake County to inform residents about the main findings of the assessment and to prioritize the 9 areas of concern.

RESULTS The top 3 priority areas identified were poverty and unemployment, health care access and utilization, and mental health and substance use.

LIMITATIONS Results may not be generalizable to counties in North Carolina that are more rural or to counties outside North Carolina.

CONCLUSIONS The success of this unique collaborative process provides further opportunity for the project partners and other organizations to coordinate action plans, pool resources, and jointly address the priorities of this assessment over the next 3 years.

A community health needs assessment (CHNA) is a collaborative, systematic process of collecting and analyzing data to learn about the health needs of a community and to implement plans for addressing those needs. Local health departments in North Carolina are required by state law to conduct CHNAs in order to receive accreditation [1]; federal laws also require federally qualified health centers and nonprofit hospitals to conduct CHNAs [2, 3]. Wake County Human Services, WakeMed Health and Hospitals, Duke Raleigh Hospital, Rex Healthcare, Wake Health Services, the Capital Care Collaborative, and United Way of the Greater Triangle have historically partnered on many projects and have an established relationship of collaboratively addressing community health needs. They previously collaborated on CHNAs in 2008 and 2010, on emergency preparedness activities to mitigate against threatened and actual natural disasters, and on the development of crisis and assessment services to address mental health issues.

The 2013 CHNA for Wake County provided an opportunity to align requirements, avoid duplication of efforts, and achieve a more comprehensive CHNA with greater stakeholder investment. Beginning in the spring of 2012, the aforementioned organizations discussed CHNA requirements and the feasibility of conducting a joint CHNA. Despite the challenges of varied and sometimes vague legal guidelines and limited availability of resources, the agencies decided in September 2012 to conduct the first ever multiagency, jointly funded, cooperative CHNA in Wake County.

Methods

Development of the CHNA Process

Under the leadership of the staff of Wake County Human Services, a community health assessment (CHA) team was formed with members from WakeMed Health and Hospitals, Duke Raleigh Hospital, Rex Healthcare, Wake Health Services, United Way of the Greater Triangle, Wake County Medical Society Community Health Foundation, and Urban Ministries; the goal of this team was to plan and implement a joint CHNA in 2013. The CHA team agreed on a charter that described the project's purpose, scope, deliverables, available resources, and the roles and responsibilities of the team members. The project was then organized according to the 8-phase process for community health assessment used by North Carolina's public health agencies [4]. All phases were accomplished jointly, except that each partner orga-

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Address correspondence to Dr. Jennifer A. Horney, Epidemiology and Biostatistics, Texas A&M School of Rural Public Health, 1266 TAMU, College Station, TX 77845 (horney@srph.tamhsc.edu).

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nization agreed to separately develop its own community health action and community benefits plan, subsequent to the completion of reports filed with respective regulatory authorities.

Because of the short timeline for project completion (see Table 1), the CHA team sought to hire a consultant to collect data, conduct analyses, and prepare the final CHNA report. Wake County Human Services, WakeMed Health and Hospitals, Duke Raleigh Hospital, Rex Healthcare, Wake Health Services, and United Way of the Greater Triangle agreed to jointly fund the project, with WakeMed Health and Hospitals serving as the fiscal agent. The consultant selected by the CHA team was the North Carolina Institute for Public Health (NCIPH) at the University of North Carolina at Chapel Hill. The CHA team, Wake County Human Services, and the NCIPH met formally once a month, communicated regularly via telephone and e-mail, and held additional meetings as needed until the completion of the project.

To engage community partners who could assist with planning and provide guidance about the CHNA process, a steering committee was formed and met monthly from January through June of 2013. The CHNA steering committee consisted of more than 60 community members and representatives from various entities throughout Wake County, including nonprofit organizations, media outlets, county and municipal governments, colleges and universities, faith-based organizations, and health care providers. Feedback and recommendations from the steering committee were incorporated throughout the CHNA process.

Collection of Primary Data

A community health opinion survey was developed with input from stakeholders; it included 59 questions on topics such as community issues, services needing improvement, health behaviors, health care access, disaster preparedness, and demographics. The full text of this survey is available as an appendix to the final CHNA report [5]. Interview locations were determined using the Community Assessment for Public Health Emergency Response (CASPER) 2-stage cluster sampling method [6]. This method uses population-based sampling weights from each census block, which allows collected data to be generalizable to the entire population of the county. In Wake County, to balance the need for reasonably accurate results (±10%) and to adequately represent each of 8 health service zones, a 40/7 cluster sample was used to obtain 35 face-to-face interviews (lasting approximately 30 minutes each) in each of the county's 8 health zones, for an anticipated total of 280 interviews. Data were electronically recorded at the time of the interview using Magellan Mobile Mapper Field Data Collectors equipped with global positioning systems; data were downloaded and cleaned daily. Results were analyzed using SAS version 9.2 software with weighted frequencies and 95% confidence intervals. Unlike a simple countywide random sample, households selected using the cluster sampling method have an unequal probability of selection; therefore, all analyses included a mathematical weight for probability of selection to reduce bias.

The steering committee assisted in selecting the focus groups through discussion and identification of populations of particular interest in Wake County. Nine focus groups were conducted in March and April of 2013; these groups consisted of the following populations: youths (teenagers involved in youth advocacy issues); senior citizens; homeless individuals; non–English-speaking Latino adults (2 groups, conducted in Spanish); health service providers working in behavioral health or physical health, or working with youths; persons living with mental health or substance abuse illness and parents of children with intellectual or developmental disabilities; persons living with chronic health conditions; and persons living with physical disabilities that substantially limit at least one major life activity. Members of the CHNA steering committee and staff members of community and social service agencies located throughout Wake County used convenience sampling to recruit participants in person and via e-mail from among their existing clients and con-

TABLE 1.
Phases and Products of the 2013 Community Health Needs Assessment (CHNA) for Wake County, North Carolina

Phase	Deliverable	Time frame
1. Meet with community health assessment (CHA) team	Project team met with CHA team and incorporated feedback into CHNA plan.	January 2013
2. Collect primary data	Community health opinion surveys and focus groups were conducted and progress was reported to CHA team.	March and April 2013
3. Collect secondary data	Secondary data were compiled and progress was reported to CHA team.	January–March 2013
4. Analyze and interpret primary and secondary data	Preliminary data analysis was completed and progress was reported to CHA team.	April 2013
5. Determine health priorities	Community forums were conducted, priorities were determined, and progress was reported to CHA team.	May 2013
6. Create a CHNA document	The CHNA document was completed.	June 2013
7. Present results of CHNA to funding partners	Results were presented in person to funding partners.	June 2013

tacts. The focus group sessions lasted 1 hour and included between 5 and 12 participants per group. Focus group participants were informed about the general purpose of the CHNA, the details of participation, the measures to be taken to ensure confidentiality, and their rights as participants. Participants were asked to provide verbal consent to participate and permission to have the session audio recorded. For the youth focus group, parents also provided written consent. Focus group participants were offered a small incentive (the equivalent of $8–$10) as compensation for their time.

A discussion guide was developed to explore important aspects of health, including community strengths, barriers to health, and access to health care and health information. Follow-up questions and prompts were tailored as appropriate for the attendees of each focus group. A discussion moderator and a note taker participated in all focus group sessions. After each session, the audio recording was transcribed, and 2 independent coders analyzed it for key themes by using inductive, or open, coding; that is, themes were not predetermined but instead emerged from data through examination and comparison. The coders met in person following the completion of the initial coding to agree on the final themes. The full text of all focus group questions and summaries is available in the CHNA final report [5].

Collection of Secondary Data

The health of a community depends on many different factors, so data from a variety of sources needed to be collected to get an overall picture of Wake County's health. The CHNA process thus accessed state, county, and local sources and collected statistics that could shed light on the social, economic, and health status of Wake County residents. Sources of such data included the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System, the Robert Wood Johnson Foundation's County Health Rankings and Roadmaps, Healthy North Carolina 2020, the North Carolina Department of Health and Human Services, the North Carolina State Center for Health Statistics, the US Census Bureau, Wake County government, and local service providers. Health and other data were also collected for Mecklenburg County, so that it could serve as a peer comparison. Mecklenburg County was chosen because its population is similar in size to that of Wake County.

Determination of Health Priorities

Nine areas of community concern were identified by examining the results of the community health opinion survey, focus group themes, and secondary data. Five community forums were then held throughout Wake County—at a senior center, a hospital, a church, and 2 regional health department centers; these locations were in east, south, west, north, and central Wake County. At the community forums, residents were invited to hear about the assessment purpose and process. The assessment findings were then discussed in small groups, and each participant was asked to rank his or her top 3 areas of concern based on the following criteria: impact, urgency, community concern, and how likely he or she believed it was that progress could be achieved in the next 3 years. The prioritization method used was a modified version of the Hanlon method for prioritizing health problems [7], and it allowed generation of an overall priority score for each topic area.

Following the completion of the community forums, primary and secondary data for Wake County were compared with data for a peer jurisdiction in North Carolina (Mecklenburg County) and with data for the state as a whole. In addition, the Wake County data were compared with the focus areas and objectives of Healthy North Carolina 2020, as well as with national benchmarks from the County Health Rankings and Roadmaps project. Staff from Wake County Human Services, staff from the NCIPH, and members of the CHA team drafted and reviewed the final report, synthesizing all of the data collected. In addition to the final report, which was presented to the steering committee and is posted on the Wake County Human Services Web site [5], a presentation template was developed to assist members of the steering committee and the CHA team in presenting the CHNA findings to various stakeholders.

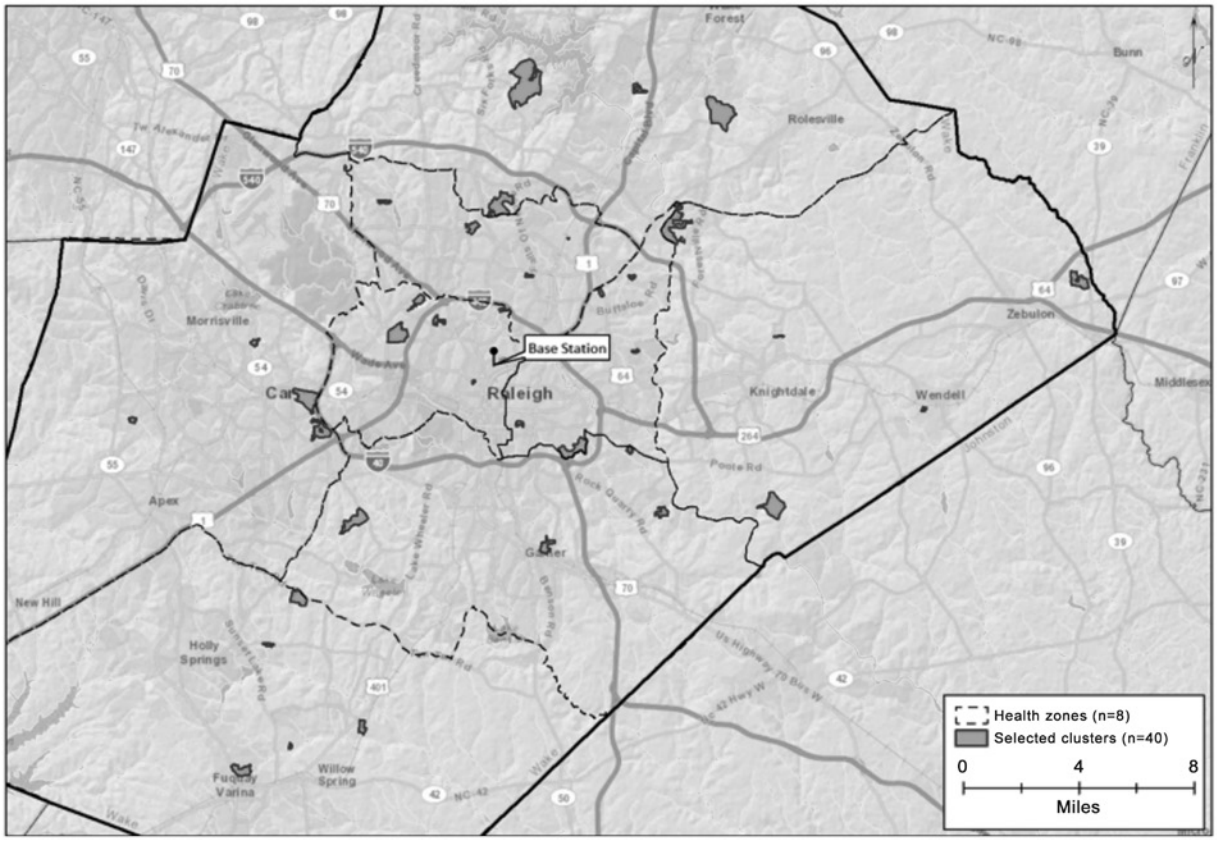
Results

Primary Data

Over an 11-day period, 37 teams conducted a total of 281 interviews (100% completion rate) at selected sites in Wake County (shown in Figure 1). In the current survey, 72% (n = 202) of respondents agreed or strongly agreed with the statement "I can find enough economic opportunity in Wake County," compared with 54% of respondents in interviews conducted in 2010. However, when 2013 interviewees were asked to pick the top 3 issues that most affect the quality of life in Wake County, unemployment/employment opportunities was the issue selected by the greatest number of respondents. This concern was cited by 92 respondents; after weighting, it constituted 12% of the total number of selections made by all respondents. Other concerns included school reassignment, which was selected as a top issue by 84 respondents and constituted 10% of the selections made, and traffic congestion, which was selected by 67 respondents and constituted 8% of the selections made.

When interviewees were asked, "Which 3 of the following services need the most improvement in your neighborhood or community," the services selected most often were positive teen activities (9%; n = 74), availability of employment (8%; n = 62), higher-paying employment (8%; n = 59), and mental health services (7%; n = 57). When interviewees were asked, "Which 3 health behaviors do people in your own community need more information about," the top behaviors selected were eating well/nutrition (9%; n = 68), child care/parenting (7%; n = 59), and stress management (6%; n = 46).

FIGURE 1.
Map of Sites for the Community Health Opinion Survey Conducted as Part of the 2013 Wake County Community Health Needs Assessment



Source: Reprinted with permission from the final report of the 2013 Wake County Community Health Needs Assessment [5].

After being told to consider the cost, quality, number of options for, and availability of health care in Wake County, 81% (n = 229) of respondents agreed or strongly agreed with the statement "I can access good health care in Wake County." When interviewees were asked how long it had been since they visited the doctor for a routine checkup, 70% (n = 196) reported having done so within the past year. When they were asked whether they had had a problem getting health care within the past year, 13% (n = 37) answered yes; the barriers they cited most frequently were lack of insurance, out-of-pocket costs, and inability to get an appointment.

Seventy-six people participated in the 9 focus groups; these groups identified cross-cutting themes in the following 4 domains: personal health, elements of a healthy community, barriers to accessing health care, and needed improvements in health care access (see Table 2). Mental and spiritual well-being was identified as a key element of personal health. Access to healthy, affordable food in school and community settings was identified across all groups as a key element of a healthy community. Many residents voiced concern about access to healthy foods, particularly in communities with few grocery stores and limited transportation options. One focus group participant described this problem as follows:

> That's why in the southeast Raleigh area, the low population areas and low economic rates, they're suffering from chronic illnesses. Why? Because it's—they're obese because of the food options that we have. Just recently, they shut down 2 of the Krogers that are in the southeast Raleigh area. A lot of the people that lived over there, that was their only source to get some healthy type of food. The closest market is—it's not even close, actually. It's at least 20, 30 minutes away.

As far as health care is concerned, participants considered the increasing number of local facilities and providers to be a major community asset and a factor that has drawn new residents to the area. However, a key theme that emerged from the focus groups was that many health care options are available only to those who can afford them, get to them, and navigate the health care system. In the view of participants, there is a socioeconomic divide with regard to knowledge of how, when, and in what ways individuals can access health care services, particularly mental health and disability services. Almost all of the focus groups discussed the difficulty of finding primary care providers

and/or providers who accept Medicare and Medicaid. Some participants were also concerned that residents with little or no income have difficulty in accessing services and thus substitute emergency department care for primary care. One homeless participant described this problem as follows:

> I'm looking at it from the perspective of the people that are legislating right now, who do not want to expand the health care to the uninsured, which guarantees [that] much more people in North Carolina, if they are homeless . . . will not have access to proper health care. And unless it is remedied, people are going to be basically living on the edge like they're doing. They might not be having any kind of preventive care. They'll only go to the hospitals when they're about to die or something is really wrong. So then things could be done to actually prevent people from getting sick in the first place.

To improve overall health care access, participants suggested increasing the number of clinics that operate outside of normal business hours (9 AM to 5 PM), increasing options for use of public transportation to get to area hospitals, and ensuring that culturally and linguistically appropriate services are provided (for example, by training professionals how to work with the Spanish-speaking community and with persons living with disabilities).

Secondary Data

Secondary data were collected, organized, and presented along with primary data in the final report [5]; secondary data related to social and economic determinants of health, health status, mental health and substance use, modifiable health risks, access to health services, and health of the environment. Within each chapter of the final CHNA report, the most recent statistics on these topics were presented, along with 5-year trend data and with data specific to various subpopulations (stratified by race or ethnicity, age, sex, and/or geographic area, when such data were available).

Determination of Health Priorities

The 9 areas identified from the data as health priorities were mental health and substance use; disability and caregiving; education and lifelong learning; health care access and utilization; housing and homelessness; nutrition, physical activity, and obesity prevention; population growth; poverty and unemployment; and risky youth behavior. Ninety-five residents attended 1 of the 5 community forums. Among these attendees, 75% were female, 49% were white, 58% were between the ages of 45 and 64 years, and 80% reported having a bachelor's degree or higher level of education.

Attendees voted to prioritize the areas to be addressed by Wake County over the next 3 years. The top 3 areas selected were poverty and unemployment, health care access and utilization, and mental health and substance use (see Table 3). Notes collected from small group discussions at each forum site were combined to identify recommendations for action and community resources that could be used in the community health improvement planning process. Complete results of the 2013 CHNA for Wake County are available online [5].

TABLE 2.
Key Domains and Cross-Cutting Themes Identified by 9 Focus Groups as Part of the 2013 Wake County Community Health Needs Assessment

Domain	Focus group themes
Personal health	• Mental and spiritual well-being is a key element of personal health.
Elements of healthy community	• Access to healthy, affordable food in school and community settings. • Access to affordable and available transportation options. • Availability of job opportunities, in particular for felons and teens. • Access to affordable health services. • Availability of green spaces and recreation areas. • Safe, low-crime communities.
Barriers to health care access	• The increasing number of local facilities and providers is a major community asset. • Health care options are available only to those who can afford them, get to them, and navigate the system. • It is difficult to find primary care providers and/or providers who accept Medicare and Medicaid patients. • There is a socioeconomic divide with regard to knowledge of how, when, and in what ways individuals can access services, particularly mental health and disability services. • Insurance and cost are major barriers to accessing mental health services.
Needed improvements in health care access	• Flexible clinic hours outside of normal business hours. • More options for using public transportation to get to health appointments and services. • More culturally and linguistically appropriate health services, particularly for members of the Spanish-speaking community and persons living with disabilities.

TABLE 3.
Major Findings of the 2013 Wake County Community Health Needs Assessment

Community priorities[a]	Highlights of primary data	Highlights of secondary data
Poverty and unemployment	Community health opinion survey: • Unemployment was the No. 1 community concern in Wake County, and poverty was No. 4. Focus group theme: • Job opportunities for felons and teens are limited.	• In 2010 the poverty rate in Wake County (9.7%) was 37% lower than the rate for North Carolina as a whole [8]. • In 2010 the percentage of African American residents living in poverty (17.2%) was 2.6 times greater than the percentage for white residents [8].
Health care access and utilization	Community health opinion survey: • 70% of residents reported that they had gotten a routine health checkup in the past year. • 6% of residents said that the emergency department was the place they most often go to when sick. Focus group theme: • Health care options are available only to those who can afford them, get to them, and navigate the system.	• In 2011 there were 23.9 actively practicing physicians for every 10,000 Wake County residents, a ratio higher than that for state as a whole [9]. • In 2010, 50 out of every 1,000 hospital stays in Wake County were preventable [10]. • In 2010–2011, approximately 16% of the nonelderly population of Wake County lacked health insurance [11].
Mental health and substance abuse	Community health opinion survey: • 17% of Wake County adults reported having been diagnosed with depression at some point in their lives. • Mental health services were the Wake County service identified fourth most often as needing improvement. • Drug and alcohol abuse was the No. 5 community concern. Focus group themes: • There is a socioeconomic divide with regard to knowledge of how, when, and in what ways individuals can access mental health services. • Insurance and cost are major barriers to accessing mental health services.	• From 2010–2012, emergency departments in Wake County experienced an increase in the number of patients seen for mental, behavioral, and neurodevelopmental disorders. • The number of Wake County residents being served in state drug and alcohol treatment centers increased from 30 in 2005 to 140 in 2010 [12].

Source: Data on the number of emergency department visits in Wake County by patients with mental, behavioral, and neurodevelopmental disorders is unpublished data from WakeMed Health and Hospitals.
[a]The community priorities listed are those selected as the top priorities for the next 3 years.

Discussion

Conducting a joint CHNA in Wake County avoided duplication of planning efforts and obviated the creation of multiple community health assessments for the same Wake County population. The collaboration allowed the cost of the CHNA to be spread out across multiple budgets, so that it did not place a large fiscal burden on any single organization. Because Wake County Human Services has conducted community health assessments for more than 3 decades, their organization was able to provide the structure and expertise needed to coordinate the collaborative effort. The collaboration was also effective in assessing and combining resources and capacity, which allowed the assessment process to be accelerated. Similar collaborations between hospitals, health departments, federally qualified health centers, and other stakeholders may be even more essential in rural counties, where human and fiscal resources for completion of a CHNA are more limited. Although the Wake County CHNA was jointly funded by the collaborators, many free resources for conducting a CHNA (eg, toolkits, workbooks, and guides) are available online from the National Network of Public Health Institutes [13].

Some limitations to this CHNA process were identified through an after-action review (unpublished report) and through feedback from the CHA team, the steering committee, and community partners. The time frame for developing and conducting the CHNA (6 months) was aggressive and too short. Thus phases of the assessment overlapped, which strained resources and limited the time available for developing detailed project plans for each phase of the assessment. Survey implementation had been planned for a 4-day period in February, but during this period we experienced both inclement weather and challenges in recruiting enough volunteers for data collection. As a result, the data collection period was extended to 11 days to allow sufficient time to conduct all of the interviews. Based on this experience, the after-action review recommended that planning for future assessments should begin at least 18 months before reporting deadlines.

Another limitation is that the method for survey collection may have introduced some data collection bias. The

community health opinion survey was more likely to capture data from people who were at home during the day (eg, women, retired persons, unemployed individuals, those who work from home, or persons living with a disability). Surveys were also collected during early evening hours and on weekends in order to minimize these effects. Response bias could have been a factor if survey respondents underreported or overreported behaviors (eg, smoking) or illnesses based on social stigma. Responses may also have been affected by recall bias; for example, some respondents may not have recalled accurately how long it had been since their last visit to a doctor or dentist.

The CASPER 2-stage sampling method is an effective way of collecting primary data in a quick and low-cost manner; however, results are only generalizable at the county level and cannot identify health disparities related to race or ethnicity, income, or educational attainment. Because of the interest in specific populations (eg, persons with disabilities and homeless individuals), future requests for proposals should ask all vendors to describe in detail how they will collect data from specific populations.

This CHNA process faced some challenges in recruiting focus group participants and volunteers to serve as interviewers for the community health opinion survey. Overrecruiting interviewers and offering them incentives such as mileage reimbursement could have helped ensure a sufficient number of volunteers. Because the project timeline included less than 1 month for focus group recruitment, members of the steering committee reached out to staff members and clients in existing programs and initiatives, which could have potentially affected participants' perspectives regarding the issues discussed. With more time, a broader recruitment strategy could have expanded the diversity of perspectives regarding the issues and concerns brought up by participants. Of note, even though the nonrandom recruiting methods and the small sample size of focus groups meant that the results were not statistically representative, qualitative focus group data are valuable in providing a richer understanding of community perceptions; such data adds to the understanding provided by the quantitative results.

Although community engagement was solicited at each stage of the CHNA process—from the initial steering committee meeting through the community forums—future assessments should provide more opportunities for community members to be involved in data collection and prioritization efforts, especially since Wake County has a population of more than 900,000 residents. To increase convenience and accessibility for residents, the community forums were strategically located across Wake County, and 1 forum included simultaneous Spanish translation. Evaluative feedback collected at each forum site indicated a need for more time to market the forums to increase community members' participation. Creating a community-led forum-planning committee and lengthening the time frame for promoting the forums could increase both attendance and shared ownership in the assessment process. Community input might also be broadened through the use of simultaneous webcasting of community forums, social networking tools, online surveys, or mobile applications.

Finally, time limitations precluded the development of a comprehensive marketing plan for communication, coordination, and dissemination of the final document to stakeholders and the public. The after-action review recommended that future assessments should discuss printing needs and costs up front, improve the electronic usability and presentation of the report (ie, it should not be presented solely as a single large PDF file), plan presentations to hospital boards and community groups, and include a marketing plan that aligns dissemination of the final CHNA report with other community health campaigns.

As federal guidelines for nonprofit hospital CHNAs evolve, there will continue to be a potential tension between the need of public health agencies to report the root causes of health disparities and hospitals' requirements to provide explicit assessment of community health needs and related recommendations. As one approach to addressing this issue, WakeMed Health and Hospitals (along with the other hospitals that participated in the CHNA)—with input from its Community Benefits Committee, its Board of Trustees, and the director of the Public Health Division of Wake County Human Services—developed a community health improvement implementation plan that prioritizes specific health-related action items that can be addressed and are within the scope of the hospital's mission. Other groups who participated in the CHNA process have also used the CHNA data and community-identified priorities to inform policy development and programming. For example, the Wake County Board of Commissioners has used the CHNA report to establish priorities for Wake County, which affects how resources are allocated. Many local organizations such as United Way of the Greater Triangle and regional or community advisory committees have used the CHNA findings for strategic planning and for making decisions about service delivery. Wake County has also used CHNA data on obesity to strengthen its wellness program for employees, leading to changes in employee health insurance premiums and rewards for employees who engage in health promotion activities.

Conclusion

A CHNA process that meets the needs of the community and all stakeholders must be collaborative and inclusive of the opinions and priorities of many groups and individuals. The project presented here demonstrates the strong commitment of each agency and the effectiveness of the partnership among Wake County Human Services, WakeMed Health and Hospitals, Duke Raleigh Hospital, Rex Healthcare, Wake Health Services, United Way of the Greater Triangle, and the NCIPH. The largest overall gain for population health in Wake County was the collaboration

among hospitals and other partners. This collaboration provided an opportunity to create common indicators, targets, and measures for monitoring improvement in the identified priorities over the next 3 years, and it laid the groundwork for organizations to join forces to address community health concerns in the future. NCMJ

Edie Alfano-Sobsey, PhD, MSPH, MT (ASCP) epidemiologist and laboratory director, Wake County Human Services, Raleigh, North Carolina.
Sue Lynn Ledford, RN, BSN, MPA director, Division of Public Health, Wake County Human Services, Raleigh, North Carolina.
Kasey Decosimo, MPH research associate, North Carolina Institute for Public Health, UNC Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina.
Jennifer A. Horney, PhD, MPH associate professor, Epidemiology and Biostatistics, Texas A&M School of Rural Public Health, College Station, Texas.

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