

STRENGTHENING COMMUNITIES - YOUTH

Social Network Analysis of Collaboration among Service Network Providers

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INTRODUCTION

Network analysis has contributed greatly to both inter-organizational analysis and organizational theory in general. The assessment of the Iowa SCY system of care network includes descriptive information about the network of agencies and the effect that the startup of the SCY project has had on the relationships within the network of service providers. The purpose of the network analysis is to measure change in the network of provider agencies. In so doing, we assess the level of achievement of two of the six SCY goals:

Goal 1. Develop linkages and networking mechanisms to facilitate identification assessment, referral, and treatment of youth with substance abuse problems and their families.

Here we are interested in increasing and improving drug treatment for youth who abuse substances, and in increasing community awareness about what is currently being done, and what can be done in the future to combat this problem. In the development of the application some changes in the ways agencies work together (e.g., new intensive outpatient program for teens at MECCA, referrals by Juvenile Court Services to the University's Adolescent Health Clinic for comprehensive evaluations of youth) were already seen. The network analysis captures the effect of these changes and the follow-up social network analysis will provide data at another point in time with which to compare changes in the network.

Goal 6. Develop and implement *outreach* activities to educate the community with the goal of leading to early identification; also demonstrate familiarity with *state-of-the-art science and practices in area of identification, referral, and treatment*.

The promotion of outreach activities to involve agencies, families and students in education leading to early identification, referral and treatment will also be addressed through measurement by the network survey. Over time, we expect that the number of referrals and the number of sources of referrals for substance abuse information or services will increase due to increased community knowledge and network connectedness about the problems and issues.

METHODOLOGY

Sixteen agencies were initially identified as the Service Network for this SAMHSA funded project. During a 3-week period in late September and early October, 2002, representatives of each of these 16 agencies were contacted and scheduled for an in-person interview, or if preferable, could complete a faxed survey form. Both the baseline and follow-up surveys were presented at the same interview/fax session. The interviewer could read the questions and indicate the representative's responses for them, or if the representative preferred, s/he could complete the form while the interviewer was present to answer any questions. For the baseline collaboration survey, respondents were asked to think back to March 1, 2002 and respond to all questions as if they were in that time period. Immediately following completion of the baseline survey, respondents were asked to complete the follow-up survey questions for their current relationships with agencies as of that day.

Instruments

The survey instrument consisted of two parts. Part 1 included a series of 24 statements for which the respondents were asked to indicate the extent of their agreement or disagreement by choosing a Likert scale response from 1 to 5 where 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, and 5=strongly agree. The statements are listed here.

Collaboration Survey Statements

1. People in this community of service providers demonstrate trust for one another.
2. There is a clear, shared vision for what the community of service providers is trying to achieve for youth with substance problems.
3. We have linkages and networking mechanisms to facilitate the identification, assessment, referral, and treatment of youth with substance abuse problems and their families.
4. We, as a community of providers, do a good job at documenting our progress.
5. We, as a community of service providers, have identified specific, measurable results that we want to achieve.
6. Tasks are appropriately distributed among members of the community.
7. We, as a community of service providers, have the capacity to provide cost effective and evidence-based substance abuse treatment.
8. Agency members are representative of the populations they work with.
9. We have effective rules for handling conflict in this community.
10. This community has an effective process for making decisions.
11. The community of service providers has a clear action plan for substance abuse services for youth.
12. We have a complete continuum of care of services for youth with substance abuse problems.
13. Some members of agencies seem to have more power in making decisions than others.
14. Our community of service providers seeks to bring in new members to participate in planning on an on-going basis.
15. The amount of time spent in meetings is appropriate.
16. The service community keeps the larger community well-informed about our work.
17. We, as a community of service providers, have a plan for evaluating results and using results to improve services.

18. We have an effective computer/management information system in place for sharing information about youth with substance abuse problems.
19. I feel that the community of service providers is making progress towards improving.
20. Consumers are involved in planning and decision-making.
21. Our community addresses the relationship between substance abuse and violence.
22. We, as a community of service providers, generally plan for sustaining initiatives after initial grant funds run out.
23. I have an equal voice with this community of providers.
24. Members of the Johnson County/Iowa County community of service providers openly discuss self-interests.

Social Network Analysis Survey Questions

Part 2 of the survey instrument asked each representative to respond “yes” or “no” to five questions about their working relationship with each of the other agencies in this network. These five questions were:

1. Do you do joint case planning with this agency?
2. Do you do joint staff trainings with this agency?
3. Do you share in efforts to provide cost effective services with this agency?
4. Do you collect common outcomes data with this agency?
5. Does your relationship with this agency contribute to early intervention with youth who have substance abuse problems?

A copy of the survey instrument is included in Appendix A.

RESULTS

The results of the analysis of the collaborative activities of the providers in the SCY Service Network are presented in two parts. The first part includes analysis of the responses to the 24 statements in the Collaboration Survey that focuses on comparison of baseline and follow-up responses. The second part of the results section consists of a social network analysis of the responses to the 5 questions about the working relationships among the providers, demonstrating the changes in network activities from baseline to follow-up. In addition, a brief introduction of social network analysis measures is presented in the second part.

Results of Collaboration Survey

The survey instrument (Appendix A) was presented via in-person interviews or by fax to representatives of the 16 agencies identified as the service network for this project. All 16 agencies completed the forms at baseline as well as at follow-up (response rate = 100 percent).

Table 1 presents length of employment information about those who responded for the agencies listed.

Table 1. Length of Employment for Respondents

Agency Name (n=16)	Number of Years at Agency
Adolescent Med. UIHC Pediatrics	2.0
Child Psychiatry, UIHC Psychiatry	17.0
HACAP Community Services	.8
Iowa City Community School District	3.0
Johnson County Juvenile Court Services	*
MECCA	5.5
Mid-Eastern Iowa Comm Mental Hlth Ctr	16.0
Mid-Prairie Community School District	15.0
NRC-FCP	20.0
Pediatrics Psychology, UIHC Pediatrics	35.0
UI Center for Addictions Research	4.0
UIHC Nursing Department	20.0
United Action for Youth	30.0
United Way	*
Williamsburg Community School District	13.0
Youth Homes (Div of Four Oaks)	17.0
Average	14.2

* no response

Results of the analysis of responses to this question indicate that over half of those responding (57.1%) have worked at their agency for 15 or more years. The length of time worked ranged from .8 years to 35 years, and on average, respondents in this service network worked 14.2 years for their agency.

Perceptions of Collaboration: Comparison of Baseline and Follow-up Responses

Tables 2a, 2b, and 2c on the following pages present results of responses to the twenty-four statements about collaborative activities in this service network. The frequency of responses from strongly disagree to strongly agree, the mean response, and standard deviation are presented for baseline and follow-up surveys. Calculation of the mean and standard deviation was based on response codes ranging from 5 for strongly agree to 1 for strongly disagree. Higher scores indicate a more positive response.

**Table 2a. Comparison of Responses from Baseline to Follow-Up
(Items 1 through 10)**

1. People in this community of service providers demonstrate trust for one another							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>		6.3%	18.8%	50.0%	25.0%	3.94	.854
<i>Follow-up</i>		6.3%	12.5%	62.5%	18.8%	3.94	.772
2. There is a clear, shared vision for what the community of service providers is trying to achieve for youth with substance problems							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>		43.8%	18.8%	37.5%		2.94	.929
<i>Follow-up</i>		37.5%	25.0%	37.5%		3.00	.894
3. We have linkages and networking mechanisms to facilitate the identification, assessment, referral, and treatment of youth with substance abuse problems and their families							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	12.5%	12.5%	18.8%	50.0%	6.3%	3.25	1.183
<i>Follow-up</i>		31.3%	18.8%	43.8%	6.3%	3.25	1.000
4. We, as a community of providers, do a good job at documenting our progress							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	6.3%	43.8%	31.3%	18.8%		2.63	.885
<i>Follow-up</i>	12.5%	50.0%	18.8%	18.8%		2.44	.964
5. We, as a community of service providers, have identified specific, measurable results that we want to achieve							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>		56.3%	18.8%	25.0%		2.69	.873
<i>Follow-up</i>		56.3%	12.5%	31.3%		2.75	.931
6. Tasks are appropriately distributed among members of the community							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	12.5%	18.8%	50.0%	18.8%		2.75	.931
<i>Follow-up</i>	6.3%	25.0%	50.0%	18.8%		2.81	.834
7. We, as a community of service providers, have the capacity to provide cost effective and evidence-based substance abuse treatment							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	6.3%	25.0%	12.5%	43.8%	12.5%	3.31	1.195
<i>Follow-up</i>	12.5%	31.3%	12.5%	31.3%	12.5%	3.00	1.317
8. Agency members are representative of the populations they work with							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	6.3%	12.5%	18.8%	62.5%		3.37	.957
<i>Follow-up</i>	6.3%	12.5%	18.8%	62.5%		3.37	.957
9. We have effective rules for handling conflict in this community							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	6.3%	18.8%	50.0%	25%		2.94	.854
<i>Follow-up</i>	6.3%	37.5%	43.8%	12.5%		2.62	.806
10. This community has an effective process for making decisions							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	6.3%	37.5%	31.3%	25.0%		2.75	.931
<i>Follow-up</i>		37.5%	25.0%	37.5%		3.00	.894

**Table 2b. Comparison of Responses from Baseline to Follow-Up
(Items 11 through 20)**

11. The community of service providers has a clear action plan for substance abuse services for youth							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	6.3%	50.0%	31.3%	6.3%	6.3%	2.56	.964
<i>Follow-up</i>		43.8%	25.0%	31.3%		2.88	.885
12. We have a complete continuum of care of services for youth with substance abuse problems							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	31.3%	37.5%	18.8%	12.5%		2.12	1.025
<i>Follow-up</i>	6.3%	68.8%	6.3%	12.5%	6.3%	2.44	1.031
13. Some members of agencies seem to have more power in making decisions than others							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>			25.0%	68.8%	6.3%	3.81	.544
<i>Follow-up</i>			25.0%	68.8%	6.3%	3.81	.544
14. Our community of service providers seeks to bring in new members to participate in planning on an on-going basis							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>		18.8%	43.8%	31.3%	6.3%	3.25	.856
<i>Follow-up</i>		25.0%	18.8%	56.3%		3.31	.873
15. The amount of time spent in meetings is appropriate							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>		12.5%	62.5%	25.0%		3.13	.619
<i>Follow-up</i>		12.5%	56.3%	31.3%		3.19	.655
16. The service community keeps the larger community well-informed about our work							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	12.5%	50.0%	31.3%	6.3%		2.31	.793
<i>Follow-up</i>	6.3%	43.8%	37.5%	12.5%		2.56	.814
17. We, as a community of service providers, have a plan for evaluating results and using results to improve services							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	12.4%	43.8%	25.0%	18.8%		2.50	.966
<i>Follow-up</i>	6.3%	43.8%	18.8%	31.3%		2.75	1.000
18. We have an effective computer/ management information system in place for sharing information about youth with substance abuse problems							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	37.5%	43.8%	18.8%			1.81	.750
<i>Follow-up</i>	18.8%	68.8%	6.3%		6.3%	2.06	.929
19. I feel that the community of service providers is making progress towards improving							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>		18.8%	25.0%	31.3%	25.0%	3.63	1.088
<i>Follow-up</i>		6.3%	12.5%	62.5%	18.8%	3.94	.772
20. Consumers are involved in planning and decision-making							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	12.5%	6.3%	37.5%	37.5%	6.3%	3.19	1.109
<i>Follow-up</i>		18.8%	43.8%	31.3%	6.3%	3.25	.856

**Table 2c. Comparison of Responses from Baseline to Follow-Up
(Items 21 through 24)**

21. Our community addresses the relationship between substance abuse and violence							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	12.5%	25.0%	37.5%	25.0%		2.75	1.000
<i>Follow-up</i>	6.3%	31.3%	31.3%	31.3%		2.88	.957
22. We, as a community of service providers, generally plan for sustaining initiatives after initial grant funds run out							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>	18.8%	56.3%	12.5%	12.5%		2.19	.911
<i>Follow-up</i>	12.5%	50.0%	18.8%	18.8%		2.44	.964
23. I have an equal voice with this community of providers							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>		25.0%	18.8%	50.0%	6.3%	3.38	.957
<i>Follow-up</i>		25.0%	12.5%	56.3%	6.3%	3.44	.964
24. Members of the Johnson County/Iowa County community of service providers openly discuss self-interests							
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree/Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Mean Response</i>	<i>Standard Deviation</i>
<i>Baseline</i>		25.0%	37.5%	37.5%		3.13	.806
<i>Follow-up</i>		25.0%	31.3%	43.8%		3.19	.834

Figures 1a below and 1b on the following page illustrate the mean responses at baseline and follow-up for each of the 24 items/questions on the survey.

Figure 1a. Mean Responses at Baseline and Follow-up for Questions 1 through 12.

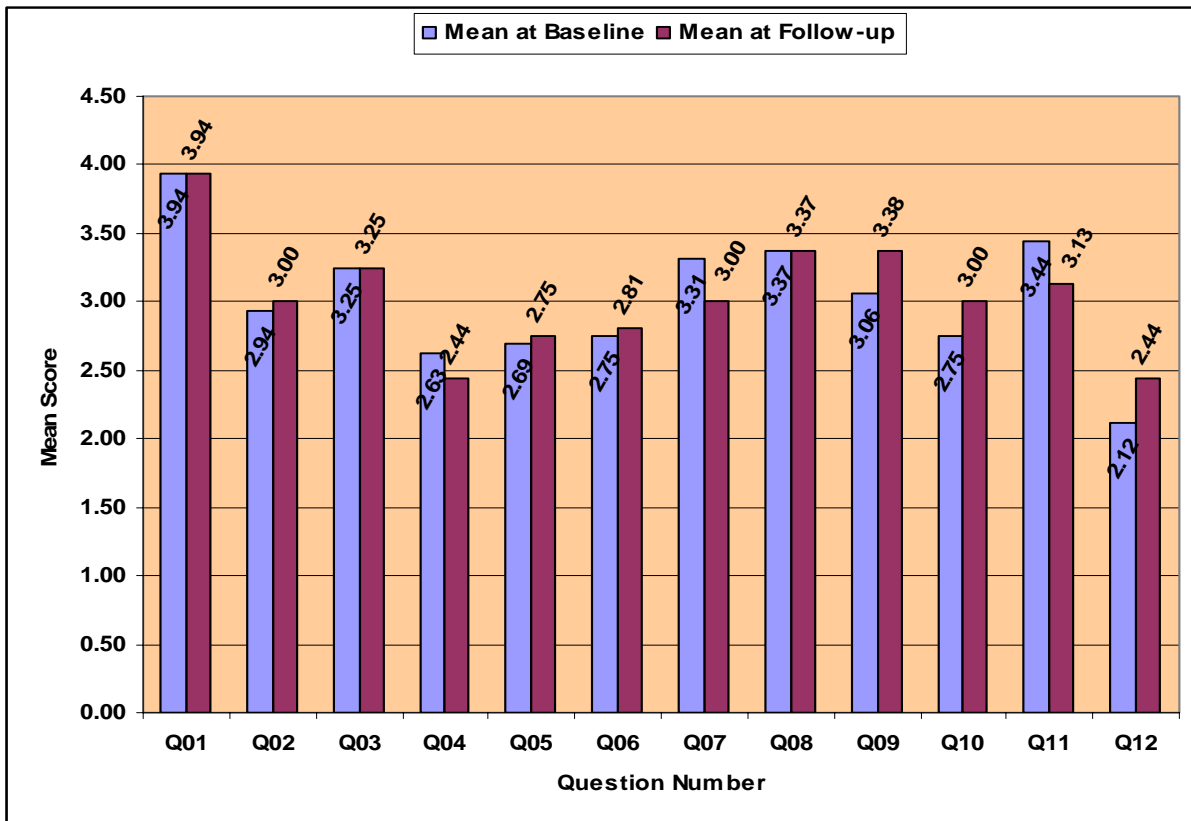
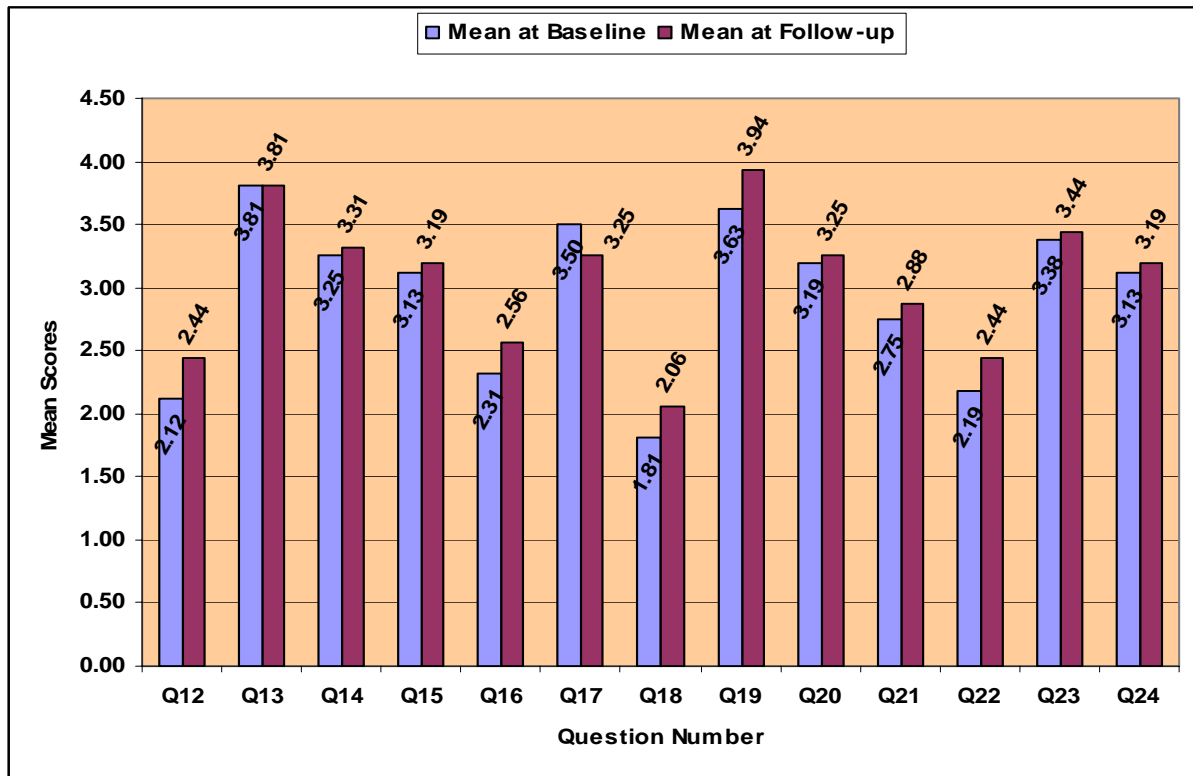


Figure 1b. Mean Responses at Baseline and Follow-up for Questions 13 through 24



Figures 2a and 2b on the following page illustrate the mean responses for each item at follow-up in descending order, along with the average baseline responses. The average mean response for most items either remained the same (no change in respondents' perception of collaboration) or increased slightly (respondents were a little more positive about collaboration at follow-up). However, the average mean response on four items decreased from baseline to follow-up, that is, respondents were less positive about collaboration at follow-up, in particular for collaborative activities related to: documenting progress; the capacity to provide cost-effective and evidence-based substance abuse treatment; having a clear action plan for services for youth with substance abuse problems; and evaluating results and using those results to improve services.

As Figure 2a shows, the items that respondents agreed with most were:

- People in this community demonstrate trust for one another. (3.94 at both baseline and follow-up)
- Some members of agencies seem to have more power in making decisions than others. (3.63 at baseline and 3.94 at follow-up)
- I feel that this community of service providers is making progress towards improving. (3.81 both at baseline and follow-up).

In figure 2b, the results indicate that respondents most disagreed that this network of providers has an effective computer/management information system in place for sharing information about youth with substance abuse problems (1.87 at baseline and 2.06 at follow-up). Respondents also disagreed, though not as strongly, that this service network has a complete continuum of care services (2.12 at baseline and 2.44 at follow-up), and that they plan for sustaining initiatives after grant funds run out (2.19 at baseline and 2.44 at follow-up).

Figure 2a. Responses with Means > 3.15 at Follow-up with Baseline Mean Response

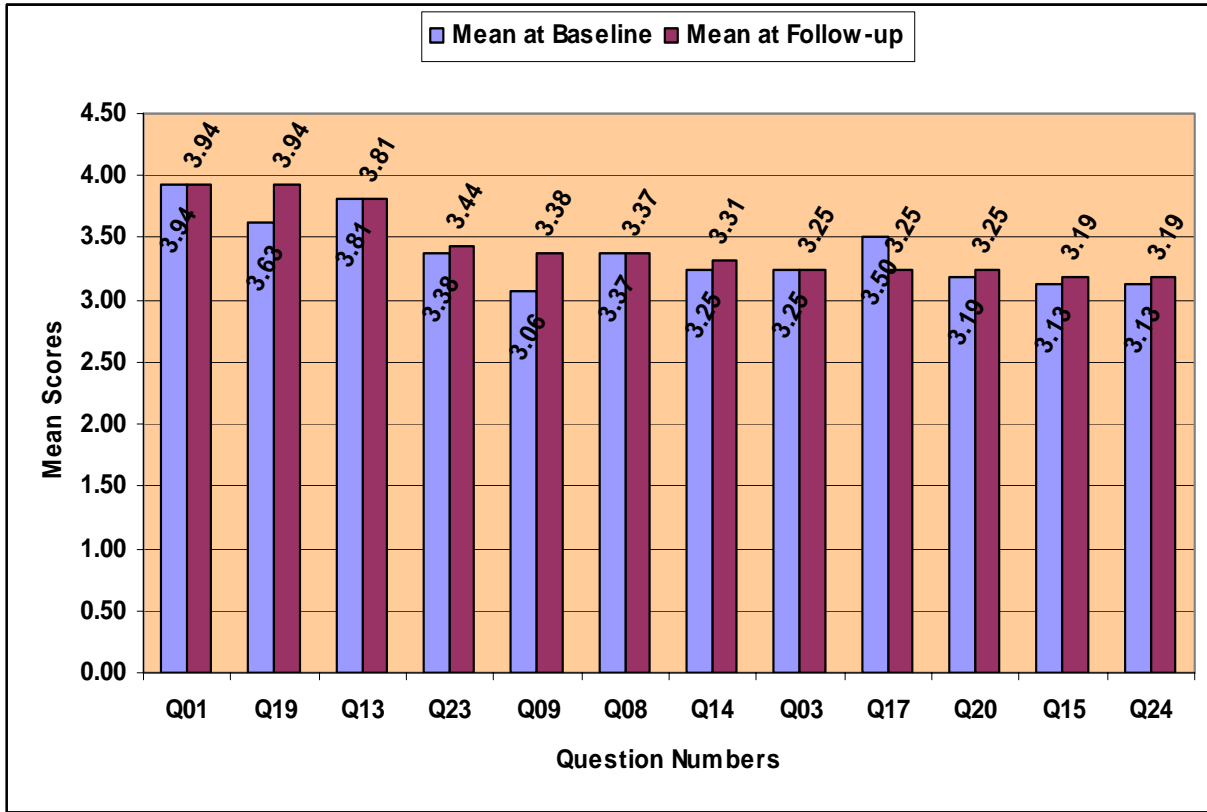
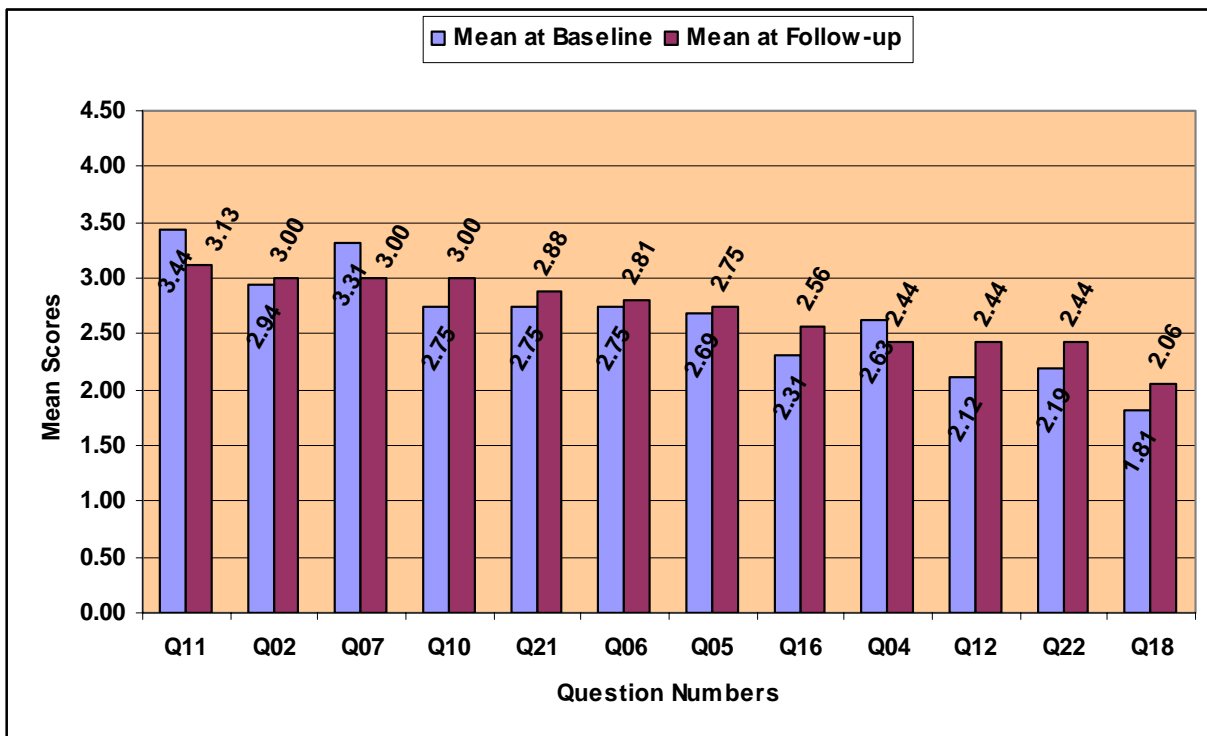


Figure 2b. Responses with Means < 3.15 at Follow-up with Baseline Mean Response

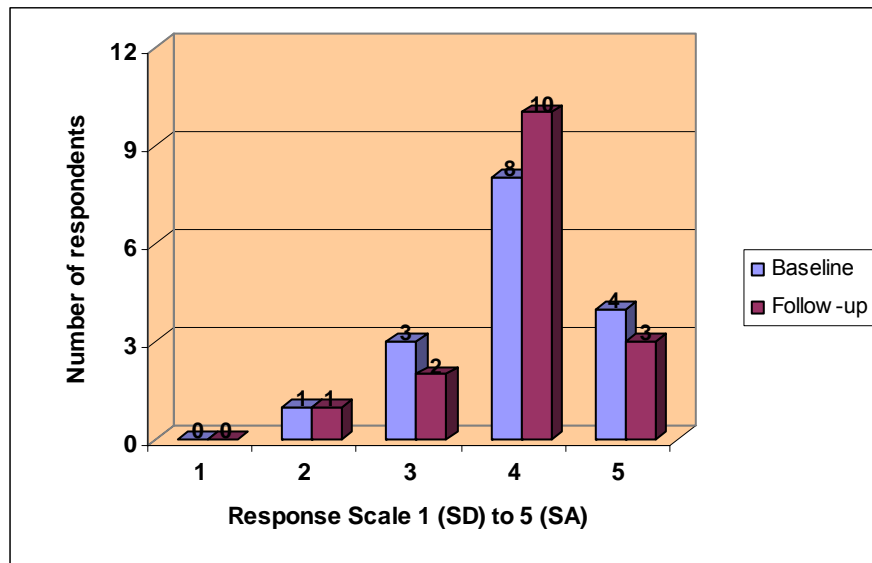


On the following pages, the comparison of the distribution of responses at baseline and follow-up is presented for each of the 24 items on the SCY Service Network survey of collaborative activities.

Item 1

Although the average response for this item (3.94) did not change from baseline to follow-up, at follow-up more respondents (13, 81.3%) agreed or strongly agreed that people in this community demonstrate trust for one another than at baseline (12, 75.0%). The modal response (one with the highest number of respondents) was 4 (agree) both at baseline and follow-up, with an increase at follow-up. Figure 3 below illustrates the comparison of the distribution of responses for this item from baseline to follow-up.

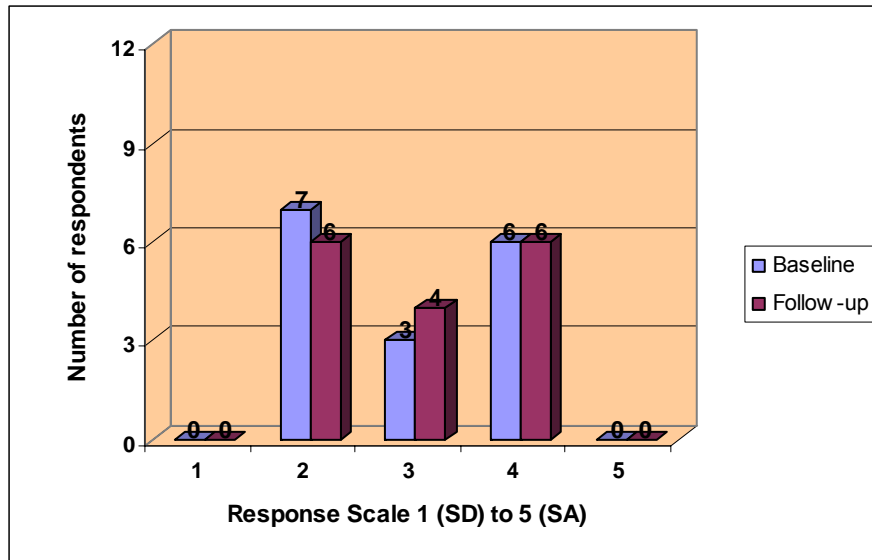
**Figure 3: Comparison of Response Distribution for:
“People in this community demonstrate trust for one another.”**



Item 2

Both at baseline and follow-up, responses were distributed across the middle of the scale for the statement: “There is a clear, shared vision for what the community is trying to achieve for youth with substance abuse problems.” No one response category had a majority of the responses. The mean response increased from baseline (2.94) to follow-up (3.00), indicating a neutral response at both time periods. Figure 4 on the following page illustrates the comparison of response distribution for this item at baseline and follow-up.

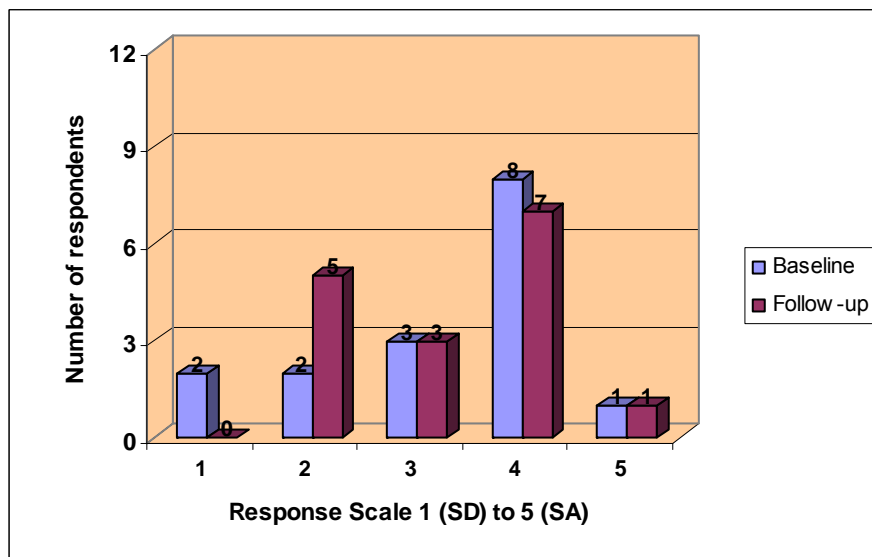
Figure 4: Comparison of Response Distribution for: “There is a clear, shared vision for what the community is trying to achieve for youth with substance abuse problems.”



Item 3

The mean response for this item (3.25) did not change from baseline to follow-up, indicating an average neutral response to the statement that: “We have linkages and networking mechanisms to facilitate the identification, assessment, referral, and treatment of youth with substance abuse problems and their families.” The number of those who disagreed or strongly disagreed with this item increased from 4 (25.0%) at baseline to 5 (31.3%) at follow-up, while the number of those who agreed with this statement decreased from 8 (50.0%) at baseline to 7 (43.8%) at follow-up. Figure 5 below illustrates the comparison of the distribution of responses from baseline to follow-up for this item.

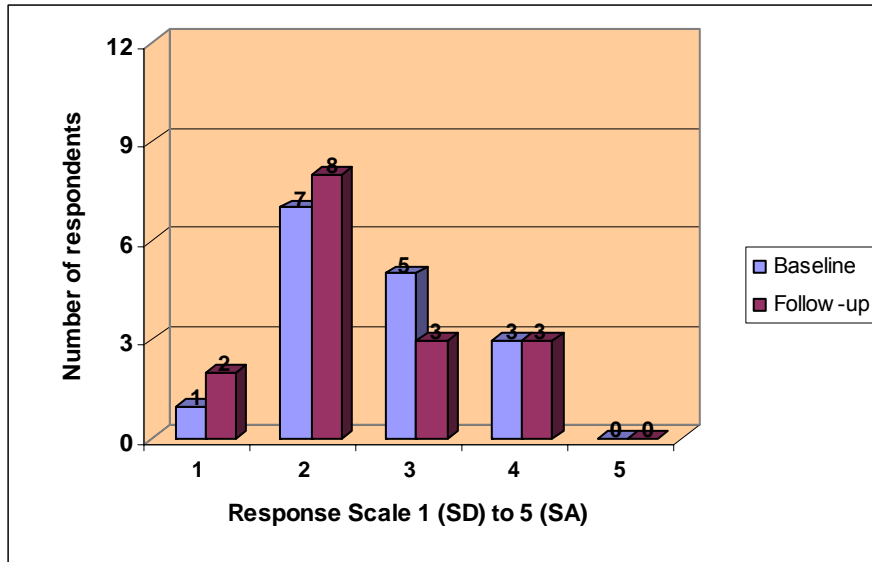
Figure 5: Comparison of Response Distribution for: “We have linkages and networking mechanisms to facilitate the identification, assessment, referral, and treatment of youth with substance abuse problems and their families.”



Item 4

The average response to the statement: "We do a good job at documenting our progress" was 2.63 at baseline and decreased to 2.44 at follow-up, indicating less agreement at follow-up. The number of respondents that disagreed or strongly disagreed with this statement increased from 8 (50.1%) at baseline to 10 (62.5%) at follow-up. Figure 6 below illustrates the baseline-to-follow-up comparison of the response distribution for this item.

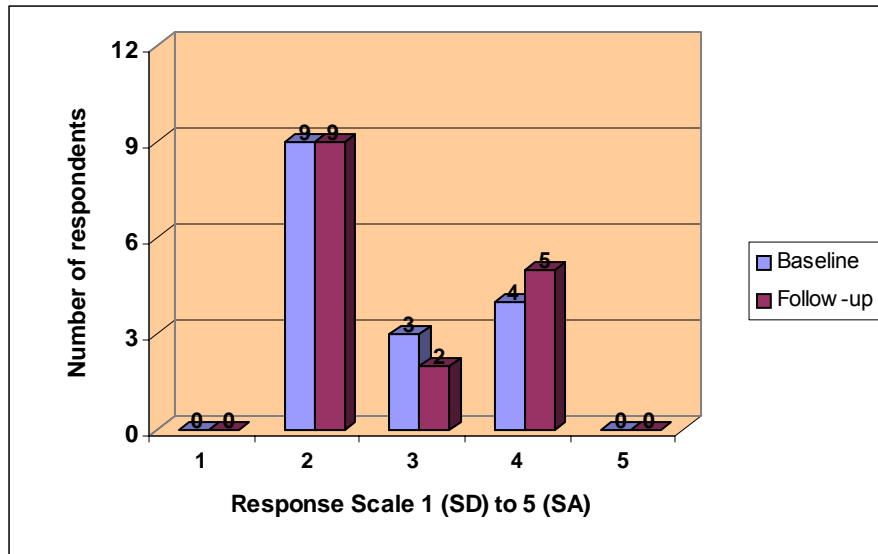
**Figure 6: Comparison of Response Distribution for:
"We do a good job at documenting our progress."**



Item 5

For the statement: "We have identified specific measurable results that we want to achieve," the mean response increased from 2.69 at baseline to 2.75 at follow-up. Most of the respondents (9 or 56.3%) chose "2" (disagree) both at baseline and follow-up. Figure 7 on the following page illustrates the comparison of the distribution of responses for this item.

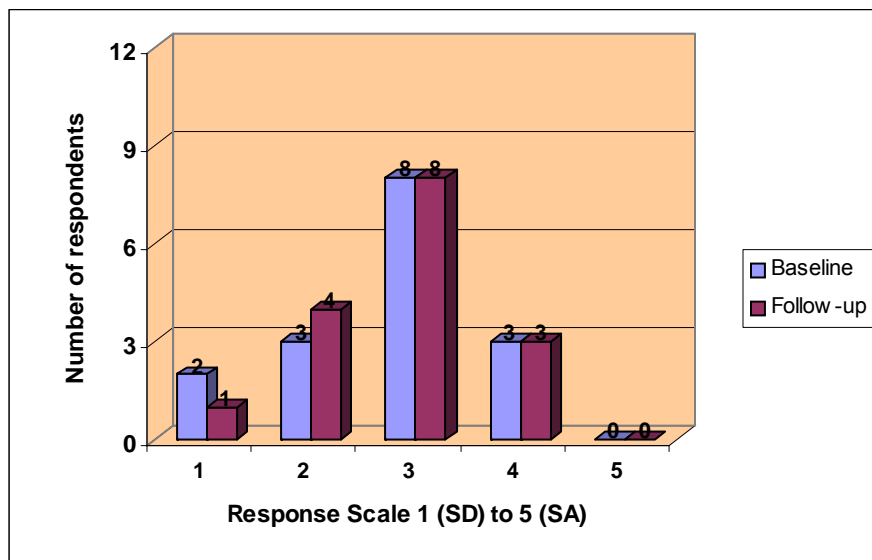
Figure 7: Comparison of Response Distribution for:
 “We have identified specific measurable results that we want to achieve.”



Item 6

Half of the respondents (8, 50%) were neutral regarding the statement: “Tasks are appropriately distributed among members of the community” both at baseline and follow-up. The average responses at baseline (2.75) and follow-up (2.81) were closer to “3” (neutral) than “2” (disagree). See Figure 8 below for an illustration of the baseline and follow-up distribution of responses for this item.

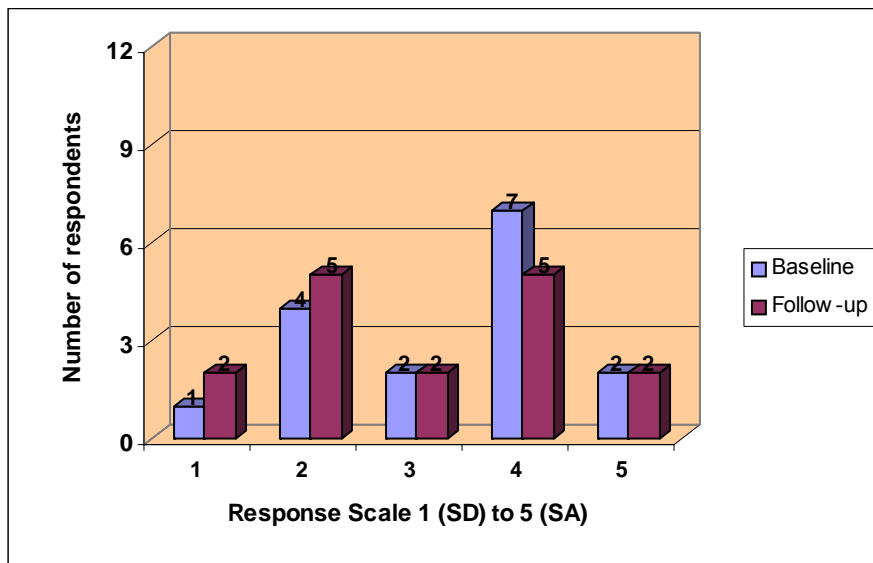
Figure 8: Comparison of Response Distribution for:
 “Tasks are appropriately distributed among members of the community.”



Item 7

For the statement: “We have the capacity to provide cost effective and evidence-based substance abuse treatment,” responses covered a wide range of distribution. The average response decreased from 3.31 at baseline to 3.00 at follow-up, indicating a neutral mean response at both time periods. The number of respondents who chose strongly disagree or disagree increased from 5 (31.3%) at baseline to 7 (43.8%) at follow-up, while the number of respondents who chose strongly agree or agree decreased from 9 (56.3%) at baseline to 7 (43.8%) at follow-up. Figure 9 below shows the distribution of responses for this item at baseline and follow-up.

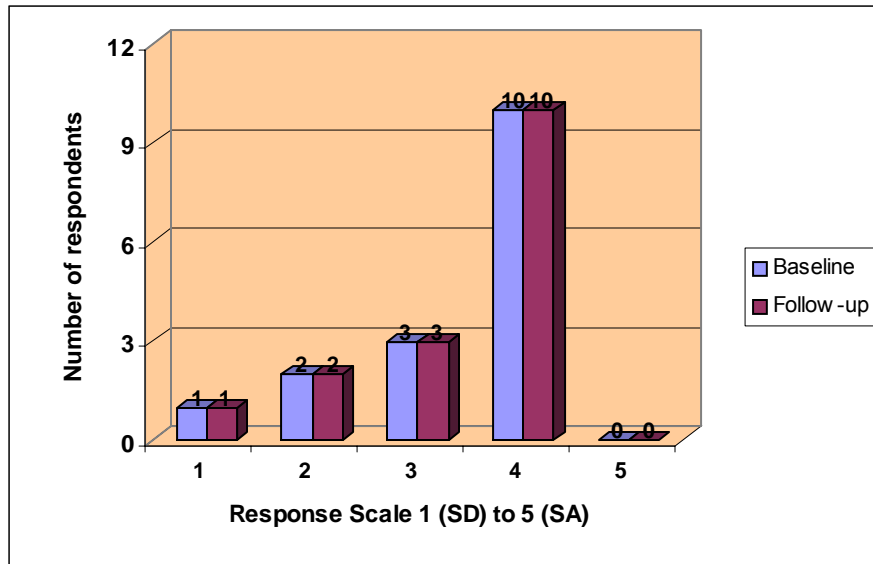
Figure 9. Comparison of Response Distribution for:
“We have the capacity to provide cost effective and evidence-based substance abuse treatment.”



Item 8

There was no change in responses from baseline to follow-up for the statement: “Agency members are representative of the populations they work with.” The modal response for this item was “4” (agree), with the majority of respondents (10, 62.5%) choosing “agree” both at baseline and follow-up. Figure 10 on the following page illustrates the baseline and follow-up distribution of responses for this item.

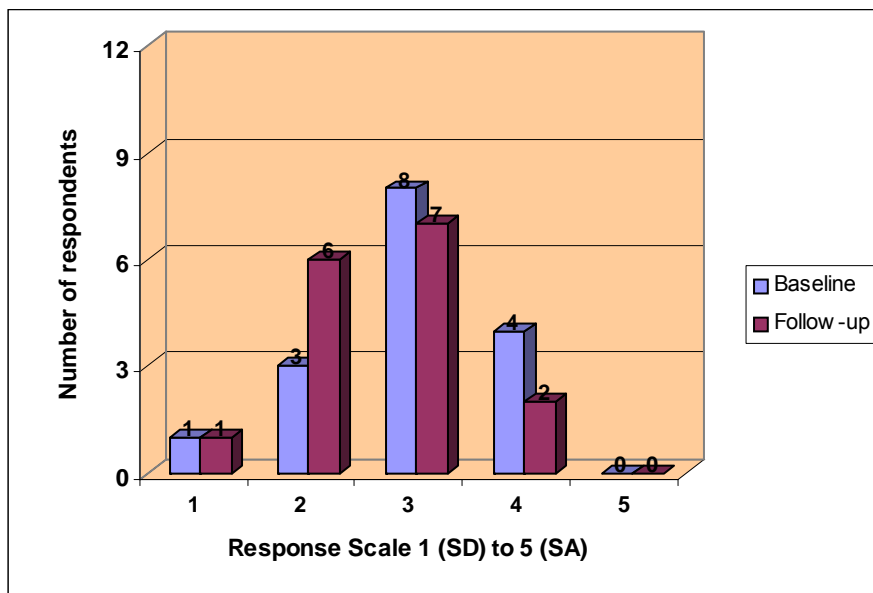
**Figure 10: Comparison of Response Distribution for:
 “Agency members are representative of the populations they work with.”**



Item 9

The average response for the statement: “We have effective rules for handling conflict in this community,” showed a negative change with a decrease from 2.94 at baseline to 2.62 at follow-up. The number of respondents who chose disagree or strongly disagree increased from 4 (25.1%) at baseline to 7 (43.8%) at follow-up. Eight respondents (50.0%) chose “3” (neither agree/disagree) at baseline while 7 respondents (43.8%) chose “3” at follow-up. Figure 11 below illustrates the baseline-to-follow-up response distribution for this item on the survey.

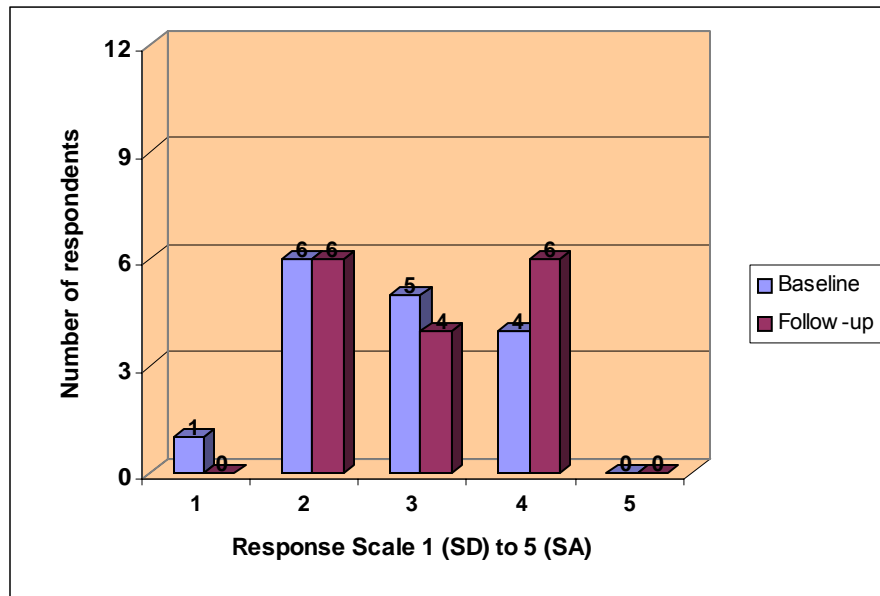
**Figure 11: Comparison of Response Distribution for:
 “We have effective rules for handling conflict in this community.”**



Item 10

For the statement: “This community has an effective process for making decisions,” the average response increased from 2.75 at baseline to 3.00 at follow-up, indicating a more neutral position at follow-up. At baseline, respondents distributed their choices mainly among “disagree” or “strongly disagree (7, 43.8%), “neither disagree/agree” (5, 31.3%), and “agree” (4, 25.0%). At follow-up, responses were split between “disagree” (6, 37.5%), “neither agree/disagree” (5, 31.3%), and “agree” (6, 37.5%). Figure 12 below illustrates the baseline and follow-up distribution of responses for this item on the survey.

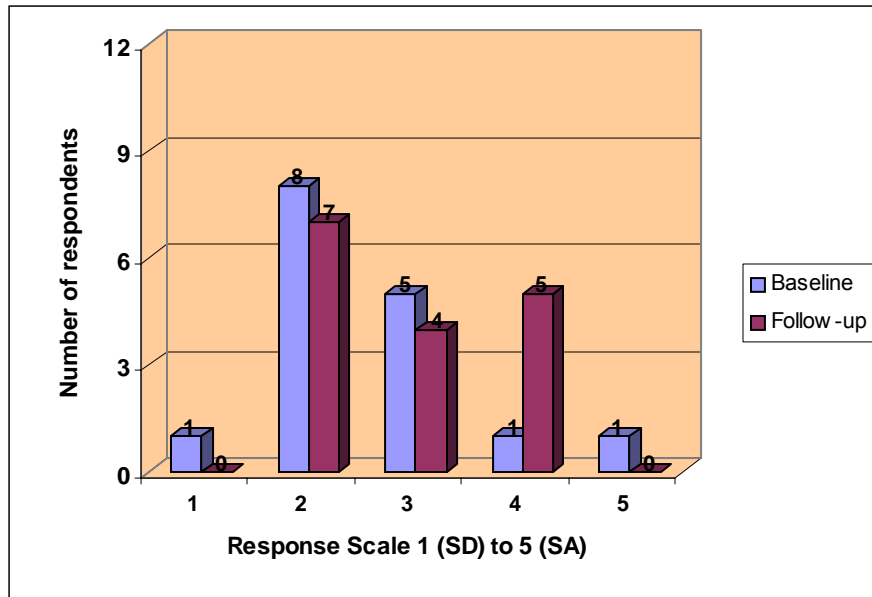
**Figure 12: Comparison of Response Distribution for:
“This community has an effective process for making decisions.”**



Item 11

At baseline, most of the respondents (9, 56.3%) disagreed or strongly disagreed with the statement: “The community has a clear action plan for substance abuse services for youth.” However, at follow-up, responses were distributed throughout the midrange of the scale with 7 (43.8%) disagree, 4 (25.0%) neutral, and 5 (31.3%) agree. The average response for this item increased from 2.56 at baseline (a response halfway between “2” disagree and “3” neutral) to 2.88 at follow-up (a response closer to “3” neutral). Figure 13 on the following page illustrates the response distribution for this item at follow-up and baseline.

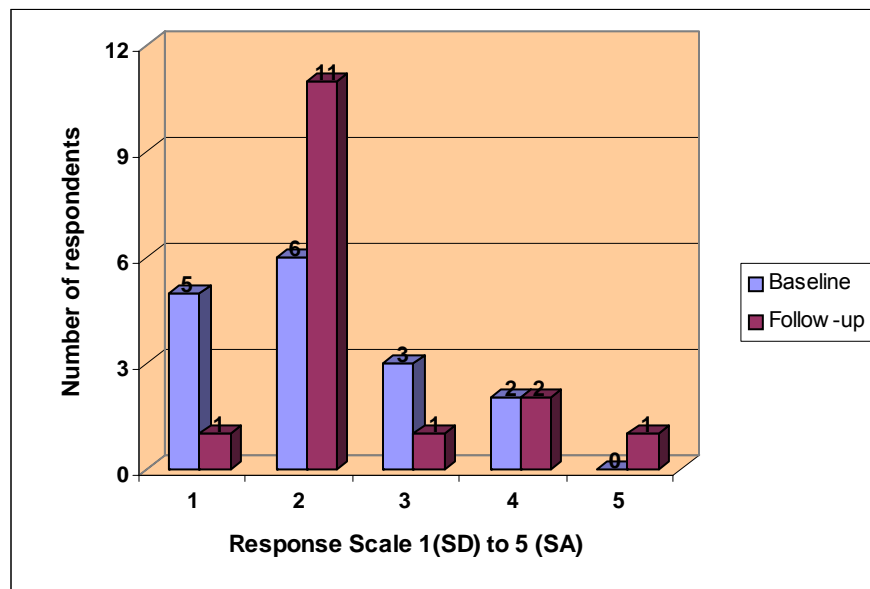
**Figure 13: Comparison of Response Distribution for:
 “Our community has a clear action plan for substance abuse services for youth.”**



Item 12

At follow-up, 11 respondents (68.8%) disagreed with the statement: “We have a complete continuum of care services for youth with substance abuse problems” which was an increase from 6 respondents (37.5%) at baseline. Similarly, the mean response both at baseline (2.12) and follow-up (2.44) were closest to a modal response of “2” disagree. Figure 14 below shows how the responses were distributed for this item at baseline and follow-up.

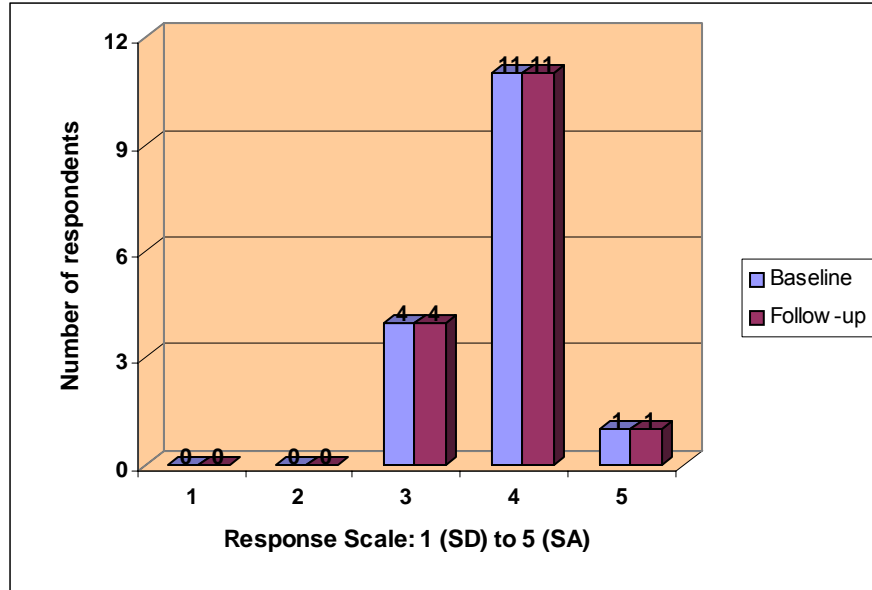
**Figure 14: Comparison of Response Distribution for:
 “We have a complete continuum of care services for youth substance abuse problems.”**



Item 13

Responses for the statement: “Some members of agencies seem to have more power in making decisions than others” did not change from baseline to follow-up. Most respondents (11, 68.8%) agreed with the statement at both time periods. Figure 15 below illustrates the baseline and follow-up distribution of responses for this item.

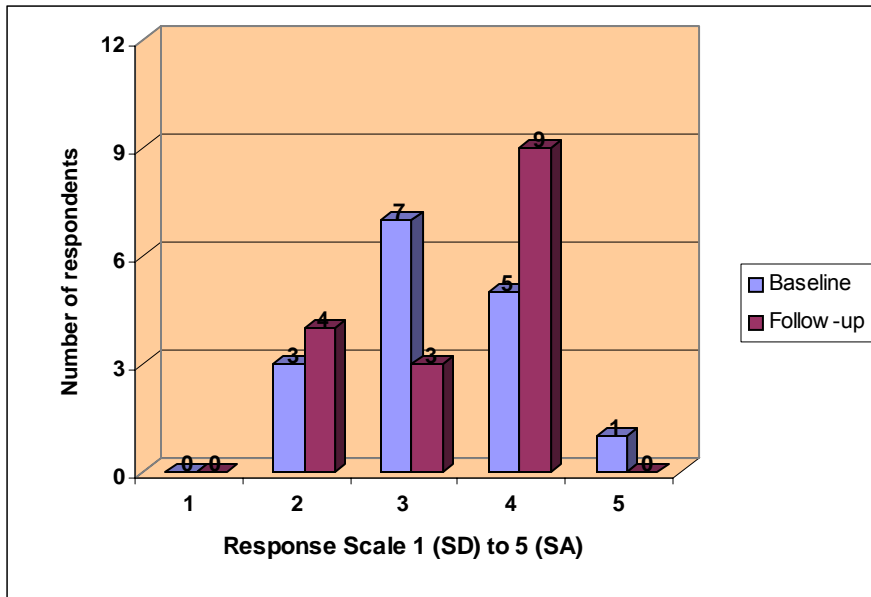
**Figure 15: Comparison of Response Distribution for:
“Some members of agencies seem to have more power in making decisions than others.”**



Item 14.

For the statement: “Our community of service providers seeks to bring in new members to participate in planning on an on-going basis,” 7 respondents (43.8%) at baseline neither agreed nor disagreed. At follow-up though, 9 respondents (56.3%) agreed that new members are brought in regularly to participate in planning. The average response at both time points was closest to “3” neither agree nor disagree, with a mean score of 3.25 at baseline increasing to 3.31 at follow-up. Figure 16 on the following page demonstrates the distribution of responses for this item.

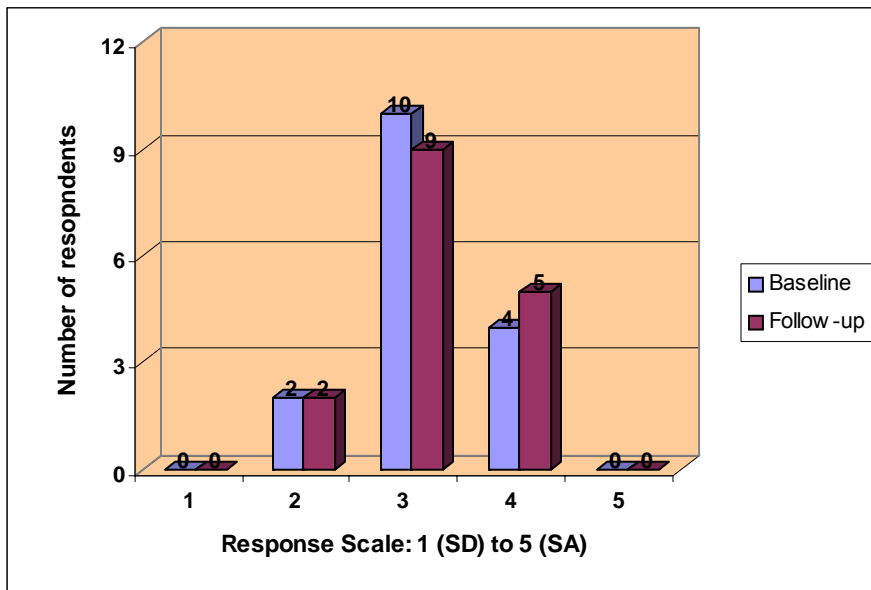
Figure 16: Comparison of Response Distribution for: “Our community of service providers seeks to bring in new members to participate in planning on an on-going basis.”



Item 15

Most respondents were neutral on the statement: “The amount of time spent in meetings is appropriate” with 10 (62.5%) neutral responses at baseline and 9 (56.3%) at follow-up. Similarly, the mean response both at baseline and follow-up was close to “3” (neither agree nor disagree), with 3.13 at baseline and 3.19 at follow-up. Figure 17 below illustrates the response distribution at baseline and follow-up for this item on the survey.

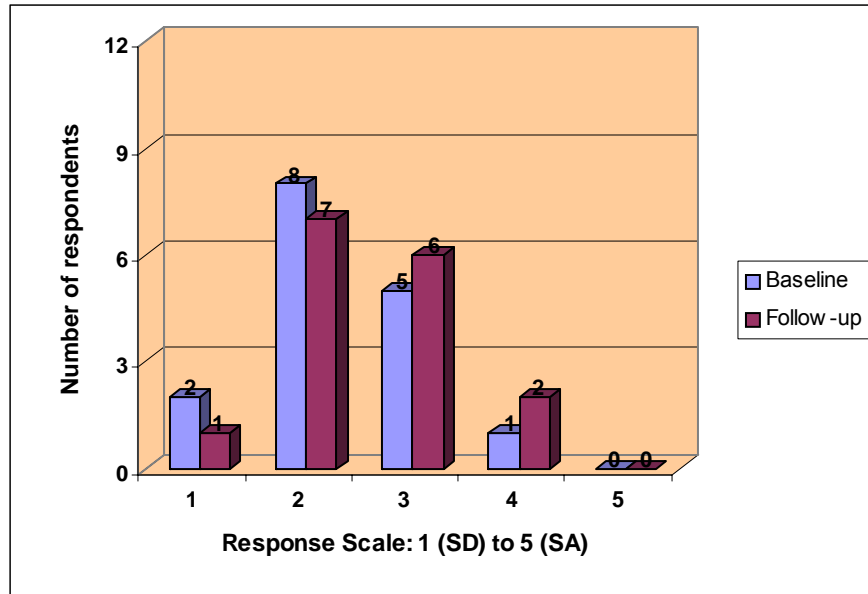
Figure 17: Comparison of Response Distribution for: “The amount of time spent in meetings is appropriate.”



Item 16

Both at baseline and follow-up, most respondents disagreed or strongly disagreed with the statement: “The service community keeps the larger community well-informed about our work.” At baseline, 10 respondents (75.0%) disagreed/strongly disagreed, though at follow-up the number decreased to 8 (68.8%). Similarly, the mean response at baseline (2.31) was closest to “2” disagree, while at follow-up the mean response (2.56) was slightly closer to “3” neither agree or disagree. Figure 18 below illustrates the distribution of responses for this item at baseline and follow-up.

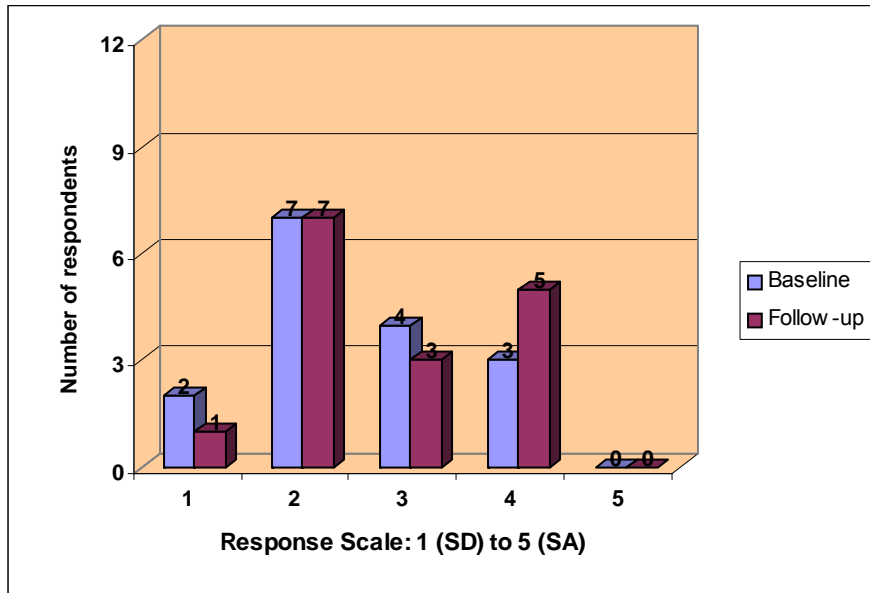
**Figure 18: Comparison of Response Distribution for:
 “The service community keeps the larger community well-informed about our work.”**



Item 17

Responses to the statement: “We have a plan for evaluating results and using results to improve services” were wide-ranging. No one response had a majority, although 9 respondents (56.3%) at baseline and 8 (50.0%) at follow-up chose disagree or strongly disagree. The mean score increased from baseline (2.50) to follow-up (2.75), with both scores closer to “3” neutral than to “2” disagree. Figure 19 on the following page demonstrates the response distribution for this item on the survey.

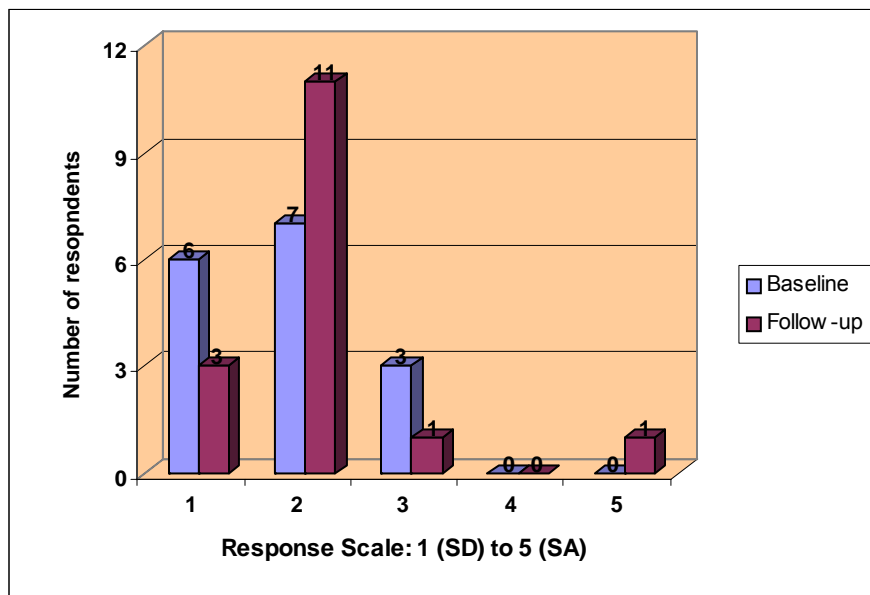
**Figure 19: Comparison of Response Distribution for:
 “We have a plan for evaluating results and using results to improve services.”**



Item 18

The majority of respondents at baseline (13, 81.3%) disagreed or strongly disagreed that: “We have an effective computer/management information system in place for sharing information about youth with substance abuse problems,” while 14 (87.6%) disagreed or strongly disagreed at follow-up. The average responses at baseline (1.81) and follow-up (2.06) were both closest to “disagree.” Figure 20 below depicts the baseline and follow-up distribution of responses for this item.

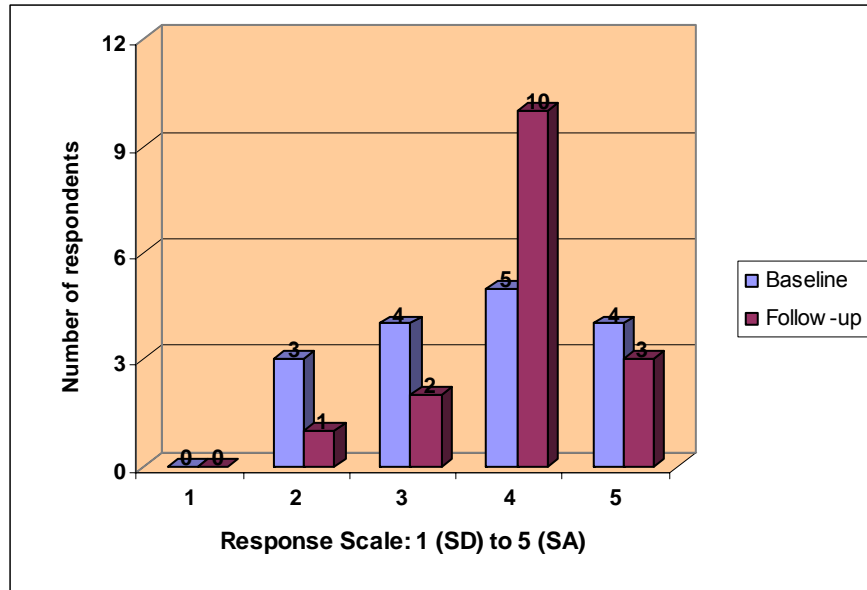
Figure 20: Comparison of Response Distribution for: “We have an effective computer/management information system in place for sharing information about youth with substance abuse problems.”



Item 19

Responses improved from baseline to follow-up for the statement: “I feel that this community is making progress towards improving.” At baseline, nine respondents (56.3%) did agree or strongly agree, while at follow-up, 12 respondents (81.3%) agreed or strongly agreed that this community of service providers is making progress towards improving. The average response at baseline (3.63) increased to 3.94 at follow-up, indicating scores closest to “agree” at both time periods. Figure 21 below illustrates the distribution of responses for this item at baseline and follow-up.

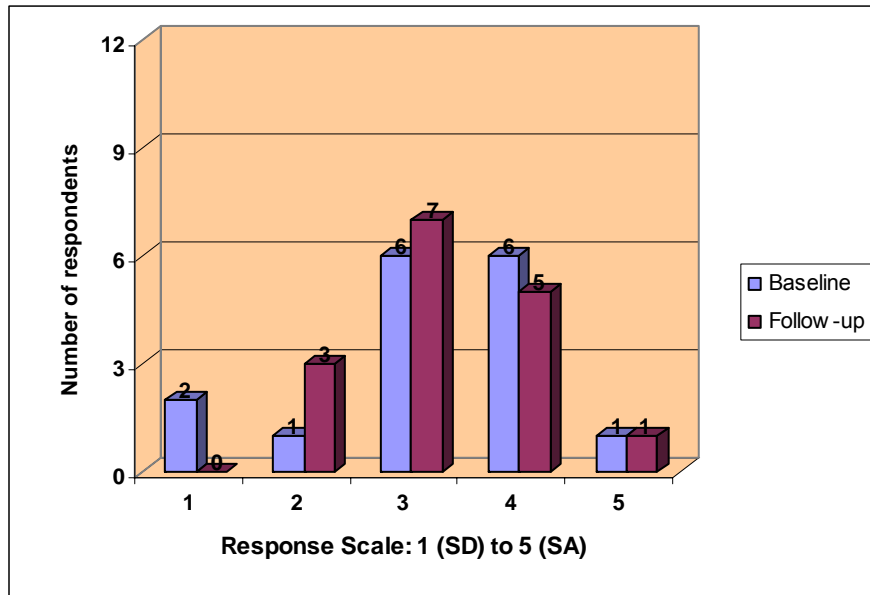
**Figure 21: Comparison of Response Distribution for:
 “I feel that this community is making progress towards improving.”**



Item 20

Responses were distributed across the scale at baseline and follow-up for the statement: “Consumers are involved in planning and decision-making.” No one response category was in the majority: six respondents (37.5%) at baseline indicated neither agree nor disagree while six (37.5%) indicated agree, and at follow-up, seven (43.8%) were neutral and 5 (31.3%) agreed. The mean response also demonstrated a neutral position at “3”, with a mean score of 3.19 at baseline and 3.25 at follow-up. Figure 22 on the following page illustrates the distribution of responses for this item at baseline and follow-up.

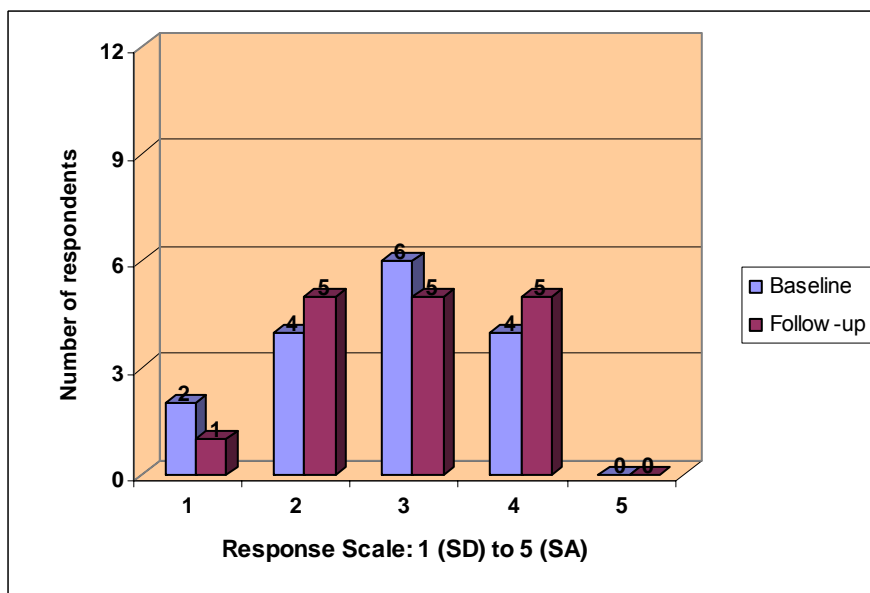
**Figure 22: Comparison of Response Distribution for:
 “Consumers are involved in planning and decision-making.”**



Item 21

In responding to the statement: “Our community addresses the relationship between substance abuse and violence,” survey participants chose a variety of responses and on average remained neutral. At baseline, 6 respondents (37.5%) disagreed or strongly disagreed, 6 (37.5%) were neutral, and 4 (25.0%) agreed. At follow-up, 6 respondents (37.5%) disagreed or strongly disagreed, 5 (31.3%) were neutral, and 5 (31.3%) agreed. The mean response at baseline (2.75) and follow-up (2.88) remained closest to “3.” Figure 23 below illustrates the baseline and follow-up distribution of responses for this item.

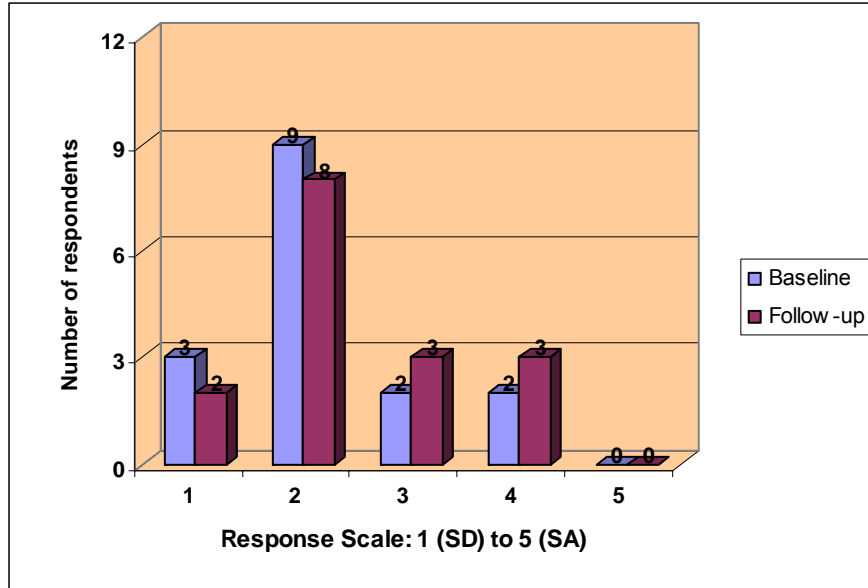
**Figure 23: Comparison of Response Distribution for:
 “Our community addresses the relationship between substance abuse and violence.”**



Item 22

Most respondents disagreed or strongly disagreed with the statement that “We generally plan for sustaining initiatives after initial grant funds run out,” with 12 respondents (75.1%) at baseline and 10 respondents (62.5%) at follow-up. The mean response at baseline (2.19) increased to 2.44 at follow-up, but still remained closest to “2” disagree. Figure 24 below depicts the response distribution for this item at baseline and follow-up.

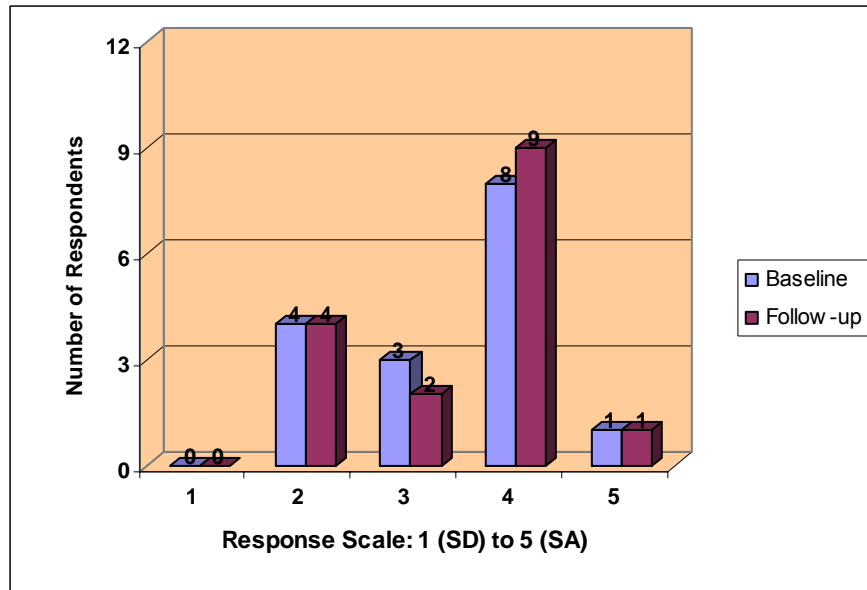
**Figure 24: Comparison of Response Distribution for:
“We generally plan for sustaining initiatives after initial grant funds run out.”**



Item 23

At baseline, nine respondents (56.3%) agreed or strongly agreed with the statement that: “I have an equal voice with this community of providers.” This number increased to ten (62.5%) at follow-up. However, these numbers did not offset the numbers of those who disagreed (4 at baseline, 4 at follow-up) or were neutral (3 at baseline, 2 at follow-up). Thus the average responses at baseline (3.38) and follow-up (3.44) were in the neutral range, closest to “3” neither agree nor disagree. Figure 25 on the following page illustrates the baseline and follow-up distribution of responses for this statement.

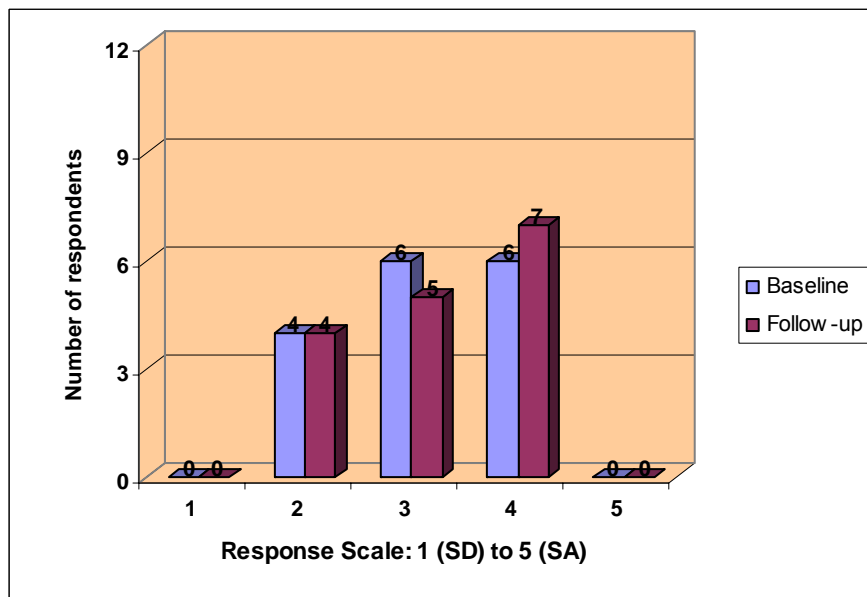
**Figure 25: Comparison of Response Distribution for:
 “I have an equal voice with this community of providers.”**



Item 24

Responses to the statement: “Members of the Johnson County/Iowa County community of service providers openly discuss self-interests” were centered around the mid-range of the scale (neutral) with little change from baseline to follow-up. At baseline, 4 respondents (25.0%) disagreed, 6 (37.5%) neither agreed nor disagreed, and 6 (37.5%) agreed. At follow-up, 4 respondents (25.0%) disagreed, 5 (31.3%) remained neutral, and 7 (43.8%) agreed. The average response also remained neutral with 3.13 at baseline and 3.19 at follow-up. Figure 26 below visually presents the baseline and follow-up response distribution for this item.

**Figure 26: Comparison of Response Distribution for:
 “Members of this community openly discuss self-interests.”**



Social Network Analysis of Collaborative Activities

Brief Introduction to Network Measures

Network measures include: 1) walks and reachability; 2) geodesics and distance; 3) nodal degrees; and 4) network density. Network analysis nearly always includes some basic network properties. Nodes are the actors in a network and paths are the connections among those actors. A *walk* is a sequence of nodes (agencies) and paths (lines indicating a tie or connection between two agencies). The walk begins and ends with a node and each node in the path is connected by the lines following and preceding it in the sequence. For example, Agency A collaborates with Agency B would be represented by a line between these two nodal points. Assume also that Agency B collaborates with Agency C and that Agency A and Agency C do not collaborate. The span between Agency A and Agency C would be considered a *walk*. The *length* of a walk is the number of lines (in our example, two). *Reachability* is the measure of how many paths there are leading to a particular node. For example, since Agency A collaborates with Agency B, then both agencies are said to be reachable. Since Agency B also collaborates with Agency C and Agency A does not, Agency B is said to be more reachable than Agency A or Agency C. A *geodesic* (distance) is the shortest path between a given pair of nodes (the geodesic for Agency A and Agency C is two). A *nodal degree* is the number of lines connected with the node in a graph. Using the example above, it is the number of agencies indicating they work with a particular agency (for Agency B the nodal degree would be 2, and for Agency A and Agency C the nodal degree would be 1). *Density* is a measure of connectedness of the agencies in the network (percentage of all possible nodal degrees that the network exhibits).

When examining interagency collaboration, one use of social network analysis is to identify the *most important* members in the network. Some measures of importance in a network include: 1) degree; 2) closeness; 3) betweenness; and 4) prestige. *Degree*, based on graph centralization, quantifies the range or variability of the individual member indices (agency connectedness). The index or measure (C_D) ranges from 0 (no variability) to 1 (extreme variability for one member). For example, if each agency in a network collaborates with the others equally then there is no variability for members because they are equally and exhaustively connected, then $C_D = 0$. If one agency works with all other agencies and all other agencies work only with this agency, then $C_D = 1$ (also known as a star network). *Closeness* measures how closely a member is to all the other members of the network. This concept addresses the extent to which a member can directly access other members of the network. The closeness index (C_C) also ranges from 0 to 1, where 0 represents the lengths of geodesics to be equal among network members, and 1 represents extreme variability with respect to one member. *Betweenness* is a measure of interactions between nonadjacent members of a network where one must access another member in the network in order to reach another. The *betweenness* index (C_B) ranges from 0 (all members are equal in betweenness) to 1 (extreme variability with respect to one member). *Prestige* is similar to the lay notion of popularity, how many choose a particular node. The members of the network who are most prestigious are those most frequently chosen by others. The index for prestige (P_D) reaches its maximum value ($P_D(n_i) = 1$) when a member is chosen by all other members of the network. As the node measures closer to 1 for prestige, the percentage of network members choosing that actor approaches 100 percent, hence, the more prestigious the network member.

Results of Social Network Analysis

Analyses were performed on the collaborative relations of the 16 agencies in the SCY Service Providers Network that responded to the baseline and follow-up surveys. Five relationships were examined:

- 1) Joint case planning among the agencies;
- 2) Participation in joint staff trainings;
- 3) Sharing in efforts to provide cost effective services;
- 4) Collection of common outcomes data; and
- 5) Together contributing to early intervention with youth who have substance abuse problems.

The activities of the 16 responding agencies or “nodes” which make up the network for this project provide an understanding of the characteristics of the individual network members (or agencies) as well as how the network is connected. To explore the change in services network, systems of care relationships among the agencies are examined over time. The analysis first examines increased communication and connectedness and then other relational content. The analyses were based on connections where only one of the agencies in a given pair was required to indicate a working relationship with another agency in the services network to be considered in agreement. In addition, the connections or ties were “directed,” meaning that each tie showed whether the direction of the relation was “in” (received from another agency) or “out” (sent out to another agency).

RELATION 1: JOINT CASE PLANNING AMONG THE AGENCIES

Table 3, on the following page, presents the choices made at baseline and follow-up by each of the nodes (or agencies) for the relational content concerned with joint case planning among the agencies. The measures presented include: *outdegree* (ties “sent out to” other agencies; a measure that demonstrates how prominent actors are most extensively involved in relationships with other actors and are therefore instrumental in consensus building; *indegree* (ties “received from” other agencies; a measure of prestige; network members who are prestigious receive more nominations or choices); *average number of degrees* or ties to other agencies; *maximum number of nodal degrees* or ties possible; *average geodesic distance* (based on shortest path between each pair of nodes); and average *density* of the network (a measure of group cohesion based on the number of ties that exist in the network for a particular relation).

**Table 3. SCY Service Network Member Activities and Change for the
“Joint Case Planning” Relation**

Agency	At Baseline				At Follow-Up			
	Outdegree		Indegree		Outdegree		Indegree	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Agency 1	4	26.7%	7	46.7%	4	26.7%	7	46.7%
Agency 2	8	53.3%	5	33.3%	4	26.7%	6	40.0%
Agency 3	11	73.3%	6	40.0%	11	73.3%	7	46.7%
Agency 4	5	33.3%	2	13.3%	5	33.3%	3	20.0%
Agency 5	11	73.3%	10	66.7%	12	80.0%	9	60.0%
Agency 6	5	33.3%	10	66.7%	5	33.3%	11	73.3%
Agency 7	7	46.7%	11	73.3%	7	46.7%	10	66.7%
Agency 8	4	26.7%	3	20.0%	5	33.3%	2	13.3%
Agency 9	8	53.3%	7	46.7%	7	46.7%	6	40.0%
Agency 10	0	0%	5	33.3%	0	0%	3	20.0%
Agency 11	3	20.0%	1	6.7%	4	26.7%	1	6.7%
Agency 12	6	40.0%	6	40.0%	7	46.7%	6	40.0%
Agency 13	3	20.0%	4	26.7%	3	20.0%	3	20.0%
Agency 14	6	40.0%	3	20.0%	6	40.0%	3	20.0%
Agency 15	7	46.7%	8	53.3%	6	40.0%	8	53.3%
Agency 16	0	0%	0	0%	0	0%	1	6.7%
Average Degree (std dev)	5.5 (3.122)		5.5 (3.162)		5.4 (3.100)		5.4 (3.080)	
Max Nodal Degrees	15		15		15		15	
Avg Geodesic Distance	1.633				1.667			
Average Density (std dev)	36.7% (0.4819)				35.8% (0.4795)			

REACHABILITY AND AVERAGE GEODESIC DISTANCE

For the “joint case planning” relation, not all agencies in the SCY Service Network were *reachable* either at baseline or follow-up; that is, not every agency was connected to the other agencies by at least one path of some length. At baseline, Agency 16 had no connections sent out (outdegree) or any connections received (indegree), while Agency 10 had no outdegrees. At follow-up, Agency 10 and Agency 16 still had no outgoing ties. The *average geodesic distance* among reachable pairs or nodes (or agencies) was 1.633 at baseline, a moderately short distance that did not change much at follow-up (1.667). For the relationship related to joint case planning, although this network was not completely connected either at baseline or follow-up, members were not too distant from each other and able to make some connections.

OUTDEGREE

Examination of the *outdegree* percentages for this relation indicates that agencies in this network are not very active in their outgoing connections. Agencies maintained a fairly constant level of influence and showed some decrease in outgoing connections at follow-up compared to baseline. At follow-up, five agencies showed an increase in outdegree percentage (Agencies 2, 5, 8, 11, and 12), two agencies showed a decrease (Agencies 9 and 15), and nine agencies remained the same (Agencies 1, 3, 4, 6, 7, 10, 13, 14, and 16). In addition, the outdegree percentages were not very high, indicating a lower level of

ability to interact and communicate with many others. At baseline, only two agencies reported an *outdegree* greater than 65%: Agency 3 (73.3%) and Agency 5 (73.3%), indicating a moderate level of influence within the network. At follow-up, Agency 3 indicated the same percentage of *outdegree* (73.3%), Agency 5 increased to 80.0%, but no other agencies were at this level of influence in matters related to “joint case planning.” A lower percentage of *outdegree* indicates less influence in the network. At baseline, four agencies reported an *outdegree* less than 25%: Agency 11 (20.0%), Agency 13 (20.0%), Agency 10 (0.0%) and Agency 16 (0.0%). At follow-up, Agency 11 increased slightly to a 26.7% level of *outdegree*, while Agencies 10, 13, and 16 all remained at the same 20.0% level. These data suggest that agencies in this network mostly maintained their activity in outgoing ties to other agencies, with only a few agencies sharing their influence.

INDEGREE

Examination of the changes in *indegree* shows that higher percentages of *indegree* ties indicate greater prestige or prominence in the network while lower percentages of *indegree* ties indicate less prestige. For activities related to “joint case planning” in this network, there were not many agencies with greater prestige or prominence, and the number and level of prestige decreased slightly at follow-up. At baseline, three agencies had *indegree* percentages greater than 65%: Agency 5 (66.7%), Agency 6 (66.7%) and Agency 7 (73.3%). At follow-up, Agency 5 decreased to 60.0%, Agency 6 increased to 73.3%, and Agency 7 decreased to 66.7%. Overall, a total of five agencies increased in the percentage of their incoming ties at follow-up, six agencies decreased, and five agencies remained at the same percentage of *indegree*. Seven agencies had fewer than 25% of the incoming ties possible: Agency 11 (6.7%), Agency 16 (6.7%), Agency 8 (13.3%), and Agencies 4, 10, 13, and 14 all at 20.0%.

AVERAGE NODAL DEGREE AND DENSITY

From baseline to follow-up, the *average nodal degree* (number of ties between agencies) decreased from 5.5 to 5.4 indicating, overall, that not much change took place in the average number of ties and connectedness in activities related to “joint case planning.” On average, only 36.7% of the possible connections at baseline were established, and 35.8% of all connections at follow-up were active. Again, the evaluation finds little change in the relatively low *density* and group cohesion in the SCY Service Network activities related to “joint case planning.”

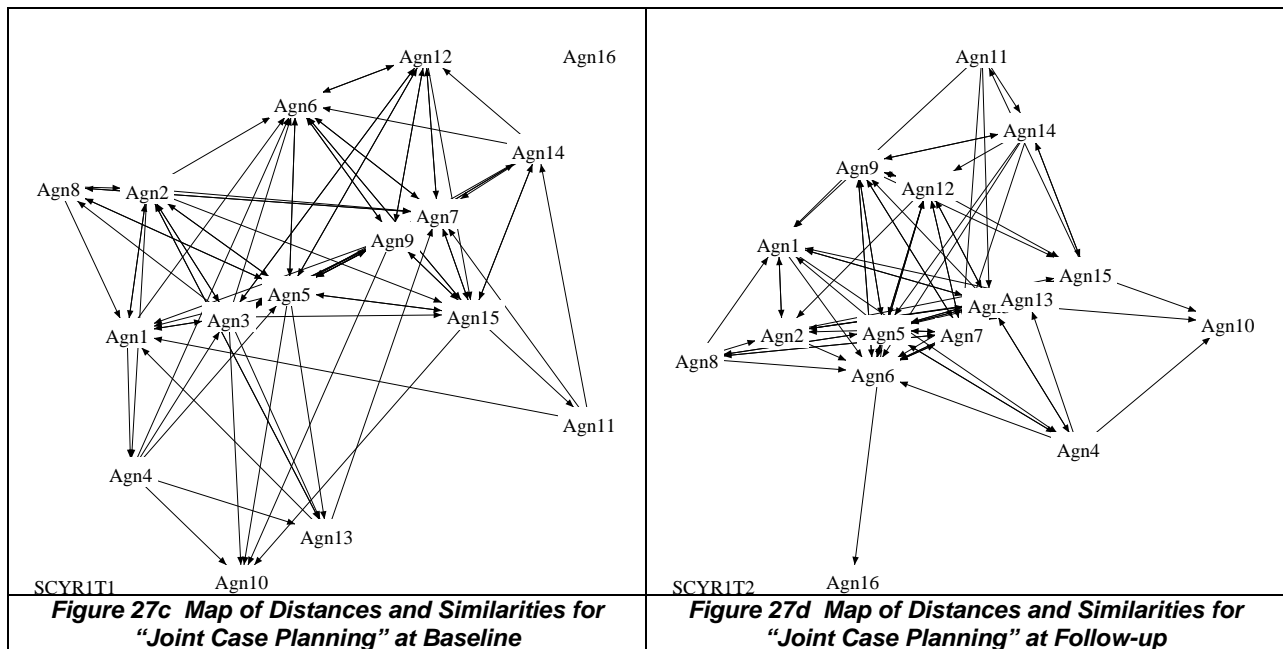
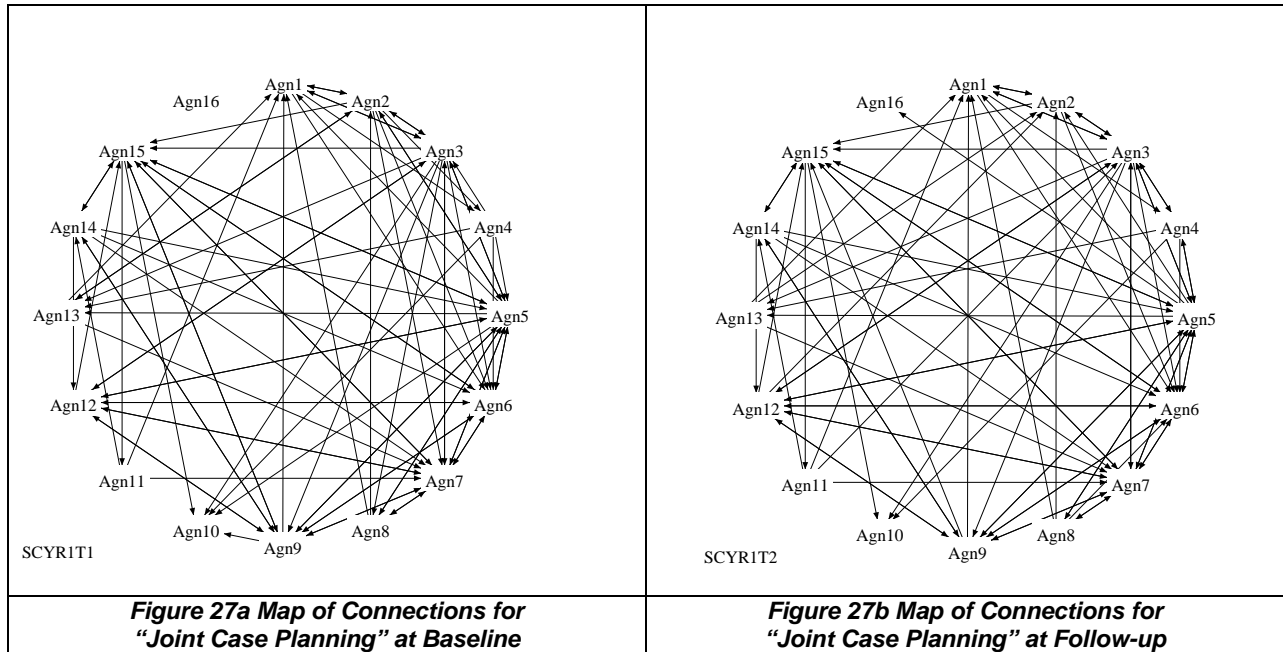
ILLUSTRATIONS

Figures 27a and 27b on the following page use circle illustrations to map activity and change in the “joint case planning” relation for the SCY Service Network of provider agencies. The number of lines (representing ties or connections) indicates an active and connected network. More connected agencies have more lines emanating from their nodes, while less active agencies have fewer lines. The arrow points indicate the direction of the ties, matching the information on number of *indegrees* and *outdegrees* from Table 3. Note that there is very little change in the number of lines from Figure 27a to Figure 27b, demonstrating very minor changes from baseline to follow-up in connections and thus collaboration.

Figures 27c and 27d, illustrates the data from Table 3 using multi-dimensional scaling to produce the diagram, mapping geodesic distances and similarities among nodes or agencies. These diagrams use the data to locate the nodes, placing agencies that are more central nearest the “center” of the diagram (the algorithm locates nodes based on their geodesic distances or shortest path between each pair of nodes). At follow-up (Figure 27d), more agencies have moved closer to the center than is apparent at

baseline (Figure 27c), and Agency 16 is shown connected at follow-up though not at baseline. These observations indicate expansion of the core of the network and increased collaboration.

**Figure 27. SCY Service Network:
 Network Activity and Change from Baseline to Follow-up for “Joint Case Planning”**



RELATION 2: JOINT STAFF TRAININGS

Table 4 below presents the choices made at baseline and follow-up by each of the nodes (or agencies) for the relational content concerned with joint staff trainings among the agencies. The measures presented include: *outdegree* (ties “sent out to” other agencies; a measure that demonstrates how prominent actors are most extensively involved in relationships with other actors and are therefore instrumental in consensus building; *indegree* (ties “received from” other agencies; a measure of prestige; network members who are prestigious receive more nominations or choices); *average number of degrees* or ties to other agencies; *maximum number of nodal degrees* or ties possible; *average geodesic distance* (based on shortest path between each pair of nodes); and *average density* of the network (a measure of group cohesion based on the number of ties that exist in the network for a particular relation).

Table 4. SCY Service Network Member Activities and Change for “Joint Staff Training” Relation

Agency	At Baseline				At Follow-Up			
	Outdegree		Indegree		Outdegree		Indegree	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Agency 1	1	6.7%	5	33.3%	1	6.7%	5	33.3%
Agency 2	1	6.7%	3	20.0%	1	6.7%	2	13.3%
Agency 3	9	60.0%	1	6.7%	10	66.7%	1	6.7%
Agency 4	1	6.7%	2	13.3%	1	6.7%	3	20.0%
Agency 5	7	46.7%	3	20.0%	6	40.0%	4	26.7%
Agency 6	3	20.0%	4	26.7%	4	26.7%	4	26.7%
Agency 7	1	6.7%	7	46.7%	0	0%	7	46.7%
Agency 8	3	20.0%	2	13.3%	10	66.7%	1	6.7%
Agency 9	11	73.3%	3	20.0%	6	40.0%	4	26.7%
Agency 10	0	0%	1	6.7%	0	0%	2	13.3%
Agency 11	2	13.3%	0	0%	1	6.7%	0	0%
Agency 12	2	13.3%	2	13.3%	0	0%	2	13.3%
Agency 13	1	6.7%	2	13.3%	1	6.7%	2	13.3%
Agency 14	0	0%	5	33.3%	0	0%	3	20.0%
Agency 15	3	20.0%	3	20.0%	3	20.0%	2	13.3%
Agency 16	0	0%	2	13.3%	0	0%	2	13.3%
Average Degree (std dev)	2.8 (3.206)		2.8 (1.704)		2.8 (3.363)		2.8 (1.677)	
Max Nodal Degrees	15		15		15		15	
Avg Geodesic Distance	2.386				2.195			
Average Density (std dev)	18.8% (3.903)				18.3% (0.3869)			

REACHABILITY AND AVERAGE GEODESIC DISTANCE

For the “joint staff trainings” relation, not all agencies in the SCY Service Network were *reachable* either at baseline or follow-up; that is, not every agency was connected to the other agencies by at least one path of some length. Agencies 10, 14, and 16 indicated no outgoing ties at baseline or follow-up, in addition to two other agencies at follow-up: Agencies 7 and 12. The *average geodesic distance* among reachable pairs or nodes (or agencies) was 2.386 at baseline (i.e., on average, the shortest distance between any two agencies was over two paths long), a somewhat larger distance that decreased slightly to 2.195 at follow-up. For the relationship related to joint staff trainings, this network was not completely

connected either at baseline or follow-up, and members were at a somewhat larger distance from each other, making it difficult to make connections.

OUTDEGREE

Examination of the *outdegree* percentages for this relation indicates that most agencies in this network are not very active in their outgoing connections indicating a lower level of ability to interact and communicate with many others. At baseline, only one agency reported an *outdegree* greater than 65%: Agency 9 (73.3%). At follow-up, Agency 9 had a decrease in percentage of *outdegree*, falling to 40.0%. Two other agencies did experience an increase in outdegree percentage with Agency 3 increasing slightly from 60.0% at baseline to 66.7% at follow-up, and Agency 8 showing a marked increase from 20% at baseline to 66.7% at follow-up. A lower percentage of *outdegree* indicates less influence in the network. At baseline, 8 agencies reported an *outdegree* less than 20%, increasing to 9 agencies at follow-up. These data suggest that most agencies in this network did not increase their activity in outgoing ties, and only a few agencies shared their fairly low degree of influence making collaboration possible in this relation.

INDEGREE

Examination of the changes in *indegree* shows that higher percentages of *indegree* ties indicate greater prestige or prominence in the network while lower percentages of *indegree* ties indicate less prestige. For activities related to joint staff trainings at baseline and follow-up, no agency had an *indegree* percentage even $\geq 50\%$. Agency 7 had the highest indegree percentage at 46.7% at both baseline and follow-up. The next most active agencies were: Agency 1 (33.3% indegree at both baseline and follow-up), Agency 5 (20% at baseline and 26.7% at follow-up), and Agency 6 (26.7% at both baseline and follow-up), all very low percentages. For activities related to “joint staff trainings” in this network, the results indicate that no agency had prestige or prominence, a situation that allows for collaboration, and this level of prestige remained mostly unchanged at follow-up.

AVERAGE NODAL DEGREE AND DENSITY

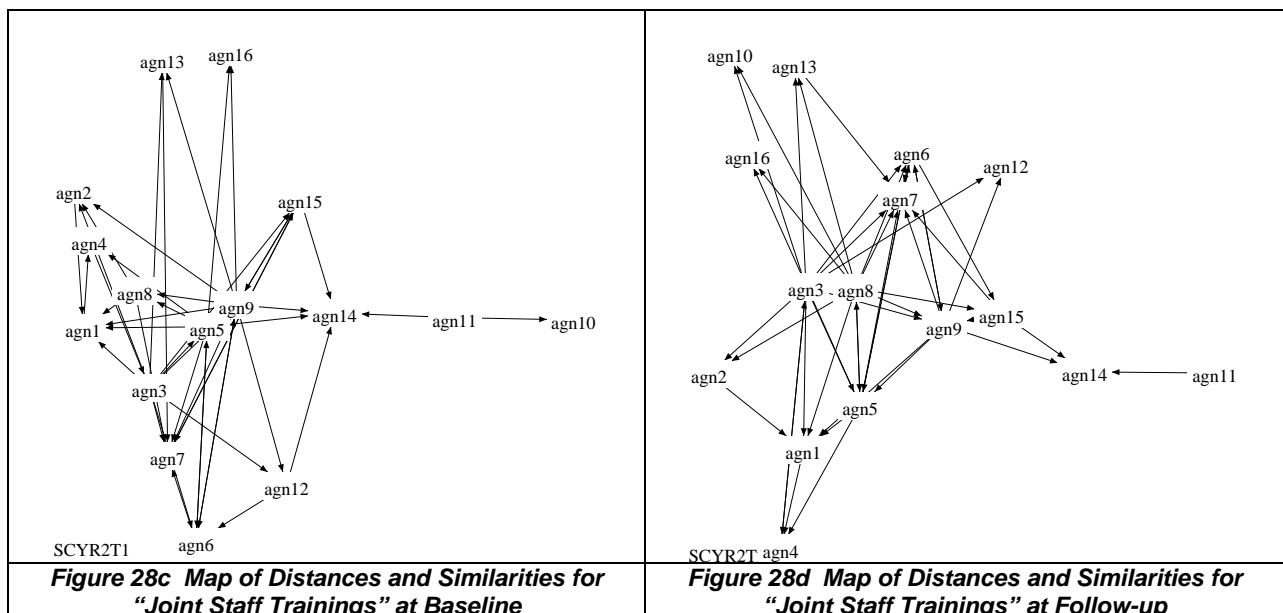
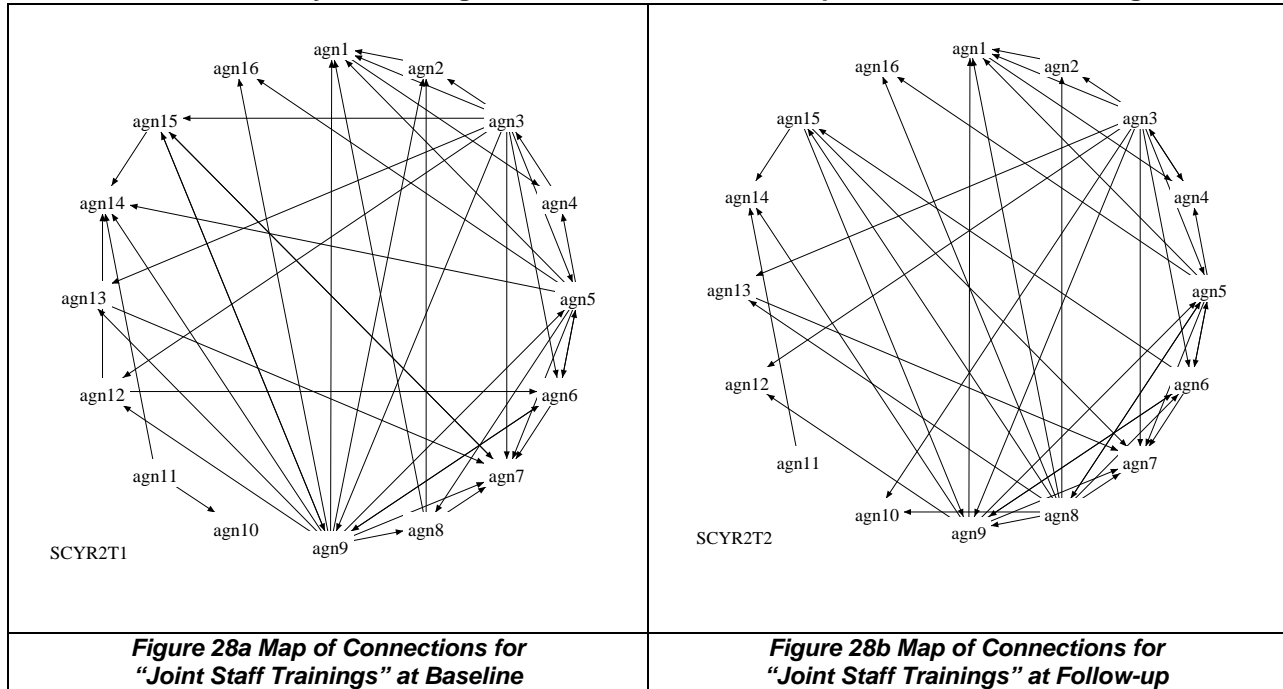
The *average nodal degree* (number of ties between agencies) remained at 2.8 for both baseline and follow-up, indicating that no change took place for this network of service providers in the average number of ties and connectedness in activities related to “joint staff trainings.” On average, only 18.8% of the possible connections at baseline were established, and actually decreased slightly to 18.3% at follow-up. The low density and group cohesion in the SCY Service Network changed little from baseline to follow-up in activities related to “joint staff trainings.”

ILLUSTRATIONS

Figures 28a and 28b on the following page use circle illustrations to map activity and change in the “joint staff trainings” relation for the SCY Service Network of provider agencies. In this map of connections, the number of lines (representing ties or connections) indicates an active and connected network. More connected agencies have more lines emanating from their nodes, while less active agencies have fewer lines. The arrow points indicate the direction of the ties, matching the information on number of indegrees and outdegrees from Table 4. Note that there is very little change in the number of lines from Figure 28a to Figure 28b, indicating very minor overall changes from baseline to follow-up in connections and thus collaboration.

Figures 28c and 28d below, illustrate the data from Table 4 using multi-dimensional scaling to produce the diagram, mapping geodesic distances and similarities among nodes or agencies. These diagrams place agencies that are more central to the activities of the network nearest the “center” of the diagram. At follow-up (Figure 28d), a few agencies have moved closer to the center than is apparent at baseline (Figure 28c), and Agency 10 is more connected at follow-up than at baseline. These observations indicate expansion of the core of the network and increased collaboration.

**Figure 28. SCY Service Network:
 Network Activity and Change from Baseline to Follow-up for “Joint Staff Trainings”**



RELATION 3: PROVIDE COST EFFECTIVE SERVICES TOGETHER

Table 5 below presents the choices made by each of the agencies for the relational content concerned with providing cost effective services with the other agencies in the SCY Service Network at baseline and follow-up. The measures presented include: outdegree, indegree, average number of degrees, maximum number of nodal degrees, average geodesic distance, and average density of the network.

**Table 5. SCY Service Network Member Activities and Change for the
“Provide Cost Effective Services Together” Relation**

Agency	At Baseline				At Follow-Up			
	Outdegree		Indegree		Outdegree		Indegree	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Agency 1	2	13.3%	4	26.7%	2	13.3%	4	26.7%
Agency 2	1	6.7%	3	20.0%	1	6.7%	2	13.3%
Agency 3	4	26.7%	1	6.7%	7	46.7%	1	6.7%
Agency 4	1	6.7%	2	13.3%	1	6.7%	3	20.0%
Agency 5	9	60.0%	7	46.7%	10	66.7%	6	40.0%
Agency 6	5	33.3%	5	33.3%	5	33.3%	7	46.7%
Agency 7	6	40.0%	8	53.3%	6	40.0%	8	53.3%
Agency 8	4	26.7%	2	13.3%	10	66.7%	2	13.3%
Agency 9	9	60.0%	6	40.0%	7	46.7%	7	46.7%
Agency 10	0	0%	2	13.3%	0	0%	3	20.0%
Agency 11	1	6.7%	0	0%	1	6.7%	0	0%
Agency 12	5	33.3%	5	33.3%	5	33.3%	6	40.0%
Agency 13	0	0%	0	0%	0	0%	2	13.3%
Agency 14	6	40.0%	5	33.3%	6	40.0%	5	33.3%
Agency 15	3	20.0%	5	33.3%	3	20.0%	6	40.0%
Agency 16	0	0%	1	6.7%	0	0%	2	13.3%
Average Degree (std dev)	3.5 (2.915)		3.5 (2.398)		4.0 (3.354)		4.0 (2.372)	
Max Nodal Degrees	15		15		15		15	
Avg Geodesic Distance	2.094				2.137			
Average Density (std dev)	23.3% (0.4230)				26.7% (0.4422)			

REACHABILITY AND AVERAGE GEODESIC DISTANCE

For the “provide cost effective services” relation, not all agencies were *reachable* either at baseline or follow-up. Agencies 10, 13, and 16 did not indicate any outdegrees at baseline or follow-up. The *average geodesic distance* between any pair of nodes (or agencies) was 2.094 at baseline, a relatively larger distance, which increased to 2.137 at follow-up. For the relationship involved with activities related to providing cost effective services, this network was not completely connected either at baseline or follow-up, and members were at somewhat larger distances from each other (> 2 paths), making it difficult to make connections.

OUTDEGREE

Examination of outdegree percentages shows that a higher percentage of outdegree indicates a higher level of influence in the network (i.e. ability to interact with many others or communicate to others) while a

lower percentage of outdegree indicates less influence in the network. For the “provide cost effective services” relation in this network, only two agencies reported an outdegree greater than 50% at baseline: Agency 5 (60.0%) and Agency 9 (60.0%). At follow-up, Agency 5 increased to 66.7% outdegree while Agency 9 decreased to 46.7%. However, two other agencies increased in outdegree percentage at follow-up: Agency 3 from 26.7% to 46.7% and Agency 8 from 26.7% to 66.7%. In contrast, a total of seven agencies reported an outdegree less than 20% at both baseline and follow-up: Agencies 1, 2, 4, 10, 11, 13, and 16. These data suggest that in providing cost effective services, this network was not very active or connected in ties sent out, and no particular agency had a strong influence.

INDEGREE

Higher percentages of indegree ties indicate greater prestige or prominence in the network while lower percentages of indegree ties are indicative of less prestige. In activities related to providing cost effective services, only one agency had an *indegree* percentage $\geq 50\%$ and that remained the same over time: Agency 7 with 53.3% indegree at both baseline and follow-up. The next most active agencies were: Agency 6 (33.3% indegree at baseline increasing to 46.7% follow-up), and Agency 9 (40% at baseline increasing to 46.7% at follow-up), all relatively low percentages. Eight agencies indicated an increase in indegree activity at follow-up (Agencies 4, 6, 9, 10, 12, 13, 15, and 16) while five agencies reported no change in indegree at follow-up for this relation (Agencies 1, 3, 8, 11, and 14). In providing cost effective services, this network was not very active or connected in ties received from other agencies in the network at baseline but activity increased slightly at follow-up. No agency dominated in prestige or prominence, a situation that allows for collaboration.

AVERAGE NODAL DEGREE AND DENSITY

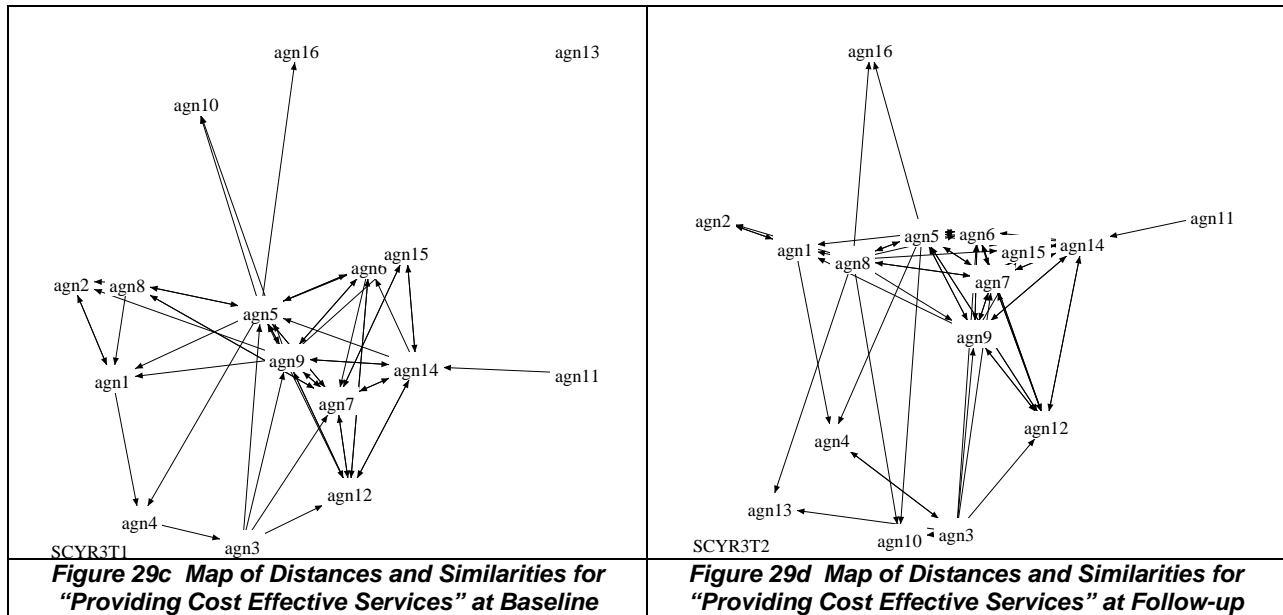
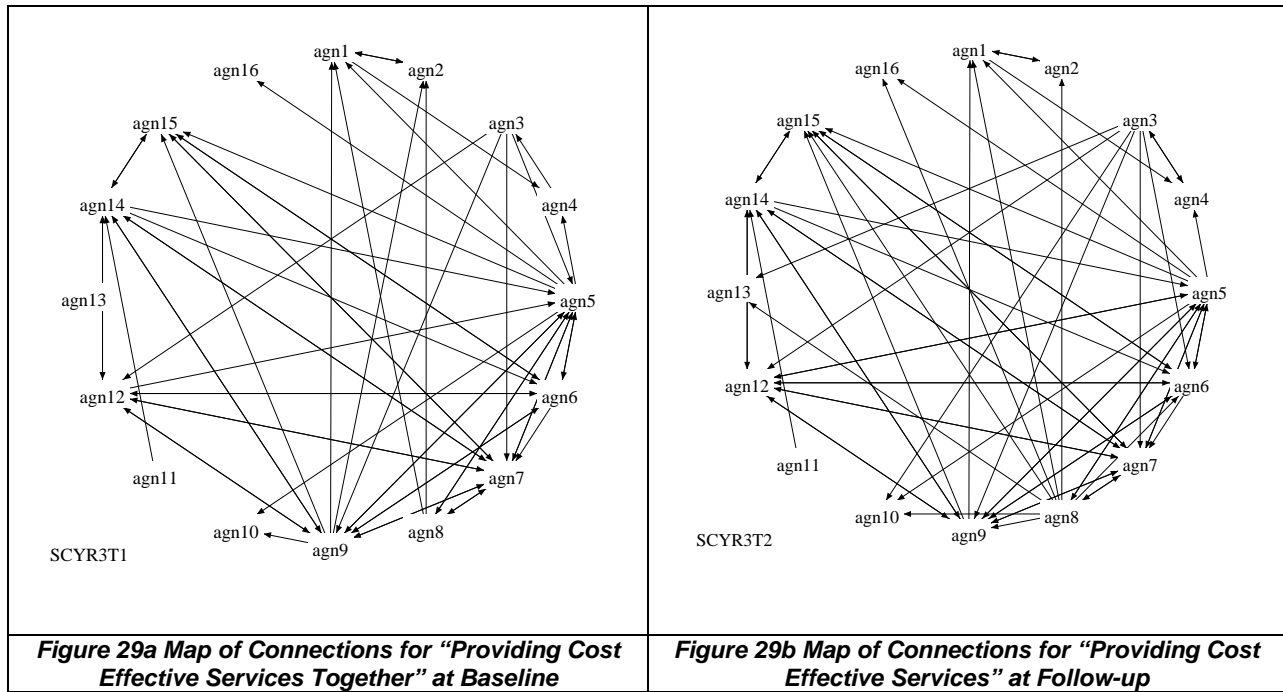
The *average nodal degree* (number of ties between agencies) increased slightly from 3.5 at baseline to 4.0 at follow-up, indicating that little change took place for this network of service providers in the average number of ties and connectedness in activities related to providing cost effective services. On average, only 23.3% of the possible connections at baseline were established, increasing slightly to 26.7% at follow-up. The low density and group cohesion in the SCY Service Network at baseline demonstrated a small increase at follow-up in activities related to “providing cost effective services together.”

ILLUSTRATIONS

Figures 29a and 29b on the following page use circle illustrations to map activity and change in the activities related to providing cost effective services for the SCY Service Network of provider agencies. This map of connections matches the information on number of indegrees and outdegrees from Table 5. Note that there are a few more lines in Figure 29b as compared to Figure 29a, indicating a small increase from baseline to follow-up in connections and thus collaboration for this relation.

Figures 29c and 29d on the following page illustrate the data from Table 5 using multi-dimensional scaling to produce the diagram, mapping geodesic distances and similarities among nodes or agencies. These diagrams place agencies that are more central to the activities of the network nearest the “center” of the diagram. At follow-up (Figure 29d), a few agencies have moved closer to the center than is apparent at baseline (Figure 29c), and several agencies show more connectedness at follow-up than at baseline. These observations indicate expansion of the core of the network and increased collaboration.

Figure 29. SCY Service Network: Network Activity and Change from Baseline to Follow-up for “Providing Cost Effective Services Together” Relation



RELATION 4: COLLECT COMMON OUTCOMES DATA TOGETHER

Table 6 below, presents the choices made at baseline by each of the agencies for the relational content concerned with collecting common outcomes data together. The measures presented include: outdegree, indegree, average number of degrees, maximum number of nodal degrees, average geodesic distance, and average density of the network.

**Table 6. SCY Service Network Member Activities and Change for the
“Collect Common Outcomes Data” Relation**

Agency	At Baseline				At Follow-Up			
	Outdegree		Indegree		Outdegree		Indegree	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Agency 1	3	20.0%	2	13.3%	3	20.0%	2	13.3%
Agency 2	2	13.3%	2	13.3%	1	6.7%	2	13.3%
Agency 3	3	20.0%	3	20.0%	5	33.3%	2	13.3%
Agency 4	1	6.7%	1	6.7%	1	6.7%	1	6.7%
Agency 5	3	20.0%	4	26.7%	1	6.7%	5	33.3%
Agency 6	4	26.7%	5	33.3%	3	20.0%	5	33.3%
Agency 7	1	6.7%	6	40.0%	1	6.7%	6	40.0%
Agency 8	3	20.0%	1	6.7%	6	40.0%	1	6.7%
Agency 9	6	40.0%	5	33.3%	5	33.3%	5	33.3%
Agency 10	0	0%	0	0%	0	0%	1	6.7%
Agency 11	1	6.7%	0	0%	1	6.7%	0	0%
Agency 12	6	40.0%	3	20.0%	5	33.3%	3	20.0%
Agency 13	0	0%	1	6.7%	0	0%	1	6.7%
Agency 14	5	33.3%	5	33.3%	5	33.3%	4	26.7%
Agency 15	1	6.7%	4	26.7%	1	6.7%	1	6.7%
Agency 16	3	20.0%	0	0%	1	6.7%	0	0%
Average Degree (std dev)	2.6 (1.867)		2.6 (1.965)		2.4 (2.030)		2.438 (1.903)	
Max Nodal Degrees	15		15		15		15	
Avg Geodesic Distance	2.747				2.777			
Average Density (std dev)	17.5% (0.3800)				16.3% (0.3689)			

REACHABILITY AND AVERAGE GEODESIC DISTANCE

For the “collect common outcomes data” relation, not all agencies were *reachable* at baseline or follow-up. Agencies 10 and 13 did not indicate any outdegrees at baseline or follow-up, while Agencies 11 and 16 did not report any indegrees at baseline or follow-up. The *average geodesic distance* was 2.747 at baseline, an average distance of almost 3 paths, which remained basically unchanged with 2.777 at follow-up. For activities related to collecting common outcomes data, this network was not completely connected either at baseline or follow-up, and members were at larger distances from each other, making it difficult to make connections.

OUTDEGREE

For activities related to collecting common outcomes data in this network of service providers, no agencies reported an outdegree greater than 40% at baseline or follow-up. The highest outdegree activity at baseline was reported by Agency 9 at 40.0% and Agency 12, also at 40.0%. However, at follow-up, both of these agencies indicated a decrease to 33.3%. In fact, for 12 of the 16 agencies in the network, outgoing ties decreased or remained the same from baseline to follow-up. These data suggest that in collecting common outcomes data at baseline and follow-up, this network was not very active or connected in ties sent out, and no particular agency had a strong influence in these activities.

INDEGREE

In activities related to Collecting common outcomes data, the highest indegree reported both at baseline and follow-up was 40.0% by Agency 7. The next most active agencies were: Agency 6 (33.3% indegree at both baseline and follow-up), and Agency 9 (also 33.3% at baseline and follow-up), all relatively low percentages. Three agencies indicated a decrease in indegree activity at follow-up (Agencies 4, 14, and 15) while 11 agencies reported no change in indegree at follow-up for this relation (Agencies 1, 2, 4, 6, 7, 8, 9, 11, 12, 13, and 16). In collecting common outcomes data, this network was not very active or connected in ties received from other agencies in the network at baseline and activity decreased slightly at follow-up. No agency dominated in prestige or prominence.

AVERAGE NODAL DEGREE AND DENSITY

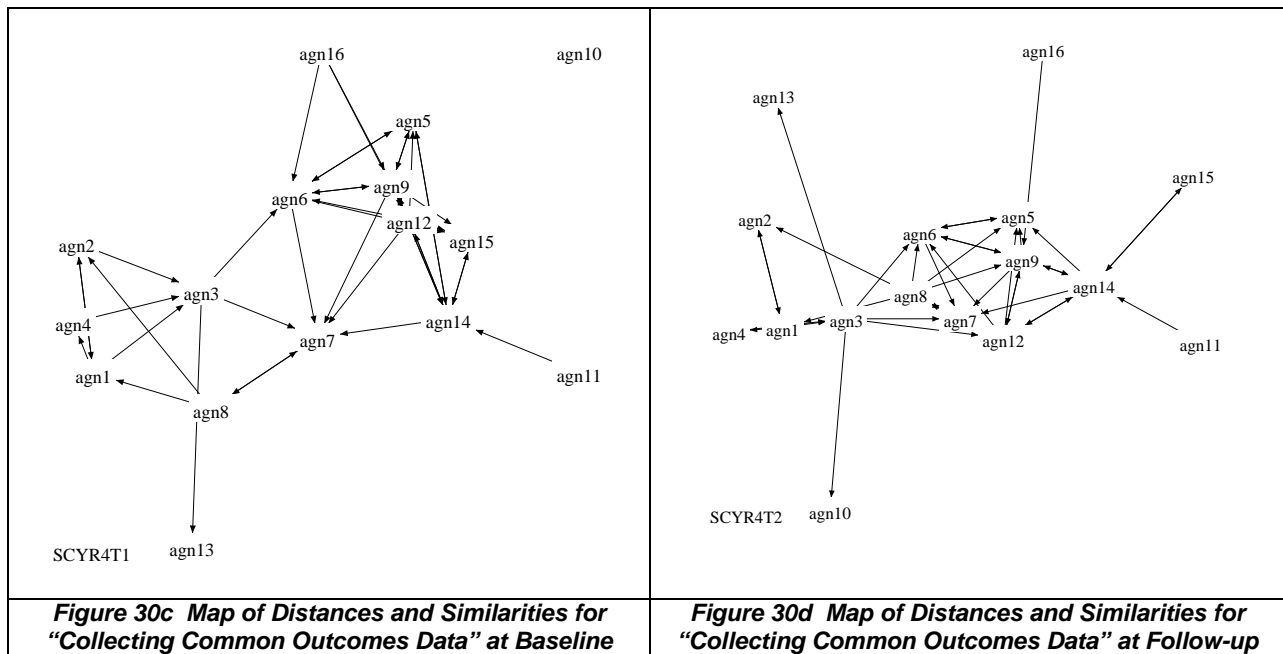
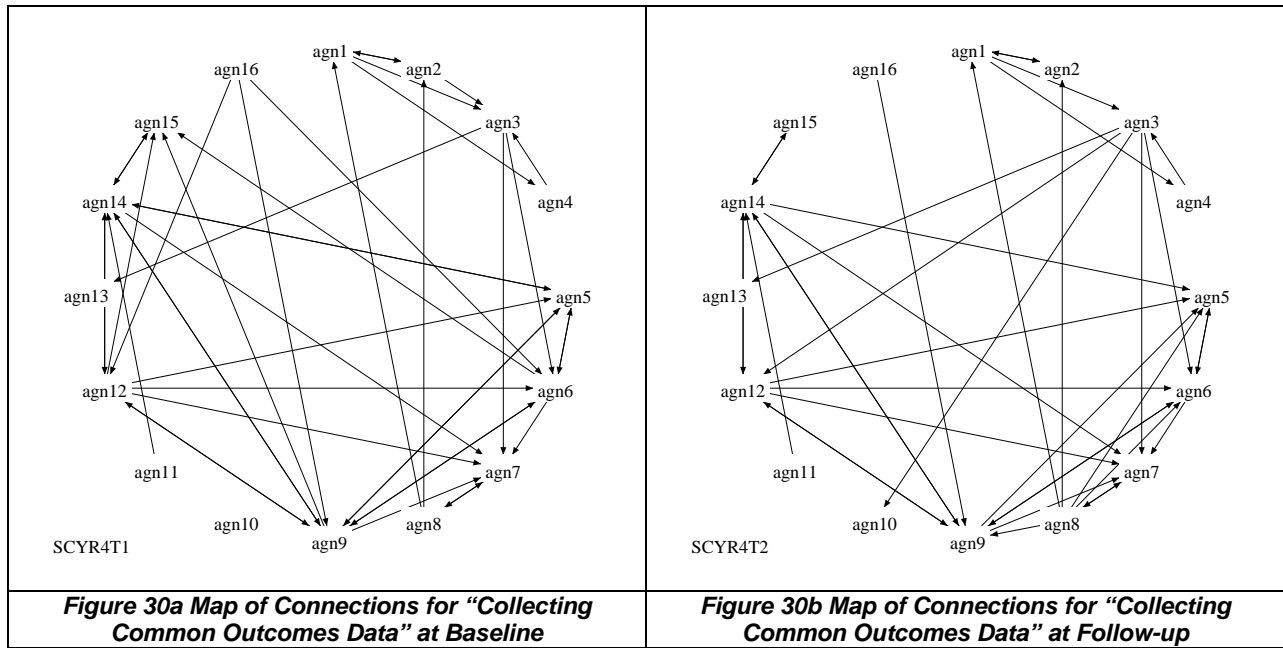
On average, only 17.5% of the possible connections at baseline were established, decreasing to 16.3% at follow-up. The low density and group cohesion in the SCY Service Network at baseline showed even less density and cohesion at follow-up for activities related to “collecting common outcomes data.”

ILLUSTRATIONS

Figures 30a and 30b on the following page use circle illustrations to map activity and change in the activities related to collecting common outcomes data for the SCY Service Network of provider agencies. This map of connections matches the information on number of indegrees and outdegrees from Table 6. Note that there are about the same number of lines in Figure 30b as compared to Figure 30a, indicating little change from baseline to follow-up in connections and thus collaboration for this relation.

Figures 30c and 30d on the following page illustrate the data from Table 6 using multi-dimensional scaling to produce the diagram, mapping geodesic distances and similarities among agencies. These diagrams place agencies that are more central to the activities of the network nearest the “center” of the diagram. At follow-up (Figure 30d), it appears that agencies have moved closer to the center than is apparent at baseline (Figure 30c), though several agencies show fewer connections at follow-up than at baseline while others show more. These observations indicate a slight expansion of the core of the network but no definite increase or decrease in collaboration for collecting common outcomes data.

Figure 30. SCY Service Network: Network Activity and Change from Baseline to Follow-up for “Collecting Common Outcomes Data”



RELATION 5: TOGETHER CONTRIBUTE TO EARLY INTERVENTION FOR YOUTH WITH SUBSTANCE ABUSE PROBLEMS

Table 7, below, presents the choices made at baseline and follow-up by each of the agencies for the collaborative activities related to contributing to early intervention for youth with substance abuse problems. The measures presented include: outdegree, indegree, average number of degrees, maximum number of nodal degrees, average geodesic distance, and average density of the network.

Table 7. SCY Service Network Member Activities and Change for the “Together Contribute to Early Intervention for Youth with Substance Abuse Problems” Relation

Agency	At Baseline				At Follow-Up			
	Outdegree		Indegree		Outdegree		Indegree	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Agency 1	1	6.7%	4	26.7%	2	13.3%	5	33.3%
Agency 2	1	6.7%	3	20.0%	3	20.0%	5	33.3%
Agency 3	2	13.3%	3	20.0%	1	6.7%	7	46.7%
Agency 4	3	20.0%	1	6.7%	3	20.0%	3	20.0%
Agency 5	8	53.3%	7	46.7%	9	60.0%	7	46.7%
Agency 6	3	20.0%	6	40.0%	7	46.7%	7	46.7%
Agency 7	5	33.3%	8	53.3%	5	33.3%	8	53.3%
Agency 8	9	60.0%	2	13.3%	11	73.3%	2	13.3%
Agency 9	13	86.7%	7	46.7%	14	93.3%	6	40.0%
Agency 10	0	0%	3	20.0%	0	0%	4	26.7%
Agency 11	0	0%	0	0%	0	0%	0	0%
Agency 12	6	40.0%	3	20.0%	7	46.7%	3	20.0%
Agency 13	1	6.7%	1	6.7%	1	6.7%	2	13.3%
Agency 14	4	26.7%	2	13.3%	4	26.7%	2	13.3%
Agency 15	0	0%	3	20.0%	0	0%	3	20.0%
Agency 16	0	0%	3	20.0%	0	0%	3	20.0%
Average Degree (std dev)	3.5 (3.708)		3.5 (2.264)		4.2 (4.187)		4.2 (4.187)	
Max Nodal Degrees	15		15		15		15	
Avg Geodesic Distance	1.704				1.851			
Average Density (std dev)	23.3% (0.4230)				27.9% (0.4486)			

REACHABILITY AND AVERAGE GEODESIC DISTANCE

Not all agencies were *reachable* in activities related to contributing to early intervention for youth with substance abuse problems, either at baseline or follow-up. Agency 11 did not report any connections in or out at baseline or follow-up. In addition, Agencies 10, 15, and 16 did not indicate any outgoing ties at either baseline or follow-up. The *average geodesic distance* between any pair of agencies was 1.704 at baseline increasing to 1.851 at follow-up. Although these distances are somewhat smaller, the increase shows that, on average, agencies were a little further apart at follow-up, making increased collaboration a little more difficult.

OUTDEGREE

For activities related to contributing to early intervention in this network of service providers, outdegree activity increased slightly from baseline to follow-up. Two agencies reported an outdegree greater than 50% at baseline with three at follow-up. These agencies were: Agency 5 (53.3% at baseline and 60.0% at follow-up), Agency 8 (60.0% at baseline and 73.3% at follow-up), and Agency 9 the most active (86.7% at baseline and 93.3% at follow-up). Overall, 7 agencies indicated an increase in outdegree, 1 agency decreased in outdegree activity, while 8 agencies reported no change from baseline to follow-up. These data indicate that in activities related to playing a part in early intervention at baseline and follow-up, this network was a little more active and connected in ties sent out at follow-up, and Agency 9 being most active could have had some influence in these activities.

INDEGREE

Higher percentages of indegree ties indicate greater prestige or prominence in the network while lower percentages of indegree ties are indicative of less prestige. In activities related to providing cost effective services, only one agency had an *indegree* percentage $\geq 50\%$ and that remained the same over time: Agency 7 with 53.3% indegree at both baseline and follow-up. The next most active agencies for connections received were: Agency 3 (20.0% indegree at baseline increasing to 46.7% at follow-up), Agency 8 (46.7% at baseline and follow-up), and Agency 6 (40.0% at baseline increasing to 46.7% at follow-up) all relatively low percentages. Seven agencies indicated an increase in indegree activity at follow-up (Agencies 1, 2, 3, 4, 6, 10, and 13) while eight agencies reported no change (Agencies 5, 7, 8, 11, 12, 14, 15, and 16). In providing cost effective services, this network was not very active or connected in ties received from other agencies in the network at baseline but activity increased slightly at follow-up. No agency dominated in prestige or prominence, a situation that allows for collaboration.

AVERAGE NODAL DEGREE AND DENSITY

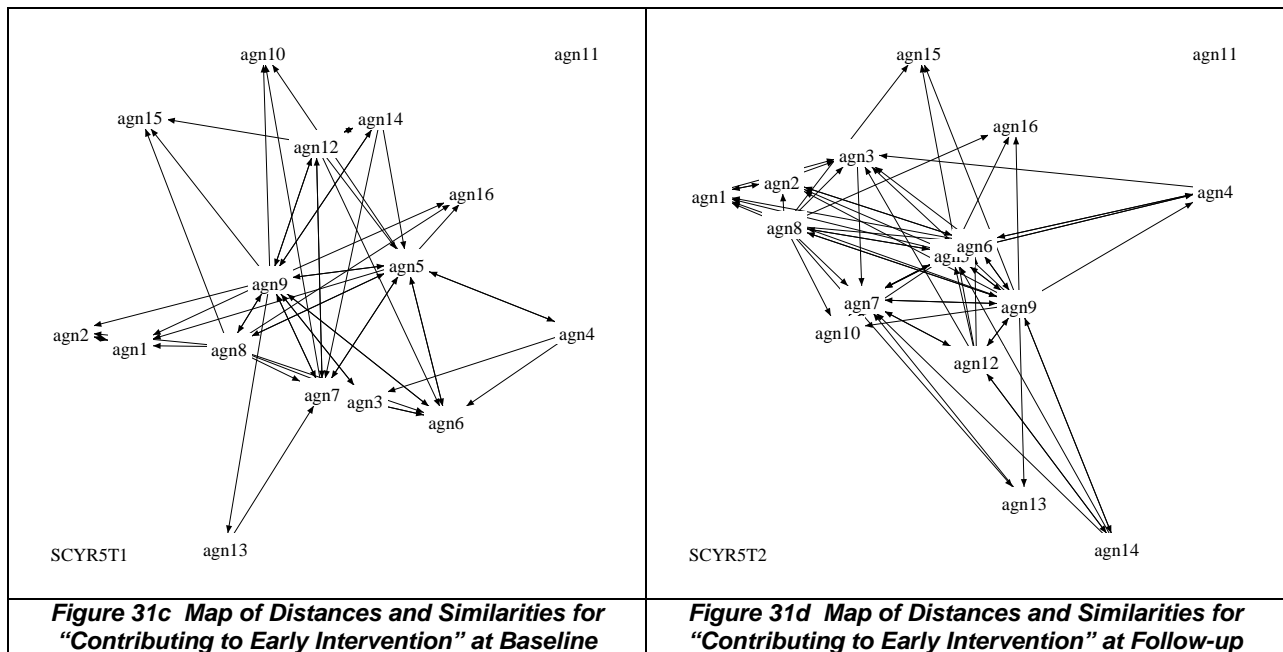
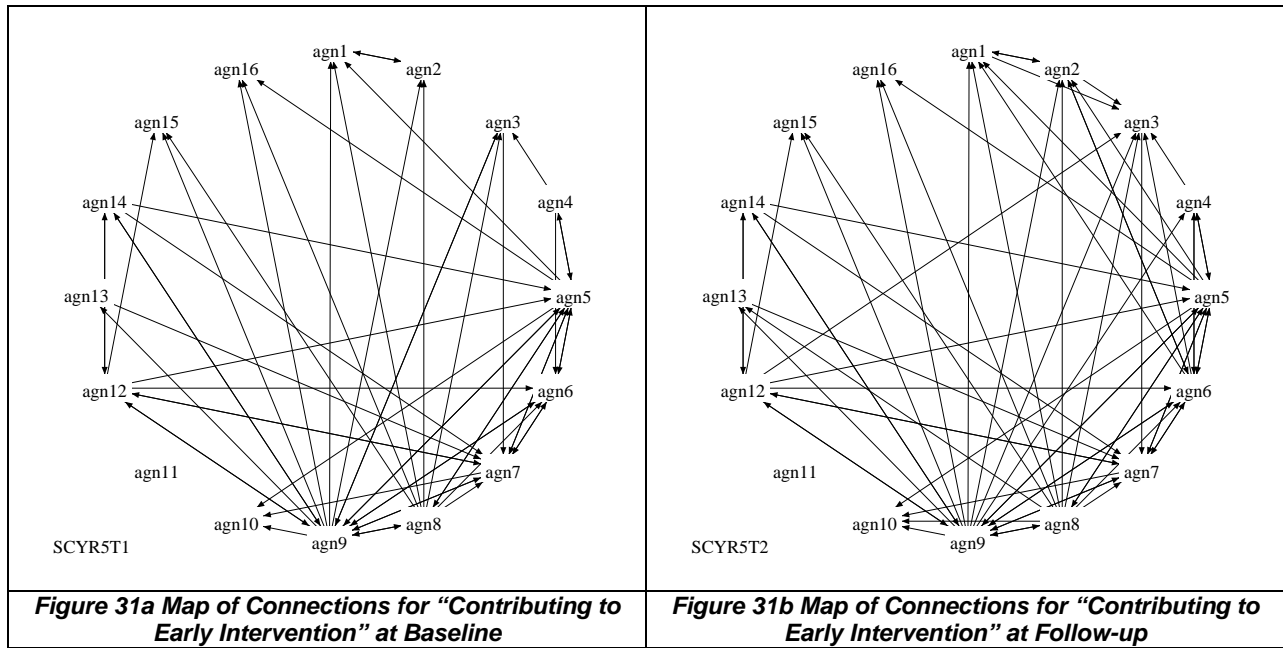
On average, only 23.3% of the possible connections at baseline were established, increasing to 27.9% at follow-up. The low density and group cohesion in the SCY Service Network at baseline increased slightly at follow-up for activities related to contributing to early interventions. Still, less than one-third of the possible connections were established for this relation.

ILLUSTRATIONS

Figures 31a and 31b on the following page use circle illustrations to map activity and change in the activities related to contributing to early interventions within the SCY Service Network of provider agencies. This map of connections matches the information on number of indegrees and outdegrees from Table 7. Note that there are a few more lines in Figure 31b as compared to Figure 31a, indicating a small increase from baseline to follow-up in connections and thus collaboration for this relation.

Figures 31c and 31d on the following page illustrate the data from Table 7 using multi-dimensional scaling to produce the diagram, mapping geodesic distances and similarities among agencies in the network. These diagrams place agencies that are more central to the activities of the network nearest the “center” of the diagram. At follow-up (Figure 31d), a few agencies have moved closer to the center than is apparent at baseline (Figure 31c), although several agencies are still some distance from the center. Agency 11 is not connected at baseline or follow-up. These observations indicate some expansion of the core of the network but less than maximum collaboration.

Figure 31. SCYR Service Network: Network Activity and Change from Baseline to Follow-up for “Together Contributing to Early Intervention for Youth with Substance Abuse Problems”



CENTRALITY MEASURES

Table 8 below presents information on change in other network statistics from the analysis of the STRENGTHENING COMMUNITIES YOUTH (SCY) Service Network Survey for the five relations that were analyzed. Included in these measures are: *network centrality*, *closeness centrality*, *betweenness centrality*, and *core/periphery fitness*. Each centrality index looks at a different aspect of network structure and position

Table 8. SCY Service Network Centrality Measures and Change over Time

Measure	Joint Case Planning		Joint Staff Trainings		Cost Effective Services		Common Outcomes Data		Early Intervention	
	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up
Network Centrality	40.00%	40.95%	52.38%	38.10%	54.29%	40.95%	22.86%	23.81%	60.00%	58.10%
Closeness Centrality	NC	45.51%	53.75%	34.53%	NC	43.87%	NC	32.50%	NC	NC
Betweenness Centrality	6.27%	17.17%	23.44%	18.87%	28.35%	18.03%	29.57%	30.16%	24.62%	18.01%
Core/Periphery Fitness	0.270	0.187	0.456	0.054	0.783	0.696	0.606	0.388	0.795	0.152

NC=not connected; closeness centrality is not computed for unconnected networks.

NETWORK CENTRALIZATION

Network centralization index is a measure of the variability in the connectedness of its members. A lower index demonstrates less variability and means more agencies are equally central to the activities of the network. With less variability, it is less likely that one member may be more influential or prestigious in the network. When such a condition is present this indicates greater collaboration within a service provider network. A high centrality index would indicate higher variability and a greater probability that one member is more influential or prestigious, a sign of fewer opportunities for collaboration among members.

For the “joint case planning” relation, the network centralization index for the SCY service providers network remained fairly constant from baseline (40.00%) to follow-up (40.95%). Overall, agencies in this network worked together on joint case planning similarly at baseline and follow-up. At both time points, the index for this relation was relatively low indicating less variability and less likelihood that one agency would be at the center of activity.

For the “joint staff trainings” relation, the network centralization index showed a decrease from 52.38% at baseline to 38.10% at follow-up. In working together with other agencies in joint staff trainings, network members were more alike in their interactions at follow-up as compared to baseline, an indication of increased collaboration.

The network centralization index also demonstrated a decrease from 54.29% at baseline to 40.95% at follow-up for activities related to “providing cost effective services” among network agencies. At follow-up, agencies were more similar in their interactions as compared to baseline, allowing for more collaboration.

In activities related to “collecting common outcomes data”, the network centralization index was very low and changed little from baseline (22.86%) to follow-up (23.81%). At both time points, there was less variability in the interactions of the agencies and less likelihood that one agency would be at the center of activity.

For the “contributing to early intervention” relation, the *network centralization index* decreased from 60.00% at baseline to 58.10% at follow-up. Although these indices are slightly higher, there was still a small decrease, indicating that overall, network members who worked together to contribute to early intervention were more similar in their interactions at follow-up than at baseline. There was some likelihood that an agency may be more central to these activities than the others.

CLOSENESS CENTRALITY

Closeness centrality looks at the distances between network members, focusing on the geodesic distance and measuring variability in distances. A *closeness centrality index* increases as the network members become less alike in regard to distances. A lower *closeness centrality index* means less variability in the distances to each other; thus, more agencies are able to interact directly with other agencies. A higher *closeness centrality index* indicates a higher variability in the distances between members; fewer agencies are able to interact directly with other agencies. However, closeness centrality cannot be computed for networks that are not completely connected.

For the relationships among agencies that dealt with “joint case planning,” the closeness centrality index was not computed at baseline and measured 45.51% at follow-up. This data indicates that agencies were in a mid-range of similarity in the distances between them at follow-up. In working together on case planning, there was some likelihood at follow-up that agencies in this network were not able to work directly with the other agencies.

For activities in the network related to “joint staff trainings”, the closeness centrality index decreased from 53.75% at baseline to 34.53% at follow-up. Over time, agencies were more alike in the distances between them, encouraging increased collaboration.

For the relation regarding “providing cost effective services together,” the closeness centralization index was not computed at baseline, and measured 43.87% at follow-up. Agencies were somewhat similar in the distances between them at follow-up, but there was still a greater-than-40% possibility that agencies were not able to work directly with the other agencies in providing cost effective services.

The closeness centrality index for activities in this network related to “collecting common outcomes data” was not computed at baseline and measured 32.50% at follow-up. Agencies were somewhat similar in the distances between them at follow-up, with about a 1/3 likelihood that not all agencies were able to work directly with other agencies in collecting common outcomes data.

For the “together contribute to early intervention” relation, the closeness centrality index was not computed either at baseline or follow-up. This network of agencies was not well-enough connected in this relationship to generate a closeness centrality index.

BETWEENNESS CENTRALITY

Betweenness centrality index is a measure of the overall variability in “betweenness” (interactions between nonadjacent members of a network where one must access another member in the network in order to reach another). A higher index indicates more variability, a lower index, less variability. In terms of collaboration, a measure closer to zero means that members of the network are more alike in betweenness; no one member is likely to stand between others in their interactions, thus allowing for greater collaboration.

The betweenness centrality indices for each of the relations analyzed in this network were fairly low at baseline and follow-up. For the activities related to “collecting common outcomes data,” this index changed little from baseline (29.57) to follow-up (30.16), indicating agencies are somewhat alike in their betweenness with about a 30% likelihood that one member may stand between others in their interactions in collecting common outcomes data.

For three of the relations, there was a decrease in betweenness centrality from baseline to follow-up: “joint staff trainings” (23.44% at baseline to 18.87% at follow-up), “providing cost effective services” (28.35% at baseline to 18.03% at follow-up), and “contributing to early intervention” (24.62% at baseline to 18.01 at follow-up). This indicates that for these three relations, agencies in the network were even more alike in their betweenness at follow-up. Agencies worked together in these relations without often having to go through another agency.

CORE/PERIPHERY (C/P) FITNESS

The *Core/Periphery Fitness index* measures whether this network of agencies that responded at both baseline and follow-up is likely to have a core group that is the “center” of activity and a periphery group that is on the outer edges of network activity. A higher fitness score (closer to one) indicates the network could be described as having a core and a periphery, while a lower fitness score (closer to zero) means that this network does not lend itself well to a core/periphery description.

The “joint case planning” relation did not lend itself well to a core/periphery description either at baseline (0.270) or follow-up (0.187), nor did the “joint staff trainings” relation with a C/P index of 0.456 at baseline and 0.054 at follow-up. The “collect commons outcomes data” relation had a higher C/P index at baseline (0.606) which decreased to 0.388 at follow-up, indicating that at follow-up, this relation had become less of a core/periphery network and a more collaborative network.

For the “contribute to early interventions” relation, the C/P index was very high at baseline (0.795) but decreased markedly to 0.152 at follow-up. Agencies in this network worked together to contribute to early interventions in a more collaborative manner at follow-up, without signs of a definite core or periphery groups.

For the “provide cost effective services” relation however, the C/P index remained fairly high both at baseline (0.783) and follow-up (0.696). This indicates a high likelihood of a core group working together on these activities with several agencies on the periphery, and this situation did not change over time.

APPENDIX A

**STRENGTHENING COMMUNITIES YOUTH
SERVICE NETWORK SURVEY FORM**

**Strengthening Communities - Youth
Service Network Survey**

(For interviewer use only, please remove this page from rest of packet)

Name of agency: _____

How many years has the respondent worked for this agency? _____

Script for Interviewer:

We are collecting data on the working relationships among service providers in the Johnson County/Iowa County area. Your identity will not be matched to the results or responses and only we will know who provided the answers from your agency. We will not use your name in any report of this information.

First I would like to establish a point in time about which we are talking. I'd like you first to respond to the questions as though it were March 1st of this year (2002). To help you remember, think back to about March 1st. Do you recall anything that was going on about that time in your life (birthdays, holidays, special events)?

Record event _____

[Administer Time 1 questions including both the relationship form and the statement form.]

Script for (Time 2)

Now I'd like to go through the questions as you currently see things – not back in March, but rather today. This is to get a picture of the working relationships among providers for the evaluation of the federally funded Strengthening Communities – Youth initiative.

[Administer Time 2 questions including both the relationship form and the statement form.]

Thank you for your time today.

For the following questions we are asking you to respond based on your knowledge of your agency's relationship with other agencies in the Johnson County/Iowa County area. We realize that you have a unique perspective and that your responses may not be the same as others working at your agency. Nevertheless, for each of the questions in the columns below we would like you to indicate yes (with a "1") or no (with a "0") for the relationship between your agency and the other agencies listed. **(REMEMBER, THIS IS FOR THE TIME PERIOD BEFORE MARCH 1, 2002).**

For your organization→ <i>With these agencies: ↓</i>	Did you do joint case planning with this agency? 1 = yes 0 = no	Did you do joint staff trainings with this agency? 1 = yes 0 = no	Did you share in efforts to provide cost effective services with this agency? 1 = yes 0 = no	Did you collect common outcomes data with this agency? 1 = yes 0 = no	Did your relationship with this agency contribute to early intervention with youth who have substance abuse problems? 1 = yes 0 = no
Department of Pediatrics, UIHC Adolescent Medicine					
Department of Pediatrics, UIHC Pediatric Psychology					
Department of Psychiatry, UIHC					
Department of Nursing, UIHC					
Johnson County Juvenile Court Services					
Iowa City Community School District					
Mid Eastern Council on Chemical Abuse (MECCA)					
Center for Addictions Research, University of Iowa					
United Action for Youth					
Williamsburg Community School District					
HACAP Community Services in Marengo					
Youth Homes, Four Oaks					
Mid-Prairie Community School District					
United Way					
Mid-Eastern Iowa Community Mental Health					
National Resource Center for Family Centered Practice					

For the following questions we are asking you to respond based on your knowledge of your agency's relationship with other agencies in the Johnson County/Iowa County area. We realize that you have a unique perspective and that your responses may not be the same as others' working at your agency. Nevertheless, for each of the questions in the columns below we would like you to indicate yes (with a "1") or no (with a "0") FOR THE CURRENT RELATIONSHIP AT THIS POINT IN TIME between your agency and the other agencies listed.

For your organization→ <i>With these agencies: ↓</i>	Do you do joint case planning with this agency? 1 = yes 0 = no	Do you do joint staff trainings with this agency? 1 = yes 0 = no	Do you share in efforts to provide cost effective services with this agency? 1 = yes 0 = no	Do you collect common outcomes data with this agency? 1 = yes 0 = no	Do your relationship with this agency contribute to early intervention with youth who have substance abuse problems? 1 = yes 0 = no
Department of Pediatrics, UIHC Adolescent Medicine					
Department of Pediatrics, UIHC Pediatric Psychology					
Department of Psychiatry, UIHC					
Department of Nursing, UIHC					
Johnson County Juvenile Court Services					
Iowa City Community School District					
Mid Eastern Council on Chemical Abuse (MECCA)					
Center for Addictions Research, University of Iowa					
United Action for Youth					
Williamsburg Community School District					
HACAP Community Services in Marengo					
Youth Homes, Four Oaks					
Mid-Prairie Community School District					
United Way					
Mid-Eastern Iowa Community Mental Health					
National Resource Center for Family Centered Practice					

Please indicate the extent to which you agree or disagree with each of the following statements.

[SA = strongly agree, A = agree, N = neither agree or disagree, D = disagree, SD = strongly disagree]

<p>1. People in this community of service providers demonstrate trust for one another. SA A N D SD</p> <p>2. There is a clear, shared vision for what the community of service providers is trying to achieve for youth with substance problems. SA A N D SD</p> <p>3. We have linkages and networking mechanisms to facilitate the identification, assessment, referral, and treatment of youth with substance abuse problems and their families. SA A N D SD</p> <p>4. We, as a community of providers, do a good job at documenting our progress. SA A N D SD</p> <p>5. We, as a community of service providers, have identified specific, measurable results that we want to achieve. SA A N D SD</p> <p>6. Tasks are appropriately distributed among members of the community. SA A N D SD</p> <p>7. We, as a community of service providers, have the capacity to provide cost effective and evidence-based substance abuse treatment. SA A N D SD</p> <p>8. Agency members are representative of the populations they work with. SA A N D SD</p> <p>9. We do not have effective rules for handling conflict in this community. SA A N D SD</p> <p>10. This community has an effective process for making decisions. SA A N D SD</p> <p>11. The community of service providers does not have a clear action plan for substance abuse services for youth. SA A N D SD</p> <p>12. We have a complete continuum of care of services for youth with substance abuse problems. SA A N D SD</p>	<p>13. Some members of agencies seem to have more power in making decisions than others. SA A N D SD</p> <p>14. Our community of service providers seeks to bring in new members to participate in planning on an on-going basis. SA A N D SD</p> <p>15. The amount of time spent in meetings is appropriate. SA A N D SD</p> <p>16. The service community keeps the larger community well-informed about our work. SA A N D SD</p> <p>17. We, as a community of service providers, do not have a plan for evaluating results and using results to improve services. SA A N D SD</p> <p>18. We have an effective computer/management information system in place for sharing information about youth with substance abuse problems. SA A N D SD</p> <p>19. I feel that the community of service providers is making progress towards improving. SA A N D SD</p> <p>20. Consumers are involved in planning and decision-making. SA A N D SD</p> <p>21. Our community addresses the relationship between substance abuse and violence. SA A N D SD</p> <p>22. We, as a community of service providers, generally plan for sustaining initiatives after initial grant funds run out. SA A N D SD</p> <p>23. I have an equal voice with this community of providers. SA A N D SD</p> <p>24. Members of the Johnson County/Iowa County community of service providers openly discuss self-interests. SA A N D SD</p>
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