In addition to health departments, the public health system is made up of a complex web of stakeholders, including health care providers, insurers, community-based organizations, schools, boards of health, and other governmental and non-governmental organizations. The need for collaboration across and within this system has become increasingly evident during a new era of expanding public health challenges and decreasing resources. As a result, organizations are developing partnerships and working in collaboratives involving multiple stakeholders. However, while the potential value of partnerships has been explored, key challenges exist regarding measuring the connectivity, or strength of interactions, between partners and within collaboratives. This includes challenges in measuring what makes partnerships and collaboratives successful, and capturing changes in relationships over time.

In a HCFO-funded study under the second special topic solicitation in public health systems research, Danielle Varda, Ph.D., examined the measurement of connectivity in public health collaboratives, and developed a tool to assess connectivity in multi-agency collaboratives over time and gaps and weaknesses within the collaboratives. The project focused on three main objectives, to: 1) define what good connectivity means in a public health partnership; 2) operationalize measures of connectivity; and 3) develop a tool to implement these measures and document the analytical process through which the tool produces analyses of collaborative activity.

Methodology
This project uses both network theory and Social Network Analysis (SNA) methodology. SNA is a methodology which helps to explain how actors connect to one another, thus showing the structural makeup of collaborative relationships. This methodology is often used to analyze collaborative tendencies of community partnerships. In this research, connectivity was defined as “the measured interactions between partners in a collaborative, such as the amount and quality of interactions, and how these relationships might change over time.”

key findings
• Community-based organizations, public health departments, and direct service health care providers tend to dominate public health collaboratives.
• Three dimensions for assessing the value of a partner are power and influence, active involvement, and resources.
• Two important factors in developing positive and successful public health collaboratives are trust among partners and reciprocity.

findings brief
Measuring Partnerships in Public Health
Prior to using SNA, the research team conducted several activities to set-up this theory-based project. First, the researchers conducted a literature review to summarize theories of network analysis that include elements for measuring public health collaborative (PHC) connectivity. Based upon the literature, a conceptual framework was developed to guide the project. The research team assembled an advisory panel with members representing six health departments who assisted in further developing the conceptual connectivity framework as well as developing an interview guide. Next, the researchers conducted 20 key informant interviews using the interview guide to determine core dimensions of connectivity and identify specific measurable variables related to working successfully in a collaborative.

Using findings from the interviews and applying SNA, researchers defined network standards and developed scores for the core dimensions in order to quantify connectivity. They then developed an algorithm for a unique metric called ‘Relative Connectivity.’ This metric is used as an indication of how much each member of a collaborative is theoretically benefiting by being a part of the network, relative to the benefit received by being connected to other members in the network. A survey was developed to reflect the metrics and gather data to feed into the analysis tool.

This survey was used to program a tool for public health departments to use to measure and monitor their connectivity over time. This tool has come to be known as PARTNER (Program to Analyze, Record, and Track Networks to Enhance Relationships).

Findings

Initial findings from the literature review showed that SNA is a useful method to evaluate public health collaboratives, that modeling collaboratives as networks can help identify new ways to evaluate them, and that network theory is a useful way to guide the measurement of connectivity.

Through the literature review and convening of the advisory panel, the researchers identified seven dimensions of connectivity. These areas are network membership, network interaction, the role of health departments, frequency of interaction, strategic value, trust, and reciprocity. Using the above dimensions, questions were developed to guide the key informant interviews, which contributed to defining the seven dimensions of connectivity. The interviews revealed that community-based organizations, public health departments, and direct service health care providers tend to dominate public health collaboratives, although colleges and universities also appear to be actively involved in many cases. Informants indicated that health departments should play a strong coordinating role in public health collaboratives, but that their role should be dynamic, and over time should move out of the coordinating position and into a role as equal partner in the collaborative.

Results also indicated that many informants felt that decisions about the number of organizations in a collaborative and the degree of their involvement should be strategic, rather than operating under a ‘more is better’ assumption. This also applies to the frequency of interactions, where many interviewees indicated that the necessary levels of communication depend on varying factors. Different collaboratives will have different needs regarding the number of participants and frequencies of interaction. This will require consideration and flexibility among a collaborative when determining how to optimize resource use to accomplish goals.

In addition to looking at the interactions between different partners, the researchers also examined characteristics of the organizations involved in partnerships. Three dimensions for assessing the value of a partner were widely agreed upon: power and influence, active involvement, and resources. These dimensions include credibility and authority, participation and achievement, and resources such as time, money, space, knowledge, and information.

Two important factors in developing positive, successful, and sustainable public health collaboratives are trust among partners and reciprocity. Trust was often
described with terms such as reliability, sharing a common mission, and willingness to engage in open conversations. Additionally, the value of two-way interactions between organizations was stressed as an important factor to consider, and is often noted by exchanges of resources between partners.

These interview results assisted the researchers in developing and implementing a set of measures for the analysis tool to evaluate connectivity within public health collaboratives. The survey that was developed to inform the tool asked respondents to identify information about their own organization, identify other organizations in their collaborative that they are familiar with, and then answer relational questions including the frequency of interaction, perceptions of value of each organization, and levels of trust. This data was used in the final tool that was developed, PARTNER.

**Discussion and Policy Implications**

The development and nurturing of public health collaboratives may be a key strategy for accomplishing public health goals, particularly goals that may be more likely to be met with a multi-disciplinary approach. Because developing and nurturing these networks takes resources, and public health resources are thin, more evidence is needed to demonstrate their value. Thus, it is important to be able to measure these relationships in order to learn how to maximize them as well as to make the case for them to garner necessary support. Results from this research provide both a framework and a tool that contribute to measuring the effectiveness and efficiency of partnerships. Additionally, through this project, a number of strategies have been identified to help public health collaboratives plan and strategize to improve their work.

**About the Author**

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