



# HHS Public Access

Author manuscript

*Proc Annu Hawaii Int Conf Syst Sci.* Author manuscript; available in PMC 2016 November 27.

Published in final edited form as:

*Proc Annu Hawaii Int Conf Syst Sci.* 2015 January ; 2015: 4356–4365. doi:10.1109/HICSS.2015.522.

## **A Social Network Analysis of a Coalition Initiative to Prevent Underage Drinking in Los Angeles County**

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### **Abstract**

In 2011, the Los Angeles County Department of Public Health began a prevention services initiative to address problems dealing with alcohol and other drugs across the County. A major component of the strategy included the formation of eight coalitions. Defined by geographic borders, each coalition consisted of multiple service provider organizations, and were mandated to implement customized plans that would focus on preventing underage drinking by addressing availability and accessibility of alcohol. In this study, we collect survey data and observe coalition meetings to study the interactions within and between coalitions. We are informed by network tie strength theories to supplement our view of how organizations communicate. We apply social network analysis to learn how the multi-coalition network is functioning, and identify important unrealized connections. Our findings suggest there are many potential connections between coalitions that are not being leveraged.

### **1. Introduction**

Alcohol and other drugs are a serious public health issue in Los Angeles County (LAC). In 2007, the estimated annual economic cost of alcohol use in Los Angeles County was \$10.8 billion, including \$5.4 billion for illness and \$2.4 billion for crime [1]. With the largest population (over 10 million) of any county in the nation [2], and covering approximately 4,000 square miles of flat land, mountains, valleys, and coastal land, addressing the public health needs of the entire county is an extremely complex and sizeable matter. To manage public health services, the County is divided into eight Service Planning Areas (SPA) that differ in size, population density, socio-economic status, and health status (See FIGURE 1). This division helps to better serve the diverse needs of LAC as the SPA populations range from 387,512 to 2,147,332 [3]. The SPA's have also created natural silos for health provider organizations to work together and collaborate on distributing services to their local communities.

This paper applies social network analysis to study the interactions between coalitions implementing alcohol and other drugs prevention services in LAC. We use survey data to help construct network views of how organizations are connected within and between coalitions. Based on ideas from coalition research and social network theories, we compare different types of relationships to study how organizations might use existing networks, and highlight potentially beneficial partnerships in their unrealized connections, helping to build relationships of mutual support and knowledge sharing. Informed by several concepts based on organizational studies, we extend the application of SNA in coalition research to address issues that derive from multiple coalitions, or networks within networks. This study offers a unique opportunity to investigate a multi-coalition prevention services effort from a network-centric view to help better understand the advantages and disadvantages of coalition efforts. Finally, we draw conclusions related to coalition boundaries, implications for the design and management of coalitions in public health, and how to improve future endeavors in coalition efforts.

## 2. Background

### 2.1. Coalitions

In the substance abuse prevention field, an environmental approach to reducing alcohol and other drug (AOD) use is increasingly popular based on a community systems model [4]. This model suggests that AOD use is a result of dynamic interactions between individuals and their environment. Simultaneously, there has been a shift in the delivery of prevention programs to the community level [5] and community coalitions have become a popular mechanism of implementing community-level strategies [6], [7]. Community coalitions have several beneficial aspects which may facilitate the implementation of multi-level strategies including the ability to rally support for strategies, maximize resources, minimize duplication of efforts, and the ability to mobilize individuals and community assets [8]. Coalitions may also be a good fit for implementing environmental level strategies, such as local policy interventions, enforcement strategies, and alcohol retailer-focused strategies due to their collaborative nature and the need to broker relationships with various sectors in these efforts.

Evaluating the effectiveness of prevention coalitions has many challenges considering its complex nature, the multitude of various measures used, and the difficulty of measuring prevented behaviors at the community-level. However, Zakocs and Edwards suggest that measuring coalition functioning is the next best indicator of coalition effectiveness as they posit that “coalitions with high internal functioning have a greater chance of achieving external outcomes” [6]. According to a review of the empirical literature on evaluating coalition effectiveness, the most common indicators used are 1) quality of strategic plans; 2) member participation; 3) total number of actions implemented; 4) member/staff satisfaction; and 5) member/agency collaboration. Additionally, six coalition-building factors are positively associated with indicators of coalition effectiveness: 1) formalization/rules; 2) leadership style; 3) active member participation; 4) diverse membership; 5) member agency collaboration; and 6) group cohesion [6]. Member/agency collaboration is a key element since inter-organizational collaboration influences service delivery [9], [10]. Consequently,

analysis of coalition functioning should include methods that can study the interactions between agencies, and explain how collaborations occur.

## 2.2 Organizations

Organizational research also helps to inform and develop our study. Provan and Milward emphasized the importance of studying inter-organizational network structures and its relationship with measuring program effectiveness [11]. They address several concepts as criteria for successful organizational networks. Of particular interest to us are examples such as relationship strength and integration of services, as these factors were also found to be indicators coalition effectiveness [6]. Kenis and Knoke reaffirm that importance when deriving propositions and corollaries that relate network measures with inter-organizational tie formation rates [12]. More similar to our study is work that examined health service effectiveness based on integration amongst small cliques of networked agencies [13]. In focusing on “networks within networks,” the research addressed the inter-organizational ties between cliques, noting “network effectiveness may owe far less to integration across a network as a whole than to ties among a few organizations that provide the bulk of relationships and services to clients” (p. 454). Other studies also focus on the importance of types of relationships, both strong [14] and weak [15].

These studies address some of the issues concerning the importance and effectiveness of communication in organizational networks – independent of formal coalitions – and provide ideas that we can apply: identification of high value organizations, the need for integration of services to lower operating costs and gain competitive advantages, and, perhaps most importantly, focusing on ties between sub-networks of agencies.

## 2.3. Social network analysis

Social network analysis provides many tools to help us understand how people or organizations are connected in certain ways, find hidden structures that might exist, and identify potentially important actors. It is a combination of theories, methods, and measurements that can be used to study social structure created by relationships between people [16]. Its focus is not only on the individual or any specific person attributes, but also on relationships and network characteristics. It is used in many different fields such as international communication [17], ecological systems [18], genetics [19], bioinformatics [20], to name a few. Visualizations based on the network graphs, or sociograms, can help researchers identify relevant structural properties or patterns that link sets of actors [21], and reveal attributes of the network that are not immediately visible in raw data.

The study of relationships, or *ties*, between network entities greatly enhances our insight into how they are connected, the benefits and drawbacks of different types of ties, and how they can support or hinder the spread of information and innovations [22]. Generally, we can consider ties to be either weak or strong, although this does not mean they are polar opposites in the same spectrum. Granovetter’s study of weak ties [23] found that they are more likely to serve as bridges between different network clusters. These ties give individuals access to networks they are not otherwise well connected to, offer information and resources they could not normally obtain, and also help promote diffusion of

information and innovation [22]. In the other direction, Krackhardt [24] addressed the influence and power of strong ties. His findings showed that these ties are based on trust and affection, and can often help reduce resistance to change and provide support and comfort.

Social network analysis provides centrality measures that offer a benchmark of the importance of nodes in a network graph and what types of roles they might serve [16]. Whether through strength of ties with other members [23], [24], their position as a broker [15], or organizational membership overlap [25], these central roles can affect how each member might communicate with others, their potential for information sharing, and the level of influence they might exert.

Network structural properties also assist in helping understand the functionality of a network. We are able to find instances of structural holes [26], where natural clusters might emerge [27], or triadic groups [28], each of which offers insight on how information can spread and how influence occurs in the network. Network-level measures can be used to describe the network as a whole such as whether it is centralized (versus decentralized) or has a core/periphery structure, i.e., some organizations densely connected to each other (the core) and other organizations loosely connected to core members but not others (the periphery).

In sum, SNA tie theories, measurements of centrality, and descriptions of structure are the ideal context for us to frame our study. In combination with concepts of paths of communication and identification of value in organizational research, we now have a foundation with which to examine activities within and across coalitions.

#### 2.4. Addressing Alcohol and Other Drugs

In 2011 the LAC Department of Public Health, division of Substance Abuse Prevention and Control (SAPC) awarded 3-year prevention services contracts to address AOD issues in the County. The initiative emphasized underage drinking prevention, particularly addressing availability and accessibility of alcohol to minors as well as targeting the social norms and community conditions that contribute to AOD use. Contracted organizations were required to use the Strategic Prevention Framework (SPF) developed by Substance Abuse and Mental Health Services Administration (SAMHSA) in their strategic planning and evaluation efforts [29]. The SPF is a 5-step planning process to (1) assess prevention needs based on epidemiological data; (2) build prevention capacity; (3) develop a strategic plan; (4) implement effective community prevention programs, policies, and practices; (5) evaluate outcomes. Of the awarded contracts, eight conduct environmental-level prevention services (EPS) only and 32 conduct comprehensive prevention services (CPS), which include implementation of both individual-level and environmental-level prevention strategies. Additionally, SAPC designated an underage drinking prevention coalition for each of the eight Service Planning Areas in LAC. These SPA-based coalitions are made up of one EPS contract that coordinates the coalition, several CPS contracts proportionate to the SPAs population to expand the reach of the coalition, and any other volunteers recruited by the core SAPC-funded members. The providers' coalition-based work is in addition to their individual agency work. The awarded contracts include community-based coalition/partnership organizations (n=11), AOD treatment service organizations (n=4), community-

based service organizations (AOD and other human services) (n=22), county department, medical clinic, or hospital (n=3).

This prevention initiative increased emphasis on the adoption of evidence-based programs, environmental-level efforts, and coalition-based work, which is reflective of the direction of the prevention field and aligned with the Surgeon Generals Call to Action to Prevent and Reduce Underage Drinking in 2007 [30]. A demand for new skill sets for prevention providers related to implementation of evidence-based programs, policy and retailer-focused efforts follows the inclusion of these innovative approaches to prevention. It is understandable there would be a transition period for prevention providers traditionally working on individual-focused strategies. During the initial survey of SAPC-funded providers (n=40), 86% of respondents reported being confident they could do a good job implementing prevention strategies focused on *individual behavioral change*, while only 61% reported being very confident they could do a good job with strategies focused on *environmental change*.

SAPC also awarded a contract to AOD prevention researchers at the University of Southern California (USC) to evaluate the implementation of this SAPC Prevention Initiative. The goals of the evaluation are to 1) collect data from each service agency to assess implementation of the SPF; 2) provide direction and advisement; and 3) to disseminate evaluation information.

## 2.5. Summary

In the context of the SAPC study, we consider different types of ties when examining organizations working in coalitions. Within a single coalition, it is likely that each organization is familiar with the others, and consists mainly of strong ties. The organizations serve neighboring communities and could have informal relationships outside of work. It is less likely for that connectedness to extend across to other coalitions, which might be based many miles away and serve in very different cultural and socio-economic communities. However, it is these forms of weak ties, or bridges, that might have greater overall benefits. Working in largely different areas presents unique problems that require customized solutions. What is a common solution for organizations in one SPA would be unknown and innovative for organizations in another SPA. Weak ties could bridge these gaps, or structural holes [26], to help better transfer information between disconnected SPA's.

This study applies social network analysis to study the interactions within and between multiple coalitions in one county during the implementation of AOD programs. Network analysis has been successfully applied in studying various coalition studies. Several researchers (e.g. [31], [32]) have found a negative relationship between network density and coalition performance, and discussed the advantages of weak ties in obtaining novel information. Feinberg and colleagues [33] used network indices to measure coalition readiness. Their study also drew attention to the diversity within a coalition, re-emphasizing the benefits of having organizations with contrasting backgrounds that could contribute in different ways. In each of these cases, the focus has been on a single coalition. There have also been several studies that examined multiple coalitions (e.g. cardiovascular study [7], [34], [35]). However, the SAPC initiative presents an occasion to investigate multiple

coalitions within close proximity to each other, focused on a single goal. Specifically, it enables us to investigate cross-coalition interactions.

### 3. Methods

#### 3.1. Survey data

The first web-based survey conducted with SAPC-funded provider organizations was a 55-item survey developed in Qualtrics, a web-based survey software in early 2013. The survey items focused on the organization's background and prevention capacity, the first two phases of the SAPC Prevention initiative in 2012, the needs assessment and program planning activities, as well as beliefs on AOD prevention, and training activities. The social network analysis item of interest in this survey is, "From the list below, choose up to seven other agencies you have collaborated with in the past year."

This first survey was distributed via email with unique web-links to SAPC-funded provider staff. The participants were provider staff who contributed most during the initial phases of the project, the needs assessment and planning phases. The participants received several follow-up reminders by email, and 40 participants completed the survey representing 39 of the 40 SAPC-funded prevention contracts. This survey was distributed 1.5 years into the provider contracts at which point the providers had completed a community needs assessment and recently developed and received approval of their prevention work plans. At this point the providers had been meeting regularly with their respective SPA-based coalitions; however the coalitions were in the beginning stages of implementing their selected strategies.

The second web-based survey was a 45-item survey also developed in Qualtrics. This survey was conducted with the SPA-based coalitions and their respective SAPC-funded providers in early 2014. Since all coalition members were invited to participate in this survey, more staff from a single organization were likely to participate compared to the previous survey that was aiming for organization-level representation rather than individual-level representation. The survey items focused on a member organization's background, coalition participation, coalition activities and functioning, and satisfaction with the coalition. Three social network analysis items were included in this survey: 1) "How many coalition member-organizations are new partners to your organization?" 2) "From the list below, choose up to 7 agencies you have collaborated with in the last year" and 3) "From the list below, choose the agencies from outside your coalition (i.e., agencies that are not members of your coalition) that you would like to work with during the next year. Select all that apply." We received coalition-member lists with contact information from each coalition. Coalition members received individual emails with web-links to the survey. Follow-up email reminders were sent to coalition members to complete the survey. Eighty-two participants completed the second survey representing 38 of the 40 SAPC-funded contracted providers. At the point of this survey distribution, the coalition members were actively working together in their respective SPA-based coalitions for about 1 year.



Concurrently, the USC Project Manager observed the majority of coalition meetings (n=42, of approximately 68 total) across the eight SPA-based coalitions from June 2013 to June 2014 and documented coalition functioning and progress.

### 3.2. Analysis

We use the Gephi software package, an open source multi-purpose exploration platform for network visualizations. Some of the relevant features we used include its support of different native graph formats, real-time visualization interactions, live filtering, and network metrics reporting. As of this writing, the most current version is 0.8.2. More information on the Gephi software can be found in their release paper [36] or website (<https://gephi.org>).

To study the nominations chosen in the survey results, we calculate several network centrality measures to help guide our work. For our study, we use degree centrality, which is defined as the number of ties connected to a node, and loosely identifies popularity. We also include closeness centrality, which is defined as the average inverse distance from each node to all other nodes, and provides information on how structurally central a node is and how fast it can potentially spread information. These centrality measures can help us understand which organizations were highly nominated, and the implications of their roles [37].

We will also use a network metric called modularity. Modularity is a measurement of how well a network can be divided into smaller clusters, or modules [38], and is useful in finding community structure [27] by classifying nodes into distinct modules. In short, a modularity analysis will tend to place a node in a cluster if they have more internal ties than external ties. Gephi applies a modularity algorithm called the Louvain method, developed by Blondel and colleagues [39].

To compare the survey collaboration and would-like-to-work-with (in the future, we will refer to this as *wish-list*) data, we run chi-square tests to see if there is any significant correlation between the organizations that people nominate (based on modularity) and the SPA's that the nominated organizations belong to. Monte Carlo simulations are used whenever expected frequencies are small, using 1 million replicates. All statistical tests are conducted in R (<http://www.r-project.org>).

## 4. Results

For each of the network graphs, a node represents an organization in the SAPC evaluation. A tie between two nodes represents a form of nomination. For the first two graphs, these are based on collaborations. For the last two graphs, they are based on wish-list. Node colors are based on one of the eight SPA's that an organization belongs to. The layout of each graph is created using Gephi's ForceAtlas2 (FA2), which generated an easy-to-interpret graph. FA2 is a force-directed algorithm, which is a method of drawing graphs by pulling connected nodes closer together and pushing disconnected nodes further apart. General statistics about each graph can be found in TABLE 1.

The first network (FIGURE 2A) is based on results of the organizational survey. The modularity analysis found five clusters in the network. A chi-square test using Monte Carlo

simulation (1 million replicates) found a significant relationship between the clusters and the SPA's,  $X^2=108.2511$ ,  $p<0.001$ .

The second network (FIGURE 2B) is based on the results of the coalition survey's collaboration question. The modularity analysis found six clusters in the network. A chi-square test using Monte Carlo simulation (1 million replicates) found a significant relationship between the network modularity and the SPA,  $X^2=443.1166$ ,  $p<0.001$ .

The third network (FIGURE 2C) is based on the results of the coalition survey's wish-list question. The modularity analysis found seven clusters in the network. A chi-square test using Monte Carlo simulation (1 million replicates) did not find a significant relationship between the network modularity and the SPA,  $X^2=36.8185$ ,  $p=0.7306$ .

The fourth network (FIGURE 2D) uses the same data as the third, except we now adjust the node size based on their degree centrality, i.e. the more nominations received, the larger the node. In addition, we also calculate the closeness centrality for each node in the network. This network will help provide some information about the organizations that are highly sought after. The values can be seen in TABLE 2.

## 5. Discussion

The first survey was taken in May 2013, when coalitions had not begun implementing their projects yet. This helps to give a baseline view of the collaboration network between providers (FIGURE 2A). Visually, we are able to see that the providers are clustered by SPA, i.e. nodes with the same colors are situated close to each other. This suggests that, not surprisingly, the providers mostly collaborated with others in the same SPA. The relationship between collaboration and SPA is confirmed by a significant finding in the chi-square test.

The second survey was taken a year later, after coalitions had begun implementing their plans. There were many more respondents, as multiple provider representatives participated within their coalition. The network graph (FIGURE 2B) shows similar clustering to the first survey. Nodes with the same color are again close to each other, suggesting that providers are continuing to collaborate with others in the same SPA. As before, we confirm our visualization, and again find a significant relationship between collaboration nominations and SPA in the chi-square test. These results show that there is little to no effort made by the coalitions to expand outside of their boundaries to other coalitions for any support or collaboration, which is consistent with the structure of the county-wide initiative as it does not have a mechanism to facilitate cross-coalition interactions.

We finally see changes in the third network (FIGURE 2C). The wish-list network is based on survey 2, but shows a drastically different structure. Visually, it is difficult to find any clustering in the nodes. The colors (i.e. SPA) appear to be randomly scattered, with no grouping from any of the colors. The chi-square test confirms our visual inspection, as there was no significant relationship found between SPA and wish-list nominations. The results suggest that – unlike the collaboration networks – SPA identities do not affect how people nominate organizations they would like to work with. Individual nominations do not show any preference of an outside SPA; conversely, no SPA is dominating in receiving wish-list



nominations. This is an important finding in differentiating between which organizations are collaborating with each other, and which organizations could potentially be working together. The discovery that SPA borders define this separation reinforces the idea that artificial silos are being created that can hinder the flow of innovation and information. Each nominated tie between organizations represents unrealized potential in efforts that could benefit both the organization and the coalition.

We do not yet have conclusive data on why the wish-list nominations targeted specific organizations. It is possible that the most nominated organizations could be EPS experts. Since the coalitions have been charged with addressing the availability and accessibility of alcohol in their local communities, which many coalitions are doing through policy work, and the majority of coalition member organizations are CPS organizations who may not historically have much environmental-level or policy experience, the more well-seasoned EPS contractors are likely to be highly sought after. It is also possible that geography might play an important role in wish-list nominations. Boundaries from SPA's might divide some areas where multiple organizations are familiar with each other, and have possibly worked together. These organizations would likely nominate each other based on existing relationships, whether they are formal or informal.

The fourth visualization helps provide clues as to how to identify the highly central organizations. Two attributes are immediately available in the network graph. First, the organizations with the highest degree centrality are differently colored, i.e. they belong to different SPA's. This means there is no single SPA that contains all or many of the most wish-list organizations. Second, the layout of the network shows that the same top organizations are also in the core of the network. This is confirmed by calculating the closeness centrality of each node; the five organizations with the highest degree centrality also have the five highest closeness centrality. The results show that the organizations that people would most want to work with were being nominated by members from multiple SPA's. This suggests that geography might not be the most important motivation why external coalition organizations were being selected, as SPA boundaries would likely limit nominations to come from only one or two SPA's.

The coalition literature describes many of the benefits in forming coalitions: maximizing resources, minimizing duplication of efforts, and mobilizing community assets [8]. Indeed, it is recommended that agencies within coalitions connect to agencies outside of their boundaries for support and new resources [31]. However, when we investigate a multi-coalition effort, we see that within-coalition functions are not being expanded to between-coalition processes. The benefits of having diverse organizations within a single coalition could easily be extrapolated to serve the same purpose in multi-coalition projects. In our study, we can see the coalitions, while benefiting from its internal organizational collaboration, act as silos when viewed from a larger context.

### 5.1. Crossing Boundaries: An Example

Regular observations of coalition meetings provided the opportunity to document coalition functioning, progress, and cross-coalition interactions. Most coalitions were working on policy-related strategies or alcohol-retailer related strategies. Coalitions varied in structure

(e.g. use of subcommittees), in leadership style (e.g. spread of decision-making power), and in productivity. As the structure of the countywide initiative did not include a mechanism for cross-coalition interactions, few were observed. One prominent case of cross-coalition interaction occurred with a coalition that was experiencing greater challenges in implementation. One member of the coalition received guidance for their individual organization's policy-related work from an experienced member of a different coalition, who was involved in the successful passing of a local policy (See FIGURE 3). This initial guidance aided the individual member organization's work and later on, the guidance was passed onto their coalition through discussions at meetings. Further support was received outside of coalition meetings. The coalition began to successfully implement key steps relevant to policy-work and an increase in productivity and momentum was observed. In addition, this same coalition reached out to another coalition who successfully implemented a related strategy. This successful coalition shared their best practices and practical tips for implementation. This informal technical assistance and training from experienced organizations is essential in a context where funding is limited and technical assistance is not easily accessible as viewed by some coalition members. It was a clear example of how bridging the boundaries between coalitions could help spread information and innovation, develop relationships that could be leveraged in the future, and support the success of implementing new policy.

In the SNA context, this example showed that successful collaboration in multi-coalition settings could rely on a combination of weak and strong tie relationships. In this case, it was an incidental meeting between weakly connected organizations that bridged a structural hole between their respective coalitions. Following the communication and transfer of information, it was through the utilization of the intra-coalition strong ties that allowed the fast diffusion of knowledge to other organizations. This process developed in part due to the nature of the multi-coalition structure, which might require other weak and strong tie processes in order to increase network effectiveness. It demonstrated that the diffusion of information relies on more than a single type of relationship – in this case, both a weak and serendipitous one [15], and strong ones with other intra-coalition members [14] – are helpful in transferring and acting on new information.

## 6. Future Work

The USC evaluation group is currently planning interviews with coalition members in late 2014. These will focus on the work that organizations have been conducting as part of their coalition efforts. In these interviews, we are planning to address issues regarding why certain wish-list nominations were made, informal networks that might exist, identifying key individuals that have contributed to each coalition, and methods that could help develop more sustainable relationships between organizations.

Future analyses will include development of capacity, planning, and implementation scores at the organizational level, and look for correlations between these measurements and the most nominated organizations.

## 7. Conclusions

Community coalitions have become a popular mechanism of implementing community-level strategies to deliver AOD prevention programs. Research studies have demonstrated the benefits coalitions afford in maximizing resources, minimizing duplication of efforts, and the ability to mobilize community assets. Inherently constructed as a network of organizations, it is no surprise that network analysis has been an invaluable tool in supporting the study of coalitions. It has helped to provide researchers with an understanding of the complex relationships that exist between organizations, identify potential roadblocks such as structural holes, and discern important roles that different organizations are serving. However, coalitions can also have detrimental effects if they are not properly formed and managed, they could potentially damage relationships that may hinder future initiatives. The silo nature of coalitions can also make it difficult to build connections outside of artificially generated boundaries. Network analysis helps us to recognize these potential pitfalls, and find possible remedies. This research focused on a study that includes multiple coalitions, a unique opportunity to study how organizations in each coalition interacted within and between coalition boundaries. We found that collaborative efforts existed mainly within the same coalitions. However, many organizations have shown a desire to work with organizations that are not part of their coalition. We presented an example of a member who reached across coalition barriers to help bring expertise from a different coalition to help them achieve a goal within their own coalition. Our results suggest that more effort must be made to break through coalition barriers to help facilitate diffusion of information and innovation, improve policy implementation, and build new productive relationships.

## Acknowledgements

This study was supported by funding from the Center for Prevention Implementation Methodology, training grant T32CA009492 from the National Cancer Institute/National Institutes of Health, and a contract from the LA Department of Public Health, Substance Abuse Prevention and Control Division (Contract No. PH 00-2040). An earlier version was presented at the 22<sup>nd</sup> Annual Meeting of the Society for Prevention Research, Washington, D.C. The authors would also like to thank Trevor Pickering for his support.

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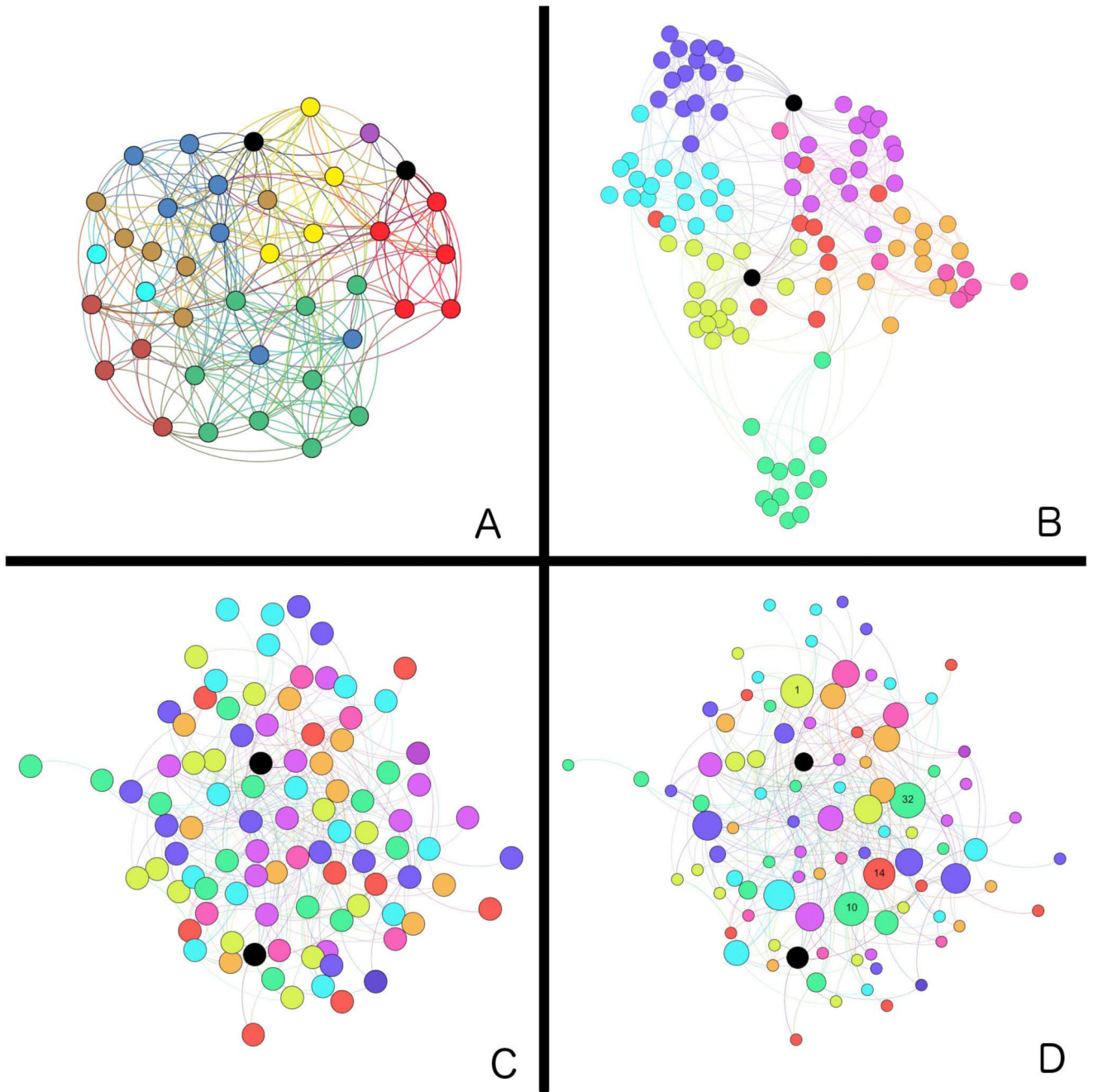
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**Figure 1. The division of Los Angeles County into eight Service Planning Areas**





**Figure 2. Network visualizations based on survey data. (A) is from survey 1 (n=40), collaboration nominations; (B) is from survey 2 (n=110), collaboration nominations; (C) is from survey 2 (n=95), wish-list nominations; (D) is the same as C (n=95), but adjusting node sizes based on degree centrality, with top organizations labeled**



**Figure 3. Collaboration network, highlighting the connection (red line) between organization receiving guidance (light blue) from experienced organization (yellow)**

**Table 1**  
**General summary of network graphs based on surveys**

	Survey1 (COLLAB)	Survey2 (COLLAB)	Survey2 (WISH- LIST)
Nodes	40	110	95
Ties	294	407	336
Avg Deg	7.35	3.7	3.537
Density (directed)	0.188	0.034	0.038
Modularity (Q)	0.248	0.536	0.294
Clusters found	5	6	7

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**Table 2**  
**Top 5 wish-list nominated organizations based on degree and closeness centrality**

Agency	Degree	Degree Rank	Closeness	Closeness Rank
32	21	1	0.452	1
10	18	2	0.439	2
14	17	3	0.435	3
1	16	4	0.431	4
7	15	5	0.427	5

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