Data-Driven Management Strategies in Public Health Collaboratives

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Objectives: The objective of this article is to demonstrate a data-driven management approach to effectively implement quality improvement (QI) in public health collaboratives. Using a modeled simulation, this article utilizes network data to demonstrate strategic management approaches. **Design:** This article uses simulated data to demonstrate the application of data-driven management strategies. This simulation was developed using examples from real-world data on public health collaboratives. **Setting and Participants:** The simulation represents a community that is just getting started working collaboratively on a public health issue. In this urban community, a number of organizations have been working both individually and in partnerships with one another for years to address the social and economic needs of its growing homeless population, led in large part by the efforts of local public health department. **Main Outcome Measure:** The main outcome measure is the "network" of organizational partners. Operationalizing networks as the outcome measures allows managers to think about how to implement action strategies to improve the outcome (networks as collaboration). **Methods:** These data are analyzed in PARTNER, a social network analysis program designed for use by managers and facilitators of public health collaboratives. Social Network Analysis is the study of the structural relationships among interacting units and the resulting effect on the network. **Results:** Network data provide a data-driven methodology for engaging in Strategic Collaborative Management. Such data can inform strategy for improving connectivity, trust, resource distribution, and increase successful strategic planning of action steps for QI. **Conclusions:** Data-driven strategic approaches to practical decision-making and program implementation are currently lacking in public health systems improvement. Such an approach leads to QI strategies, gives health departments a plan of action to meet accreditation standards, and contributes to the field in terms of improved measurement and assessment techniques.

KEY WORDS: **data-driven management decisions, public health collaboratives, social network analysis, strategic collaborative management**

Today's public health conceptual orientation has shifted to a systems framework[1] that considers connections among different components requiring multidisciplinary collaborative thinking and active engagement of those who have a stake in the outcome.[2] This shift presents new challenges for public health administrators, particularly managers of programs and people in this new "networked system." Specifically, this has left administrators asking, "How can we demonstrate our collaborative efforts?" and further, "How can we translate data and information into practical management strategies?" Although collaboration with the public health sector, operationalized in this research as "networks," can be highly beneficial, resulting in communities of practice, shared learning, resource, exchange, and increased community capacity, among other examples,[3-7] and has been widely accepted, they are complex forms and, thus, difficult to understand, manage, and lead. People are used to working and managing *within* hierarchies rather than *across* them, leading to problems and challenges that limit the potential of networks.[8]

While there are forums for discussing how organizational effectiveness might be improved,

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organizational administrators and network leaders have little guidance on how best to effectively design and manage a network. Specifically, public health departments are looking for resources on how to evaluate their collaborative processes and use these data and information systems to systematically inform management decisions. Although the increased use of network data is evident,[3,6,9] management strategies based on these data are lacking. There is a growing need within the public health sector for literature, research, and tools on how to use network data to engage in *strategic collaborative management* (SCM). Public health departments are seeking inputs from strategists, consultants, and academics to help them engage in evaluation and planning. The time is ripe for a guiding piece on how to use network data as an informative approach to improving collaboration in the sector.

This is particularly true for the collection and growing use of social network analysis (SNA), a method that is rather new in the area of public health, and outside the technical capability of most administrators and facilitators. Social network analysis is the study of the structural relationships among interacting units and the resulting effect on the network. Structural relationships refer to the number and quality of connections among the members of a network. For example, the strength of relationships between network members or the types and levels of resources exchanged can explain the structural relationships.[10] The fundamental property of this method is the ability to determine how connected actors in a network influence one another. Social network analysis provides a way, through mathematical algorithms, to measure the number and lengths of ties to index these tendencies.[11,12] Although the use of network analysis as a way to assess collaboration is more common now than ever,[9,13] the question of *how to use these types of data to make improvements to collaborative activity, specifically by developing action steps for performance improvement of the public health system* has been left unanswered. This article introduces the concept of *Strategic Collaborative Management* and how it can assist public health administrators and facilitators engaged in collaboration to understand how and why networks develop, what conditions influence success, how the benefits of networks can be improved while minimizing the drawbacks, and how to be a leader within a network more effectively.

The objective of this article is to demonstrate a data-driven management approach to effectively implement quality improvement (QI) in public health collaboratives, in turn providing basis for an strategic management approach.[14] Quality improvement efforts include 4 basic phases—plan, do, study, and act.[15] Strategic Collaborative Management takes a QI approach by providing public health personnel with a framework to *study* their collaborative efforts by collecting network data

using existing tools and *act* upon these data by strategically using data to develop action steps for performance improvement. These steps loop back into the Plan and Do stages of QI. Using a modeled simulation, this article will utilize network data to demonstrate how SCM can be implemented and informed by data.

● Design

This article applies simulation data to demonstrate the application of SCM as a data-driven management strategy. This simulation, developed by the author, is published as part of the Program for the Advancement of Research on Conflict and Collaboration at Syracuse University (http://sites.maxwell.syr.edu/parc/eparc/simulations/Varda.asp).* These simulation data were developed on the basis of review of more than 25 social network data sets on public health collaboratives collected by the author. Analysis of the data informed the selection of the way data were coded in the simulation. Social network analysis is used to measure and evaluate the collaborative activities of a diverse group of community partners.[11] These data demonstrate and initiate thinking about the role that managers/administrators play in networks of interorganizational actors.

● Setting and Participants

The simulation represents a community that is just getting started working collaboratively on a public health issue. In this urban community, a number of organizations have been working both individually and in partnerships with one another for years to address the social and economic needs of its growing homeless population, led in large part by the efforts of local public health department. These organizations include the Salvation Army (SA), Veterans Affairs (VA), the Local Public Health Department (LPH), Catholic Charities (CC), the Department of Housing (DOH), a Local Homeless Shelter (LHS), a Job Training Program (JTP), a Drug and Alcohol Clinic (DAC), the Local Law Enforcement Agency (LEA), a Representative from the State Legislature (RSL), and 1 Prominent Business Owner (PBO). The beneficiaries (the homeless population) receive housing, health and mental health services, job training, drug and alcohol services, and case management to

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*Practitioners are encouraged to access and practice this simulation, as a tool for learning about SCM. In addition, the PARTNER tool is available for data gathering and analysis at www.partnertool.net.

FIGURE 1 ● Visualization of Nodes and Relationships in a Social Network
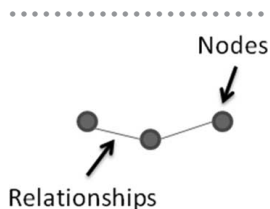
foster self-sufficiency and reintegration into the community. Recently, the group has decided to formally organize as a community collaborative in order to apply for funding by identifying ways to leverage resources, gaps in services, and methods for demonstrating progress made by the group. In a first step at organizing a formal group, the public health department administered a network survey to see who has been working with whom, what kinds of resources each organization has to offer the collaborative, the level of trust among the organizations, and the perceived value of each organization by others.

The main outcome measure is the "network" of organizational partners. Operationalizing partners as a "network" means optimizing an entire set of relationships, not just the connection between 2 "partners." In this way, benefits of being connected directly to a partner, or connected to a partner through other people within the network, are emphasized.

● Methods

Data are analyzed in a program called PARTNER (Program to Analyze, Record, and Track Networks to Enhance Relationships). PARTNER is an SNA program that includes a survey that can be administered online and an analysis tool, which reads the data gathered from the survey and provides options for SNA. Social network analysis is a method used to identify the members of a network (networks can be operationalized in many ways)[9] and the relationships between those members.[11,12] Members of a network can be visually represented as nodes (often as circles/squares) and the relationships between them are visualized as lines connecting those nodes (see Figure 1). In addition to visualizations, network "measures" can tell us about who the key players in a network are; for example, centrality can tell us who has the most number of connections or who is a bridge between subsets of the network.[10] PARTNER is designed to be used by the public health practice community and is available free of charge to anyone interested in conducting an SNA within

their community. It can be found at www.partnertool.net.

The variables measured and analyzed in PARTNER include the number of partners in a network, the types of partners in a network, the frequency of interaction among partners, the role of the health department in a network, the "value" of partners to a network (measured as power, level of involvement, and resources), trust among partners (measured as reliability, mission congruence, and transparency among partners), and the exchange of resources among members of a network.[16] (See Table 1 for a detailed description of the variables, their measures, and how they are operationalized. For more on how these measures were developed, see Varda et al. 2008.)[16]

● Results

The following section demonstrates the results of applying network data to engage in SCM. Using data to engage in SCM can lead to a number of action steps including

- considering levels of trust and determining whether any changes can be made to improve low trust among partners,
- increasing/decreasing the number of connections among partners to increase efficiency or expand the level of connectivity,
- leveraging existing relationships and resources,
- identifying gaps, vulnerable points, and other areas where relationships can be strengthened,
- accounting for the cost of strategizing and fostering new relationships, and
- reporting progress of collaboration to funders, stakeholders, community members, and partners.

● Strategic Collaborative Management

Strategic Collaborative Management is a framework developed by the author outlining a series of process steps for assessing and planning action steps to improve collaboration. A strategic approach is required because "public managers now find themselves not as unitary leaders of unitary organizations . . . instead they find themselves convening, facilitating, negotiating, mediating, and collaborating across boundaries."[17] Indeed, it is managing a "networked organization"—multiple and varying organizations participating in the development of programs and policies, asked to share in the responsibility of their implementation—that frames much of the current dialogue for managers in both the public and nonprofit sectors.[3,7,18-20] The business sector

TABLE 1 ● **Variables Measured in PARTNER and Analyzed for Strategic Collaborative Management**

Variables	Measures Used to Test These Variables	How the Measure Is Operationalized
Membership	Organizational identification by name, type, and other organizational characteristics (eg, size, mission of organization)	A list of network members
Network interaction	Network patterns and positions identified by subgroups, key players, etc	Network centrality (most number of connections to others, position is a bridge between members, etc)
Role of HD	As a convener/facilitator vs an equal member	HD is centralized/decentralized
Frequency of interaction	Number, types/levels of communications among members	Scaled: Never, Once a year or less, About once a quarter, About once a month, Every Week, Every day
Organizational value to the collaborative	Value measured as an index of 3 characteristics (of each member of the network as perceived by their partners). These include the members: Power/Influence Over Issues, Level of Involvement in the Collaborative, Amount and types of Resources Contributed by the Member	Scaled: Not at all, A small amount, A fair amount, A great deal
Trust	Trust measured as an index of 3 characteristics (as perceived by their partners). Including Reliability, Extent to which the member shares a mission with the collaborative's mission and goals, Extent to which the member is open and transparent to collective discussion	Scaled: Not at all, A small amount, A fair amount, A great deal

is a step ahead of the public sector,[21] having embraced the idea of collaboration as a *strategic* mechanism beginning with joint ventures,[22] continuing with strategic blocks, strategic supplier networks, interfirm trust, and network resources.[23] A similar approach can be expected within the public health sector although admittedly monitored and measured with alternative goals and missions in mind.[24-26] In other words, achieving the "bottom line" is a common goal in business,[27] while the goal of "improving population health" is far more ambiguous.

To implement SCM, network data are used to support each step and move a strategic thinker to the next step. In any type of community collaborative, 1 or several members of the collaborative can take on the leadership role of moving the group to the next step. Often, a member of a public health department takes on this role, as the health department is often a natural leader when a public health collaborative is in its infancy. However, as demonstrated later, this role often shifts as the network evolves. The 4 steps necessary for SCM are the following.

Step 1: Take note of potential and existing partners. A simple count is the most common way that public health collaboratives are taking note of potential and existing partners. This method alone implies that the goal of collaboration is to increase the number of partners, rather than focusing on how to improve the quality of collaboration among partners, risking burnout and overuse of partners. Using network data, this step is included in the process; however, unlike most assessments, additional network data analysis allows administrators to take a much more in-depth look and move much deeper through the process of QI.

Step 2: Assess the characteristics/quality of relationships. Network data allow the administrator to assess strength of relationships, exchange among partners, formality of relationships, levels of trust, and the value that each partner brings to the collaborative in terms of meeting goals.

Step 3: Consider the connectivity among members of the network. In addition, an administrator can assess whether there are vulnerabilities in the network (places where the relationships are weak and need to be developed), members that are not well-connected, and redundancy in connectivity.

Step 4: Match evaluation to collaborative's goals. Finally, the administrator can assess whether the collaborative is meeting its goals (goals are specified by each collaborative).*

● **Questions Drive Strategic Collaborative Management**

To engage in SCM, administrators will ask a series of questions that are informed by the network data. Guided by such questions, public health administrators

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*A limitation of using network data, however, is the lack of an ability to use the data to correlate the practice of collaboration with or predict population health outcomes, a similar dilemma across the field of public health systems and services research (but not without a bright future in the research world).

can use network data they collect to engage in strategic planning, decision making, and creation of action steps. Collection of data is paramount to the SCM framework and with tools such as PARTNER; public health administrators have the necessary guidance and tools to collect such data. Below is a detailed example of these questions, set with the SCM framework, and their application as a data-driven management strategy.

● Strategic Collaborative Management in Action

The following section lists each step of SCM, followed by a list of suggested questions that help move the administrator through the process. Each question is explained, followed by an example answer and examples of action steps that can be taken once the data are assessed and the questions are answered.

### Step 1: Take note of potential and existing partners

Question 1: Describe the network, including who is working with whom. Who does each organization most commonly work with on the issue at hand?

The most common way collaboration is measured in public health today is through a count of the number of partners. However, network data go beyond this simple count and provide information of the *context of the relationships*. Network data ask questions that elicit the conditions under which relationships are formed, how they evolve over time, and the nature of the relationship in terms of a variety of different variables. Moving beyond a simple count of the number of partners working collaboratively together allows us to empirically assess and analyze benefits of collaborating in terms of the quality of the exchange relationships among partners.

Example answer to question 1: The network map (Figure 2) shows 11 organizations identified as stakeholders in this community's efforts to end homelessness. They are identified by sector—private, public, or nonprofit. In addition to taking stock of who is working together, network data provide evidence of the context of the relationships. For example, we can see that the organizations tend to work with other organizations that are most "like" them in terms of sector and program work (governmental organizations tend to work with other governmental organizations). The organizations are clustered together around central organizations, namely, the Public Health Department and the Homeless Shelter.

SCM action decisions based on these Data: Using these data, an administrator may think about whether new connections are desired between the existing partners

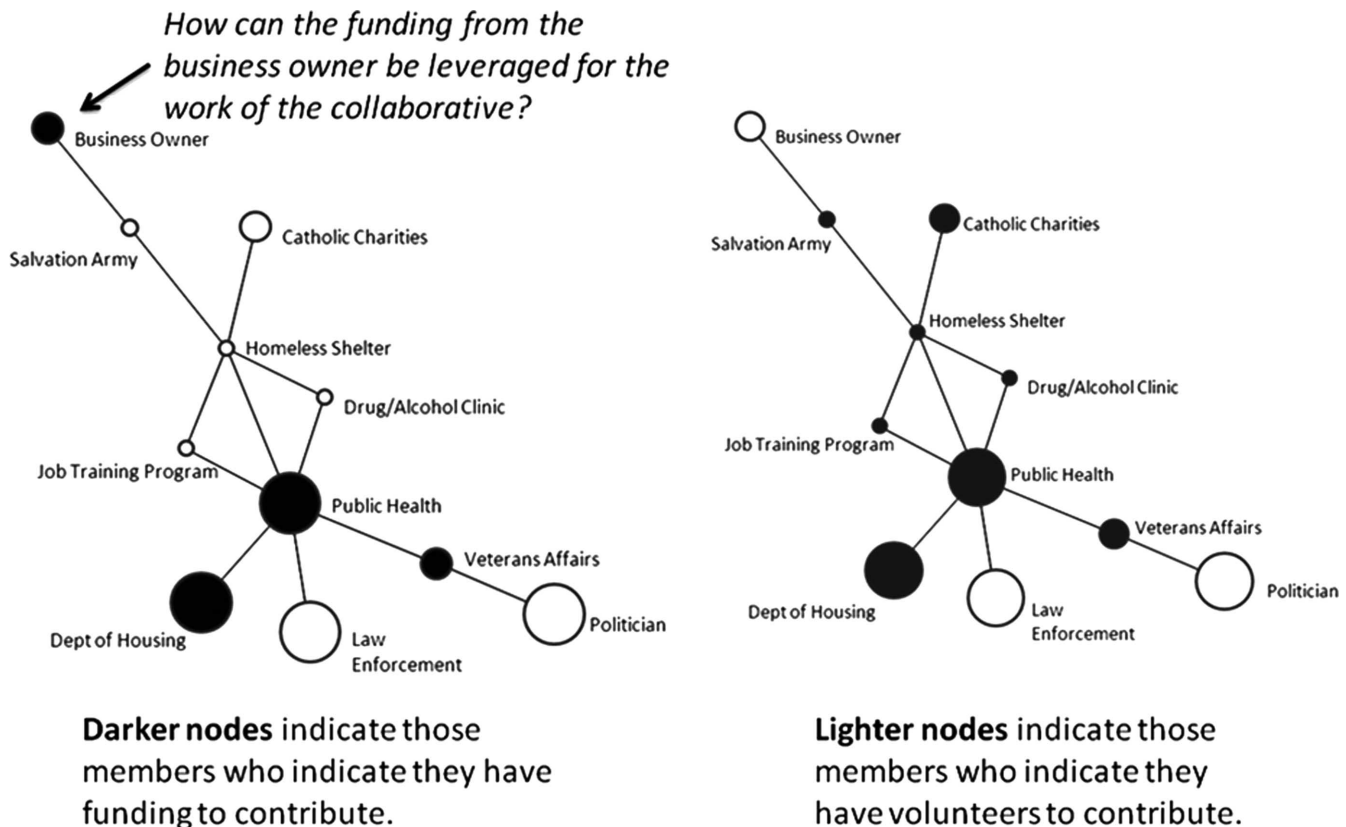FIGURE 2 ● Descriptive Image of Collaboration in a Network
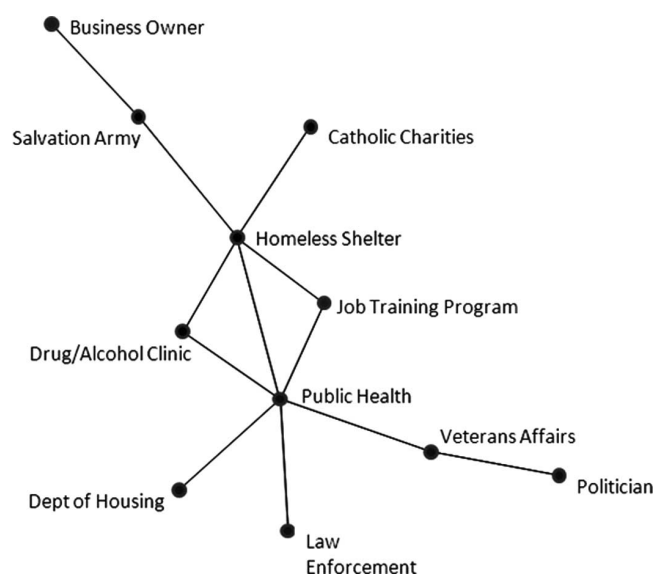
in the network, whether ties already exist that can be leveraged for new program work or resources sharing, and whether any connections are present that do not need to be (ie, there is redundancy in the network and the elimination of certain ties will free up space for new relationships to be created).[10]

Step 2: Assess the characteristics/quality of relationships

Question 2a: What resources do partners bring to the collaborative? How can these resources be leveraged and/or benefit the larger group?

While resources are generally scarce, the reciprocal exchange and leveraging of resources (both tangible and intangible) exemplify the benefits of collaboration. It is thought that by reaching across boundaries and tapping into previously unidentified partnerships, collectively, we may be able to achieve what we could not do alone, also known as "bridging social capital.."[28] Specifically, "the strength of weak ties theory[29] asserts that there is a benefit to increasing the number of "weak ties" in our network, or relationships to those that are less close and therefore extends us to people and resources beyond our own closely tied networks. Weak ties also often require less resource-intensive interactions and are thought to be easier to maintain.

Example answer to question 2a: In the community network, a need for resources is great, particularly because this group is just trying to get organized and get off its feet. By not only taking note of *who* is working together,

FIGURE 3 ● **Illustration of Networks as Resource Databanks**

How can the funding from the business owner be leveraged for the work of the collaborative?

Darker nodes indicate those members who indicate they have funding to contribute.

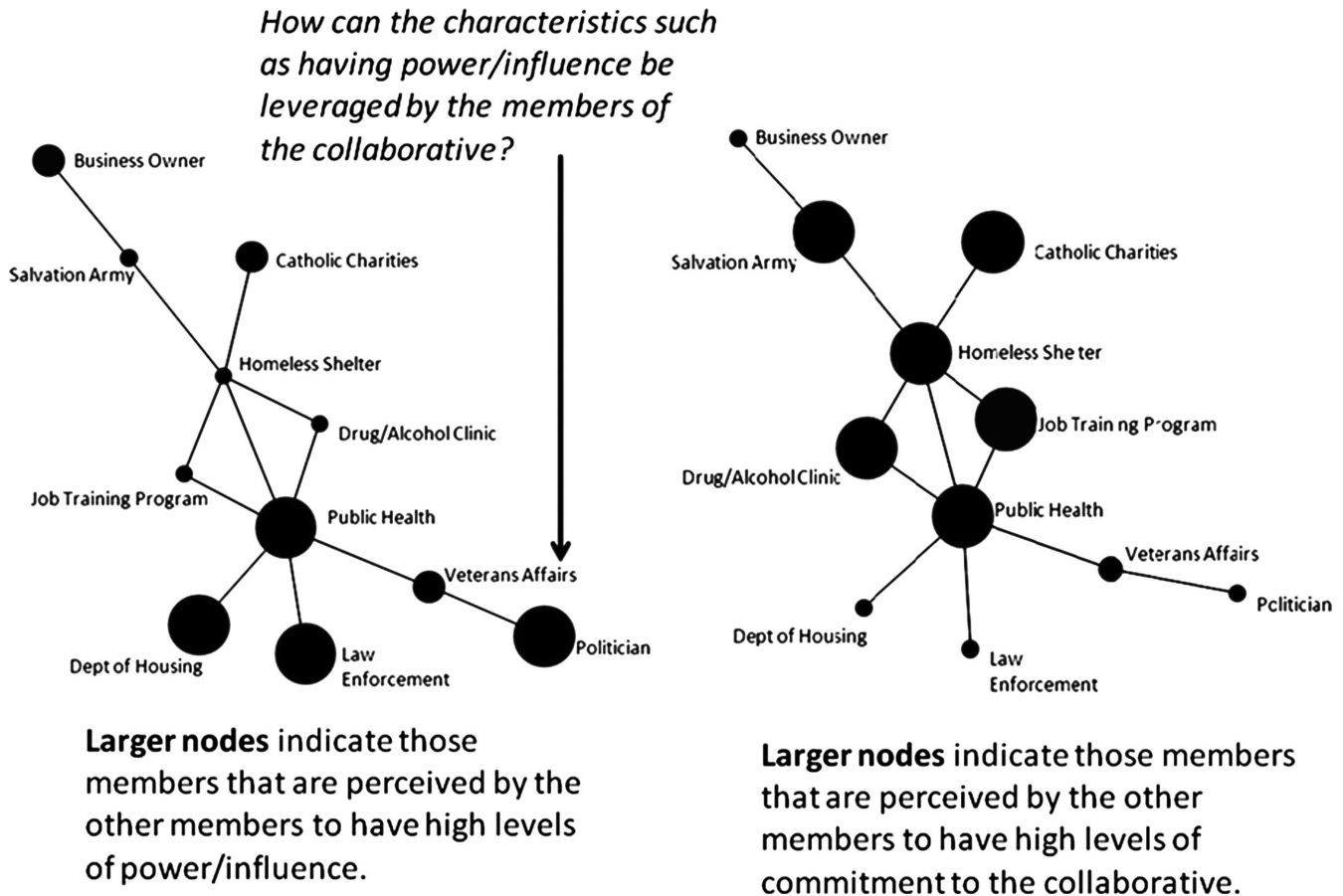**Lighter nodes** indicate those members who indicate they have volunteers to contribute.

but also asking each organization to self-report their resources, the group can begin to strategize how to use those resources to plan for the next steps. In the example image (Figure 3), the organizations that reported funding as a resource for the community collaborative are highlighted on the left (the darker circles), while the organizations that reported volunteers as a resource they can contribute to the community collaborative are highlighted on the right (the lighter-colored nodes). Not only does this approach allow us to see which organizations report which resource they can contribute, but the network image then adds information about how those with resources are connected to one another.

S*trategic collaborative management action decisions based on these data:* Using these data, an administrator can strategize how to leverage available resources. For example, in this case, the Business Owner is one organization that reports having funding available. However, the business owner is not well-connected to the rest of the network. The next step an administrator might choose is to foster stronger connections between the Business Owner and those that provide direct services to the homeless population (eg, the Homeless Shelter), to develop ways to leverage this funding resource to meet the goals of the collaborative.

Question 2b: Along which dimension, if any, is each organization most valuable (measured as power/influence; level of commitment; and overall resource contribution)? Which organizations are considered most powerful/influential, having the most level of commitment, and having the most overall resource contribution?

When organizations come together to address a community public health need, there is an assumption that each will be valuable to reaching that goal. While it is common to consider organizations with a lot of power or influence over the issues as the *most valuable*, this is not always the case. In a community collaborative, other characteristics of an organization can be equally valuable. These include the amount of commitment/time an organization puts into the work of the collaborative and the amount of resources it brings to the table. Including these latter two, type of "value" is strategic for a group in terms of seeing beyond the "usual suspects" that might be considered valuable for the collaborative (often those considered most powerful/influential), and reaching out, and reaping the benefits, of organizations that have a diverse set of value to add (such as commitment/time and/or resources).

Example answer to question 2b: In the example simulation, most of the governmental organizations (Law

FIGURE 4 ● **Using Network Data to Illustrate Resource Contributions**

How can the characteristics such as having power/influence be leveraged by the members of the collaborative?

Larger nodes indicate those members that are perceived by the other members to have high levels of power/influence.

Larger nodes indicate those members that are perceived by the other members to have high levels of commitment to the collaborative.

Enforcement, Politician, Department of Housing and Public Health, etc) are perceived by others as being very powerful/influential (illustrated in the left side of Figure 4 by the *large* size of the node). On the contrary, most of the nonprofit organizations (Drug/Alcohol clinic, Homeless Shelter, Salvation Army, and Catholic Charities—in addition to Public Health [governmental] and the Job Training Program [private]) are viewed as having a strong commitment to the collaborative (illustrated in the right side of Figure 4 by the large size of the node). In addition, these data illustrate the possible dilemma of having a vulnerable/weak connection (see Figure 4) between some of the most powerful/influential organizations and the rest of the network. In other words, for example, the Politician is characterized by the partners in the network as having a large amount of power/influence (illustrated by the large size of the node in the network visualization in Figure 4) but is only connected to the network through the VA node. If the VA left the collaborative, there would be no direct tie to the Politician. This means that the link between the Politician and the rest of the network is vulnerable to becoming disconnected.

Strategic collaborative management action decisions based on these data: Using these data, an administrator may think about ways to strategically alleviate the potential dilemma of vulnerable relationships that are important to the collaborative. For example, if the Politician (who is considered powerful/influential) were to become disconnected because of the removal of the VA from the collaborative, then no relationship from the Politician to the larger "core" collaborative would exist. Possible data-driven strategies include (1) inviting the politician to speak to the group or some other strategy of inclusion or (2) identifying organizations with a lot of commitment (eg, Catholic Charities) and encouraging a new connection between them and the Politician (via lunch or a presentation, for example).

Question 2c: What is the whole network score for trust? What is each organization's score for the 3 dimensions of trust? Who is very trusted by others, or not trusted as much?

Assessing trust among partners is a necessary part of any evaluation of a collaborative because trust is

considered the key to good collaboration.[19] Members of the network report on their perceptions of other members on a scale of 1 to 4 (explained in Table 1) on these dimensions: (1) reliability and following through, (2) sharing a common mission with the group, and (3) willingness to engage in open, frank discussion. The first dimension assesses how reliable each member is considered by other members. The second dimension is an assessment of mission congruence (as a measure of trust). When organizations come together from very different backgrounds, motivation can be unclear. Therefore, before trust can be established within the group, it must be clear to all participants that mission congruence exists. The third dimension of trust is the ability for all partners to engage in open, transparent discussion, even when disagreement or dissent exists. When this feeling of mutual respect exists, higher levels of trust ensue.

Example answer to question 2c: In the simulation example, trust is moderate (ie, the network score for trust, measured as a percentage of the total amount of possible trust, is about 50%). A trust score of 100% would indicate that everyone has the highest regard for one another on measures of trust. This collaborative has a way to go before a solid foundation of trust is established within the group. To identify where the problems lie, the individual trust scores can be examined. In this case, while the public health and most of the nongovernmental organizations are highly trusted (see scores in Table 1, the highest score is 4), the Business Owner and other governmental agencies are not as trusted.

S*trategic collaborative management action decisions based on these data*: Using these data, an administrator may engage the group in "trust-building" exercises as a way to improve the overall trust. Since the group is new, simple presentations from each member may be a good way to start, allowing each organization to focus on its commitment to the collaborative along the lines of their motivation for joining while beginning a process of an open, transparent dialogue. The administrator can act as a facilitator and encourage the group to engage in an open, frank dialogue necessary to begin to build trust, while gauging the limits of a group just in its infancy.

Step 3: Consider the connectivity among members of the network

Question 3: How centralized is the network? Are there places where new ties should be fostered? Is there redundancy in the network that can be eliminated for efficiency? Are there potential partners not yet embedded into the network?

The degree to which a network is centralized reflects the amount of dispersion around a "core" set of partners. When one, or a couple, of partners are the most

frequently involved and/or have the most number of relationships with others, it can change the dynamic of the network versus cases where all or most of the partners share equal positioning. In a common situation where collective action is in place for the development of public goods like public health, highly centralized networks can be ineffective to the progress of a collaborative. Collective action theory encourages "flattening" of relationships, sharing of power and responsibility, and equal distribution of resources.[24] This method has greater likelihood of keeping members engaged, encouraged, and willing to put in the time and effort necessary to get things done. On the contrary, in some networks, for example, service delivery networks, it may be beneficial to have a highly centralized structure, so that formal authority and direction is easily established and executed.[25,26]

In the case of public health community collaboratives, the public health department is often highly centralized at infancy of the collaborative. This is a natural fit and, sometimes, the only way the collaborative begins to organize (either because of leadership or funding mechanisms). However, over time, members express that a "flattening" of the network and the opportunity for multiple organizations to play multiple leadership, facilitation, and coordinating roles is desired.[16]

Example answer to question 3: In the simulation data, the network is highly centralized around the Health Department and the Homeless Shelter (see Figure 2). These 2 organizations are the natural leaders and "go-to" organizations for such activity. In addition, it is evident that these central organizations have had the most frequent level of interaction over time with one another, because of roles they have naturally played in the collaborative.

S*trategic collaborative management action decisions based on these data*: Using these data, an administrator may begin to identify organizations within the collaborative that have resources that can be tapped into for future leadership, facilitation, and/or coordinating roles. Another strategy may be to create subgroups within the collaborative, thereby dispersing the central hub and allowing multiple opportunities for the "flattening" of the group.

Step 4: Match evaluation to collaborative's goals

Question 4: How should resources be budgeted/managed based on the goals of the collaborative and findings from data?

Like any evaluation, the ideal application of data to decision making is through the specification of goals and a series of steps identified to reach those goals.[30]

TABLE 2 ● **Network Data Used to Calculate Trust in a Collaborative**[a]

Network scores

Trust	50%

[b]If all of the scores below equaled 4 (the highest measure on the scale, this score would be 100%)

Individual Scores	TRUST (1-4) Total Trust (1-4)	Reliability (1-4)	In Support of Mission (1-4)	Open to Discussion (1-4)
Public health	4.0	4.0	4.0	4.0
Job training program	4.0	4.0	4.0	4.0
Drug/alcohol clinic	4.0	4.0	4.0	4.0
Catholic charities	3.7	3.0	4.0	4.0
Homeless shelter	3.6	3.6	3.6	3.6
Salvation army	3.0	3.0	3.0	3.0
Business owner	1.3	1.0	2.0	1.0
Veterans affairs	1.0	1.0	1.0	1.0
Department of housing	1.0	1.0	1.0	1.0
Law enforcement	1.0	1.0	1.0	1.0
Politician	1.0	1.0	1.0	1.0

[a]Shaded area shows those organizations with high scores of trust (the other members of the collaborative perceive them as having "a great deal" of these characteristics.
[b]Trust measured as an index of 3 characteristics (of each member of the network as perceived by their partners). These include the members: Reliability, Extent to which the member shares a mission with the collaborative's mission and goals, Extent to which the member is open and transparent to collective discussion.

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The same is true for the use of network data. Before the start of a network analysis, it is advisable that each collaborative identify the goals they hope to achieve through working together. This may be fully connecting the network (making sure that everyone who should be at the table is at the table), reducing redundancy in the network to increase effectiveness and efficiency (identifying connections that can be eliminated or reduced because the benefit has been reached without it), leveraging resources that maximally take advantage of each organization's capabilities without overtaxing any one organization, or developing trust within the group to achieve greater success at working together. With these goals in hand, the results of the data collection can be assessed against the goals of the collaborative, opening the door for a number of strategic methods to ensue.

Example answer to question 4: In the simulation exercise, no goal-setting has been accomplished to date; however, this is an appropriate next step. Using these network data, the collaborative is in an ideal place to make data-driven goals for their collaborative.

S*trategic collaborative management action decisions based on these data*: Using these data, an administrator may engage in a process of goal-setting (for an example of goal-setting and needs assessments, see the MAPP framework).[31] In addition, an activity an administrator may choose to engage in asks each partner or potential partner to "draw" the ideal network—that is, put down on paper the image that comes to mind when answering the questions "what kinds of connections would best benefit the goals of this group; who is at the table;

who is connected to whom; who is a leader; and who is providing which resources."

● Conclusion

This topic is of importance to the public health sector for 3 primary reasons. First, while the benefits of collaboration have become widely accepted,[32] and the practice of collaboration is growing within the public health system, the ability to measure, document, and strategize to affect practice has been weak. However, the need for QI in the area of collaboration is strong because collaboration has the potential to improve the processes of health care that can "create better outcomes, but also reduce the cost of delivering services by eliminating waste, unnecessary work, and rework."[15] In the case of collaboration, it is important to recognize that "both the resources (inputs) and activities carried out (processes) must be addressed together to ensure or improve the quality of care."[16] Once these dimensions are addressed, practice and policy can be affected through strategic planning, involving the workforce that makes up the bulk of leadership within public health collaboratives.

Second, national voluntary accreditation for public health agencies will begin in 2011. On July 19, 2009, the Public Health Accreditation Board (PHAB) published revised "Proposed State/Local Standards and Measures" documents.[33] Currently, ongoing efforts led by PHAB assist public health departments in preparation to both build capacity and meet the evolving set

of standards and measures by which they will be assessed. The fourth domain addressed in these standards is "Engage the Public Health System and the Community in Identifying and Addressing Health Problems." While the process of collaboration is continually being formalized, it is still unclear how collaborative activity will *improve* outcomes in population health. Without assessment and strategic action, public health departments face a roadblock in terms of how to use evaluation to improve the everyday processes within the organization.

Finally, the approach presented in this article outlines an alternative way to evaluate public health collaboration through a networked evaluation. The most widely used and simplest method of evaluating the success of a public health collaborative is a simple count of the number of stakeholders involved (eg, attending a community meeting, or as suggested by the PHAB, providing a "list of partners"), with success measured as "the more the better." While this approach *does* make sense in *theory* and can increase buy-in and community support, the only real indicator of success not being met is the *absence* of interested stakeholders. An alternative to the "more is better" approach is one based on discriminate choices about who to include in a network, the quality of the relationships among members, and the benefits achieved by engaging in exchange relationships. A network approach can alleviate this dilemma by demonstrating the quality of relationships among members of a collaborative.

While collaboration continues to become a staple of the work that public health departments (and their community partners) engage in, the use of data to help guide and evaluate these efforts is weak and in need of further attention. Rather than engage in collaboration without understanding how to manage the process, organizations involved in community collaboratives would benefit from collecting data on their processes and using these data to make strategic decisions on action steps for improvement of the performance of their collaboratives.

This need leaves the door open for a number of next steps and future research questions. Next steps include increasing the capacity of health departments to collect and analyze social network data, providing tools such as PARTNER for such efforts, and developing technical assistance for members of collaboratives to educate them on how to use these data to engage in strategic planning (such as workshops in SCM). Research questions include using network data to answer such questions as "How well do people leverage scare public health dollars by collaborating?," "Are outcomes substantively different when partnerships are developed within and outside of public health?," "How do networks provide flexibility for decision making, im-

plementation, and public health practice?," "What are factors in collaboration that lead to proclaimed better outcomes?," "Do public health collaboratives produce results that otherwise would not have occurred? Do they discover processes and solutions which would not have emerged from work through a single organization?," and "What models/frameworks for collaboration work best in public health?" The strength of collecting network data to inform the collaborative process is the ability to both affect public health practice *and* answer these, and other, pressing public health systems research questions.

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