

Using disaster assessment methodology as an approach to collect data for community health assessments in Wake County, North Carolina

Matthew C. Simon, MA¹, Jennifer Horney, PhD, MA, MPH¹, Kasey Decosimo, MPH¹, Edie Alfano-Sobsey, PhD, MSPH, MT (ASCP)², Petra Hager, BCS²

(1) North Carolina Institute for Public Health, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Campus Box 8165, 400 Roberson, Chapel Hill, NC 27599, 919-843-6650, jen.horney@unc.edu.

(2) Wake County Human Services, 10 Sunnybrook Road, Raleigh, NC 27610.

Background

The North Carolina Institute for Public Health (NCIPH) assists local public health agencies with data collection and spatial analysis projects, including Geographical Information Systems (GIS) technical assistance for surveys, pre-/post- disaster assessments, and community health assessments (CHAs). A key component of CHAs is the collection of primary data through community health opinion surveys (CHOS) (Figure 1). North Carolina is a leader in using Community Assessment for Public Health Emergency Response (CASPER) household sampling methods to collect CHOS data for community health assessments. Originally developed by the Centers for Disease Control and Prevention and the World Health Organization, CASPER methods can be used to determine the health status of a community in a quick and low-cost manner.

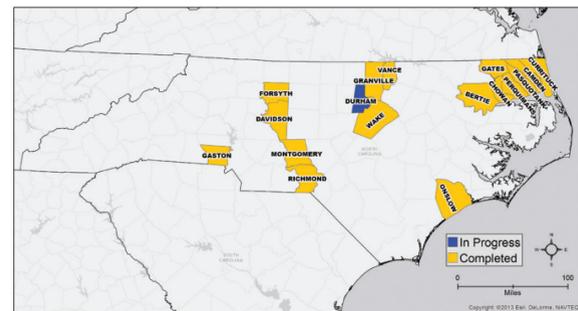


Figure 1. Counties where CASPER methods were used for CHOS.

In 2013, NCIPH partnered with Wake County Human Services, WakeMed Health & Hospitals, Duke Raleigh Hospital, Rex Healthcare, Wake Health Services and United Way of the Greater Triangle to conduct a joint Community Health Needs Assessment in Wake County, NC and carried out a CHOS using CASPER methods.

Methods

A CHOS questionnaire was developed with stakeholder input and included 59 questions on topics such as community issues, services needing improvement, health behaviors, healthcare access, disaster preparedness, and demographics.

Interview locations were determined using the CASPER two-stage cluster sampling method, which allows for generalizability of collected data to the entire county population. A typical two-stage cluster sample is a 30/7, where 30 census blocks and 7 random survey locations per block are selected for a total of 210 interviews. 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 for a total of 280 interviews (Figure 2).

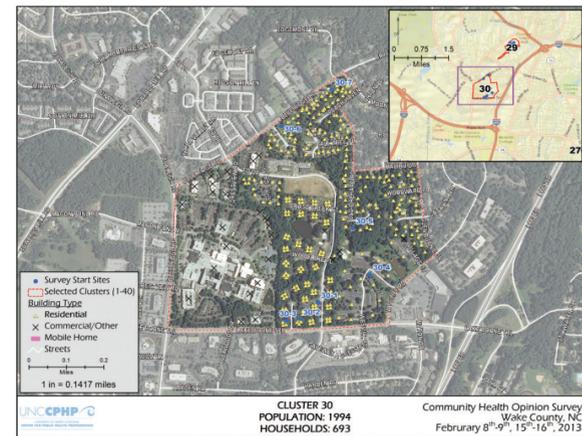


Figure 2. Example field map.

In February 2013, NCIPH trained 28 volunteers to use handheld Global Positioning System units to navigate to survey areas and electronically record survey responses (Figure 3).



Figure 3. Volunteer training.

NCIPH staff used a GIS-based survey site selection toolkit developed by CDC that operates within ESRI's ArcGIS mapping software (Figure 4).

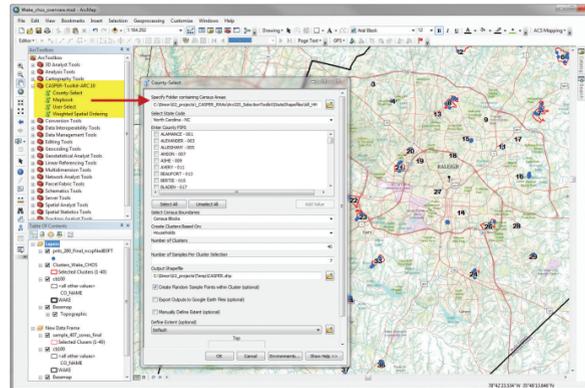


Figure 4. CDC's survey site selection toolbox in ArcMap.

A total of 281 interviews were completed by 37 teams (100% completion rate). Results were analyzed in SAS 9.2 with weighted frequencies and 95% confidence intervals.

The results of the CHOS were combined with data from focus group results and analysis of secondary health data to help develop community priorities and action plans. A copy of the Wake report can be found here: <http://www.wakegov.com/humanservices/data>

Lessons Learned: CASPER Method

To use CASPER methodology for community-based data collection, it is important to engage community stakeholders in the development of the questionnaire, as well as the actual collection of data.

- In Wake County, the timeframe to develop and conduct the survey was short (2.5 months). To address time constraints, NCIPH used Wake's 2010 CHA survey and existing validated questions (e.g., BRFSS) for additional questions or variables.
- Significant resources were required to recruit 10 volunteer teams of 2 for each survey day. Volunteers were recruited from UNC's Team Epi-Aid and Wake CHA partners.
- There were challenges in recruiting enough volunteers to have 10 operating teams over the scheduled 3-day data collection period in February.
- In addition, it snowed on one collection day, limiting the number of interviews collected. As a result, the collection time was extended to 11 days to collect all of the interviews in the sample.
- Future surveys could be improved by using incentives such as gift cards to increase volunteer participation, and scheduling the survey between March-October to avoid inclement weather.

Next Steps

To further advance the CASPER method, NCIPH is developing an innovative mobile application to collect CHOS data using Android™ tablet computers. This app will take advantage of a series of free and open-source Epi Info™ tools for desktop and mobile devices that were developed by the CDC and refined by NCIPH.

NCIPH is creating a mapping add-in for the Epi Info™ Companion for Android mobile app that will allow users to upload pre-determined sample locations and then direct teams to site locations (Figure 5). Once teams arrive at their locations, the mobile app will allow survey responses to be recorded and uploaded to a cloud-based server allowing real-time analysis of results and monitoring of team progress. The app and project management tools are being developed and piloted in the Fall of 2013. The goal is to freely distribute the app and tools upon completion. NCIPH will also offer additional fee-based services for partners who would like additional technical assistance or training for using the app and/or tools.

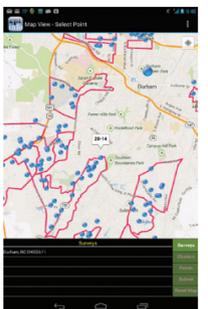
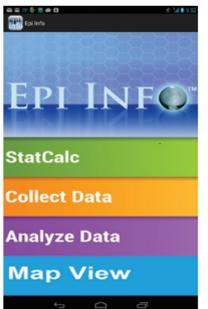


Figure 5. CASPER and the Epi Info app.

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North Carolina Institute for Public Health, Gillings School of Global Public Health, University of North Carolina at Chapel Hill | Campus Box 8165
Chapel Hill, NC 27599-8165 | nciph.sph.unc.edu | nciph@unc.edu

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