

## Researchers use GIS Mapping to Ensure Strategic Coalition Action and Outreach

By Robert Busch

Continuing advances in software design allow coalitions to operate more effectively by refining their understanding of the often complex relationships that exist between diverse organizations. Coalitions currently engage in network analysis and Geographic Information Systems (GIS) software across a variety of fields. Network analyses offer awareness about the number and frequency of communication channels between multiple entities. Allowing for the effective allocation of attention and resources, GIS programs permit users to view their organizations from a topographical perspective. Combining these resources creates the ability to see the relationships between organizations in terms of communication effectiveness and geographic association.

In a new article published in the *American Journal of Community Psychology*, researchers examined the statewide work of the Hawai'i Children's Trust Fund (HCTF) Coalition in preventing child abuse and neglect in the state. Researchers Gina Cardazone, Angela Sy, and Ivan Chik of the University of Hawaii at Manoa and Laura Corlew of the East-West Center used a combination of network analysis and GIS mapping to measure the effectiveness of this coalition and explained how their findings can be applied to other coalitions.

### What did they do?

Researchers initiated the project by conducting a network analysis of the HCTF Coalition, assessing the frequency of communication between member organizations in an online survey. They analyzed the network data using UCINET 6 software and created visual representations of the information through a program called Netdraw. Statistical analyses measured centrality, network structure, and subgroup cliques.

The GIS mapping process began with a randomized phone survey of adults living throughout Hawaii in a random digit dialing process. Researchers measured respondents based on their level of awareness of factors contributing to child abuse and neglect, as well as protective factors that can aid in its prevention. Using ArcGIS 10.1 mapping software, their scores were then added to a map layer derived from census data that demarcated regions according to zip code tabulation areas.

The researchers entered the addresses of the coalition member organizations from the network analysis to create maps that would allow them to see HCTF's network features in the context of public awareness responses. Using geocoding to pinpoint the organizations, they created symbols that varied in size according to each organization's location and communication links.

### What did they find?

The results of the network characteristics indicated that the average organization in the HCTF Coalition was connected to approximately 6 other organizations and most ties were not reciprocated. All nodes were connected to at least one other organization but only 26% of all possible connections were made.

Results of the GIS section of the project were displayed using complex mapping displays. ArcGIS software shaded each zip code according to child abuse awareness scores of respondents in those areas. Added the locations of HCTF Coalition member organizations to the shaded maps allowed the researchers to see which areas of the state were more aware of child abuse issues in reference to the number of coalitions in those particular areas.

### What Coalitions Can Do

- ✓ **Map out the locations of each organization within the coalition.** By pinpointing the precise location of each member organization, coalition leaders can see which areas within the target boundaries can be given more attention.
- ✓ **Determine communication frequencies among member organizations.** How much does a particular coalition organization interact with the rest of the group? Are communication links strong in one area while unintentionally overlooking others? Determining the strength of communication channels in conjunction with organizational locations can make it easier to see where to devote more time and resources. The authors write that "the coalition may seek to involve more organizations from these [areas], or may alternately focus attention on enhancing the centrality of active coalition members in these areas so that they may provide a bridge toward other organizations."
- ✓ **Match coalition strategies to local needs and conditions.** In areas with high levels of awareness that are still struggling, the focus should be less on getting the word out and more on solving the problem. In areas with no coalitions, target the outreach to potential new members in those places. Actively recruit organizations in underrepresented areas.
- ✓ **Integrate GIS mapping into your work.** As the article states, "Geographic data can be used by organizations looking to open a new outreach post or facility, in order to maximize the chances that such a move will be useful to those who need it most."

#### To review the original source, please refer to:

Cardazone, G., Sy, A.U., Chik I., & Corlew L.K. (2014). Mapping one strong 'Ohana: Using network analysis and GIS to enhance the effectiveness of a statewide coalition to prevent child abuse and neglect. *American Journal of Community Psychology*. 53: 346-356.

CADCA's National Coalition Institute, 625 Slaters Lane, #300, Alexandria, VA 22314, 1-800-54-CADCA , [www.cadca.org](http://www.cadca.org)

CADCA's National Coalition Institute mission is to increase the effectiveness of community anti-drug coalitions throughout the nation.

*Research into Action* may be copied without permission. Please cite **CADCA's National Coalition Institute** as the source.