


Using Social Network Analysis to Study Inter-agency Collaboration in Children's Mental Health Service Systems

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Cross-site Evaluation of the National Child Traumatic Stress Initiative (NCTSI)



The Goals of this Presentation are

- To highlight an example of how Social Network Analysis (SNA) has been used to study collaboration within the National Child Traumatic Stress Network (NCTSN)
- To assess and discuss the usefulness of SNA to the study of interagency collaboration in system of care communities
- Discuss resources for local implementation of an interagency collaboration tool and social network analysis

Collaboration within National Child Traumatic Stress Network (NCTSN)

The National Child Traumatic Stress Network (NCTSN)

- SAMHSA funded
- The mission is to raise the standard of care and increase access to quality care for children who have experienced traumatic events
- Three-tiered organizational structure
 - Category I center
 - Category II centers
 - Category III centers

Studying Collaboration within the NCTSN

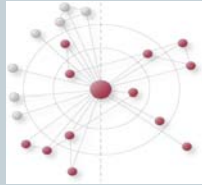
- ▶ **Research Questions**
 - What is the level of collaboration among Network members?
 - What are the facilitators and barriers to collaboration?
- ▶ **Methods**
 - Network Survey
 - Assesses frequency and type of linkages among NCTSN centers
 - Respondents include:
 - NCTSN center directors
 - Center associate directors
- ▶ **Analysis**
 - Social Network Analysis

Eight Network Measures for NCTSN

Network Measures	Description of the Measure: Has the center
Governance	worked with other centers on activities related to network governance or decision-making (e.g., Steering Committee or other planning or direction-setting activity or body) with other centers
Developing Products	worked with other centers on activities related to developing products
Adopted products from	adopted products or innovations from other centers
Delivered training to	delivered training, technical assistance, or consultation to other centers
Received training from	received training, technical assistance, or consultation from other centers
Hosting conferences	worked with other centers in hosting or sponsoring special meetings/conferences
Coordinated NCTSN activities	coordinated with other centers on NCTSN related activities
Communicated frequently	communicated with other centers frequently

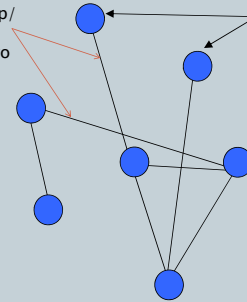
What is Social Network Analysis (SNA)?

- Social network analysis (SNA) is the mapping and measuring of relationships and flows between people, groups, organizations, computers or other information/knowledge processing entities (Valdis Krebs, 2002).



SNA: Focus is on the Interaction Between Individuals or Groups

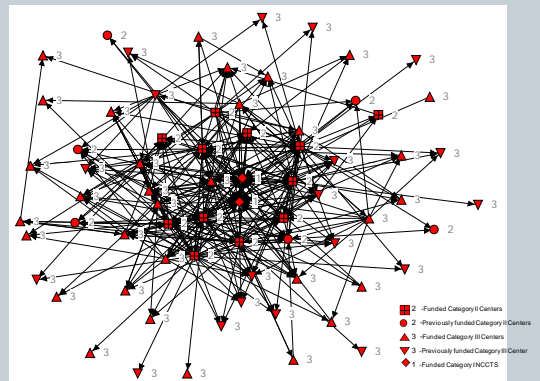
Tie: Relationship/interaction between two nodes.
Node: Any entity in a network (person, system, group, organization)



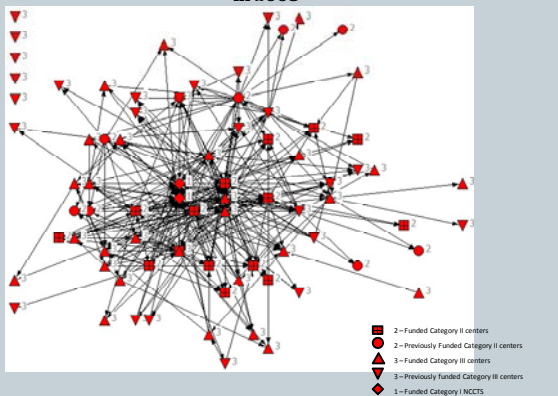
Some Common SNA Metrics

- **Clustering**
 - Clustering is a measure of the degree to which a network consists of interconnected pockets of centers.
- **Centralization**
 - Centralization is a measure of the degree to which links are concentrated toward one or a few centers.
- **Density**
 - Density is the number of actual connections between members divided by the number of possible connections.

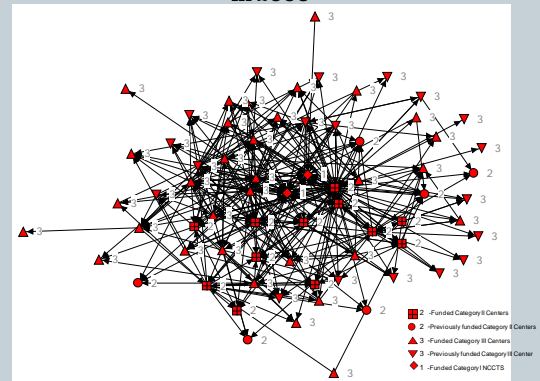
Interaction Among Centers on Network Governance in 2006

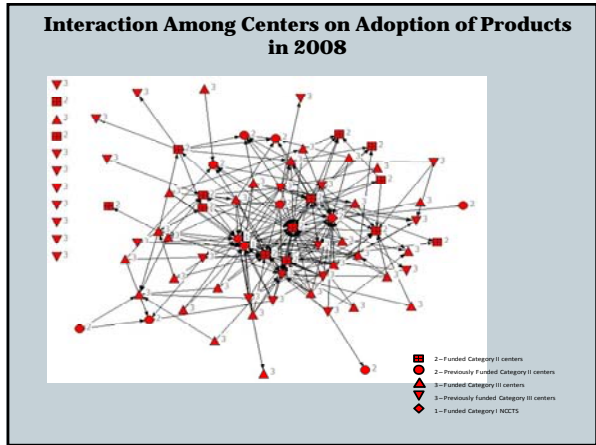
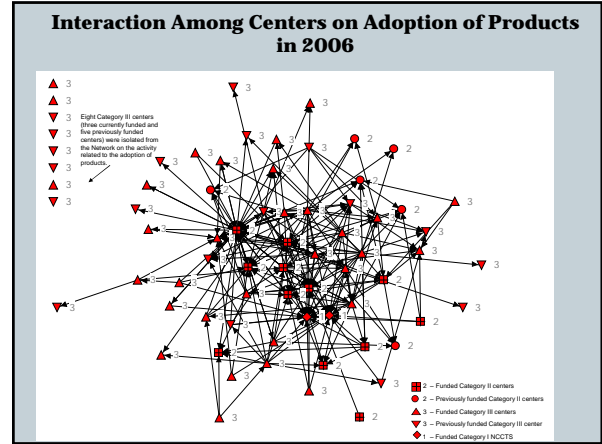
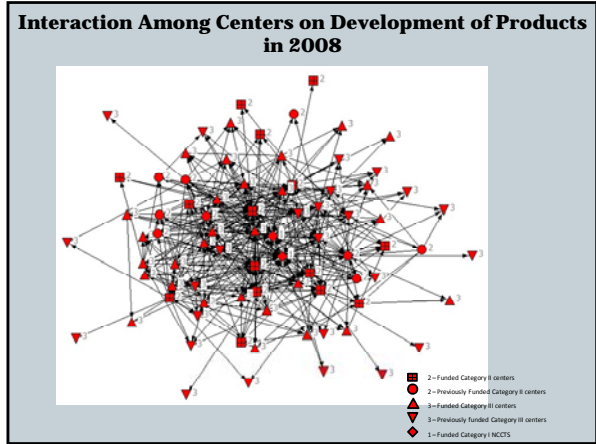


Interaction Among Centers on Network Governance in 2008



Interaction Among Centers on Development of Products in 2006





Change in Network Domains Between 2006 and 2008

Network Measure	Average Center Links ^a		Network Density ^b		Centralization ^c		Clustering ^d	
	2006	2008	2006	2008	2006	2008	2006	2008
Governance	8.25	6.53	0.116	0.080	33.4%	38.8%	0.291	0.325
Developing products	8.31	9.02	0.117	0.113	24.7%	33.8%	0.291	0.295
Adopting products	5.54	4.13	0.078	0.051	25.6%	34.6%	0.205	0.193
Training provided	5.71	4.08	0.08	0.051	8.1%	8.9%	0.277	0.161
Training received	5.64	4.52	0.079	0.057	31.4%	32.9%	0.151	0.16
Hosting conferences	4.37	2.92	0.062	0.037	19.4%	21.6%	0.171	0.123
Coordinating NCTSN activities	5.83	4.75	0.082	0.059	28.3%	21.1%	0.301	0.194

^aThe average number of connections or ties between centers. ^bThe number of connections between centers, divided by the possible number of connections or ties between centers. ^cA measure of the degree to which links are concentrated toward one or a few centers. ^dA measure of the degree to which the Network consists of interconnected pockets of centers.

Facilitators of Collaboration

2006	2008
<ul style="list-style-type: none"> All-Network meeting and networking at this meeting Network at events, conferences, and national meetings Willingness of Network centers to learn and share expertise Shared interest and focus Learning collaborative and Breakthrough Series Workgroups, committees, and advisory groups Regular contact and open communication 	<ul style="list-style-type: none"> Attendance to all-Network meeting Attending national meetings and conferences Willingness to collaborate The values of the Network and the emphasis on collaboration Assistance from liaisons Excellent communication with NCTSN liaison Common interests Participation in learning collaborative and workgroups Intranet

Barriers to Collaboration

2006	2008
<ul style="list-style-type: none"> Lack of sustained involvement beyond the grant funding Time constraints/lack of resources Long-distance communication and lack of opportunities for face-to-face meetings Too many collaborative groups Lack of knowledge of other centers' expertise Communication gaps 	<ul style="list-style-type: none"> Alumni centers can no longer afford to participate in collaborative activities Time constraints and workloads Lack of funding, especially for face-to-face meetings Lack of support to sustain working groups and committees Turnover in sites creates a huge loss in collaborative efforts Lack of strong leadership

Recommendations to Improve Collaboration	
2006	2008
<ul style="list-style-type: none"> • "[Have] resources earmarked for collaboration." • "[Provide] regular updates from working groups, communication about site and network activities." • "Evaluate which collaborative vehicles are productive." • "Expand learning collaborative." • "[Provide] opportunities for programs with similar focus to meet." • "[Convene] more in-person meetings or teleconferences instead of telephone conferences." • "[Hold] more treatment-based trainings." • "[Provide] more sites and treatments for children 0-3 years." 	<ul style="list-style-type: none"> • "Fund more regional collaborative groups." • "Mini-grants for collaboration [would] enhance collaboration." • "Broaden use of the Media Site application." • "Reducing the confusion about what groups exist and which do not exist and the expectations for the groups would be very useful." • "Allocation of funds to support Network-wide collaborative projects and high-priority initiatives (e.g., Short Interval Planning model from first 4 years of grant cycle)." • "Supporting the leadership of workgroups is key, as well as providing resources for face-to-face meetings at the all-Network meeting and in ad hoc ways to enhance collaboration."

Summary of Findings
<ul style="list-style-type: none"> ▶ Network is centralized and well integrated ▶ Category I center was seen as a central player ▶ NCTSN culture of sharing information and open communication was reported by respondents as a factor that enhanced collaboration between centers. ▶ Over time the connection between centers on network activities decreased except for product development. ▶ There were no significant differences in collaboration on the product development activity between 2006 and 2008 ▶ The NCTSN collaboration seemed to focus more on product development and less on product adoption and trainings

Implications
<ul style="list-style-type: none"> ▶ Why some funded and alumni Category II and III centers did not appear to benefit as much from collaboration? <ul style="list-style-type: none"> ▶ The data from this survey provide details on what NCTSN staff members perceive as barriers to collaboration, which help to explain why some centers are not fully participating in Network activities. ▶ Future efforts should take into considerations some of the barriers perceived and recommendation suggested by respondents ▶ Who are the central players and how does it affect funding, program, and policy decisions? <ul style="list-style-type: none"> ▶ If the central players are not considered in the next round of funding what effect does this have on the NCTSN activities and should an alternative plan be in place to support and sustain NCTSN activities

Interagency Collaboration in System of Care Communities

Interagency Collaboration in Systems of Care (SOC)
<p>Interagency collaboration is</p> <ul style="list-style-type: none"> • defined as "The involvement and partnership of core agencies in multiple child-serving sectors, including child welfare, health, juvenile justice, education, and mental health." (National Evaluation Document-SOC Assessment)

National Evaluation Methodology for Assessing Interagency Collaboration
<ul style="list-style-type: none"> • System of Care assessment examines whether programs have been implemented according to system of care program theory and documents how systems develop over time to meet the needs of the children and families they serve (National Evaluation). • Interagency Collaboration Scale (Greenbaum, P. , 2000).

Interagency indicators assessed include:

- Does the local system maximize interagency collaboration?
- Core agencies participate in a collaborative way
- Integration of staff, resources, functions, and funds
- Co-location of services of multiple agencies
- Interagency service planning
- Shared vision and goals
- Formal relationships established between agencies

Highlights of Interagency Collaboration Findings from the CMHI National Evaluation

- Most SOC communities had representatives from all relevant State and local agencies on their respective governing bodies
- The vast majority (more than 75 percent) of the communities have some shared administrative processes across child-serving agencies
- For most SOC communities, representatives from multiple child serving agencies actively participated in the service planning process

Source: Annual Report to Congress 2008 for the Comprehensive Community Mental Health Services for Children and Their Families Program.

Interagency Collaboration Scale (IACS)

- The scale is used to study relationships between interagency collaboration and service coordination.
- It is designed to measure variability in staff perceptions of collaboration using a multilevel approach.
- Respondents rate items on a five-point response scale, from 1 (*strongly disagree*) to 5 (*strongly agree*) for Beliefs and from 1 (*not at all*) to 5 (*very much*) for Activities and Connectedness.

Findings from the IACS

- There were no significant differences among respondents (n=193 across 22 communities funded in 2002-2003) with respect to their beliefs about collaboration or the types of collaborative activities conducted.
- While most project directors had higher ratings on beliefs about collaboration and perceptions of connectedness with other agencies (95 percent and 86 percent, respectively), only about two-thirds (67 percent) of them share the same perceptions about conducting collaborative activities with other agencies.
- In terms of those participants providing direct services to children and their families, more service providers (27 percent) had higher ratings on beliefs about collaboration than care coordinators (20 percent) or agency staff (11 percent), though the percentages were low across these respondent types. A similar trend is evident with respect to collaborative activities and connectedness to other agencies.

Source: Annual Report to Congress 2006 for the Comprehensive Community Mental Health Services for Children and Their Families Program.

Findings from the IACS

- Relatively more care coordinators had higher ratings on their perceptions about conducting collaborative activities with others (23 percent), than on their beliefs about collaboration (20 percent) and on their perceived connectedness with other agencies (14 percent).
- Staff from core child-serving agencies who provided direct services to children and their families had the least percent of respondents who had higher ratings on beliefs about collaboration (11 percent), collaborative activities (11 percent) and their perceived connections with other agencies (12 percent).

Source: Annual Report to Congress 2006 for the Comprehensive Community Mental Health Services for Children and Their Families Program.

Application of Social Network Analysis in System of Care Communities

SNA Application in Local SOC Communities

- In SOC evaluation research, both qualitative and quantitative approaches have been used to study collaboration between agencies
- SNA is not frequently used to study collaboration and is a powerful tool that can help communities to map and measure the relationships and interactions between the core child serving agencies
- SNA can be used to examine the relationships between organizations in a network

Why use Social Network Analysis (SNA)?

- To understand the complex nature of interaction
- To understand if there are changes in the network structure or collaborative relationships over time
- To understand which agencies are participating in collaborative activities and which ones are not
- Useful tool to inform stakeholders about collaboration and understand its impact on strategic program and service planning

What steps to take in order to apply SNA locally?

- Define your local network of agencies
- The network itself is a bounded group of entities, selected for membership based on meeting one or more criteria.
- Also determine the boundary of your network that you want to include in your evaluation
- When measuring Network coordination its important to delineate the collaborative activities
 - delivery (i.e., client referrals),
 - administration (i.e., resource sharing), and
 - planning or governance type

What steps to take in order to apply SNA locally?

- Consult with agency leadership to identify key informants in their agencies that can serve as respondents from each core child serving agency
- These key informants have to be most knowledgeable about services for young children and their families and the interagency relationships involved in the delivery of these services

Some Measures to Assess Collaboration

- IACS (The Interagency Collaboration Scale; Greenbaum, 2000).
- Levels of collaboration scale (Borden & Perkins, 1999)

Related Resources: Software

- UCINET/Netdraw (<http://www.analytictech.com/>)
- Pajek (<http://vlado.fmf.uni-lj.si/pub/networks/pajek/>)
- ORA (<http://www.casos.cs.cmu.edu/projects/ora/>)
- Statnet (<http://cran.r-project.org/web/packages/statnet/>)
- Siena (<http://www.stats.ox.ac.uk/~snijders/siena/>)

Related Resources: Books

- Stanley Wasserman and Katherine Faust, *Social Network Analysis: Methods and Applications*, 1992
- John Scott, *Social Network Analysis: A Handbook*, 1991
- Robert A. Hanneman and Mark Riddle, *Introduction to Social Network Methods*, 2005 (Free Online Text book)

Questions?



Thank You

If you need more information on SNA or interagency collaboration measures please contact Bhuvana Sukumar at Bhuvana.Sukumar@macrointernational.com

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