Network Literature Review:
Conceptualizing and Evaluating Networks

April 15, 2002

Prepared for the
Southern Alberta Child and Youth Health Network
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ABSTRACT

Health practitioners and researchers have recently turned their attention to networks. As mechanisms for bringing organizations together to address metaproblems, networks offer benefits such as pooled resources, improved communications, development of competencies, and potential for innovation, as well as increased legitimacy and status within the community. While networks offer promise, they have been little studied within the health field. Disciplines such as social ecology, computer science, management, and political science have paid some attention to networks. However, significant gaps in the literature remain. The rationale for this review includes the need to identify gaps in existing research, determine new directions for study, and primarily to assist network members in understanding the network concept for effective development and evaluation of their networks.

This review was developed for the Southern Alberta Child and Youth Health Network. It provides practitioners, researchers, and evaluators with an overview of networks addressing issues such as why networks exist, and how they operate. The vision, structure, function and service delivery aspects of networks are discussed. In addition, this review identifies several outcome measures for evaluation of networks. Four levels of analysis for evaluation are suggested: Community, Network, Organization, and Individual. A summary of network concepts and issues is provided.

Acknowledgement

The Southern Alberta Child and Youth Health Network would like to thank the following individuals and organizations for their generous contributions in determining the scope and overall direction for this literature review as well as for critiquing early drafts.

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Introduction

Delivery of health services for children is currently fragmented while determinants of health are multiple and complex. A multisectoral, multidisciplinary, interdisciplinary approach to the health of children and adolescents is a key challenge for practitioners, researchers, and experts. Networks for children's health may be one means to overcome fragmentation of service delivery while offering opportunities for experts to address complex, and presently 'unsolvable' health issues. The intent of this literature review is to inform and educate key stakeholders about network concepts and issues, and to identify key common elements to be considered when undertaking an evaluation of a network. This review addresses conceptual understanding, especially that which will facilitate evaluation of the network. Networks are considered with attention to four primary aspects: vision, structure, process, and service delivery. Following Provan and Milward (2001), the focus is on networks of service providers operating in local communities, but some attention is given to broader networks.

There exists little systematic research on the governance and management of community health partnerships or networks (Mitchell and Shortell, 2000: 243). Moreover, little is known about the prevalence, composition and performance over time of community health alliances (Mays et al, 1998:519). Existing literature on networks tends to be oriented towards mental health and long term care. Some research addressing partnerships and their constitution is applicable to network development. The rationale for this review includes the need to identify gaps in existing research, determine new directions for study, and primarily to assist network members in understanding the network concept for effective development and evaluation of their networks.

Limitations of this Literature Review

This review of networks is not comprehensive. The literature regarding networks and their development is too complex and multidisciplinary to cover in one document. Disciplines addressing networks include health sciences, management, political science, social science, social work, computer science, ecology, etcetera. In light of the variety of disciplines through which network literature can be accessed, this review is not systematic. It does not cover or identify all the relevant materials in any one discipline. Attempts have been made to identify any literature regarding children's networks, and networks in health. Typically, health network literature can be accessed via partnership or collaboration literature. "Community networks" is a helpful search term for identifying literature used in this review.

PART 1: CONCEPTUALIZING NETWORKS
<u>What is a Network?</u>

"A network is a conduit for information; it can be as simple as two tin cans tied together with a string or as complicated as the Internet" (Sawhney and Parikh, 2001:80). Networks can develop at various levels – individual (social network), organizational, interorganizational, and international. Castells explains that a network "is constituted by the intersection of segments of autonomous systems of goals" (1996:171). His definition applies to all networks. Social networks involve the common ties that exist among individuals. A person's social network might involve her group of common friends, for example. A client's social network could include her family, her classmates, her after-school friends, and so on. Social networks usually involve informal ties among individuals. Cattell (2001) provides examples of social networks and notes that social networks differ from community networks primarily as one incorporates individuals while the other refers to organizational level involvement. This review is primarily concerned with community or interorganizational networks.

For the purposes of this review, a network can be defined as, "a set of autonomous organizations that come together to reach goals that none of them can reach separately" (Chisholm, 1998: xxi). Rupert Chisholm develops his network concept using Trist's (1983) socioecological conceptualization. This view distinguishes networks from other interorganizational relationships. The orientation of an individual organization is to the common concern articulated by the network; the vision and goals that bind the organizations together (Chisholm, 1996: 219). Chisholm explains, "Organizations belong to networks to enable them to deal with metaproblems" (Ibid). Following systems theory and drawing on the socioecological, it is assumed that the commitment of the individual level organization to a higher purpose or goal affects the whole system. The network is seen as an organizational innovation that will quickly be adopted because it offers competitive advantage (Jarillo, 1993; Alter and Hage, 1993). For Chisholm, the first feature of networks is their attachment to a common purpose.

A second aspect of networks is the "loose coupling of members" (Ibid). Network participation is voluntary (Mitchell and Shortell, 2000; Weiner et al, 2000), members belong to diverse organizations, and they are usually geographically distant or dispersed. Networks are horizontal rather than vertical organizations. No member is superior nor subordinate to another (Ibid.). The voluntary, horizontal ties of networks mean that networks are controlled and regulated by their members. For Chisholm, networks do not have a centralized source of power. They are, by nature, decentralized organizations. Alter and Hage (1993) also stress the non-hierarchical nature of networks.

Table 1: Network Features

FEATURE	Definition	Author(s)
Oriented to higher purpose/common vision	Beyond the limited visions and abilities of network members	Chisholm (1996); Gray and Wood (1991)
Activity affects the whole system (assumption)	Network activity has external effects (impact on the community) as well as internal effects (impact within the network)	Chisholm (1996); Ashby (1956)
Horizontal organization	Network structure is not hierarchical; each member is equal within the network	Chisholm (1996); Gray and Wood (1991)
Voluntary participation	Members choose to belong	Mitchell and Shortell (2000); Weiner et al (2000)
Decentralized	No centralized source of power	Chisholm (1996)
Member-controlled	Controlled by member organizations via stakeholders	Chisholm (1996)
Self-regulating	All members determine the network's rules, processes and procedures	Chisholm (1996)
Collaborative	Engaged in an interactive process	Gray and Wood (1991a/b)
Cognitive	Have self-knowledge; aware of environment and adept at working with it, a learning organization	Alter and Hage (1993); Wheatley (1999)
Involves a division of labour	Members have specialized tasks and skills	Alter and Hage (1993)
Autonomous members	Member organizations retain independent decision-making powers	Gray and Wood (1991b)
Deliberative	Deciding/addressing/exploring constructively	Gray and Wood (1991b); Foerster (1999);

In addition, Alter and Hage (1993) provide what they term 'normative characteristics' of networks. Networks are cognitive structures in which there is a division of labour. Cognitive suggests "knowing" or "knowledge". Networks are learning organizations that are self-aware. Networks generate or discover knowledge about themselves through communication and continuous evaluation. A division of labour ensures that each member organization is valuable to the other network members, and helps to create interdependence. Other aspects that overlap with Chisholm and Trist are self-regulation and horizontal structure.

<u>Collaboration is Inherent</u>

The notion of social capital (Putnam, 1993; Fawcett et al, 2000) underlies the network concept. Related concepts include generalized reciprocity, or the idea that if you help me out, now, I will help someone out some unspecified time in the future (Neufeld & Harrison, 1995). Putnam (1993) explains that networks of civic engagement have an abundance of generalized reciprocity as well as a variety of other norms and values including trust. They develop trust and notions of reciprocity through face-to-face interaction over time. Networks of civic engagement also tend to be collaborative, horizontal entities.

Key to reaching their goals, networks collaborate. In fact, some researchers refer to networks as 'collaborative partnerships' defining these as "alliances among people and organizations from multiple sectors, such as schools and businesses, working together to achieve a common purpose" (Roussos and Fawcett, 2000:360). As one group of researchers put it, "Collaboration is the lifeblood of partnerships" (Weiner et al, 2000:53). However, collaboration is not an easy task. It involves compromise, and "skills that have been rarely rewarded in most organizations" (Ibid; Liedtka, 1996:23). Within the management and organizational theory literature, Gray (1991) defines collaboration as, "a process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible." Swan and Morgan (1992) emphasize the difference between cooperation, coordination and collaboration. From their perspective, cooperation is the least complex while collaboration is the most sophisticated. Interagency cooperation is defined as " a process of working together to achieve the day to day goals of the organization" (Ibid:21). Interagency coordination is " a process of engaging in various efforts that alter or smooth the relationships of independent organizations, staffs, or resources." Interagency collaboration, by contrast, is more jointly-planned and intensive (Ibid).

Further, Swan and Morgan (1992:24-5) provide several key concepts in collaboration:
- Collaboration cannot be mandated.
- Collaboration is both a process and an attitude.
- Collaboration takes time.
- Collaboration does not develop evenly.
- Collaboration must be nurtured.
- Collaboration must have clear goals.

Table 2: Collaboration versus Competition

Collaborative	Competitive
Listening with an open mind to other's proposals	Selling one's own solutions harder
Acknowledging and using conflict productively	Suppressing and ignoring conflict
Leading by supporting and facilitating	Leading by managing authoritatively
Designing new end to end value systems	Tinkering with incremental fixes to current processes

*Taken from/adapted from Liedtka, 1996; Weiner, 2000

While some researchers within the health field tend to emphasize the informal structures of interorganizational models of networks and partnerships, others provide more formalized and centralized models. For example, this review discusses Provan and Milward's (2000) article regarding an effective, yet highly centralized and not well integrated, network for mental health. Other models include contractual agreements, shared governance or shared ownership (Mays et al, 1998). These models appear to diverge from the concept of 'network' but may be referred to as networks within the literature. What, then, is not a network? This is, perhaps, a more difficult question than defining a network, and is not addressed in the literature. It would appear that partnerships of only two organizations would not constitute a network. Moreover, a one-time collaboration would not be indicative of a network. Partnering driven and organized by a particular organization would appear to be too hierarchical and centralized to consider as a network, yet the example provided by Provan and Milward (2000) is perhaps even more centralized. While Provan and Milward's conception of a network diverges from the concept used within this review and informed by Chisholm (1996), it does not diverge from other conceptions within the literature and, therefore, still informs with respect to network understanding. Shared nonprofit corporations could be conceived of as having most of the characteristics of networks described above, but they may be hindered in achieving their goals by applicable legislation or policies. With the exception of Provan and Milward's example, these other 'forms' of network are not comprehensively addressed in this review. Provan and Milward's example cannot be ignored as it is the sole study of network effectiveness within the health literature.

Network Levels: Vision, Structure, Process, and Service Delivery

As the section above notes, collaboration is key for networks. Some researchers provide a helpful distinction between the act of collaborating and the structure that results or evolves through that collaboration. For example, Gray and Wood (1991) note that collaboration (the process) is undertaken by collaborative alliances (the structure). They distinguish between process and structure to understand how networks work and how to conceptualize them. In order to understand the complexity of networks, it is essential

to consider networks at several levels. Mays et al (1998) use the following categories:
(1) strategic orientation (2) functional and (3) structural. Boland and Wilson (1994) offer
(1) interorganizational network associated with service delivery
(2) interorganizational network associated with administration
(3) interorganizational network associated with planning.

In the spirit of networks, these levels are not hierarchical but provide separate categories to enhance understanding. These categories are interconnected in a variety of ways, as table 3 below notes.

Table 3: Network Levels

Level	Definition	Authors/conceptions
Vision	Why the network exists	Mays et al (1998) – "strategic orientation", Boland and Wilson (1994) – planning
Structure	How the network exists	Mays et al (1998) – structural; Boland and Wilson (1994) – administration; Gray and Wood (1991) – 'collaborative alliance'
Process	What the network does to fulfill its vision/existence	Mays et al (1998) – functional; Gray and Wood (1991) – 'collaborating'
Service Delivery	What activities the network performs related to process, for the purpose of its vision, via its structure	Boland and Wilson (1994) – service delivery

These levels are referred to throughout this document and described in more specific detail in the section on network evolution (see page 21).

Background: Relevant Theories and Networks
Management and Organizational Theory
There is an extensive literature dealing with the analysis of interorganizational relations and networks within the management field (Alter and Hage, 1993; Mizruchi and Galaskiewicz, 1993; Jarillo, 1993; Ebers and Jarillo, 1998; Sydow, 1998). This literature has its roots in organization theory. Organization theory suggests that the design and structure of an organization must reflect the complexity of its operating environment (cf. Lawrence and Lorsch, 1969). More recently, Oliver and Ebers (1998) performed a literature search culminating in a network analysis of 158 articles published in four leading journals from 1980 to 1996. According to their research, the most frequently employed theories within this field are resource dependence, political power and the network approach (Ibid: 563). Resource dependence theory focuses on the process through which organizations reduce their environmental dependencies using various strategies to enhance their own power within the system, for example joining a network. Political power is provided by the literature as a rationale for joining an alliance or

network. It is assumed that together the organizations can compete more successfully than they would alone. The network approach focuses on how the position of actors within their network of relations, and the content of these relations affects their opportunities for action. Primary central outcome variables include power/control or prevalence and success. Antecedents most often used by these theories are material and immaterial resources, dependence, network position, goal congruence, and resource munificence. The authors (1998:563) explain,

> [T]he central paradigm has tended to view inter-organizational networking as an intentional response to dependencies among organizations that aims at enhancing power and control of the networking organizations in order to foster their success…[R]esearch has centred on the driving forces behind inter-organizational networking, rather than on the possible consequences of networking.

Thus, little research evaluating the effectiveness of networks exists. Other gaps identified by Oliver and Ebers (1998) include: conflict, cost/price, revenues, extinction, learning, and innovation.

The management literature addressing networks provides useful information with regards to stakeholder theory and collaboration. The literature on collaboration is applicable to health networks, and is addressed within this review. In particular, the work of Barbara Gray and Donna Wood is critical for informing understanding of collaborative alliances, their term for networks. They edited two special issues of the *Journal of Applied Behavioral Science* on this topic. Gray and Wood distinguish between collaboration and collaborative alliances as process and structure. Moreover, they attempt to provide a comprehensive theory of collaboration with attention to its interactive process, shared norms, domain orientations, autonomy, and required resources. Their work bridges many disciplines including management, organizational theory, and political science. While their work does not address health, specifically, it provides a general framework useful across fields of study.

Management literature must be viewed contextually when considering its relationship to health networks as it tends to focus on private companies partnering for strategic and monetary gain. The literature on partnerships within health identifies some of the differences between business partnerships or alliances and those for public health. The main difference between individual organizations/alliances/business partnerships and networks in public health is that the latter are examples of voluntary collaboration (Mitchell and Shortell, 2000). Often, businesses will be forced to partner due to market pressures. Similarly, it could be argued environmental pressures, such as competition among provider agencies, or the need to provide comprehensive services, push organizations to join networks. However, network theorists maintain that networks are voluntary organizations. Another difference between business partnerships/alliances and collaborative health partnerships/networks is that the former may be evaluated solely according to their financial performance while measurement of network effectiveness within healthcare is considerably more complex (Provan and Milward, 2001). Some researchers suggest that businesses may be concerned about more than

the bottom-line, and may encourage the creation of networks for its staff as a means to increasing productivity, or job satisfaction (Wellington, 1999).

Economic perspectives also contribute to network theory and are related to the organizational change literature. Market-power theory suggests that organizations may collaborate to modify their position within their industry and thereby increase their market power (Child and Faulkner, 1998:17). Transaction-costs are incurred in arranging, managing and monitoring transactions across markets. Transaction-cost economics suggests that cooperation may lower transaction costs (Ibid:18). In contrast, agency-theory focuses on the relationship between principals and their agents, and more specifically, the ability of the principals to ensure the agents are fulfilling their objectives. Agency-theory appears to be cautious about cooperative strategies as agents and principals are less clearly definable in a network situation; some would argue non-existent. Child and Faulkner suggest that agency-theory recommends that cooperative partners make clear their means of sharing the returns of the cooperative venture and devise a means to share information (Ibid:24). Finally, increasing-returns theory has been developed in opposition to the assumption that at a certain point there are diminishing returns to factor inputs. Increasing-returns theorists suggest that the development of alliances and webs or systems enables some organizations to lock-in their consumers creating increasing-returns (Ibid:25). Microsoft is one such example. While economic perspectives are not easily transferable to the health care field in Canada, they provide some rationale for the existence of networks (market power, resource dependence), and also some transferable lessons (cooperating is less costly, sharing information is vital).

Systems Theory

Systems theory suggests that a system must have sufficient variety to match the variety present in its environment (cf. Ashby, 1956). In systems theory, it is the relationships between the parts, rather than the parts, themselves, that are important (Capra, 1996). In nature, systems regularly organize themselves. Self-organizing systems are process structures that are flexible so that they can reorganize into whatever structure best suits the environment around them (Wheatley, 1999). Relevant concepts include development of self-knowledge, self-reference, and stability over time. As well, Wheatley notes that the use of networks is more in line with reality than our organizational penchant for boxes and categories. Lindstrom (2000) argues from a system perspective that we need to re-frame how we think about the health system if we really want to change service delivery and management. He argues for a conception of a virtual hospital in which the hospitals are not separate from their communities. A systems perspective can inform network development as the network is intended to be self-regulating and have a fluid structure, yet be stable and sustainable over time. Moreover, the relationships within the network rather than the individual members are the key to network development.

Political Science
Political science is a discipline that makes contributions to network theory via its subfields. For example, Eugene Bardach, an implementation theorist, recently authored a book on interagency collaboration identifying it as, "activities by agencies intended to

increase public value by having the agencies work together rather than separately," a definition reminiscent of Chisholm's network concept. Other researchers draw on comparative politics for Robert Putnam's (1993) concept of social capital. Some make reference to public administration (see Provan and Milward, 1995; 2001). Gray and Wood (1991a) point to political theories within international relations, as well as societal-level dynamics discussed by scholars such as Robert Dahl. Studies of federalism, in particular, examinations of intergovernmental relations may provide some useful perspectives on conflict and cooperation. Finally, policy sciences make a contribution via the concept of policy networks (Coleman and Skogstad, 1990).

Action Research

Action research attempts to generate information about a social system at the same time it is trying to change it (Lewin, 1946). It involves "repeated cycles of diagnosis, planning, implementing, collecting, and analyzing outcomes data, reviewing and discussion data with system members, reaching conclusions and defining new sets of action plans (Chisholm, 1996:220). For Chisholm (1998:195), action research can be an orientation toward network development involving an ongoing process of planning, taking action, questioning, reflecting, searching, creating and capturing learnings. When action research is planned, periodic processes generate information about specific activities or overall system functioning (Ibid.).

A more recent concept linked to action research is participatory research or participatory action research. According to Green et al (1995:3), it is a process rather than a specific methodology characterized by: (a) extensive collaboration between traditionally defined researchers and the community (b) a reciprocal educational process between community and researchers and (c) an emphasis on taking action on the issue under study. Participatory research assumes that the community has "particular insights about the problem and solutions to the problem" (Ibid:4). Participatory research suggests a higher degree of community involvement than action research. Green et al (1995) suggest that most theorists agree the two concepts have converged. Two common outcomes of participatory research in Canada are: (a) solutions to specific issues and (b) empowerment (Ibid.) Following Chisholm, participatory research may be an orientation toward network development. A participatory research process appears applicable to network structure and conceptualizations. Moreover, a participatory research approach to network development may enable the network to involve the end-user in a more systematic, albeit still fluid, way. Citizen participation is one aspect of the participatory research process that seems applicable to health networks, particularly those operating within a population-health framework.

Community Development and Networks

Similarly, Alison Gilchrist (1995, 2000) has done considerable work on networks and networking as aspects of community development. She (2000: 268) states that the purpose of community development is to develop community and that "it can be re-defined as enhancing people's capacity to network both individually, collectively, and through social institutions." Community workers can play the role of networking the networks. Gilchrist (1995:2) defines networking as "the process by which relationships and contacts between people or organizations are established, nurtured, and utilized for mutual benefit." Networking may give rise to structured organizations called networks.

Her work tends to discuss the usefulness of social networks rather than more structured community networks of organizations committed to a common vision or goal. In contrast to organizational networks, social networks do not necessarily require the formality of meetings or official membership. She suggests that in Great Britain, networking emerged as a way of incorporating concepts from information technology and as a way to overcome fragmentation of groups (Ibid).

It is important to note the differences between collaborative health partnerships/networks and other community-based interventions. The main differences identified in the literature are an emphasis on multisectoral collaboration, environmental change, and population-level improvement (Roussos and Fawcett, 2000). Networks rely on social-control mechanisms (internalization of norms) for accountability/adherence, rather than more formal mechanisms. Rigorous program evaluation is an important means of accountability for collaborative health partnerships (Mitchell and Shortell, 2000: 246). Community health partnerships differ from the community organizational model with their greater emphasis on cross-sectoral, public-private participation and collaboration. They tend to be more grass-roots, have more diverse funding and a complexity of ties to institutions and stakeholders outside the boundaries of the immediate community (Mitchell and Shortell, 2000).

Why Networks?

Networks are assembled for a variety of reasons. Ackoff (1974) notes that many current problems are "messes" that involve interconnected dilemmas or complexities that are difficult to conceptualize, analyze or solve. The forming of interorganizational networks is a response to complexity (Chisholm, 1998). Other factors that apply pressures to create interorganizational networks include technology and the decreasing importance of place, and the growth of knowledge. The creation and use of knowledge leads to more complex work roles (Chisholm, 1998).

Gray and Wood (1991:3) suggest that networks or 'collaborative alliances' can enable organizations to "cope with the turbulence and complexity of their environments." In addition, they discuss several theories that offer insights into networks as well as the reasons these theories provide for network formation. For example, resource dependence theorists suggest that networks may be a means to preserve organizational autonomy while acquiring needed resources. Microeconomic theories offer efficiency and a reduction in transaction costs as a rationale for network creation. Consideration of resource constraints is an important factor in the creation of many collaborative health alliances, as well (Mitchell and Shortell, 2000). Institutional theory posits that networks may be a means for gaining legitimacy among network members as they adjust to institutional influences resulting from network involvement. Political theories provide power and resources as reasons for collaboration. Gray and Wood note that a common challenge in adapting these theories for network or 'collaborative alliance' study is that these theories focus primarily on individual organizations rather than interorganizational entities.

Additional reasons to collaborate are identified in the literature, often as contextual factors that may impede or encourage collaboration. Mur-Veeman et al (1999:131) identify four such factors: (1)external financial stimuli (2) innovation tradition (related factors are extent of mutual trust, willingness and inclination to change, available time and expertise, capability and power of the change agents) (3) network structure and (4) local situation.

Table 4: Rationales for Networks

Need to deal with complex problems, 'messes', known as 'metaproblems'
External financial stimuli
Mutual trust
Willingness and desire to change
Pooled resources
Pooled expertise
Desire to enhance ability to adjust to rapid changes in technology and the market
Need/desire to develop new products and services
Enables an organization to remain autonomous while acquiring needed resources (resource-dependency)
Desire/need to gain legitimacy among network agencies and within the broader community
Desire/need to increase political power within community/policy domain
Need to overcome specific barriers to service delivery

The need to address issues that exist beyond the boundaries of individual organizations is also identified as a rationale for networks within the literature. Additionally, networks may offer opportunities for individual organizational gain (Mays et al, 1998: 518) For example, networks, "offer strategies for achieving enhanced impact on community health through pooled resources and expertise" (Mays et al, 1998:519). Resource dependence theory, common within the organizational literature noted above, is another rationale for collaboration. The need to partner arises out of a recognition that community-level risk factors lead to increasing health care costs, and that "those organizations not actively engaged in ameliorating community risk factors through multisector collaboration may be foregoing a key leverage point in lowering use and reducing costs" (Weiner et al, 2000: 49). Alter and Hage (1993) suggest that network

benefits include quicker adjustment to rapid changes in technology and the market, development of new products and services, and more creative solutions throughout the process. It is interesting that the management literature suggests that when cooperation is high and competition low, there are strong pressures for partners to merge (Child and Faulkner, 1998:3). This statement is in reference to businesses alliances, yet seems applicable to the health care field. In some ways, the network enables organizations to merge, and not-merge at the same time. They come together to fulfill their common vision, but they still exist as separate autonomous entities. Thus, networks permit organizations to co-operate and co-develop while at the same time they operate their services and develop as potentially competitive entities (competing for resources or clients, for example).

A primary reason for collaborating identified by Swan and Morgan (1992) is the existence of barriers to comprehensive local service delivery for children (see Table 5, below). Overcoming these barriers requires a collaborative effort. At the level of service delivery, partnering may offer ways to provide "new and creative services and to challenge existing assumptions about service delivery systems within one's own organization" (Holosko et al, 2001).

Table 5: Barriers to Comprehensive Local Service Delivery for Children

Transportation limitations	Lack of facilities
Unfamiliarity with eligibility criteria	Shortage of therapists
Competition for funding	Insufficient funding
Refusal to accept evaluations	Difficulty in obtaining records
Different definitions and vocabulary	Turf issues
High cost of contracted therapy	Unfamiliarity with services
Waiting lists	Inadequate decision-making
Concern for confidentiality	Poor information exchange
Public attitudes and lack of support	Transient families
Strict eligibility criteria	Failure of physicians to refer
Overprotection of resources	Different agency forms
Agency-specific procedures	Poorly informed public
Different philosophies	Different standards and certification
Agency competition	Lack of experience in coordination

Taken directly from Swan and Morgan, 1992:14.

What Do Networks Do?

Networks are multi-functional. Networking may be considered the main function of the network. Networking can be defined as "the act of creating and/or maintaining a cluster of organizations for the purpose of exchanging, acting, or producing among the member organizations" (Alter and Hage, 1993). The network levels referred to earlier in this review address process and structure. There are functions related to both of these levels. This section draws on each author's reference to functions to discuss what networks do. Different researchers use the term "functions" to mean process and structural functions, interchangeably. Some also refer to functions related to the vision, and to service delivery. At the end of this section, attempts to distinguish between these levels and applicable functions are made (see Table 7).

Intelligent networks, according to Sawhney and Parikh(2001), perform a variety of functions. In fact, Sawhney and Parikh (2001) maintain that the "intelligence of a network is its functionality" (Ibid:86). They focus on functions performed by computers and software. As the list below (Ibid) demonstrates, these functions are applicable to community networks, as well as computer networks:

- Configuring – arranging information in a way that responds to a need
- Dispatching – moving information from its source to an appropriate destination
- Storing – collecting information so that it can be accessed quickly and easily
- Processing – converting raw information into useful outcomes
- Interacting – facilitating the exchange of information
- Coordinating – harmonizing activities performed by multiple entities toward a common goal
- Learning – using experience to improve the ability to act
- Sensing – detecting and interpreting signals in the environment.

Beyond providing functions of networks, be they digital or otherwise, the authors also suggest four value trends of the network age. These include value at the ends, value in common infrastructure, value in modularity, and value in orchestration (Ibid.). They suggest that value will likely to be created at the core where functions occur, and that additional value will be created when a connection is made with the user at the other end of the network. Moreover, value is created via shared infrastructure such as order processing, or, as some of the partnership literature discusses, common intake procedures and forms. The creation of modules that can be plugged into a variety of value chains also gives rise to value. In the case of children's health, this could be an evaluation model or service delivery mode that is widely adaptable. Coordination produces additional value referred to as "orchestration".

For Trist (1983), network functions can be distilled to three: regulation, development of a shared desirable future, and provision of infrastructure support. Regulating the network involves re-orienting towards the vision, or confirming the vision on an ongoing basis, as well as determining the organization of the network (Chisholm, 1996:219). The second goal is associated with research and feedback from the community or the network's end user. It involves identification of the trends and issues that emerge over time. Finally, the network can provide support via expertise in organization, maintenance and management (Ibid.).

While Chisholm (1996) incorporates Trist's functions in his work, he also identifies four of his own network functions. These include:

- creating and maintain a vision binding partner organizations together
- serving as a forum for dealing with complex development issues
- identifying the importance of attitudes and perceptions for broad development
- providing ways of communicating (crucial).

Gilchrist (1995:4) connects network development with community development and outlines five functions of networks: (1) information exchange (2) developing relationships of support and solidarity (3) developing a sense of common purpose on the basis of shared values and identity (4) providing a forum for debate and discussion (5) negotiating and articulating a collective view on issues which are relevant to participating members.

A primary aspect of network function is deliberation. Networks are involved in ongoing information sharing, discussion and, ultimately decision-making or planning results. Forester (1999:1) explains deliberation as "learning about others as well as about issues, learning about what we should do as well as about what we can do." In this sense, network function involves sharing and learning that take place at the same time. Forester compares deliberation to learning from "friends". He suggests there are several reasons we can learn from friends. His suggestions appear applicable to network deliberation. He states that we can learn from 'friends' because (1) they tell us appropriate stories (2) we take their words to help us see our own interests, cares and commitments (3) they do not offer a simplistic cure (4) they help us deliberate and "sort out what really matters", and (5) they present us with a "world of experience and passion" (1999:32). If one thinks of the network members as 'friends' or as future 'friends' then Forester's suggestions appear to provide a sound basis why the network can work to solve large, complex problems.

Within the health literature, researchers note that networks can work to improve community health status through addressing underlying community risk factors. Common activities include measuring and tracking community health status, providing multifaceted service to defined populations, developing community problem-solving capacity, evaluating and communicating the progress of the partnership in improving community health status and achieving systems change (Weiner et al, 2000) Mitchell and Shortell (2000) note that networks/community health partnerships provide a forum for conflict, and that conflict can result in resolution or movement towards solutions to complex problems. One function of networks is, therefore, conflict.

Networks enable identification of staff from a variety of agencies with their larger community, rather than only with their own organization (Hoge & Howenstine, 1997). This is an important function of the network. Providers are knowledgeable about the range and depth of services offered within their community and can feel more comfortable referring their clients when they know the names of, and have ongoing contact with those providers.

Mays et al (1998) emphasize the evolving nature of network functions. Over time, the network may move from its strategic orientation to a focus on functioning or on its structure. A network, as it is evolving, can be expected to cycle through various levels. Mays et al's definition of function is a specific one focusing on types of activities that networks may undertake. It is driven by a reference to what is being accomplished rather than on how something is accomplished. Functional characteristics of networks/alliances identified by Mays et al include:

- Service delivery – Service delivery is the most common type of functional activity in their study. It usually involved hospitals, community health centers, managed care plans, and local health departments. Examples included most often referrals, as well as joint efforts to finance and deliver community services through contribution of funding or in-kind resources such as staff time, equipment, office space, and supplies.
- Planning and policy development – Mays et al suggest that the development of coordinated plans and policies is another aspect of network function.
- Surveillance and assessment – The identification of health risks and diseases within the community and the assessment of the performance of organizations and interventions in addressing community health needs is an important network function.
- Education and outreach – The education of residents and providers about practices that hold potential for improving health within the community is another example of network function.

Table 6: Network Functions by Discipline

Author	Sawhney & Parikh (2001)	Trist (1983)	Gilchrist (1995)	Chisholm (1996)	Mays et al (1998)
Discipline	Computer Science/Systems Theory	Theories of social ecology	Community Development	Management and Organizational Theory	Health Sciences – Community Health
Functions	Configuring Dispatching Storing Processing Interacting Learning Sensing	Regulation Development of a shared desirable future Provision of infrastructure support	Information exchange Developing relationships Developing a sense of common purpose Providing a forum for debate and discussion Negotiating and articulating a collective view on relevant issues	Create and maintain a vision Serve as a forum Identify the importance of attitudes and perceptions for broad development Provide ways of communicating	Service delivery Planning and policy development Surveillance and assessment Education and outreach

Another function of networks addressed in this review is fundraising. The review provides the example of WORKSAFE IOWA that used an annual membership fee to raise funds. Other means include grant-writing, and collaborative projects funded by agencies. The literature largely ignores the issue of funding the networks. It is clearly secondary or even tertiary to network development and assembly within the literature.

Swan and Morgan (1992) suggest the following activities for networks or interagency coordinating councils: information exchange, public awareness, screening and identification, case management, child find and referral, transition, service delivery, parent involvement, staff development, and program evaluation. More specifically, they note that networks can:
- reduce or eliminate unnecessary duplication
- direct program expansion
- redistribute children to more appropriate settings
- use transportation wisely
- utilize the most inclusive setting
- create therapy options, and
- locate funding sources.

In addition, Swann and Morgan provide concrete examples of collaborative activities (1992:184):

- co-location and integration of services
- co-location of administrative or supervisory staff
- employment of a paid council coordinator
- contracts and written agreements
- mutual development of grants and budgets
- single point of entry
- interagency intake process
- standardized referral procedures
- collaborative community screening program
- interagency child tracking system
- uniform policies and procedures
- collaborative public awareness activities
- collaborative parent services
- consolidation of parent newsletters and libraries
- establishment of a parent resource centre, and
- interagency transition procedures

The literature provides a wide variety of examples of what networks do. These examples often refer to how actions are accomplished and use action words (verbs) or may refer to what actions are accomplished (see Mays et al, 1998). Table 7, below, offers an integration of these various functional examples according to the network levels identified earlier in this review. Some researchers distinguish between structure and process in terms of network understanding. This review goes farther by separating the vision from other functions, and providing a separate category for service delivery.

Table 7: Network Levels and Their Functions

Network Level	Related Functions*
VISION	Visioning, Missioning
STRUCTURE	Assembling the network Administering the network Planning the network activities Evolving the network Regulating the network Maintaining the network Funding the network
PROCESS	Configuring, Dispatching, Storing, Processing, Interacting, Coordinating, Learning, Sensing, Researching, Developing, Deliberating, Supporting, Communicating, Identifying (e.g., risk factors), Planning, Conflicting, Collaborating, Surveying, Evaluating
SERVICE DELIVERY	Exchanging information Raising public awareness Case management Co-locating Establishing a program resource centre Standardizing referral and intake processes

* These are not an exhaustive list for any category; attempts to capture major themes have been made.

Chisholm notes that the concept of "doing" can be a pitfall for the network. The indirect, intangible nature of network work such as sharing, learning, deliberation etcetera can cause stress for members. He (1998:194) explains that members can fall into an "activity trap" of engaging in activities that "give the illusion of accomplishment but are not appropriate for the network." This section provides abundant examples of network activity, and closes with Chisholm's caveat. Ultimately, networks must determine what they will do, as they are self-regulating.

Network Evolution

The section of the review examines various issues, challenges, and directions for networks, as discussed in the literature. It may provide some guidance for those interested in creating and developing networks. A caveat begins this section, as networks are by nature self-regulating, responsive, and/or active to input from their surroundings, the information provided here may not apply to all networks. As Chisholm (1998:208) explains, the process of network development is "disorderly and non-linear." This background is provided to assist in overcoming barriers and identifying challenges when they occur. It may also serve as a useful guide for process evaluators who can give feedback about network effectiveness, and assist the network in dealing with its challenges. The section is grouped according to the network levels identified throughout this review: Vision, Structure, Process, and Service Delivery.

Several authors have identified network life cycles to address network development. Mays et al (1998) include expansion, maintenance, formalization, migration, ongoing evaluation, and termination as stages. Further, Mays et al (1998) suggest that collaborative health alliances can be successful if they (1) Identify a boundary spanner. (2) Secure buy-in from key stakeholders and opinion leaders. (3) Recognize and respond to participation constraints. (4) Keep the structure simple. (5) Ensure incentive compatibility among participants. (6) Ensure effective communication and information flows among participants. (7) Develop an explicit evaluation strategy. (8) Maintain momentum through staged successes.

Weiner et al's (2000) "life cycle model" includes four phases: emergence, transition, maturity, and critical crossroads. For Swann and Morgan (1992), there are three stages of network development: forming, storming and norming. Forming is the initial stage in network development involving 'cooperation' and "characterized by a sharing of selves" (Ibid:41). The storming or coordination stage is often conflictual as attempts to reach consensus begin while tasks and roles are identified. Swann and Morgan's norming stage is a point of collaboration when the group becomes increasingly cohesive "based on high-morale, trust, and disclosure" (Ibid). These models assume that the network follows a process of development. By categorizing the evolution or life cycle of a network via levels, this review provides an opportunity to discuss aspects of network development beyond structure, such as service delivery, and to separate process from structure.

Network Evolution I: VISION

"A shared purpose to achieve a common transmutational end (i.e. to produce change)" is how Roberts and Bradley (1991) define the vision. They state that network members must share at least one common interest, and that is the vision. According to Nathan and Mitroff (1991), the vision is the reason the network assembles. It is the overarching rationale.

Need for a Well-Articulated Vision and Mission
Fawcett et al (2000) identify several steps to successfully establishing a network. A first and key step is development of a clear vision and mission (Ibid; Fonner, 1998:19; Spekman et al, 1995). They argue that groups with a clear focus "bring about markedly higher rates of community and systems change than broad 'healthy communities' efforts lacking targeted missions and objectives" (Ibid.). Selection of a modest number of broad goals is more likely to lead to success. Examples include improving education, preventing violence, etcetera. Finally, they suggest that the vision and mission reflect a continuum of outcomes including (1) categorical issues (2) broader inter-related concerns and (3) more fundamental social determinants of health and development.

Research in the management literature emphasizes the need for alliances to have a well-articulated vision. Spekman et al (1995:126) refer to this as the "alliance spirit". It encompasses an understanding of what it means to be in a partnership. Mur-Veeman at al (2001) explain that the network structure is facilitated by "clear agreements on the division of tasks and responsibilities" (Ibid:152). A policy plan outlining common goals and activities may be helpful "provided that the plan is not so much blueprint-like, but more a flexible guideline for future actions" (Ibid.).

Mays et al (1998:524) did a descriptive study of 60 communities, and used a more comprehensive case study approach in 8 of the communities. They found that community health alliances come in a variety of forms. Stakeholder alliances are a specific form that develop "a shared mission or set of interests through collective action". These alliances often involve a wide variety of participating organizations because of their need to achieve improvement in one or more areas of community health. Mays et al (Ibid) caution that this type of alliance may be the most difficult to "develop and maintain because of the need to achieve consensus about the alliance's core mission and goals." While the resource dependency alliances are formed primarily to share the costs of a product or service, stakeholder alliances tend to be motivated by their common mission of health improvement. Mays et al (1998) note that organizations may change their orientations over time.

Consider a Search Conference
Gray (1985:917) recommends the search conference as a vehicle to assist those wishing to collaborate in identification of a common purpose that she terms "direction-setting". The search conference brings the member organizations together to discuss, and articulate their values in order to jointly conceive of "the desired future of the domain" (Ibid.) Conditions that will facilitate collaboration include: recognition of

interdependence, perceptions of legitimacy among stakeholders, positive beliefs about outcomes and shared access to power (Ibid.).

Bogue et al (1997:1063) suggest two key initial questions that the network should ask itself following formulation of its mission/goals that evaluators may want to consider: What major barriers do you believe you will face in regard to each component of the vision? What do you consider to be the primary strengths of your partnership that will assist you [in achieving your vision]?

Prepare for Challenges
Expect challenges. In findings from 3 studies, Goss (2001) noted that all participants viewed partnership as "essential" but found it "far harder than expected." Mitchell and Shortell (2000: 243) underscore the need to recognize the qualitatively different challenges that collaborations or networks face in comparison to individual organizations. They identify the challenges of aligning member interests, achieving domain consensus, managing conflict and turf issues and a greater need to provide evidence of achievement and changes in health outcomes.

Network Evolution II: STRUCTURE

For Pasquero (1991), the process of collaborating involves institutionalizing some form of referent structure. In his case study, it is roundtables on environmental issues. For networks, the structure includes the elements that make up the administrative mechanism by which the network operates. These elements are the member organizations, the governance structure, and the network administrative organization, if applicable.

Need for Structure
Network growth and development issues centre on the need for stability and control versus the need for openness and flexibility (Weiner and Alexander, 1998). As one partner explained, "People take you more seriously if you have a formal structure, particularly business people" (Ibid:53). Several authors have articulated concerns regarding a lack of structure within networks (Gilchrist, 1995; Chisholm, 1998). The need to choose the network structure carefully, and allow the structure to adapt to its environment is connected to successful growth and development of the network.

Stakeholder Considerations
In forming a network, member organizations should consider commitment, skills, diversity and collegiality, according to Wellington (1999). She also suggests that members consider company or organizational climate in joining a network. Will management be supportive? What resources are necessary? Wellington suggests creating a short survey with questions regarding member interests and availability. The responses would be discussed at a network meeting. Questions include:
- What are the three things you want to get out of this network?
- What do you need in order to justify your involvement in this network?
- Realistically, how much time can you devote to the network?

> ▪ What resources can you offer to the network?

The question of how much time a member organization can devote to the network is important. Goss (2001) writes of research specifying "too many partners" and participant claims of "partnership fatigue." The level of commitment the member organization can give to the network is a key element in network stability, and, potentially, network success.

<u>Network Composition: Types and Characteristics of Organizations</u>

Consider who will be involved in the network. Who should be involved? Fawcett (year) suggests several key players including (a) people and organizations with a common purpose (b) support and intermediary organizations and (c) grantmakers and government agencies. In considering who should participate, Gray (1985) suggests that legitimacy is a crucial factor. To have a legitimate stake means "the perceived right and capacity to participate in the developmental process" (Gray, 1985:921). From her perspective, those actors with the right to participate are those who may be impacted by the actions of other stakeholders. She notes that perceptions of legitimacy can be affected by historical relationships. Moreover, she recognizes that stakeholders may disagree about the right of others to participate, but recognition of that right is necessary for collaboration to occur.

For Alter and Hage (1993), the individuals who join networks on behalf of their member organizations are 'boundary spanners'. Boundary spanners are "individuals who engage in networking tasks and employ methods of coordination and task integration across organizational boundaries" (Ibid:46). Spekman et al (1995:130) discuss characteristics of alliance managers involved in managing alliances for private businesses:

> They have a learning mindset, and their ability to be
> flexible, adaptive, and to simultaneously consider other
> people's points of view is critical. They also have the
> ability to be what we call a virtual thinker which means
> the ability to think on the spot about a situation or issue
> they have not dealt with before and to relate information
> gleaned from other experiences to the situation at hand.

Support organizations include universities that "build the capacity of community partners by enhancing core competencies" (Fawcett et al, 2000). Grantmakers and government agencies are important to include in order to "create conditions for success by using requests for proposals to convene people in a common purpose" (Ibid.). Weiner et al (2000) emphasize the importance of having a partner that is skilled in performance measurement and management. It is also helpful to consider involving partners that many of the organizations may not commonly work with but have a special resource or skill to share. In the United States, Catholic health care facilities have begun partnering with a variety of organizations. As *Health Progress* (2001) explains, "The church's network of almost 20,000 parishes enables health care organizations to reach into communities where little infrastructure exists." Examples of 'successful' projects facilitated by partnerships through Catholic charities include the Mercy Brown Bag Program in California, and the New Brunswick and Perth Amboy Clinics in New Jersey.

Network Composition: How Many?
In addition to considering who to involve in the network, the question of number is also necessary to consider. In Gilchrist's studies of community networks, she found that the "optimum number" of participant organizations was between 35 and 40 (2000: 265). What is the critical mass at which the network is functional? Are members too remote and impersonal at a particular size and structure (Gilchrist, 1995:12)? Goss (2001:95) noted that too many partners can make the network "unwieldy" creating a "rapid sense of drift and a lack of clarity about purpose."

Network Administrative Organization
Another element in network establishment or assembly is the network administrative organization. Consider whether a network administrative organization is necessary. Some researchers view this as the leadership or coordinating agency (Swan and Morgan, 1992). Leadership involves directing the behavior of others toward a goal (Ibid). Wellington (1999), in her work on women's networks suggested that some sort of leadership is necessary, even in an informal network. Activities the leader would involve herself in include (Wellington, 1999:47):
- Acting as spokesperson for the group within the company and externally
- Ensuring the network's activities support the outlined goals and objectives
- Maintaining momentum for the group among the members
- Coordinating the activities of the members
- Securing participation and increasing membership when appropriate.

In considering whether to have an NAO or its structural components, note Chisholm's description of network organizations as "controlled by members, not by a centralized source of power" (1996:219).

Gilchrist (1995) prefers a modified and less structured model of network administrative organization. Network members can take turns convening meetings, sending out mailings and so on. Alternatively, she suggests that a person be elected or appointed by the members to take on the role of contacting members, and also allowing outsiders to make contact with the network.

The End-User and the Network
Roussos and Fawcett (2000) identify several conditions for success in collaborative partnership development. Among these are identification of resources, both human and financial, access to support and technical assistance and the need to focus on community-based initiatives. They (2000:393) suggest that initiatives should address "issues that matter to local people over time, across concerns, and across generations of dispersed leadership (age and experience)." Involving the community in the network is not well-addressed in the literature, but is hinted at by discussions of computer network end-users. Moreover, some networks involve individuals as representatives of the community within the network core. The core of the network resides in the organizations that make it up, but the other end of the network should reside in its community. The end-users may be conceptualized as clients. How the clients or the

community is involved in the network or interacts with the network is another aspect of network structure and network development. In some sense, the network organizations represent their clients, but they can also be seen as intermediaries between their clients and society, depending on what type of organization they are. Weiner and Alexander (2000) noted as a result of the CCN focus groups that networks had difficulty engaging clients or end-users primarily because they could not be represented by an organization. As individuals, they constituted a particular challenge for the network. Networks for children's health will want to consider how they involve or interact with the end-user. Is the involvement direct or more indirect, via evaluation, for example? Client advocacy might be a part of several of the member organizations' goals and may become part of the vision, or be addressed via participation of particular client advocate organizations. In some ways, the existence of a network is an effort to develop ways to engage the end-user. It is an ongoing challenge.

Resources and Technical Assistance
Community-driven interventions may require the assistance of members of the community not directly involved in the network. There may be a need to provide resources for community mobilizers. Community mobilizers or organizers can follow-up on action plans. Regular communication about the rates of community change and events that affect it is correlated with higher degrees of success (Fawcett et al, 2000). Finally, technical assistance by consultants or other experts can help with planning and securing of resources.

Network Tools: e-health
The community health information network (CHIN) is an interorganizational system (IOS) often mentioned as a model for health care is the community health information network. As Payton and Ginzberg (2001:20) explain, "CHINs enable multiple organizations to share health services data in order to meet common objective(s), ranging from profit maximization to improvement of public health conditions and wellness." As a 'recent phenomenon', there is little research available (Ibid). Payton and Ginzberg's study tests an existing IOS implementation model used for the airline and automotive industries to determine the extent to which it is transferable to the health care industry. Their exploratory study finds that the model is applicable, but better suited to less competitive situations. As their model is tested in the highly competitive American health care industry, their implementation process may be more applicable to Canada's publicly funded system. Their process model involves six stages of implementation of information technologies that may be useful to consider if the network decides to use IOS or other forms of IT. These stages include: Initiation, Adoption, Adaptation, Acceptance, Routinization and Infusion. Infusion means that increased organizational effectiveness is achieved by using the IT application in a "more comprehensive and integrated manner". These stages may also be useful to consider in evaluation of network tools.

A physician refers to CHINs as HICNs (health information community networks) keying on their importance to the national health information infrastructure. Duhl (2000) suggests that HICNs differ from health information networks as they will enable a broad

range of community organizations and citizens to communicate with one another. He emphasizes the need to provide for community participation in the design and management of these networks. Other functional requirements identified by Duhl (2000:273) include:

- Incentives for development of high-capacity networks to send and receive video, audio, and text communications
- Capabilities for interconnecting with each other and other relevant networks
- Universally available to community organizations and individuals
- Reliably designed to guarantee user confidentiality of transacted communications.

Telemedicine is another example of a network tool. Telemedicine has been defined as "situations in which health care professionals use telecommunication channels to communicate with each other or with their patients, with the goal of improving the delivery of health care services" (Shinn, 1975; Kellogg et al, 2000). Telemedicine systems may be used for clinical care delivery, consultations, education, information management and dissemination (Kellogg et al, 2000). A recent article examines the use of telemedicine in child sexual abuse cases and may be of interest for child health networks. The authors note that telemedicine in child sexual abuse cases developed out of the need for caregivers in smaller communities to receive information and the desire of experts to share case data for peer-review and consensus-building (Ibid). Seven statewide networks of telemedicine systems identified similar systemic problems: (1) funding (2) distances between sites (related to need to testify in court) (3) underutilization (attributable to equipment installation and utilization difficulties, lack of technical support, variability of examiner skills, and lack of infrastructure organization) (4) Technical support (5) clinician skills and (6) organizational issues. The article also discusses legal issues associated with telemedicine including the physician-patient relationship, patient confidentiality and data security, interstate licensure and enforcement issues, standard of care issues and product liability and liability of computer consultants (Ibid:1609, 1610). All seven networks identified these objectives for future planning:

- Enhanced clinical and technical training for network providers and support staff;
- Improved technical support and maintenance;
- Improved infrastructure (e.g., imaging devices and bandwith);
- Development of more formal network management structures; and
- Development of formal agreements between hubs and satellites (Kellogg et al, 2000:1610).

These discussions of e-health inevitably lead to concepts such as the virtual hospital. Lindstrom (2000) discusses a vision of just such a hospital. He provides several examples of network tools especially for children's health. The Child Health Network for the Greater Toronto Area will electronically link hospitals, individual physicians/paediatricians, home care agencies and other organizations with its eCHN infrastructure. The eCHN infrastructure will allow providers to access comprehensive patient records anywhere within the network, and families to access health information via the eCHN website.

Funding the Network

Direct discussion of network funding is largely ignored by the literature. WORKSAFE IOWA provided an example of a partnership that obtained funds via membership fees. Swan and Morgan (1992) provide one of the few, albeit relatively brief, discussions of funding partnerships in the literature. They suggest looking for government funds allocated specifically for partnering. In terms of local financing of services they suggest a range of options including: local educational agencies, nonprofit community agencies, hospitals, clinics and rehabilitation centres, private practitioners, United Way agencies, volunteer organizations, parent groups, foundations and nonprofit organizations, community and civic groups, private businesses, universities and community colleges, and institutes and research centers. Of particular interest for children's networks may be Swan and Morgan's (1992:215) listing of foundations and nonprofit organizations that provide specialized equipment, instructional materials, supplies and family services such as The March of Dimes, Epilepsy Foundation, Muscular Dystrophy Association, Multiple Sclerosis Society, Spina Bifida Association, United Cerebral Palsy Association, etcetera.

Network Evolution III: PROCESS
Network processes are evolving aspects of the network. As described in the section on functions, some authors suggest that networks exist to take action. Networks enable large groups of people belonging to large and small organizations to undertake action, together. Fawcett at al (2000) suggest action planning as a second step following articulation of the vision and mission. Action planning involves identification of specific community or systems changes to be sought (include with whom, by whom, and by when). The extensive research of Fawcett et al (2000) suggests that this "may be the single most important practice than can be implemented." Network processes depend on trust, and may take considerable time, according to the literature.

Trust as a Key Network Component
Network theorists, community health researchers and public health advocates agree that a key component of successful partnering or collaboration is trust. A key challenge for organizations that have not worked together previously is building trust. Weiner et al (2000) suggest that managers reflect on their own credibility within the network or partnership. If they lack credibility, they should aim to close the "credibility gap" by taking on collaborations in an effort to learn and gain competence or involve themselves in study, consultation with experts or forums (Ibid). Efforts to meet individually with other partners within the network may also build trust.

Lane and Bachman (1998:3) note that trust as a concept involves three elements: (1) a degree of interdependence between the trustor and trustee (2) trust provides a way to cope with risk or uncertainty in relationships (3) belief or expectation that the vulnerability resulting from acceptance of risk will not be taken advantage of by the other party. Multidimensional concepts of trust result from consideration of a variety of contexts and expectations. In game-theoretic approaches to trust, the actors assume repeated games or an ongoing relationship, and Axelrod notes this as a condition from which trust can emerge (1984). Intensive interaction with a common third party and a need to preserve reputation is the other situation that gives rise to trust for Axelrod. Given this description of trust, members of a network can expect to develop trust as

they meet both conditions. They will engage in ongoing relations, and they share the community as a common third party, as well as, one another.

Sydow (1998) explains how important trust is to an interorganizational network. He draws on the literature noting that trust is assumed to support collective strategies, facilitate coordination of economic activities, promote information exchange, ease conflicts and reduce transaction costs. Trust appears key to stabilizing the network as well as making change possible. Building trust is a task and ongoing challenge of a network. Sydow suggests that frequency and openness of communications can facilitate trust-building. Multiplexity may also be helpful. An open-ended relationship is also likely to build trust. If the actors do not know when the relationship will end, they are more likely to cooperate and to trust (Ibid.).

In addition, a balance of dependence and autonomy is useful for building interorganizational trust. There is more likely to be trust within an interorganizational network if the number of participants is low and the structural properties of their organizations are similar. The more dense and diverse a network is, the more of a challenge it is to build trust, in comparison to less heterogeneous networks. Finally, Sydow points to the interorganizational field from which members of the network come. Well-established members from a particular field are likely to draw in their "competitors" than those not as well-established. If the interorganizational field is narrow, once competitors join, they have few alternatives and are likely to remain with the network. Sydow (1998) emphasizes that interorganizational networks have to overcome additional barriers: being loosely coupled and less institutionalized; having less clear, more permeable internal and external boundaries; characterized by cooperation and competition; and often evolve as both a result of cooperation among independent organizations as well as a result of externalization (54-56).

Child and Faulkner (1998:56) provide three key elemental phases in trust development among alliance members that appear to be applicable to networks. Phase 1 is called calculation and characterized by "being prepared to work with you". Phase II is called mutual understanding and is characterized by "getting to know about you," while Phase III is labeled bonding and involves "coming to identify with you as a person".

Management research demonstrates the likelihood of trust development through information sharing activities while joint venture marketing is more likely to create distrust (Alter and Hage, 1993:24). Health networks would have to consider to what extent they want to be involved in marketing activities, or if other activities would likely give rise to distrust.

Need to Develop and Sustain Relationships
In a survey of 25 Community Care Network partnerships, Weiner and Alexander (1998:42) identified three keys issues relating to network development (1) turf/territoriality (2) community accountability (3) growth and development. Strategies to overcome turf issues include choosing projects carefully, and requiring substantive resource commitments, as well as the need to build trust and make accommodations. Community accountability highlights the need to define the community as an

intersection of accountabilities, and create multiple opportunities for community voices as well as build feelings of community ownership. The network can enhance legitimacy via successful collaborations and also by large numbers of important community organizations belonging to the network. Developing and sustaining the relationships is the key challenge.

<u>Time as Key Consideration</u>
The process of building trust, of getting to know members of the network and feeling comfortable taking on responsibilities together can take a long time, many years, in fact. Sue Goss (2001) provides some evidence from several networks developed at the municipal level in Great Britain. She explains: "The processes of getting to know each other, sharing data, identifying problems, identifying resources and planning action can take years, not months." Similarly, participatory researchers have found that time is a key factor is the development of empowerment. Dockery (1996:172) explains, "The progression from disempowerment to empowerment is usually a slow, reflective and action-oriented process which can take years."

<u>Dealing with Conflict: A 'Blameless Review'</u>
Spekman et al (1995) suggest the need for implementing what they term a "blameless review". The review allows issues that have become conflictual or are of concern to members of a network or alliance to be discussed in a forum for that purpose. The underlying idea is that each member is 'blameless' but the problems still need to be resolved. Make time to ask: Are we OK? How are things going? (Ibid: 125)

<u>Consider Communication Strategies</u>
As network progress can be impeded by 'soft issues' such as communication (Fonner, 1998), the network will need to adopt a variety of communication strategies so its members can exchange information. Key considerations in establishing the network include the need for open lines of communications, building trust and developing collaborative relationships (Fonner, 1998:19). Wellington (1999:51) suggests the following possibilities for network communication:
- Newsletters (quarterly or biennial)
- E-mail updates
- Computer bulletin boards
- Online chat rooms
- E-mail discussion groups
- Calendar of events and network activities
- Formal network meetings
- Videoconferencing
- Tapes of events or meetings circulated to members

Regularly scheduled conference call updates.

<u>Need for Quick Wins</u>
Mitchell and Shortell (2000:260) emphasize the need for "quick wins" early on in order to motivate the team. Mays et al (1998:547) also note, "Small successes early on in the alliance process can build confidence among alliance participants and provide motivation

for subsequent accomplishments." Along these lines, Weiner et al (2000: 63) discuss the importance of celebrating successes, even small ones. Early successes are clearly key to building trust in community residents, as well (O'Donnell, 2000:15). Similarly, the management literature suggests the need for the network or alliance members to sit down together and reassess their positions "everytime the alliance experiences a turning point, whether tragedy or opportunity" (Spekman et al, 1995:134). Regular reviews of progress are key. Moreover, the development of realistic goals may contribute to 'quick wins' that motivate the team. Weiner et al (2000) encourage partnerships to develop actionable goals. These are goals that are "smart" – specific, measurable, assignable, realistic, and time-related (cf. Quinn et al, 1990). This is the format that the *Healthy People 2000* movement used in the United States to develop public health goals for the nation.

Network Evolution IV: SERVICE DELIVERY
<u>Analyze Existing System Jointly</u>
Swan and Morgan (1992) note that initial information sharing should also involve an analysis of the existing system of service delivery. Their work is specific to children's health as they have been active as both researchers and members of interagency coordinating councils for comprehensive service for children and families. They recommend consideration of 13 parameters in the initial analysis of service delivery:

1. Types and variety of available services
2. Ages of children served
3. Geographic distribution of services
4. Accessibility of services
5. Cost of services and funding options
6. Consistency of services with cultural values
7. Program times, hours of operation and calendar year
8. Agency beliefs and philosophy
9. Provision of transportation
10. Time delays for service initiation
11. Availability of integrated programs
12. Most inclusive environment
13. Staff qualifications

Through examination of these parameters for each organization involved, members can identify gaps in service.

Choosing what activities to undertake or to support as a network is one aspect of network function and is crucial to developing the network's centrality in the community. Neighborhood Solutions is a collaboration or network that is involved in an ongoing youth violence intervention that is neighborhood driven. It determined what activities to undertake by prioritizing with the community (Randall et al, 1999). It then collaboratively designed and implemented interventions addressing known risk factors for youth antisocial behavior. While its outcomes are not yet determined, Neighborhood Solutions' approach involving a needs assessment, ongoing community consultation and

planning with the community is one that other networks may want to consider. One barrier identified by Neighborhood Solutions was the difficulty related to recruiting neighborhood volunteers. They suggest that active recruitment of and meetings with neighborhood/local volunteers be a "routine part of community-driven interventions" (Randall et al, 1999:819).

The ACCESS demonstration project provides examples of networks struggling to develop, and their challenges. The Access to Community Care and Effective Services and Supports (ACCESS) demonstration program began in 1993 and projects have been established in 9 states to develop integrated systems of care for homeless populations with serious mental illness. It is involved in ongoing evaluation, both at the systems and client level, described in greater detail in part 2 of this document. Strategies for implementation include interagency coalitions, interagency teams for service delivery, interagency management information systems and client tracking systems, cross-training, flexible funding, pooled or joint funding, uniform applications, eligibility criteria and intake assessments, and co-location of services. Initial evaluation findings (Randolph et al, 1997: 373) highlight five problem areas: (1) lack of clear vision (2) lack of planning around systems integration (3) Interagency councils had only minimal responsibilities and were not seen as change agents (4) lack of state and agency level leadership for change, and (5) lack of joint funding or sharing of resources. In response to these problems, the Center for Mental Health Services sponsored technical assistance workshops for systems members. In addition to the need for technical assistance, networks require considerable help from outside the network. As the ACCESS challenges indicate, networks need funding from a variety of sources, as well as a reputation within the community as 'change agents'.

Sue Goss (2001), in her review of literature relating to municipal networks in Great Britain, noted there is little evidence, to date, that networks are effective at service delivery. She suggested that networks have demonstrated some prowess at strategy, planning, document writing, research and data-gathering, but service delivery is a much more difficult task. According to her data, few networks made the transition to pooled resources or joint programmes. Generally, they were successful in achieving grant funding from governments, but failed to change services or reallocate mainstream resources.

The Four Levels Integrated: Toward a "Mature" Network
For Weiner et al (2000), the final stage of their staged network processes, is referred to as the "maturity" stage or stage of "critical crossroads". At this stage, a primary challenge for network members is to "institutionalize their organization's participation". Key to this is ensuring the organization values collaboration. Weiner et al (2000: 62) suggest educating the organization early on, and encouraging 'community plunges' - bringing managers and executives into the community to participate in network activities. Evaluating the network's effectiveness and activities is also important as "few can argue with success" (Ibid.). Wellington (1999:65) suggests making presentations to

senior management of organizations involved in the network, explaining what the network is about, providing details of upcoming activities and establishing ongoing communication.

At this stage of network development, the benefits of networks should be clearer for network organizational members. The barriers and challenges associated with network development may also have come into starker relief. An examination of benefits suggest they are oriented towards group function, and successful collaboration while barriers tend to be oriented more to individual organization's participation. After the network has been established and existed for some time, member organizations should have developed a network-focus orienting their organization to the broad goals of the network and focusing more on, for example, "improving the health of children" than, "increasing my own organization's reputation within the city". While the latter goal may result from network function, the former goal is the higher calling Chisholm suggests networks instill, the vision.

Table 8: Network Benefits and Barriers

Network Benefits	Network Barriers
Adapted from O'Donnell, 2000; Alter and Hage, 1993	Adapted from Fonner, 1998; Alter and Hage, 1993; Bogue et al, 1997
Diversity	
Pooled resources	Leaders' need for autonomy
Multisectoral	Competing priorities
Enhanced reputation	Inwardly-directed budgets
Greater community satisfaction with overall performance	Workers' technical jargon
	Financial imbalances between participating members
Improved communication	Participant Turnover
Opportunities for reducing expenditures and duplications	Geographic distance
	Lack of resources
Development of new products and services	Lack of centrality (reputation)
	Loss of technological superiority
Quicker adjustment to rapid changes	Risk of losing competitive position
	Loss of time
Creative solutions	Potential loss of legitimacy, status
Opportunities to learn	Local politics
Development of competencies	Information systems
Gain of legitimacy, status	Population characteristics

In order to gain a more complete understanding of network function at all levels, it is necessary to consider when networks may fail. Some of the barriers identified in table 8, above, are reasons why networks can fail. The network extinction literature is not well-developed (Oliver and Ebers, 1998). Studies that have examined business failures in establishing or maintaining alliances have found that alliances fail more often than they succeed. According to McKinsey and Booz-Allen, upwards of 60 percent of alliances in business fail (see Spekman et al, 1995). Researchers address the issue of newly-formed difficulties in network establishment. Early on, networks may, "experience conflict, low productivity, cost overruns, morale problems and disjointed decision-making," (Goss, 2001) resulting in the disbanding of the network. These challenges appear to be

connected both to structure, and process, while some researchers have found that a lack of a clear vision can also lead to network extinction (Fawcett et al, 2000).

Table 9: Issues Leading to Network Disbandment

Network Level	Issues leading to disbandment
Vision	Lack of clear vision (Fawcett et al, 2000); Morale problems (Goss, 2001); perception that network lacks usefulness (Chisholm, 1998)
Structure	Cost overruns (Goss, 2001); Information systems (Bogue et al, 1997); Loss of leadership, Changes in stakeholder representation (Fawcett et al, 2000; Fonner, 1998), tyranny of structurelessness (Gilchrist, 1995)
Process	Conflict, low productivity, disjointed decisionmaking, not enough time to build relationships (Goss, 2001), lack of trust and commitment (Child and Faulkner, 1998)
Service Delivery	Inability to change services, Inability to reallocate mainstream resources (Goss, 2001)

The concept of the "tyranny of structurelessness" is applicable to networks and can be a reason for failure (Gilchrist, 1995:10). It is the challenge arising from the benefit of being horizontal and voluntary in structure. Activity levels within networks will depend on the *perceived usefulness* of the network and the *amount of spare capacity* that network members have left over from their other commitments. Chisholm (1998:194) notes that due to the horizontal, member-controlled design, network members can feel that there is no clear understanding of who is in charge. The self-regulating characteristic of networks can be seen both as a reason to belong and a reason to disband.

One area where most network theorists appear to agree that the network is highly vulnerable is when there is a change in leadership or a loss of key leadership (Fawcett et al, 2000; Fonner, 1998). Spekman et al (1995) note that frequent changes in members involved in the alliance or network produces static that can "tear the alliance apart". Their research suggests that the longer people work together the stronger their relationships. In fact, the main characteristic of a successful alliance in their study (one alliance was 27 years old) was time spent together in person. Both work time and personal time were considered critical. Organizational change and organizational learning literature notes that commitment and trust are key attitudes most associated with success in alliances (Child and Faulkner, 1998). Fonner (1998) provides several additional challenges for networks: leaders' need for autonomy, competing priorities, inwardly-directed budgets, incompatible mission, workers' technical jargon, existence of financial imbalances between participating organizations, diversity among leaders, and turnover of participants.

In addition, some studies noted that unwillingness on the part of members to contribute to the network might be an early warning sign of future network failure. In particular, the expectation on the part of some network members that only external funding sources provide resources for the network suggests a lack of tangible commitment. Network funding is an obvious area for network failure. If the network is unsustainable, it cannot continue to exist and exhaust resources. Goss (2001) cautions that the time required to build relationships may mean that the network is a resource-consuming rather than resource-creating entity, at least, at first.

The issue of network extinction or failure is clearly a gap in the literature. Studies tend to focus on network establishment and suggestions for avoiding failure. Within the management literature, some researchers find that alliances fail more often because of interpersonal problems and poor alliance managers (the boundary spanners of business alliances) than an inability to compete in the marketplace.

PART 2: EVALUATING NETWORKS

Evaluation is one aspect of a network life-cycle (Mays et al, 1998). There are both process and outcome forms of evaluation. Empowerment evaluation is a form of process evaluation that focuses on empowering participants to engage in change for positive outcomes. Outcome evaluations determine the extent to which networks meet the goals or objectives they have defined for themselves. Mays et al (1998) report that all of the participants of the 8 organizations they interviewed between 1995 and 1997 performed some type of ongoing evaluation, often internal. To develop a network, some form of ongoing feedback about effectiveness, is necessary.

Part 1 of this literature review provided considerable information to inform evaluations of networks. Part 2 provides a discussion of evaluation models used by researchers undertaking evaluations of networks. Key issues considered include:
1.   Examples of Evaluations
2.   Levels of analysis (community, network, organization, individual, etcetera)
3.   Evaluation Measures

Knowing what networks do provides inadequate information about how networks work. Studying examples of networks, and discussing the measures used to evaluate their success should be of some use to evaluators attempting to evaluate networks. The networks discussed here provide more of a flavour of what networks, or interorganizational collaborations, are, than what makes them successful.

The ACCESS Demonstration Sites provide an ongoing example of network evaluation. The ACCESS (Access to Community Care and Effective Service Supports) program is a national demonstration project sponsored by the Center for Mental Health Services (Morrissey et al, 1997). It seeks to improve services, at both the community and client level, for persons with serious mental illness and co-occurring substance abuse disorders. In order to compile baseline data about the 875 agencies participating in the 18 service networks, evaluators conducted interview with representatives from each of the agencies. They found, on average, that ACCESS grant sites were better connected to their local service network than other agencies, but that all agencies had low integration scores. Their evaluation approach was based on a social network model. The evaluators attempted to enumerate the number of interagency network linkages and ties to characterize the connectedness of service delivery arrangements (Morrisey et al, 1997: 375). Mean scores were used to determine accessibility of services and coordination of services. Accessibility factors (Morrisey et al, 1997) included:
- Avoids excessive waiting lists or delays in scheduling
- Keeps 'red tape' to a minimum in enrolling clients
- Places services in accessible locations
- Offers services during evening and weekends
- Provides services at reasonable costs
- Makes clients feel welcome and at ease
- Gives priority to services for homeless persons with serious mental illness
- Establishes grievance procedures for clients

- Prevent providers from cream-skimming best functioning patients leaving low-functioning or difficult patients underserved and at risk

Coordination factors (Morrisey et al, 1997) included:

- Uses a common intake form for all agencies
- Creates opportunities for joint planning among agencies
- Fosters a "big-picture" understanding of the service system and the roles and responsibilities of agencies
- Ensures that agencies have timely access to client records in ways that do not violate confidentiality
- Ensures meaningful discharge planning between state mental hospitals and community mental health agencies
- Develops computerized client record and information systems that link agencies.

Respondents were asked to discuss their working relationships between their agency and others organizations in the service network using a 5 point Likert scale.

It should also be noted that the ACCESS demonstration sites are involved in a client level evaluation of 100 subjects at each site who are assessed at 3 months and 12 months after baseline (Randolph et al, 1997:371).

Fawcett et al (2000: 175) undertook a study of 20 different community partnerships. Their level of analysis was the community and the goal of their study was to identify factors that affect community change. They looked for discontinuities in the pattern of community and systems change and for events associated with marked increased and decreases in rates of change. They used a multiple time series (quasi-experimental) design. Their findings include the identification of seven factors: (1) Clear vision and mission (2) Action planning (3) Leadership (4) Resources for community mobilizers (5) Documentation and feedback on intermediate outcomes (6) Technical assistance and (7) Making outcomes matter (linking outcomes with funding). Fawcett et al emphasize the importance of 'action planning', and the need to develop a clear vision and mission.

Provan and Milward (1995) undertook one of the only studies in the literature that directly addresses network effectiveness. Their study examined four community mental health systems. Their findings about what makes a network effective could be considered, at least partially, anathema to networks. The most successful of the four systems, Providence, was the most centrally controlled and least integrated. As Provan and Milward (1995:24) explain, "Networks integrated and coordinated centrally, through a single core agency, are likely to be more effective than dense, cohesive networks integrated in a decentralized way among the organizational providers that make up the system." Their measure of network effectiveness involved a combination of client outcomes with family and case manager perspectives. They found there was little relationship between density-based integration and network effectiveness. The most effective network, Providence, was the most powerful player in the system. However, some other agencies in the system viewed its powerful role negatively calling it 'bureaucratic', 'insensitive', and 'arrogant'. The core agency had been operating for over 20 years, and was the primary agency through which funds flowed for the network. The agency controlled case management and outpatient psychiatric services and was thus able to control which service offered by other community agencies its patients received,

and when they received them. In light of the working definition used in this review, Provan and Milward's network is not a network at all. It is included, here, as network members should be aware of Provan and Milward's study due to its use of network effectiveness, and as it presents a major challenge to the network conception. Whether the network works in practice is a question not adequately addressed in the literature.

Examples of networks, especially within mental health and long term care fields, are evident. One example is Community Care Network. Community Care Network (CCN) is a collaborative initiative of the American Hospital Association's Research and Educational Trust, the Catholic Hospital Association of the United States, and Voluntary Hospital Association, Inc., supported by the W.K. Kellogg Foundation and the Duke Endowment. It is a five year program supporting the development of broad-based partnerships to create new models of health care organization and delivery at 25 demonstration sites. The CCN demonstration projects began in YEAR. The CCN Vision involves four principles: (1) A focus on the health status of communities, not just patients who receive care or enrollees in a health plan (2) A seamless continuum of care, with mechanisms that facilitate service delivery at the right time in the most appropriate setting based on patient need. (3) Management within fixed resources, achieved through capitated payment or global budget based on the costs of efficient care delivery. (4) Community accountability with formal mechanisms for collecting, monitoring, and reporting system performance to community members. (cf. Weiner et al, 2000 NEED REST). Some evaluation of CCN has been completed and some of the results particularly with respect to network challenges are discussed within this review. Primarily, CCN provides lessons for other networks rather than an example of network effectiveness, at least, to-date.

Oneida County Aging and Mental Health Committee is a network that includes the Oneida County Department of Mental Health, private community mental health practitioners, and public/private community-based mental health providers (Laditka and Jenkins, 1999). Their mission is three-fold: (1) to serve families who are caregivers of older persons, especially older individuals with dementia; (2) to work with physicians and mental health providers to promote awareness about the mental health needs of older persons through training programs; and (3) to provide mental health services to older persons in residential and in other community-based settings such as senior clubs and senior centers. In order to accomplish their mission, the Committee has developed several vehicles include a mobile geriatric team, educational programs, an Elder Wellness Resource Directory and a quarterly newsletter. The network was formed in September 1996. Researchers obtained feedback about the effectiveness of the Committee and found that there was "a general sense among providers that this Committee has strengthened the coordination of mental health services for older persons" (Ibid:301). They also found that the *Elder Wellness Resource Directory* is likely to increase informal contacts and the recognition of services available in the community (Ibid).

WORKSAFE IOWA is an education and consultation network established in 1987 through a grant from the WK Kellogg Foundation (Merchant et al, 2001). Since its inception, the network has been financially self-sustaining. The network's activities have included an outreach educational program, an industrial hygiene outreach program and the Occupational Medicine Associates Network. It is a service of the College of Public Health

at the University of Iowa. The Associates Network provides occupational medicine consultation, ergonomic consultation, industrial hygiene consultation, occupational safety and health information, and education programs. It has provided all these services to members for an annual fee of between $5,000 and $6,500. Nine Associate clinics offer comprehensive occupational medicine services. In addition all members receive the Workplace Health and Safety Report, a network newsletter. Associates communicate via an electronic e-mail listserv. Quarterly meetings via conference calls as well as Network meetings take place. The Associates have also collaborated on statewide contracts to provide drug and alcohol testing, workers' compensation examination and the development of examinations for municipal police officers and firefighters. In addition, the network provides training opportunities for graduate students and occupational medicine residents. While the network does not appear to have undertaken any formal evaluation of its activities, its ten-year existence and financial sustainability are testament to its success.

Global Partnership for Women started at Banker's Trust in 1991 when women attending a company-sponsored training course decided to keep in contact (Wellington, 1999). By 1998, it had 600 members. The network structure is informal. There is a steering committee comprised of members from each of the firm's business areas. A successful network activity includes the annual "Women on Wall Street" drawing 1600 participants in 1997. Benefits of belonging to the network include finding new jobs, and making contacts.

Region Nine Community Care Partnership is one of nine partnerships in a south central Minnesota county. It recently received matching funds from the Robert Wood Johnson Foundation. In 1995, together with the Council of Health Action and Promotion (CHAP) it facilitated a youth needs assessment. The needs assessment identified the community as at-risk for health youth, and a grassroots plan was put in place to target at-risk areas. By 1998, marked improvement in youth assets was evident in outcome data. This community care partnership used a process of interactive planning including a five phase approach: (1) formulating the mess (2) ends planning (3) means planning (4) resource planning and (5) implementation (McBeth, 2000).

Rupert Chisholm's New Baldwin Corridor Coalition (NBCC) is well-known in the network literature (1998). It is a network of business, labor, government, education, finance, community organizations and economic development agencies. It has a steering committee of representatives from the various stakeholder organizations that coordinate and manage the coalition's work. Task forces and committees have been formed to work on specific issues or areas of work. Chisholm's work on networks is largely informed by his study and participation with the NBCC. While he does not delineate network success or effectiveness, he appears to believe that the establishment of a network and its ongoing activities are their own success.

Table 10: Examples of Network Evaluations

Project	Level	Outcomes	Measures
ACCESS – 875 agencies in 18 service networks (Randolph et al, 1997) (Morrisey et al, 1997)	Network	Integration	-Number of interagency network linkages and ties (e.g. teams for service delivery; interagency management information systems and client tracking systems; cross-training; interagency agreements; pooled or joint funding; flexible funding; uniform applications, eligibility criteria and intake assessment; co-location of services
	Community	Accessibility/coordination of services	-Mean scores on factors such as : Accessibility- *avoids excessive waiting lists or delays in scheduling *places services in accessible locations *establishes grievance procedures for clients Coordination- *uses a common intake form for all agencies *creates opportunities for joint planning *fosters a big-picture understanding of the service system *ensures agencies have timely access to client records in ways that do not violate confidentiality *develops computerized client record and information systems that link agencies
	Individual	Client outcomes	-Mental health assessment
Evaluation of 20 Community Partnerships (Fawcett et al	Community	Factors affecting community change	-Discontinuities in the pattern of community and systems change and events associated with marked increases and decreases in rates of change across a multiple

			case study design (20 community partnerships)
Four Mental Health Networks (Provan and Milward, 1995)	Community	Network effectiveness as the aggregated client-level outcomes; data collection from clients, families & case managers	-Colorado Client Assessment Record & New York Functioning Scale
	Network	Network integration	-multiplexity; centrality (for core agency, only)
Community Care Network – 25 demonstration sites (Weiner & Alexander, 1996) (Weiner et al, 2000)	Network	Characteristics of CCN partnerships (process evaluation)	-Factors include: *partnership size *partnership composition *level of collaborative activity [reporting, study, case coordination, cost management] *partnership governing body size *governing body legal status *at-large community representation *governing body decision-making authority *governing body meeting frequency
		Governance (process evaluation)	-Identification of issues (e.g., turf, accountability and growth), strategies and lingering problems -Identification of challenges and strategies for health services managers (i.e., developing collaborative proficiency, building trust, managing cultural diversity, making measurable progress, educating the board and managing personal demands
Oneida County Aging and Mental Health Committee (Laditka and Jenkins, 1999)	Network	Enhanced coordination	-Perceptions of committee members -Re-establishment of a service (mobile geriatric team) -Creation of educational seminars -Development of Elder Wellness Resource Directory

		Enhanced communication	-Development of a quarterly newsletter
WORKSAFE IOWA (Merchant et al, 2001)	Network	Enhanced communication	-Establishment of a newsletter -Opportunities to participate in biannual network meetings -Occupational medicine consultation -Electronic information searches
		Network maintenance	-Number of years network has existed (10 years)
		Financial sustainability	-Adoption of membership fee; -Years of financial sustainability (i.e.10 years)
	Organization	Referrals	-member agencies receive referrals from associates' clinics
Global Partnership for Women (Wellington, 2000)	Network	Program development	-new program or service is offered for network members (i.e. conference)
		Network Growth	-Increase in number of members
	Individual	Increased job satisfaction	-Perceptions of participants; evidence they find new jobs
Region Nine Community Care Partnership (McBeth, 2000)	Community	Social capital	-Increase in the number of assets reported by students on the Search Institute Surveys in the communities within the Region Nine Prevention and Healthy Communities Network that measure assets by 10% of the total assets (i.e. increase in self-esteem, positive view of personal future, support by family, school and religious community)
	Network	Based on community primary health care model	-involves a collaborative working process that promotes health and healing for all citizens

			including uninsured -links private, government and community-based organizations in an interactive planning process -involves an interactive planning process: 5 steps include formulating the mess, ends planning, means planning, resource planning and implementation
New Baldwin Corridor Coalition (Chisholm, 1996)*not exhaustive list	Community	Global competitiveness	-Coalition grows from a vision to be competitive -Community buys-in to vision -Create more community awareness -Unity of region – common purpose, manufacturing, labour
	Network	Help among coalition organizations	-Examples of cooperation -Examples of joint decision making -Communications -Planning development -Education -Single point of contact
		Coalition activities	-Examples of activities
	Organization	Changes in perceptions and attitudes	-Education and training -Provision of information and social support (perceptions of change)

These examples confirm the findings of Oliver and Ebers with regards to the organizational literature: examination of network effectiveness is a serious gap in the literature. Moreover, network studies tend to focus on network composition and function rather than elements crucial to meeting network goals or developing the vision. In some ways, the literature implies that assembling or establishing a network is a huge success, in itself. Given the number of business alliances that fail, this may be the case. Nevertheless, these examples of networks provide some lessons that may of interest to evaluators. First, sharing of information is a function that networks are capable of, and adept at. Examples of sharing that work include newsletters and e-mail communication. Second, most evaluations of networks focus on the networks, themselves. Few address all levels of analysis: community, network, organization, and individual. Addressing even two levels in evaluation would fill a considerable gap in the literature.

The levels of analysis are a key point to consider in any evaluation. Given the complexity of networks, it is especially important to develop an evaluation framework that attempts to address complexity. Using a variety of levels of analysis is one means to study complexity. This section briefly discusses four levels of analysis: community, network, organization, and individual. Provan and Milward (2001) identify the need to address levels of analysis in their recent work on network effectiveness. This review separates their third level into two, addressing organizations and individuals as distinct levels.

Levels of Analysis : Community

In a recent article for a special issue of *Health Services Research*, Stephen Shortell explains that community health interventions result in little evidence of their impact (2000:555). He suggests the findings of this special issue are consistent with other evaluations of community health improvement initiatives (cf, Leupker, Murray, Jacobs et al, 1994; Carleton, Lasater, Assaf et al, 1995; Green and Kreuter, 1993 and Susser, 1995). Shortell notes the 'usual suspects' for a lack of results as (1) insufficient time period (2) lack of statistical power, and (3) measurement error. He argues, however, that there has been a lack of attention paid to the *governance and management functions* of community health coalitions. Further, he suggests that those undertaking these type of initiatives should "pay more explicit attention to the organizational characteristics and processes of the coalitions charged with implementing and overseeing the interventions" (Ibid:558). Thus, study of the network, its establishment, development, and governance mechanisms may be especially welcome in the literature.

Review of the evaluation literature with respect to networks reveals the need to develop and/or conceive of measures that address both the internal workings of the network and its perception and ability to impact the external community. In some ways, the network is the community, but failing to determine its impact on the community separate from its capabilities in sharing information, etcetera, allows evaluators little ability to state whether networks work for their intended purposes or not.

Roussos and Fawcett (2000) undertook a review of 34 unique studies featuring 252 collaborative partnerships in health. They note that the aim of many community health partnerships is to improve population-level outcomes. It is a significant challenge, however. They provide two reasons why partnerships face difficulty in measuring their impact: (1) length of time and (2) absence of accurate and sensitive indicators. Roussos and Fawcett (2000:374) explain, "[V]isible changes in population-level outcomes take longer than the lifetime of many partnerships." They found that 10 of their 34 studies presented population-level outcomes. Nevertheless, as the instances were mostly case studies, they were insufficient to make strong conclusions about the effects of partnerships on population-level outcomes. Moreover, several of the studies addressed community-wide behavior change as a result of partnership activities, but the magnitude of the effects was generally not large (Ibid.). All of the studies reported evidence of new programs, services, and practices that were facilitated by collaborative partnerships (Ibid:377). With the exception of 3, all of the studies had an evaluation period of less than or equal to 4 years. Roussos and Fawcett suggest there is preliminary evidence that partnerships that facilitate greater amounts of community and systems change are more likely to effect improvements in populaton-level outcomes.

Roussos and Fawcett (2000) make several recommendations for evaluation research regarding collaborative health partnerships. First, they recommend that evaluation research "be part of an ongoing and integrated support system, guiding partnership decisions and facilitating continuous improvement. Evaluation information should be shared with key stakeholders, such as community members and grant makers, both to be accountable to the community and to gain support for decisions affecting the partnership and its goals" (2000:392). They also suggest that the network or collaborative partnership document its progress in facilitating community and systems change via ongoing documentation, feedback and reflection. In addition, they note that "more research is needed to identify generic intervention strategies (e.g., enhanced social support, modifying access, and barriers) that would, if implemented, yield optimal improvements with multiple public health outcomes (e.g., reduced incidence of violence or adolescent pregnancy, etc.).

Gina Browne and her research group at the System-Linked Research Unit located at McMaster University in Hamilton, Ontario, have currently undertaken a study of children's health networks. Browne and her team have completed considerable evaluation work in the past. Two important studies undertaken by her research unit include "When the Bough Breaks", and "Benefitting all the Beneficiaries". These studies offer aggregate evidence that providing single mothers on social assistance with a complete array of services pays for itself within two years. Their evaluation consisted of 765 households with 1,300 children, aged 0-24 years. Each family was randomly assigned to groups ranging from those receiving no additional services to those receiving the full spectrum of services including home visits by public health nurses, job-retraining and recreation for children. The main finding of the studies was that 25 percent of families offered the full range of services exited social assistance compared to 10 percent without those services, at a substantial savings to taxpayers. It should be noted that a limitation of these two studies were their low participation rate. While these two studies do not focus on networks, specifically, they show how a group of organizations came together, and evaluated their comprehensive services, together. Moreover, from an evaluative perspective, Browne's study has high internal and external validity given its randomized controlled-trial model. It also demonstrates that a 'network' of loosely affiliated agencies can have considerable impact on its community.

Community level outcomes associated with networks or collaborative health alliances include:
- Behavioral change
- Policy
- Program development
- Exposure
- Social Capital
- Problem Solution, and
- Population-level outcomes

The evaluation measures related to these outcomes are described in Table 11.

Network Level of Analysis

At the network level of analysis, a key evaluation concept common in the literature regarding networks, partnerships and collaboration is the degree of cohesion. Social scientists and ecologists describe cohesion as "how tightly knit a group is." Researchers such as Carley (cf. McMahon, Miller and Drake, 2001: 1605) have used 'multi-agent computational models' to assess social structure, reporting structure and the knowledge network within a group and to identify emerging roles and evolving behaviours. Mapping or use of GIS (geographic information systems) is also an effective way to analyze and study cohesion (Ibid).

A second key evaluation concept for networks is centrality. It is defined as the importance and influence of the partnership/network/collaboration within the power structure and organizational ecology of its community. Shortell and Mitchell (2000) suggest centrality can be evaluated by examining the extent to which partnerships are viewed as powerful and influential actors in the community relative to other coalitions, political entities and individual organizations. Shrum notes that centrality can also be considered in terms of contacts and transmission of information between the network and the community (1990: 502) Questions to consider (Shortell and Mitchell: 2000): Does the community look to the partnership to address important health issues? Does the partnerships contribute relevant input on issues that are important to its own mission?

Criteria for network effectiveness vary considerably in the literature. Raelin (1982) suggests that the effectiveness of the network as a system is associated with cooperative pair-wise relationships among its members. Bonacich (1987) notes that the effect of network structure can be seen as the effect of network position on the expected relative gain from communicating versus not communicating. Provan and Milward (1995:11) use the concept of 'multiplexity' to determine network effectiveness. Multiplexity involves consideration of the network density including its depth, strength and durability of integration. Multiplexity is the connecting of organizations in more than one way. Provan and Milward suggest referrals and planning links, for example(2001:443). This type of tie is considered to be "stronger than a link because the relationship is maintained even if one of the two links is broken" (Ibid.). They also consider power within the network. Their evaluation questions include: Considering the other organizations within the network, whose goals, needs, decisions and/or expectations are generally taken into consideration by your agency (Ibid)? While Provan and Milward use multiplexity to measure network effectiveness, they suggest that determination of a network's effectiveness requires several levels of analysis including the community, the network, and the organizations that participate in the network.

Gray and Wood (1991) discuss outcome dimensions focusing on the following questions:
- Were problems solved?
- Whose problems were solved?
- Were shared norms achieved?
- Did the alliance survive?

The literature identifies several outcomes associated with networks including:

- Importance of network in its environment
- Nature of the problems addressed
- Content and context of work
- Network structure
- Integration
- Effectiveness
- Deliberation
- Agenda-setting/power
- Achieving shared norms
- Accountability
- Alignment
- Interdependence
- Collaborative attitudes
- Collaboration
- Communication quality
- Network growth
- Network development
- Financial sustainability.

Evaluation measures associated with these outcomes are described in table 11.

Organization Level of Analysis

In addition to the community and network levels, some researchers examine the impact of belonging to a network on the individual organizations that are network members. These outcomes highlight the potential benefits and pitfalls of joining a network. For example:

- Agency survival
- Enhanced legitimacy
- Resource acquisition
- Service costs
- Client satisfaction
- Referrals, and
- Collaborative attitudes.

Evaluation measures associated with these outcomes are described in table 11.

Individual Level of Analysis

Community, network, and organization/participant make up the three levels of analysis conceived of by Provan and Milward (2001). This review separates their third level into two including the organization (see above), as well as the individual level. Outcomes experienced by individuals could include qualitative information provided by clients such as statements of satisfaction or dissatisfaction with services that may be linked to the network via a change over time, or they may relate to individual members of the network and their experiences belonging to a network, attempting to represent their organizations. The individual level, therefore, is more personal, but still connected to the effectiveness of the network as, ultimately, it is made up of individuals who belong to organizations that come together in a network to affect change in the community.

Outcomes associated with the individual level include:

- Service access
- Client outcomes, and
- Staff outcomes.

Evaluation measures related to these outcomes are discussed in table 11, below.

Table 11: Network Evaluation Measures

COMMUNITY LEVEL		
Outcomes	**Measurement Associated with Outcomes**	**Author**
Behavioral change	- e.g. reduction in teenage pregnancies (use of GIS to compare community with intervention to a community that did not undergo an intervention)	Paine-Andrews, 1999
Policy	- changes in policies (e.g. policy is changed to reduce harm related to smoking)	Roussos& Fawcett, 2000
Program development	- evidence of new programs, services, practices	Roussos& Fawcett, 2000
Exposure/penetration	- extent to which the change/program made contact with/impacted the whole population or targeted portion - duration of programs/changes	Roussos& Fawcett, 2000
Social capital	- increases in civic trust/civic engagement (participation) have been shown over the long-term to impact causes of morbidity and mortality	Roussos& Fawcett, 2000; Provan & Milward, 2001
Problem Solution	- public perception that the problem is being solved - changes in incidence of the problem	Lodgson, 1991; Provan and Milward, 2001
Population-Level Outcomes	- aggregate indicators of client well-being	Provan and Milward, 2001
NETWORK LEVEL		
Outcomes	**Measurement Associated with Outcomes**	**Author**
Importance of network in its environment	- Centrality – a measure of the importance and influence of the network within the power structure and organizational ecology of its community Examples include: -backing from elected officials -newspaper/media coverage -requests for participation by other organizations -presence of interlocking board	Mitchell & Shortell, 2000; Provan and Milward, 2001

	members -relative size of budget	
Nature of Problems Addressed	-number of different health conditions/problems addressed -number of people affected -existence of goals related to change or integration -existence of long-term versus short-term goals	Mitchell & Shortell, 2000
Content and Context of Network's Work	-market factors (population demographics, sponsors, competition) can help to understand pressures driving the collaboration -composition and diversity of leadership -driving strategies, resources and constraints [process evaluation]	Fonner, 1998
Network Structure	-model (consider current structure, expectations and ideal form) -rate of development (measure against expectations) [process evaluation	Fonner, 1998
Integration	- Multiplexity – a measure of network density, strength and durability – number of overlapping ties between network members	Provan & Milward, 2001
	- Cohesion – a measure of "how tightly knit a group is"	McMahon, Miller & Drake, 2001
	- Network ties specified as (a) client referrals to other organizations (b) client referrals from other organizations (c) exchange of info about shared clients (d) formal written linkage agreements for clients (e) number of joint programs	Kwait, Valente & Celentano, 2001
	-member commitment to network goals	Provan & Milward, 2001
	-degree of formalization -extent to which operating and policy decisions are made at various levels	Mitchell & Shortell, 2000
	-authority and linkages between partners (Where have new linkages been formed? Which linkages are informal, contractual, binding? Which linkages need to be strengthened?	Fonner, 1998

	How many lines of authority are involved in decision-making, approving work, or allocating resources?)	
Network effectiveness	- parties are able to reach a common understanding Combination of: -endurance of network structure -success of network in articulating problem domain -internal commitment of members to bridging role Associated with cooperative pair-wise relationships among its members	Nathan & Mitroff, 1991 Westley & Vredenburg, 1991 Raelin, 1982
Deliberation (mutual problem-solving)	-qualitative analysis of meeting minutes; questions include: Do the minutes reveal basic information, rather than mutual problem solving and actual coordination of services? Do the minutes reflect consistent attendance of members and their continuity of representation? Do the minutes reflect resolution of case management problems, rather than simple discussion of them?	Swann & Morgan, 1992
Agenda-setting/power (whose problems were solved)	-Which party's definition of the problem prevailed – or was it collective	Roberts & Bradley, 1991
Achieving shared norms	-Degree to which network fosters shared responsibility for metaproblems identified	Pasquero, 1991
Accountability	-Use of professional/traditional evaluation methods -Use of outcome-oriented evaluation tools -Use of empowerment evaluation -Formal rules for conflict resolution	Mitchell & Shortell, 2000
Alignment	-match between problems addressed and partnership composition -match between partnership composition and community priorities -match between partnership task complexity (differentiation) and governance structures (coordination and control)	Mitchell & Shortell, 2000
Interdependence	-Ties that are accidentally broken (due to death, retirement, job change) are replaced -stakeholder perceptions -absence of service duplication	Mizruchi & Galaskiewicz, 1993 Gray,1985; Provan & Milward,

		2001
Collaborative attitudes	-awareness of common problems -willingness to work together -more assertive in exchanging/sharing resources -more aware of existence and/or role of nonprofit sector -more optimistic about non-profits' problem-solving abilities	Selsky, 1991
Collaboration	-evidence of working together on some project -number of programs jointly initiated -integration and coordination of services	Mitchell & Shortell, 2000 Selsky, 1991 Provan & Milward, 2001
Communication quality	-frequency of communications -types of data exchanged -structure and format -scope and comprehensiveness -impediments -range of media and technology employed -group leadership and facilitation skills -impact on project goals	Fonner, 1998
Network Growth	-growth in membership -range of services provided	Selsky, 1991; Provan & Milward, 2001
Network Development	-creation and maintenance of a network administrative organization -endurance of network structure -cost of network maintenance -sustainability -size of network (number of organizations involved, number of individuals involved) -heterogeneity of the network (number of public-sector organizations in leadership roles; mix of public and private sector, grassroots etcetera -founding partners' readiness (personal time and attention, dedicated staff, office space, resources) -continuity of founders' involvement (effects of turnover)	Provan & Milward, 2001 Hendricks, 1999 Mitchell & Shortell, 2000 Fonner, 1998

	-nature of communications in the founding group (how was the vision formed and communicated) -use of enabling technologies (computer-based tools, technical assistance)	
Financial sustainability	-securing funding for network activities	Merchant et al, 1999; Hendricks, 1999
INDIVIDUAL ORGANIZATION LEVEL		
Outcomes	**Measurement Associated with Outcomes**	**Author**
Agency survival	-Each member organization continues to exist as an autonomous agency	Provan & Milward, 2001; Gray & Wood, 1991
Enhanced legitimacy	-A member organization experiences an increase in name recognition in the community -A member organization experiences an increase in the number of clients as a result of belonging to the network	Provan & Milward, 2001
Resource Acquisition	-A member organization increases its resources (financial & human); decreases its costs as a result of belonging to the network	Provan & Milward, 2001
Service costs	-A member organization experiences a reduction/increase in the costs of services it provides as a result of belonging to the network	Provan & Milward, 1991
Client satisfaction	-A member organization experiences an increase in its clients' satisfaction with services as a result of belonging to the network	Provan & Milward, 1991; Swann & Morgan, 1992
Referrals	-A member organization experiences an increase in referrals and/or increases its referrals to member organizations	Merchant et al, 2001
Collaborative attitudes	-An organization's personnel develop a collaborative attitude as a result of belonging to the network that enables them to pursue other partnerships/collaborative activities for health and financial gain	Selsky, 1991
INDIVIDUAL LEVEL		
Outcomes	**Measurement Associated with Outcomes**	**Author**
Service access	- clients' experience of service is that it	Provan &

	is more accessible, there is less duplication	Milward, 2001
Client outcomes	- e.g. improved mental health (ACCESS project clients)	Provan & Milward; 2001 Randolph et al, 1997
	-increase in client satisfaction with services	Swann & Morgan, 1992
Staff outcomes	-increased job satisfaction -new skills -opportunities for training and education	Wellington, 1999

Evaluation Frameworks

Table 11, above, provides outcomes and evaluation measures for each level of analysis identified in the literature. A combination of these outcomes and levels will enable evaluators to comprehensively evaluate the network, its impact on the community, and its impact on clients, and its own members. These measures were identified through examination of the literature and may not be considered as related to evaluation by their authors. Few evaluation frameworks addressing networks or collaborative health alliances exist in the literature. Four are provided, here. Provan and Milward (2001) address three levels of analysis, while the other three researchers address only one, the network level. Their frameworks are included because they provide examples of how researchers have understood networks. Taken together, the measures and outcomes, above, go beyond these frameworks. These frameworks are included to enhance understanding of the research that currently exists.

Table 12: Four Network Evaluation Frameworks

Provan & Milward, 2001	Mitchell & Shortell, 2000	Fawcett et al, 2000 (model of collaboration – could be used for process evaluation)	Fonner, 1998
3 levels of analysis	1 level of analysis	1 level of analysis	1 level of analysis
Community: -cost to community -building social capital -public perceptions that problem is being solved -changes in incidence of the problem -aggregate indicators of client well-being *Network:* -network membership growth -range of services	*Network:* -nature of problems addressed -partnership composition -differentiation -coordination/ integration -accountability -centrality -alignment	*Network:* 1.Refining and targeting the vision, mission and objectives for community health and development (4 months) 2.Developing an action plan for bringing about community and systems change	*Network:* -Context and content of the group's work -Studying the group's inception and incubation -Modeling the group's network and structure -Assessing the quality of workgroup communications -Tuning the effort and using enabling

provided -absence of service duplication -relationship strength -creation & maintenance of network administrative organization -integration & coordination of services -cost of network maintenance -member commitment to network goals *Organization/Participant* -agency survival -enhanced legitimacy -resource acquisition -cost of services -service access -client outcomes -minimum conflict for multiprogram agencies across multiple networks		related to community-determined goals for health and development (approximately 8 months and ongoing) 3.Developing and supporting leadership within communities (ongoing) 4.Documenting the process of community change and improvement and using ongoing feedback for improvement and celebration (monthly and ongoing) 5.Securing and providing technical assistance related to the work in local communities (ongoing) 6.Securing and providing financial resources for those doing the work in local communities (suggests initial 10 year commitment) 7.Making outcomes matter in the work in local communities (ongoing)	technologies

Evaluation Considerations

Presently, the gaps in the evaluation literature are many with respect to networks. There are not any comprehensive studies of network effectiveness nor any longitudinal studies of network impacts on the community, nor even descriptions of internal network effectiveness. Evaluation and implementation literature are not adequately linked. Activity data is the primary 'evidence' for network effectiveness. Specific gaps include:

- Need for evaluations regarding the relationship between interorganizational network structures and network effectiveness
- Need for evaluations that consider several levels of analysis
- Need for evidence of impact at the community level
- Need for evaluation of networks' internal organizations
- Need to consider both external and internal impacts of networks in evaluations

- Need for more description of 'networks' rather than less complex partnerships or community collaborative initiatives.

This last point is key. The term 'network' is rarely used within the health literature, and when it is used it most often refers to social networks rather than organizational networks. One reason for this may be late adoption of the concept, but a second and more cogent reason appears to be the lack of actual networks. Indeed, few of the partnerships, no matter the depth and complexity of collaboration, discussed in this review would fit the definition of a network provided by Chisholm. For example, Provan and Milward's 'successful' mental health 'network' was highly centralized and not integrated. Their recent work involves a more sophisticated measure of network effectiveness that does not rely solely on community/client impact. However, it is untested, to date. The literature on interorganizational networks in health is close to non-existent. Even descriptive evaluations would fill some gaps in the literature.

Questions for evaluators to consider when evaluating networks include:
1. What are the levels of analysis? How do these fit with our theoretical framework? Is our theoretical framework in line with a network approach?
2. How do we define network effectiveness?
3. What measures of internal and external network effectiveness can we develop/use?
4. How can we develop current and sensitive indicators of system change?
5. How long before we can expect change? If it is a process evaluation, what strategies can we help network members devise to achieve a quick win?
6. How can evaluation be incorporated into network functions?

Finally, an approach to evaluation that involves several levels of analysis enables the evaluator to address network complexity, especially its multi-dimensionality. However, from a systems theory perspective, it is not the sum of the parts that are important but the relationships between these parts. Evaluations that examine the *relationship* between the network and its community and the network and organizations' clients, for example, would go far in developing a systems approach to evaluating networks. Moreover, is the network the dependent variable or the independent variable in the evaluation? Given multiple levels, both are possible. How systems theory might be incorporated into evaluation of networks does not seem to be addressed in the literature. Nevertheless, it is a question evaluators of networks may want to consider.

Summary

1. "A **network** is a conduit for information; it can be as simple as two tin cans tied together with a string or as complicated as the Internet" (Sawhney and Parikh, 2001:80). A network can be defined as, "a set of autonomous organizations that come together to reach goals that none of them can reach separately" (Chisholm, 1998: xxi). Rupert Chisholm develops his network concept using Trist's (1983) socioecological conceptualization.

2. **Network features** include the following: Oriented to higher purpose/common vision, Activity affects the whole system (assumption), Horizontal organization, Voluntary participation, Decentralized, Member-controlled, Self-regulating, Collaborative, Cognitive, Involves a division of labour, Autonomous members, and is Deliberative.

3. **Theories that inform network development** include management and organizational theory, systems theory, political science, action research, and community development. Sociological theory, especially theories of social exchange, should also be noted, and is addressed within these other literatures/disciplines.

4. **Rationales for joining networks** include: Need to deal with complex problems, 'messes', known as 'metaproblems', External financial stimuli, Mutual trust, Willingness and desire to change, Pooled resources, Pooled expertise, Desire to enhance ability to adjust to rapid changes in technology and the market, Need/desire to develop new products and services, Enables an organization to remain autonomous while acquiring needed resources (resource-dependency), Desire/need to gain legitimacy among network agencies and within the broader community, Desire/need to increase political power within community/policy domain,and Need to overcome specific barriers to service delivery.

5. **VISION** is the orientation of an individual organization to the common concern articulated by the network. The vision and goals bind the organizations together (Chisholm, 1998). Within this review, the vision is understood as the reason why the network exists. Vision functions include visioning and missioning. Issues associated with the vision include: the need for a clear and well-articulated vision, and the need to prepare for challenges.

6. **STRUCTURE** is defined as how the network exists. Structural functions include: Assembling the network, Administering the network, Planning the network activities, Evolving the network, Regulating the network, Maintaining the network and Funding the network. Issues associated with the structure include: the need for structure, stakeholder considerations, network composition, network administrative organization, the end-user and the network, resources and technical assistance, e-health, and funding the network.

7. **PROCESS** is what the network does to fulfill its vision/existence. Process functions include Configuring, Dispatching, Storing, Processing, Interacting, Coordinating, Learning, Sensing, Researching, Developing, Deliberating, Supporting, Communicating, Identifying (e.g., risk factors), Planning, Conflicting, Collaborating, Surveying, and Evaluating. Issues associated with the process include: trust, the need to develop and sustain relationships, time, dealing with conflict, communication strategies, and the need for quick wins.

8. **SERVICE DELIVERY** is a level of network operation that involves specific activities performed that are related to the process. Service delivery functions include: Exchanging information, Raising public awareness, Case management, Co-locating, Establishing a program resource centre, and Standardizing referral and intake processes, for example. Issues associated with service delivery include: the need to analyze the existing system, jointly, need to plan regarding systems integration, need for joint funding, and the immense challenges of integrated service delivery.

9. The **network extinction literature** is not well-developed. Issues that may lead to network disbandment, as identified in the literature, include:
Lack of clear vision; Morale problems; perception that network lacks usefulness, Cost overruns; Information systems; Loss of leadership, Changes in stakeholder representation, tyranny of structurelessness, Conflict, low productivity, disjointed decisionmaking, not enough time to build relationships, lack of trust and commitment, Inability to change services, and Inability to reallocate mainstream resources.

10. **Evaluation** is an important aspect in a network life-cycle or evolution. In order for the network to be self-regulating, it requires self-knowledge. Evaluation provides information about the network's impact and processes.

11. Few studies **evaluate networks using several levels of analysis**. Levels of analysis identified and discussed in this review include: community, network, organization, and individual.

12. **Network evaluation outcomes associated with the community** include: Behavioral change , Policy, Program development , Exposure , Social Capital , Problem Solution, and Population-level outcomes.

13. **Network evaluation outcomes associated with the network** include: Importance of network in its environment, Nature of the problems addressed, Content and context of work, Network structure, Integration, Effectiveness, Deliberation, Agenda-setting/power, Achieving shared norms, Accountability, Alignment, Interdependence, Collaborative attitudes, Collaboration, Communication quality, Network growth, Network development, and Financial sustainability.

14. **Network evaluation outcomes associated with the organization** include: Agency survival, Enhanced legitimacy, Resource acquisition, Service costs, Client satisfaction, Referrals, and Collaborative attitudes.

15. **Network evaluation outcomes associated with the individual** include: Service access, Client outcomes, and Staff outcomes.

16. **Four evaluation frameworks** are presented along with examples of evaluations completed or underway (including outcomes and measures).

17. **Evaluation considerations** identified include: What are the levels of analysis? How do these fit with our theoretical framework? Is our theoretical framework in line with a network approach? How do we define network effectiveness? How can we develop current and sensitive indicators of system change? How long before we can expect change? If it is a process evaluation, what strategies can we help network members devise to achieve a quick win? How can evaluation be incorporated into network functions?

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