

# Rural Health Networks

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## Literature Review



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## **Acknowledgements**

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## Executive Summary

Rural Health Network Resources, LLC (RHNR) received a contract from the Health Resources and Services Administration - Federal Office of Rural Health Policy (ORHP) to review the literature on rural health networks. RHNR found that the literature includes discussions of numerous rural health network categories (both common and uncommon), benefits of collaboration, barriers to the formation of networks, and studies on what makes some networks more effective than others. While most studies emerged after the 1970's, health networks have been in existence in some form for many years. The first identifiable collaborative was formed as a group purchasing network to purchase laundry services in New York in 1910 (University of Wisconsin Center for Cooperatives, *Research on the Economic Impact of Collaboratives*). In the 1970's, rural health networks emerged as a mode of adaptation to the growing loss of practitioners, hospitals, and clinics in rural areas (ibid.). In 1997, funding for rural health networks became available from the Health Resources and Services Administration (HRSA) Office of Rural Health Policy (ORHP) through the Rural Health Network Development Grant and Rural Health Network Planning Grant programs, which explicitly fund rural health networks.

While the incentives to form health networks vary, most objectives can be traced to two (2) core purposes: cost-saving and quality improvement. Many types of health networks can be identified in the literature, but some are relatively new (e.g., Ethics Networks) and are less common than others. Community health networks and rural hospital networks are more common and have a longer history in network research. Integrated health networks, which consist of different types of organizations, are becoming increasingly common as networks work to address a greater variety of health care demands. Among prominent demands, health information technology plays a significant role in the implementation of health reform and poses greater difficulties for rural providers. With recent health reform laws, health care providers will likely be

relying more on health networks to help meet health information technology requirements.

Network classifications such as vertical and horizontal are easily recognized by those involved with health networks. However, the literature on health networks has also produced classification schemes that are not resonant or are seemingly obscure. In a study of strategic orientation, Wellever, Wholey, and Radcliff (2000) classified 119 networks as defenders, prospectors, analyzers, and reactors. This is discussed in greater detail in the expanded report. However, there has been little research on or use of this classification scheme in later literature. There is a substantial amount of literature discussing rural health network functions and characteristics which suggests a significant interest in health networks. However, there is also a lack of continuity between references, represented by different classifications for the same network types. There is a need for a reference that will resonate with developing and functioning networks in a way that is both recognizable and useable. Additionally, despite a large number of sources on network types, functions, and barriers, there is little micro-level information on network characteristics (e.g., leadership styles, number of staff), outcomes (financial and quality improvement), and structure. In order to develop a practical roadmap of success and further visions of the utility of rural health networks on a national level, this data is necessary.

# 1 Rural Differences

Providing health care in rural areas brings challenges that are distinct from the provision of health care in urban areas. However, rural areas also have unique characteristics upon which providers can capitalize to improve both access to and quality of care. Richgels and Sande (2009: 17) summarize the rural challenge well: “Rural people and places are creative, resilient, and build their communities on the strength of their relationships, but sometimes those strengths cannot overcome the reality of how challenging it can be to deliver social and human services in rural communities.” Low population density, vast geographical areas, and the time it takes to travel to service locations are rural attributes that culminate to make service acquisition and delivery difficult for citizens and providers alike. While rural differences are not uniform across the nation, there are some general similarities that can be attributed to rural areas. These similarities stand out especially in their differences in relation to urban health care, which serves as the dominant model in health care in the U.S. Differences between rural service delivery and the dominant model highlight the challenges faced by rural healthcare providers and the consequences that befall rural residents. This section outlines rural health themes and compares rural populations’ characteristics.

## Rural Practitioners

While between 20% and 25% of Americans reside in rural areas, only 10% of physicians practice in rural areas (Klein, 2009). Rural practitioners have worked to overcome some of the known barriers to providing care in rural areas. In many ways, rural doctors can be perceived as social entrepreneurs, known for putting in long hours and filling multiple roles (ibid.). Rural doctors are primarily generalists who, because of their scarcity, are faced with the full spectrum of the community’s health care needs. Recent salary data suggest that the salaries of general

practitioners in rural areas are similar to those in urban areas, but that most specialists practice in urban locations (Richardson, 2009).

## Rural Population Characteristics

In comparison with their urban counterparts, rural populations generally have the following characteristics:

- tend to be older;
- have higher rates of age-adjusted mortality, disability, and chronic disease;
- have lower education;
- have income levels that are \$7,417 lower per-capita (NRHA, 2009)<sup>1</sup>;
- pay a greater percentage of household income for health care and are more likely to report that health care costs limit their ability to seek medical care (ibid.);
- are less likely to be insured and are more likely to pay more for insurance coverage because of the lack of availability of group plans.

## Rural Hospital Characteristics

Rural hospitals are often perceived as providing lower quality services than their urban counterparts. Rural hospitals also receive lower reimbursement rates while the costs of providing care are actually greater. While quality initiatives are important, rural hospitals are less likely than their metropolitan counterparts to have implemented health information technology systems, which have been instrumental in improving quality and access to health care in many communities (Jones et al., 2008 and Kemp, 2002). Quality concerns have historically driven rural consumers to urban areas despite the driving distance. Nonetheless, as discussed by Kemp (2002: 19), rural hospitals “have many assets for quality improvement initiatives including their

small size, relatively uncomplicated administrative structure, closeness to the community, the availability of new information and communication technology, and access to sources of technical assistance and support.”

## Barriers to Healthcare Access in Rural Areas

Generally, health care accessibility declines as population density declines (Jones et al., 2008). It costs more per capita to deliver service in rural areas than it does in urban areas (Richgels and Sande, 2009). Rural areas face shortages of physicians and other health care workers and rural providers often face financial shortages that can lead to closure. On the average, residents drive farther to receive services. Physicians in rural areas work longer hours and, because of the breadth of services required, specialization is rare (ibid.). Thus, rural residents often go without specialist care, or travel to metro areas to see specialist providers.

Salaries for physicians in rural and urban areas are comparable, but a 2009 comparison of incomes for allied health workers (AHW) showed that the rural hourly wage for AHWs was 12% less than the urban wage.<sup>2</sup> While it costs more to provide care in rural areas, rural hospitals are paid less [for the same services] than urban hospitals. Additionally, without taking into account percentage of income, health insurance premiums tend to be higher, sometimes by as much as 25%. This is partially because many rural residents do not have access to group plans and must take out individual plans.

Rural hospitals face unique challenges ranging from recruitment and retention to financial deficits. Rural community hospitals are usually the largest or second largest employer in their local area (Roh, Lee, and Fottler, 2008). While they are vital to their local economies, rural community hospitals have struggled to survive due to “declining occupancy rates, large aging populations, a large number of uninsured patients, low Medicare reimbursement rates, rising demand and increased costs of providing healthcare

services, workforce shortages, and competition from regional and urban hospitals” (Roh et al., 2008: 343). Increasingly, rural residents travel to urban hospitals rather than visit the rural hospitals within their community.<sup>3</sup> However, Roh et al. (2008) also found that patients preferred rural hospitals that were part of a network and provided a large number of services, suggesting that rural hospitals can become more competitive through networks.

*To summarize, the nature of rural areas – the expansive geography marked by fewer persons per square mile, the unique relationships built through smaller communities – simultaneously pose challenges and solutions for rural health care. Rural health networks have emerged as one way that rural areas can mobilize resources and strengths to overcome service quality and delivery barriers.*

## 2 Emergence of Rural Health Networks

Many health networks have emerged as an answer to the question of how rural health providers can continue to provide services in the face of tightening regulations and constricted budgets. Rural health networks are often used to “reduce fragmentation of health services, improve access to health services, eliminate unnecessary services, and support clinical and administrative services” (Wellever, 1999). According to Casey et al. (1999: 24), rural health networks are “a potential way for rural health care systems to improve access to care, reduce costs, and enhance quality of care.” Rural hospitals, specifically, join networks to improve cost efficiency, gain resources, and meet information needs, but few achieve significant short-term cost benefits (Moscovice et al., 1995).

*Later research by O’Sullivan (2008) indicated that as networks have grown and matured, participating organizations have achieved significant cost benefits.*

- Increased efficiency/Reduced duplication
- Create economies of scale
- Increase revenue
- Reduce cost

Research has indicated that, overall, health concerns are common across international developed, industrialized nations, and that the goals set to overcome these are the same as those set forth in network formation: cost containment, increased efficiency, and effective service delivery (O’Sullivan, 2008). Finally, because of emerging and growing problems in healthcare delivery - decreasing reimbursement for service, increasing operational costs, increasing insurance costs, and healthcare professional shortages - the incentive to form networks is clear (ibid.). Networks have successfully saved member organizations millions of dollars (O’Sullivan, 2008).

Rural health networks have served as a solution to a range of rural health care problems from access to care to duplication of services. There have been numerous efforts to increase the development of networks in rural areas, among them the U.S. Department of Health and Human Services’ Health Resources and Services Administration (HRSA) Medicare Rural Hospital Flexibility Program (Wellever, 1999). The MRHF (more commonly known as FLEX) Program was created, in no uncertain terms, to “develop integrated networks of care.”

The following is a general list of agendas that have served as incentives for the development of rural health networks:

- To address a need which cannot be addressed by a network member individually
- Cost-sharing

# 3 Rural Health Networks Definitions and Classification

Rural health networks work to address the gaps, disparities, and barriers in rural areas. There are multiple definitions of rural health networks. A comprehensive definition is offered by Bonk (2000). According to Bonk (2000: 11), a rural health network is “a formal organizational arrangement among rural health care providers (and possibly insurers, social service providers, and other entities) that uses the resources of more than one existing organization and specifies the objectives and methods by which various collaborative functions are achieved.” As discussed by Bonk (2000), inherent in this definition is an emphasis on networking that includes independent organizations or providers who voluntarily participate and share resources to achieve a common goal. This definition excludes large health systems owned by the same parent because the participation of its components is mandatory, rather than voluntary. Bazzoli et al. (2001: 189) describe the difference between networks and systems as “the presence of diversified ownership (health networks) versus unified ownership (health systems).” Specifically, according to Bonk (2000: 11), a rural health network displays the following characteristics: multiple independent rural health care service providers, documentation of participation by each network member, definition of the roles and responsibility of network members, and acquisition of resources to achieve expected benefits.

Rural health networks may also be referred to as collaboratives, consortia, and alliances. For purposes of this report, formalized cooperatives, collaboratives, consortia, and alliances are considered rural health networks, as are groups formalized to share services. Wellever (2001: Introduction) defines shared services as “the coordinated, or otherwise explicitly agreed upon, sharing of responsibility for provision of medical or non-medical services on the part of two or more otherwise independent hospitals or other health programs.” Collaboration is defined similarly: “[A collaboration is] a mutually beneficial well-defined

relationship entered into by two or more organizations to achieve common goals. The relationship includes a commitment to a definition of mutual relationships and goals, a jointly developed structure and shared responsibility; a mutual authority and accountability for success; and sharing of resources and rewards” (ibid.).

## Classification

Many classification systems focus on structural components of rural health networks, while others focus on functional characteristics. Categorization methods range from general (e.g., formal and informal) to highly specific (e.g., Health Information Technology (HIT) Networks and Community Integrated Service Networks). The classification scheme can be envisioned as a pyramid with the categories of informal/formal at the bottom, general classifications such as vertical and horizontal in the middle, and specified-purpose networks at the top. More and more frequently, networks are embracing broader functions and providing more services and therefore may fall under multiple categories.

## Formal and Informal Networks

Rural health networks can be classified according to the degree to which the participating organizations have formalized their arrangement for collaboration. Informal networks are loose associations of providers or organizations which may share services or information and lack written agreements or stated roles and expectations. In order to gain resources, informal networks may eventually become formalized by developing written agreements (ibid.). While informal networks are clearly in operation in rural areas, specific classification is more difficult than

with formal networks. This is not because informal networks have no impact. In fact, given the social structure of rural communities, informal networks are suspected to play a significant role in service delivery (O'Sullivan, 2008). Because informal networks lack documentation and clear structure, they are difficult to identify and classify. Their membership may be fluid and their characteristics are relatively unknown and uncategorized. However, as discussed by O'Sullivan (2008: 12), the formation of an informal network is "often the first step in the development of relationships with other organizations that, in the future often join together under a common corporate structure."

Formal networks are bound by written agreements (e.g., Memorandums of Agreement) or incorporated as a legal entity (Bonk, 2000). Legal entities are incorporated as either for-profit organizations or, more commonly, as 501(c) 3 non-profit organizations. Formal networks share resources and agree on objectives and methods. In contrast to incorporated networks, networks that are formalized through written agreements are ideal for agendas that are primarily met through in-kind services and do not require employees (ibid.). Networks that are formalized through written agreements allow each organization to maintain autonomy while taking joint action (Kemp, 2002: How Networking Can Improve Quality).

*Innovative networks encourage creative solutions and often seek development that may be risky, but would be highly beneficial to members.*

*-Anthony Wellever (2001)*

## Structural Composition: Vertical and Horizontal Networks

Rural health networks are commonly described as vertical or horizontal. Horizontal networks are comprised of one type of provider (e.g., nursing homes, rural hospitals) and vertical networks are comprised of different types of providers (Wellever, Wholey, and

Radcliff, 2000).

O'Sullivan's research (2008) confirms the commonality of the vertical/horizontal typology, showing that two common types of health networks have emerged: "hospital-based membership for which membership is specifically for hospitals only, and 'mixed membership' for which membership includes hospitals and any of the following: rural health clinics, health departments, independent physician practices, long term care facilities, area health education centers, and other miscellaneous organizations" (O'Sullivan, 2008: 11). While these categories are not strategically or functionally descriptive, it is important to note that these terms are used commonly and are highly recognizable among networks as a description of network structure.

## Function: Strategic Orientation and Goals

According to Bonk (2000), network form follows function. Wellever, Wholey, and Radcliff (2000) corroborate that assertion and suggest an additional characterization scheme that simultaneously categorizes rural health networks according to functional activities and strategic orientations. In contrast to the vertical/horizontal typology, this classification scheme focuses on what networks do and how they do it. According to Wellever et al. (2000: 4), organizations implement strategies which allow them to cope with uncertainty in their environment by entering into "exchange relationships with external forces in the environment to acquire resources and to assure future access to needed resources." Once the goals of an organization have been identified, performance measures can be set (ibid.).

*The measure of the network's success is not based on the individual success of its component organizations, but on the overall outcomes of the network in relation to the goal.*

In a study of 119 rural health networks, Wellever et al. (2000) found that rural health networks

focused activities on the following functions:

- Management Policies,
- Marketing and Planning,
- Risk Sharing (acceptance of a portion of the risk),
- Quality Initiatives, and
- Professional Recruiting.

Wellever et al. use a classification scheme based on the strategies used to accomplish resource-focused goals. These common strategic orientations and functions align networks as shown in the table below.

Category	Description	Rural Health Network Focus
<b>Defenders (28%)</b>	Organizations that offer a limited range of services and products within a narrow market and focus on improving efficiency and existing operations	Administrative and clinical management, quality initiatives, and professional recruiting; tendency to operate as a single organization
<b>Prospectors (38%)</b>	Organizations that search for new services, products, and markets and are proactive in adapting to market needs and opportunities	Risk sharing, integrate planning and marketing with investment strategy; functions as a joint venture
<b>Analyzers (3%)</b>	Organizations that operate simultaneously in stable product markets and unstable product markets and display the focus on efficiency of defenders and the adaptability of prospectors	Quality initiatives, professional recruitment, minimize risk by reducing uncertainty, maximize profit opportunities through new ventures (combination of Defender and Prospector activities, with Defender functions dominant); strategic orientation is fluid.
<b>Reactors (30%)</b>	Organizations that lack consistent strategy and are marked by ineffectiveness and resistance to adaptability	No clear focus or strategic orientation; composed of a mix of hospitals, providers, and “other” members.
<i>Functional Categories of Rural Health Networks (Wellever et al., 2000)</i>		

# 4 Rural Health Network Specializations

As discussed previously, rural health networks are often categorized according to their structure and the types of their component organizations. However, networks may also be classified according to functional goals. It is important to note that rural health networks, especially vertical networks, often serve more than one function. The following types of networks will be discussed:

1. Rural Hospital Networks
2. Integrated Rural Health Networks
  - α. Federally Funded Integrated Rural Health Networks
  - β. Rural Public Health Networks
3. Health Center Controlled Networks (HCCNs) (FQHCs that have formed electronic health networks among themselves)
4. Health Information Technology (HIT) Networks
  - α. Telemedicine Networks
  - β. Electronic Health Records (EHR) Networks
5. Broker Networks and Purchasing Networks
6. Rural Ethics Networks

## Rural Hospital Networks

Rural hospital networks are horizontal networks comprised of similar providers (Casey, Wellever, and Moscovice, 1999). In a 1995 study, Moscovice et al. (1995) reported that rural hospitals comprise one half of all community hospitals and one fourth of community beds in the United States. Rural hospital networks are one of the first highly utilized forms of rural health networking. As of 1990, almost half of rural hospitals had already become part of a network (Casey et al., 1999). Moscovice et al. (2010: Executive Summary) define a formal

rural hospital network as “a formal organizational arrangement among two or more rural health care providers, including at least one hospital, that use the resources of more than one existing organization and specifies the objectives and methods by which various collaborative functions are achieved.” The latter definition of rural hospital networks permits both a horizontal or vertical organization. The second most common component organization in the rural hospital networks surveyed was mental health providers and urban hospitals (ibid.). The survey identified 141 networks, ranging in size from 300 to 400 members (ibid.).

The benefits of forming rural hospital networks are many. Hospitals that have become part of a network can often provide a wider range of services and are preferred by rural residents (Roh et al., 2008). Networking offers cost savings, improved recruitment and retention, and better access to resources, the lack of which are significant barriers to the survival of rural hospitals (Casey et al., 1999). Finally, all of these benefits are improved or increased when rural hospital networks integrate other components (e.g., insurance) (ibid.). Moscovice et al. (2010) surveyed 141 networks and found that networks self-reported the following as their “greatest achievement”:

- Organizational development (31%)
- Improved member effectiveness (18%)
- Improved access to care (16%)
- Survival and stability (15%)

## Integrated Rural Health Networks

Integrated rural health networks are vertical networks composed of more than one type of provider. In contrast to rural hospital networks, they may include hospitals, physician groups, long-term care providers, health insurers, and other rural health providers. Casey et al. (1997:24) define integrated rural health networks as “formal organizational

arrangements among more than one type of rural health care provider... Networks use the resources of more than one member organization, and perform functions or activities according to an explicit plan of action.”

Integrated rural health networks share the following characteristics:

- one or many of a range of functions and activities from sharing and coordinating services to financing care;
- may or may not include a managed care component or have risk-sharing agreements with managed care plans;
- use the resources of more than one organization; and
- perform activities based on an explicit plan of action (ibid.).

Numerous federal and state initiatives have supported the development of integrated rural health networks. According to Casey et al. (1997), federal initiatives aimed at creating integrated rural health networks include funding for Essential Access Community Hospitals (EACHs) and Rural Primary Care Hospitals (RPCHs). The HRSA Rural Health Network Development and Rural Health Network Development Planning are two other primary federal grant sources for funding new networks. Individual states have also developed programs that encourage network development. Examples of organizations built on these initiatives are Community Integrated Service Networks (CISNs) and New York’s Central Services Facility Rural Health Networks (CSFRHNs).

Public health networks mobilize both public and private entities to meet the health needs of a community (Wholey, Gregg, and Muscovic, 2009). They are similar to community health networks in that both are comprised of different types of organizations that form a network to meet community needs. In contrast to a community health network, which does not necessarily include the local health department as a key organization, public health networks are organized around local health departments. As stated by Wholey et al. (2009: 1843), “Public health systems researchers consider local health departments (LHDs) a nerve center of public health systems.”

## Health Center Controlled Networks (HCCNs)

The United States Department of Health and Human Services - Health Resources and Services Administration (HRSA) defines HCCNs as “networks that are controlled by and operate on behalf of HRSA-supported health centers” and which function to “improve operational effectiveness and clinical quality... by providing management, financial, technology, and clinical support services” (HRSA: Health Center Controlled Networks).<sup>2</sup>

Networks must have at least three (3) collaborating organizations. HCCNs often serve to address needs that are high-cost or require specialized training and/or highly technical infrastructure systems (ibid.). HCCN formation depends on the needs of the area served. Most HCCNs focus on the following core areas (ibid):

1. Information Systems: IT Department and Infrastructure Development and Management, Data, Communications, Education/Training, Support, Reporting, Electronic Health Records, Practice Management Systems, Health information Exchanges
2. Clinical: Health Education, Clinical Guidelines and Dental Management, Staffing, Documentation, Ancillary Services, Continual Quality Improvement/Clinical Systems Improvement, Research
3. Finance: Claims Processing, Accounting, Policies and Procedures, External Audit, Staff Education/ Training, Billing/Revenue Management
4. Administrative: Human Resources, Purchasing, Corporate Compliance, Medicare/Medicaid Compliance, Program/Service Development, Resource Development, Education/Training, Communication, Governance, Marketing, Strategic Planning, Quality Improvement
5. Managed Care: Credentialing, Contracting, Utilization Management/Utilization Review

# Health Information Technology (HIT) Networks

## Telehealth Networks

Telehealth Networks have formed across the country to enhance access to care in underserved areas, provide educational opportunities for health care providers, and to provide research opportunities to clinicians wanting to study via telehealth. In some cases, the telehealth networks are organized to further homeland security efforts related to disaster preparedness and to be available in the event of a disaster.

Missouri Telehealth Network began in 1994 as one of the nation's first public-private partnerships in telehealth. The network was initially developed with federal support from HRSA's Office of Rural Health Policy and private support coming from telecommunication companies, as well as each telehealth site. In 2010, the network projects that it will expand to a total of 200 endpoints in fifty-six (56) counties. The network is funded with federal, state and institutional dollars. The network also continues to receive financial support from the network members.

## Electronic Health Records (EHR) Networks

EHR networks focus primarily on the implementation of information technology and offer a range of benefits, including the goal of improving quality, creating economies of scale, technical support, and shared resources. According to the California HealthCare Foundation, "EHR Networks [have the potential to] help medical practitioners raise the quality of their care, increase patient safety, improve efficiency, and even improve cost savings" (2008: 1). Additionally, EHR networks are characteristically attentive to the individual needs of different kinds of rural safety-net providers (e.g., community clinics and health centers) (ibid.). Gaylin et al. (2005) found that most successful EHR implementation was achieved when networks had strong centralized leadership, distinguished between clinical and administrative systems.

EHRs are a subset of Health Information Technology (HIT) and EHR networks provide an intensive focus on the implementation of Health Information Technology (HIT). While HIT implementation may be prohibitively costly for independent organizations, EHR networks offer a less costly alternative. Because they follow a non-profit business model, they can reinvest funds to reduce costs of component organizations. Additionally, studies suggest that EHRs acquired through networks offer benefits that are not available through vendors, including more extensive technical support. Specifically, studies show that acquiring EHR through a network, rather than independently through a vendor, often results in higher quality product and technical support and lower cost (ibid.).<sup>3</sup> Despite the benefits of EHR implementation - the reduced duplication of services and increased quality of care through information accessibility - studies show that less than ten (10) percent of safety-net providers have purchased EHRs (ibid.). Most providers cite cost as the primary barrier to implementation. However, this suggests that the potential of networks to address EHR implementation has not been completely explored or realized.

## Broker Networks and Purchasing Networks

Networks may serve as coordinators or brokers of shared services (Wellever, 2001). Networks that link members to an outside vendor are broker networks. Broker networks are beneficial in that they offer cost savings to members and share risk through vendor participation. Additionally, the network has the ability to screen vendors without making a commitment involving the entire network.

Purchasing groups have been a part of the health care system since the early 1900s.<sup>4</sup> While they were not formally defined as networks, the first known purchasing group formed in 1910 to purchase laundry services (ibid.). Purchasing networks are similar to broker networks in that they harness the power of a mobilized group to reduce costs. Purchasing

networks may serve local, regional, or national markets. Examples include groups of employers joining to purchase employee health care at group rates, as well as hospitals which form groups to negotiate better rates for outside services or products. Group purchasing organizations (GPOs) include non-profits, cooperatives, and for-profit organizations. Seventy-two (72) percent of hospitals use GPOs. From 2002 to 2007, Coastal Carolinas Health Alliance (CCHA), a network in North Carolina, provided purchasing agreements and saved members over twenty million dollars in five years (O'Sullivan, 2008).

Medi-Sota, Inc. (Dawson, MN) is an example of a network which has served as a broker. Medi-Sota is a 501(c)3 non-profit healthcare network with a membership comprised of thirty-two (32) rural healthcare organizations in Minnesota, with equal voting privileges for each member facility. It is noteworthy that the broker relationship is not the only function of the network. While Medi-Sota, Inc. was founded for the purpose of physician recruitment, it expanded its services to act as a broker. Medi-Sota, Inc. found that *"a large group of health care providers has more bargaining power than each would have alone, and together [they] can obtain more affordable pricing"* (Wellever, 2001). On behalf of its member organizations, Medi-Sota, Inc. contracted with outside vendors for diagnostic imaging services (Wellever, 2001). In preparation of this document in 2010, Medi-Sota, Inc. provided the following updated information, illustrating how a network can grow to provide a broad range of services to its members:

Medi-Sota was founded in 1976, but was not formally incorporated until 1982. The organization was formed initially for the purpose of physician recruitment and greater access to specialists. While this remains a high priority for the network, other services are also available to members. Other services include cost-saving initiatives (group purchases and preferred vendor agreements negotiated on behalf of members), allied staff recruitment, and networking opportunities for various peer groups. In addition, Medi-Sota promotes and coordinates education opportunities for the members. The network provides continuing education for trustees, administration and other hospital staff, both clinical and non-clinical,

at a reduced cost for members. Meetings and education events may be attended remotely by video conferencing to the event, as a result of a preferred vendor relationship with a telecommunications network. Additionally, the network has been successful in obtaining grants and assists in identifying funding opportunities for the members to support and improve the delivery of healthcare in the Medi-Sota service area. Strategic planning, idea generation and advocacy are among the benefits network members enjoy also. The Board of Directors and the CEO from each member organization, dictate network activities based on a majority vote, with no programs or services being mandated.

## Rural Ethics Networks

Many rural providers lack ethics committees and health care ethics resources. Ethics networks are useful for rural providers who often have limited resources and are unable to employ positions committed to ethics issues. According to Anderson-Shaw and Glover (2009), rural ethics networks use resources efficiently by allowing member organizations to share information and ideas, offer support, and gain educational opportunities. Specifically, benefits of ethics networks may include any or a combination of the following: access to health care ethics consultants, collegial support, ethics committee member interaction and sharing, educational programs that target rural providers, and opportunities to share research ideas (Anderson-Shaw and Glover, 2009: 328). Rural ethics networks may be vertical or horizontal. The following five (5) types of health care ethics networks have emerged:

- Academic-based networks with academic funding
- Academic-based networks with membership funding
- Government-sponsored networks
- Independent-based networks with independent funding
- Informal ethics networks (ibid.)

# 5 Effective Rural Health Networks

Because the majority of member networks are lacking the resources needed to meet some need (e.g., service demand or provider retention), benefits of participation are essential to the success of any network (Bonk, 2000). According to Bonk (2000), successful rural health networks share the following elements: compelling need, shared expected benefits, network form and function, and participation of key members whose resources are essential for success.

Compelling need refers to a gap or problem that has been recognized as such by a community and which cannot be addressed by a single already-formed organization within the community. Identification of the need as a significant social problem is crucial to both the formation of the network and strategic planning. A well-identified and recognized need serves as the purpose around which a network revolves and allows the leadership to define benefits and evaluate outcome measures. Examples of compelling need are affordable health insurance premiums, rural emergency response improvements, and retention of qualified health personnel.

Expected benefits are essential to both participation in networks and strategic planning. Expected benefits allow networks to identify program goals and evaluation measures. Once expectations and objectives have been outlined, the form taken by the network should follow the function. Networks may be for-profit organizations, 501(c) 3 non-profits, or may be tied together through MOUs (Bonk, 2000).

*“Joint action of autonomous members is what distinguishes rural health networks from other organized entities.”*

*–Gregory Bonk, Principles of Rural Health Network Development and Management (2000)*

Strategic planning<sup>5</sup> plays a significant role in the development of successful rural health networks. In the process of planning, it is important to identify and include key participants whose services are essential to the success of the network. According to Bonk (2000: 24), “Broadly inclusive networks often fall victim to lack of focus and dilution of effort. Broadly inclusive networks should draw distinctions between various functions and related participants.” Failure to clarify and state the purpose(s) of key organizations can lead to failure of the network (Bonk, 2000).

*As discussed by O’Sullivan (2008), evaluation research is lacking on the functioning and success of health networks. In an effort to identify factors that enable networks to accomplish their mission, O’Sullivan (2008) conducted a study of Critical Success Factors (CSFs), suggesting that these can be implemented by existing networks to improve performance or may be used as a model for start-up networks. According to O’Sullivan’s (2008) research, five (5) factors emerged as most critical to network success. Listed in order of importance, the five (5) CSFs are leadership, membership, financial operations, collaboration and communication, and staff expertise (O’Sullivan, 2008).*

Additional tools are available to assist in network development. The National Rural Health Resource Center has developed the *Rural Health Network Profile Tool* to assist in organizing both planning and implementation. The tool breaks the guidelines of effectiveness into the following components: Purpose; Government/Decision Making; Planning; Financing; Leadership/Management; Staffing; Communication; and Evaluation (National Rural Health Resource Center, 2000).<sup>6</sup>

# 5 Barriers to Network Formation and Sustainability

There are many reasons that rural providers are hesitant to form or become part of a network. Antitrust laws and startup costs are barriers to network participation for many organizations. In addition, some shy away from being part of networks out of fear of increased competition or loss of autonomy. However, definitions, classifications, and proposed standards of rural health networks actually suggest that participant organizations are strengthened through participation, rather than weakened. In fact, the primary purpose of many rural health networks is to increase efficiency and reduce costs of providing services. Finally, while many organizations are leery of forming networks because they fear loss of autonomy, alliances are often formed “as an attempt to keep institutions separate, yet provide for the mutual opportunities to achieve a common goal” (O’Sullivan, 2008: 7).

Many rural hospitals join networks specifically to implement quality improvement measures. Kemp (2002) outlines nine (9) key obstacles faced by organizations in quality-improvement network formation. These include the following (Kemp, 2002: Rural Hospitals: Challenges and Obstacles):

- Lack of leadership
- Feeling overwhelmed by the process
- Excessive focus on short-term issues
- Lack of personnel, skills, and experience
- Lack of infrastructure to collect and analyze data
- Data problems related to quality measurement
- Providers’ concerns about objectivity and confidentiality
- A limited research base
- Urban bias

## Ongoing Sustainability

In a study conducted on health networks

in 2010, NCHN found that the primary concerns network leaders have revolve around funding and sustainability. While sustainability may not present a large barrier in the formation of networks, it poses challenges for newly formed networks. According to NCHN’s *2010 Network Executive Director Salary and Benefits Survey*, the older networks (over fifteen years in operation [n=15]) that completed the salary survey were funded primarily through member dues and program fees, comprising an average of over eighty (80) percent of their annual funding, with an average of two to three percent funding from grants. Moscovice et al.’s study (2010) found that of the rural health networks surveyed (n=141), sixty-three (63) percent relied on membership dues and fees. Comparatively, grant funding comprised over ninety (90) percent of the funding for networks that have been in operation for fewer than five years (NCHN *2010 Network Executive Director Salary and Benefits Survey*).

Many recently formed rural health networks use grant funding as a springboard of formation, but many grantees also sustain their services beyond the original grant term, as indicated by Georgia Health Policy Center’s (GHPC) assessment of former network development and outreach services grantees (2010). In a study of rural health networks and outreach grantees, GHPC found that even where services were not sustained beyond the funding cycle, grantees had found and sustained “new ways of doing business among agencies” (GHPC, 2010). According to the GHPC report (2010: 2), the majority of grantees rely on additional grants, in-kind support, and the adoption of costs and/or services by key members, rather than member dues or program fees, to sustain services beyond the grant term. Specifically, networks that sustained their services beyond the grant funding cycle (n=15) continued to rely predominantly on grants (67%, or n=10) (ibid.).

# 6 Recommendations

Despite the simplicity of network self-identification, the definition of rural health networks remains elusive. Because of the comprehensive and complex nature of health delivery, there are many potential key participants in effective health networks. However, one factor that predominates in effectiveness is leadership. Effective networks identify the needs of members; involve members in addressing problems, and share information. Strong board governance and the commitment of key participants are essential to achieving network goals. More evaluative research is needed to quantify outcomes of network efforts. A predominant concern for many networks is long-term sustainability and funding. There is a clear need for a macro-level cost benefit analysis, which may also overcome network participation barriers and provide a more detailed roadmap of expectations for networks in the process of formation.

Rural health networks provide the opportunity for independent organizations to combine efforts and funding to provide more services, increase efficiency, improve quality, share information, and increase recruitment of health professionals. In short, networks appear to overcome many of the barriers to health access that are common in rural areas. However, funding and sustainability are significant challenges for newly established and developing networks. Given the utility and potential for health networks to address barriers, it would be beneficial to direct future research toward evaluating how networks operate, quantifying outcomes, and identifying commonly shared components of successful networks.

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## Notes

1 For more information, see National Rural Health Association's *What's Different about Rural Health Care* at <http://www.ruralhealthweb.org/go/left/about-rural-health/what-s-different-about-rural-health-care>

2 Richardson, Indira et al. *A Rural-Urban Comparison of Allied Health Average Hourly Wages*. Rural Health Research & Policy centers. January 2009.

3 In Roh et al.'s 2000 - 2003 study of 10,384 rural Colorado patients receiving obstetric services, 20.4% traveled to urban hospitals to receive services.

4 For a list of networks rated by degree of integration and performance level, see *Top 25 Integrated Healthcare Networks* (Appleby, 2002).

5 HRSA: Health Center Controlled Networks. <http://www.hrsa.gov/healthit/healthcenternetworks/default.htm>. Accessed 02/21/2010.

6 See *Creating EHR Networks in the Safety Net* for more information on the pros and cons of seeking EHR through a vendor versus a network.

7 For more information on the history of purchasing networks, see *Research on the Economic Impact of Cooperatives* at <http://reic.uwcc.wisc.edu/health> (accessed February 10, 2010).

8 Strategic planning is discussed as an integral activity for successful networks. See *Principles of Rural Health Network Development and Management* (Bonk, 2000: 25-46) for a discussion of network-specific planning.

9 For more information on the *Rural Health Network Profile Tool*, go to [http://www.ruralcenter.org/?id=res\\_netdev](http://www.ruralcenter.org/?id=res_netdev) (accessed December 1, 2009).





