

Use of Network Analysis to Understand Structures and Collaboration among Regional Networks Providing Tobacco-Related Services

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Faculty Disclosure

Lea Ayers LaFave, PhD, RN

Community Health Institute/JSI Research and Training Institute, Inc.

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose

Educational Need/Practice Gap

- Public health interventions occur within a complex, dynamic environment. Decreasing resources for public health programming requires innovative collaboration and resource exchange.
- Network analysis provides an approach to understanding the context within which public health interventions occur, and data to apply a strategic process of improving collaboration among diverse stakeholders.

Objectives

1. Describe characteristics of various network structures.
2. Contrast network characteristics among four public health systems with varying governance models.
3. Compare network collaboration levels across four regional public health systems with various network characteristics.

Expected Outcome

- Improved understanding of network characteristics results in better use of resources in an environment that demands collaboration among diverse stakeholders.

Partners

- NH Institute for Health Policy and Practice at UNH (PBRN)
 - Jo Porter, MPH
 - Stacey Gabriel, BA
- NH Division of Public Health Services
 - Jose Montero, MD, Director
 - Trish Tilley, MSN, Chief, Bureau of Population Health and Community Services
 - Donna Fleming, MPH, Tobacco Prevention and Control Program
- Community Health Institute/JSI Research and Training Institute, Inc.
 - Lea Ayers LaFave, RN, PHD
- Technical Assistance:
 - Patrick Bernet, PhD
 - Danielle Varda, PhD

SETTING THE CONTEXT

Small State (pop ~ 1.3M)

“Live Free or Die”

Little formal infrastructure

Lack of tax base

Regionalization:

Transformation of the regional public Health system



NH Public Health Infrastructure

- Local Level
 - 234 cities and towns, Health Officer required by statute
 - 2 Comprehensive Municipal Health Departments
- Regional Level
 - 13 Regional Public Health Networks (RPHN)– evolving
 - Lead organization for each RPHN
 - No county health departments
 - Strong community-level informal public-private partnerships
- State level:
 - DHHS – Division of Public Health Services
- Foundational Work:
 - Regional Public Health Assessment (2009-2010): PH Capacity, Governance, Financial
 - Network Assessment (2013): Coordinated Chronic Disease Prevention

Purpose of the Study

To better understand...

- funding sources and allocations for a key public health focus (tobacco prevention and cessation),
- how to collect data that can be used to do a similar financial assessment for other public health issues and services in the future, and
- **how funding and allocation for services relate to connectivity among partner members of local public health systems.**

Methods

- Qualitative interviews with regional public health network lead organizations
- Network analysis abstracted from a larger data set
- Collection/standardization/analysis of financial information that describes how organizations are funded to do their work

Social Network Analysis (SNA)

- Emerging method of assessment and evaluation of public health networks
 - Mapping and measuring of relationships and flows between people, groups, organizations, used to explain the degree to which network members connect to one another and the structural makeup of collaborative relationships (Scott, 1991).
- Public health applications:
 - Disease transmission, information transmission, diffusion of innovations, role of social support and social capital, influence of social networks on social health behaviors, inter-organizational public health networks, and more!
- In NH:
 - Food networks, substance abuse prevention networks, and evaluation of suicide prevention council, coordinated chronic disease prevention
 - Assessment, evaluation and strategic planning

PARTNER

Program to Analyze, Record and Track Networks to Enhance Relationships

Web-based social network analysis tool designed to measure and monitor collaboration among people/organizations

Designed by Dr. Danielle Varda (University of Colorado) for public health collaboratives to demonstrate:

- how members are connected
- how resources are leveraged and exchanged
- the levels of trust among network partners
- linkage of outcomes to the process of collaboration

Provides mechanism to demonstrate to stakeholders, partners, evaluators, and funders changes in collaborative activity over time and progress in partner organizations' participation

www.partnertool.net

Network Dimension/ Indicator	Description
Density	% of ties present in the network in relation to the total # of possible ties in the entire network.
Degree Centralization	The lower the centralization score, the more similar the members are in terms of their number of connections to others (e.g. more decentralized).
Trust	<p>The % of how much members trust one another.</p> <ul style="list-style-type: none">▪ Reliability▪ In support of network mission or purpose▪ Open to discussion/negotiation <p>100% occurs when all members trust others at the highest level.</p>

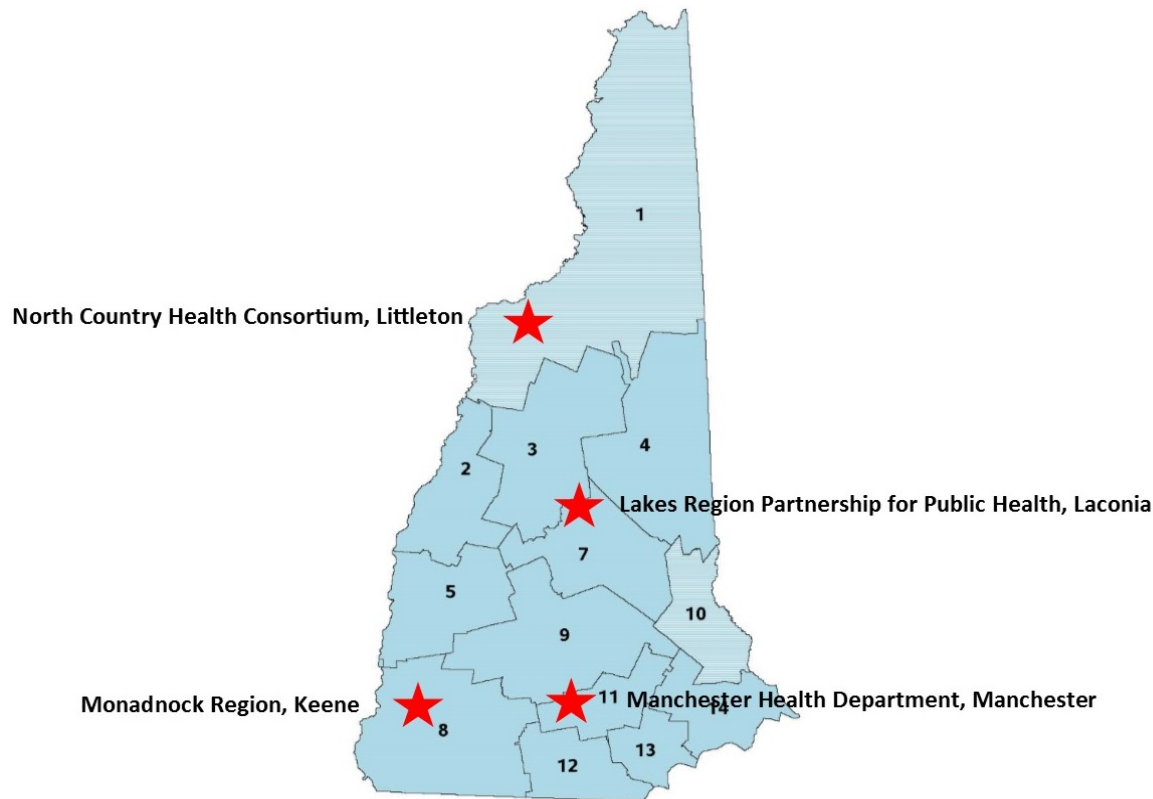
Collaborative Activity Levels



- ▶ **Cooperative Activities:** Exchange information, attend meetings together, offer resources to partners. Resources are kept separate. No risk.
 - Example: Informs other programs of RFP release
- ▶ **Coordinated Activities:** Intentional efforts to enhance each other's capacity for the mutual benefit of programs. Includes cooperative activities. Requires some planning and division of roles.
 - Example: Separate granting programs utilizing shared administrative processes and forms for application review and selection.
- ▶ **Integrated Activities:** Foster interdependence to create unified capacity - a center of knowledge and programming that supports work in related content areas. Includes cooperative and coordinated activities. Requires planning, and sharing of resources and power.
 - Example: Developing and utilizing shared priorities for funding effective prevention strategies. Funding pools may be combined.

New Hampshire Public Health Regions

NH Regional Public Health Networks and Cost Study Sites

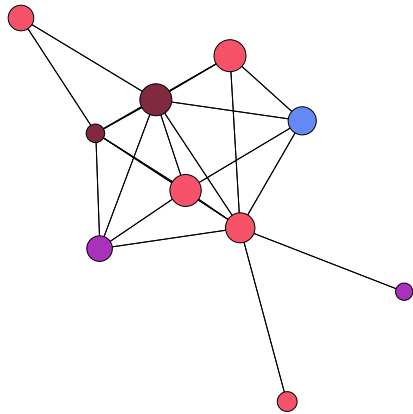


Unit of Analysis=PH Network

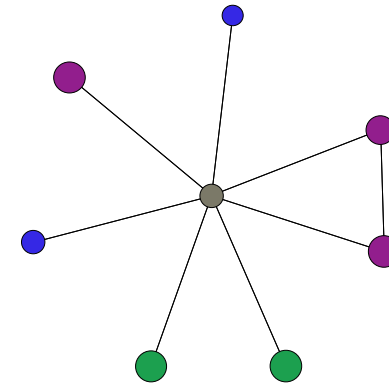
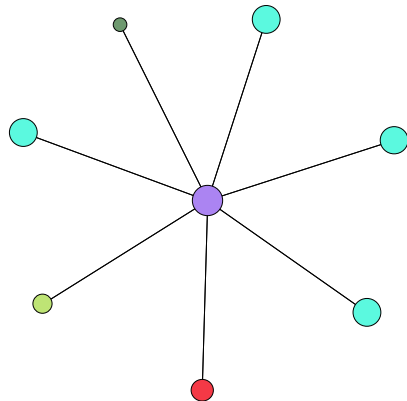
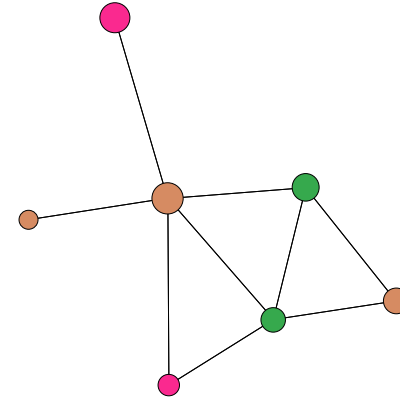
Public Health Regions
1 = North Country 2 = Upper Valley 3 = Central NH 4 = Carroll County 5 = Greater Sullivan County 7 = Lakes Area
8 = Greater Monadnock 9 = Capital Area 10 = Strafford County 11 = Greater Manchester 12 = Greater Nashua 13 = Greater Derry 14 = Seacoast

Regional Network Maps

Winnepesaukee (n=10)



Greater Monadnock (n=7)

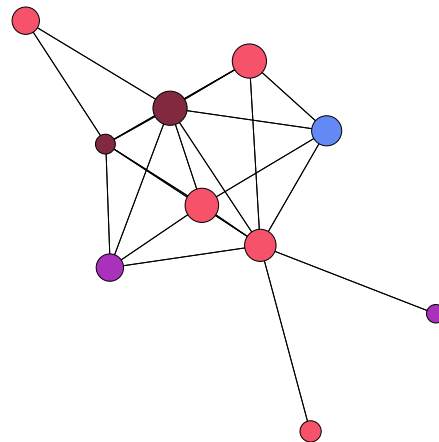


Greater Manchester (n=8)

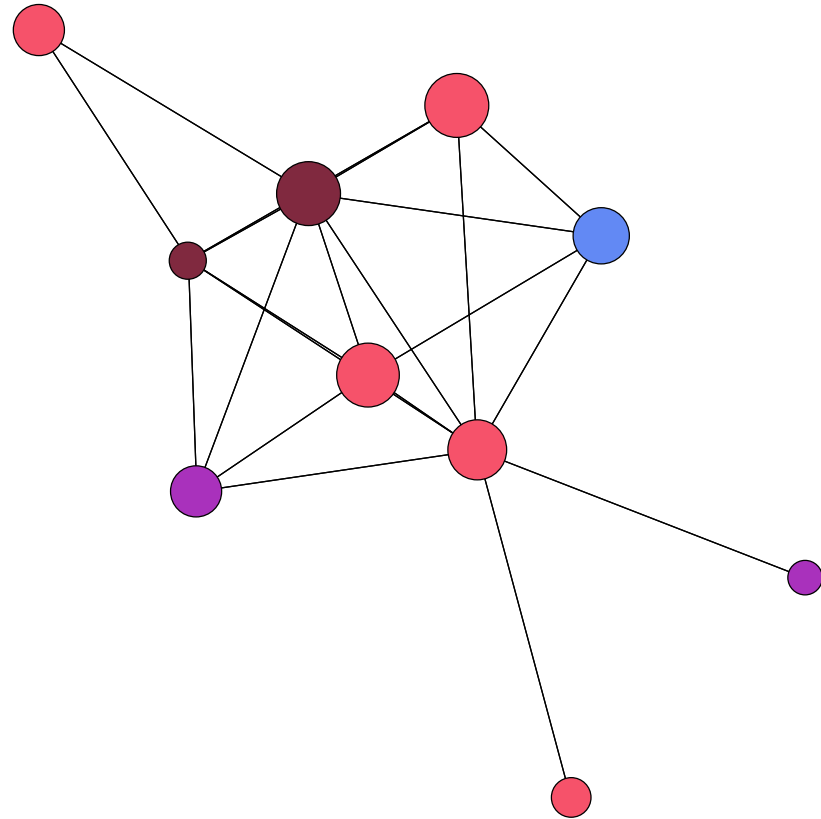
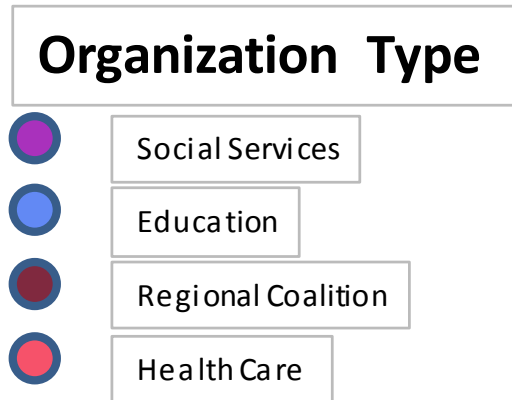
North Country (n=9)

Winnepesaukee Public Health Region

- Strong, community-based infrastructure
- Lead Organization: Lakes Region Partnership for Public Health
 - Private not-for-profit organization, est. 2005
 - Works with many local organizations, including the regional hospital
 - Mission: Improve the health and well being of the Lakes Region through inter-organizational collaboration and community and public health improvement activities



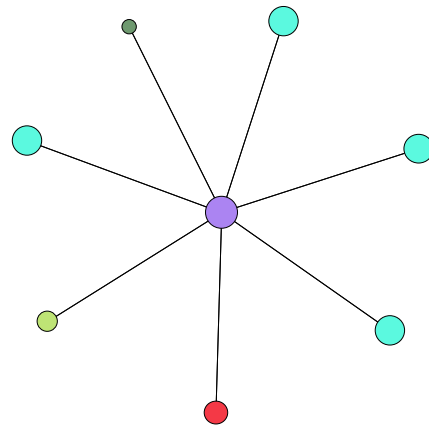
Winnepesaukee



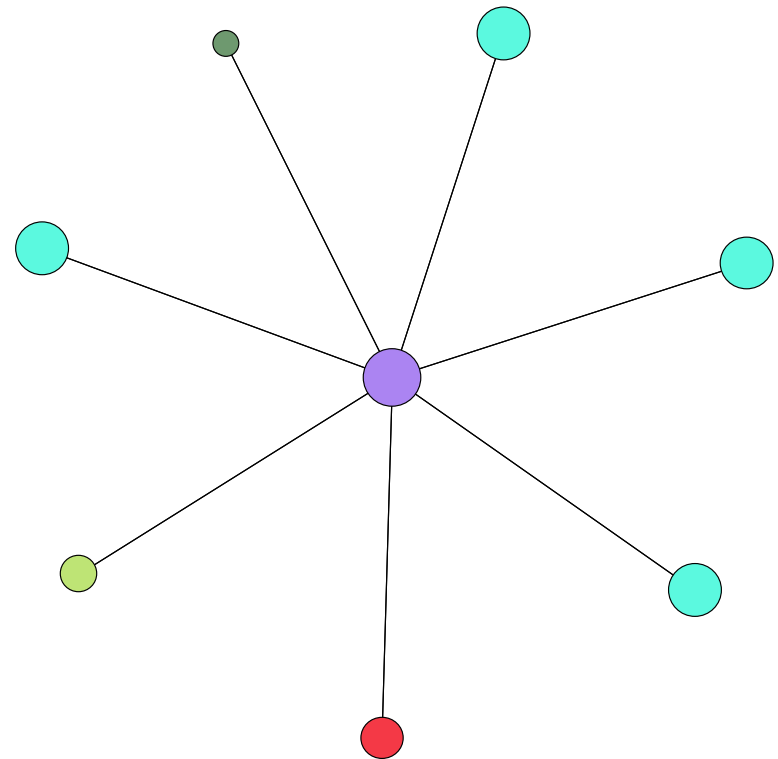
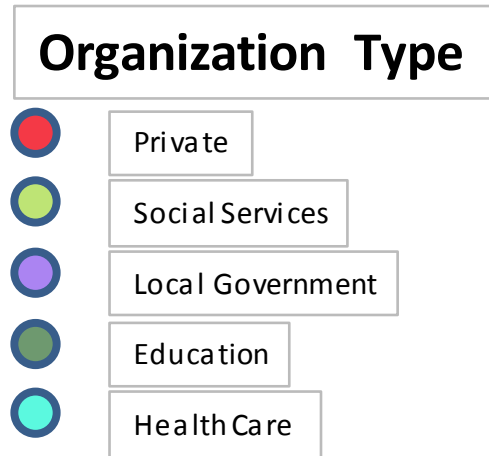
Service Area		N	Density	Degree Centralization	Trust
Municipalities:	16	10	46.7%	52.8%	74.3%
Population Served:	80,000				

Greater Manchester Public Health Region

- Serves New Hampshire's most urban and diverse city
- Lead Organization: Manchester Health Department
 - 1 of 2 comprehensive Municipal Health Departments in NH



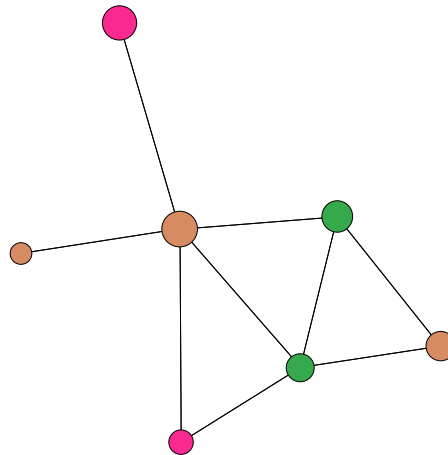
Manchester



Service Area		N	Density	Degree Centralization	Trust
Municipalities:	8	8	25%	100%	72.2%
Population Served:	180,000				

Greater Monadnock Public Health Region

- Strong community-based infrastructure
- Lead Organization: Cheshire Medical Center/Dartmouth-Hitchcock Medical Center- Keene
 - Engaged in a community change initiative designed to foster and sustain a positive culture of health throughout the Region



Monadnock

Organization Type



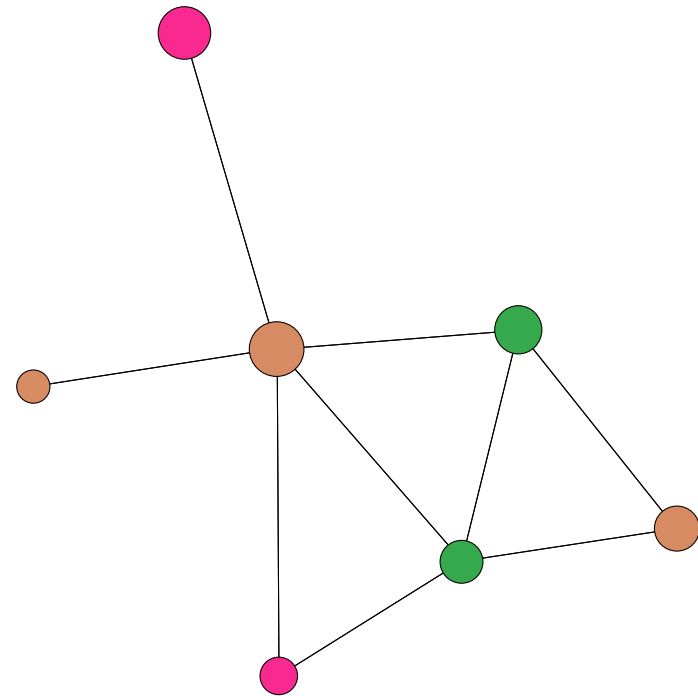
Social Services



Regional Coalition



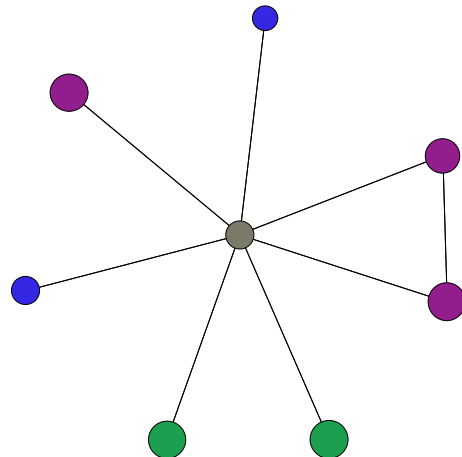
Health Care



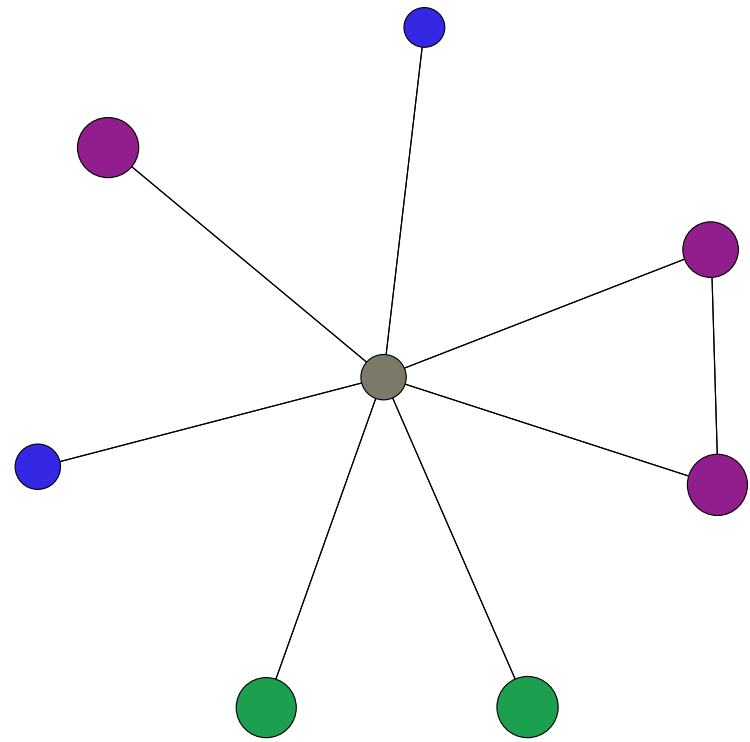
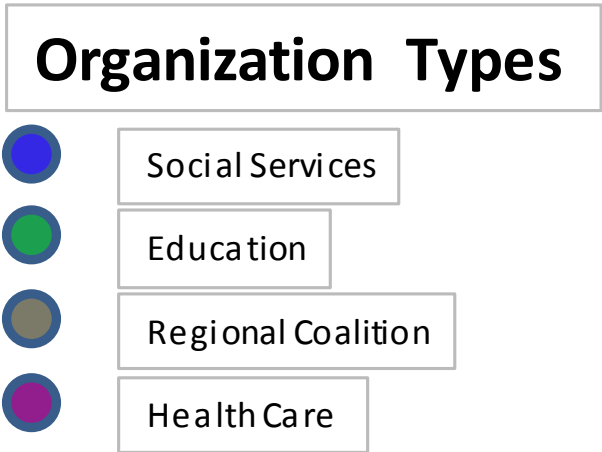
Service Area	N	Density	Degree Centralization	Trust
Municipalities: 32 Population Served: 104,000	7	42.9%	56.7%	81.7%

North Country Public Health Region

- Serves NH's northern-most and most rural population
- Lead Organization: North Country Health Consortium
 - Well-established consortium of partner organizations

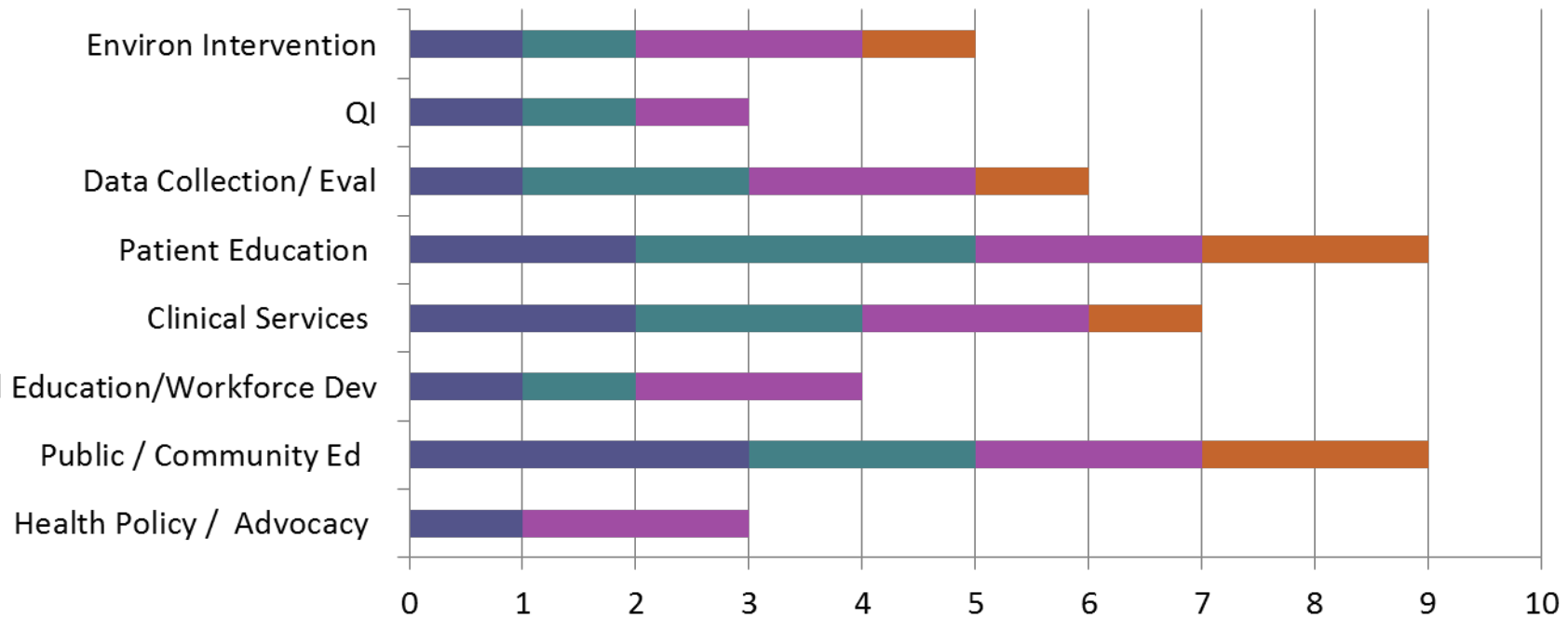


North Country



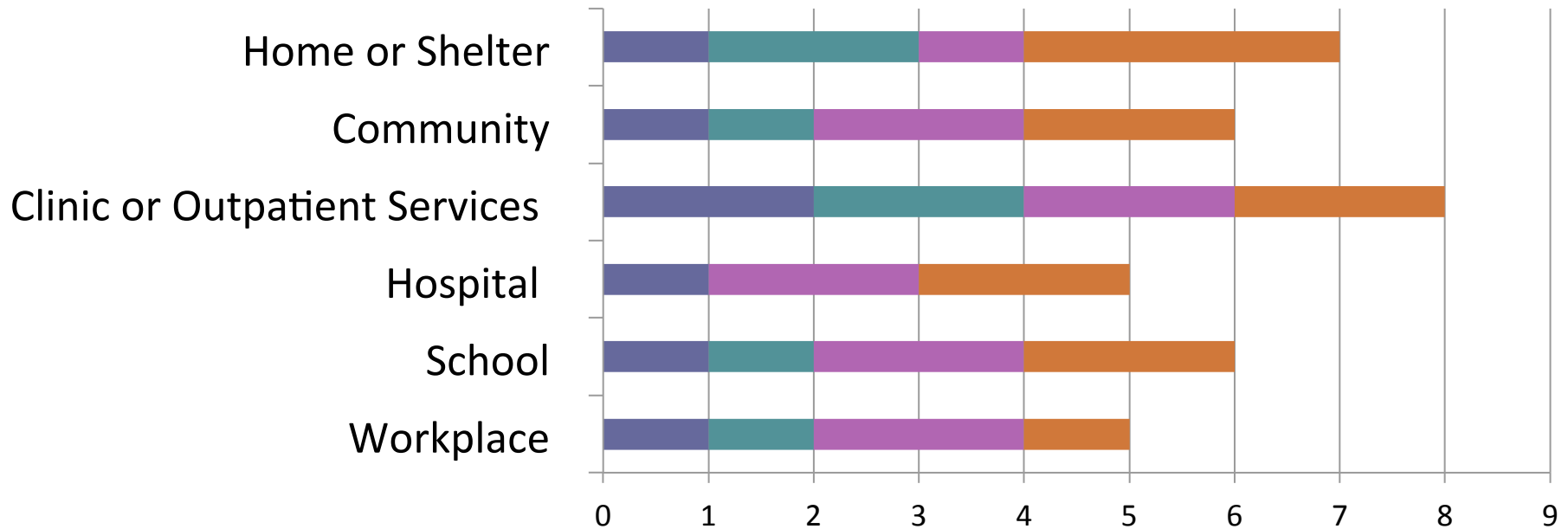
Service Area		N	Density	Degree Centralization	Trust
Municipalities:	37	8	28.6%	95.2%	90.3%
Population Served:	52,000				

Tobacco Prevention or Cessation Activities/Services Provided – Comparison Across Regions (# of responses)



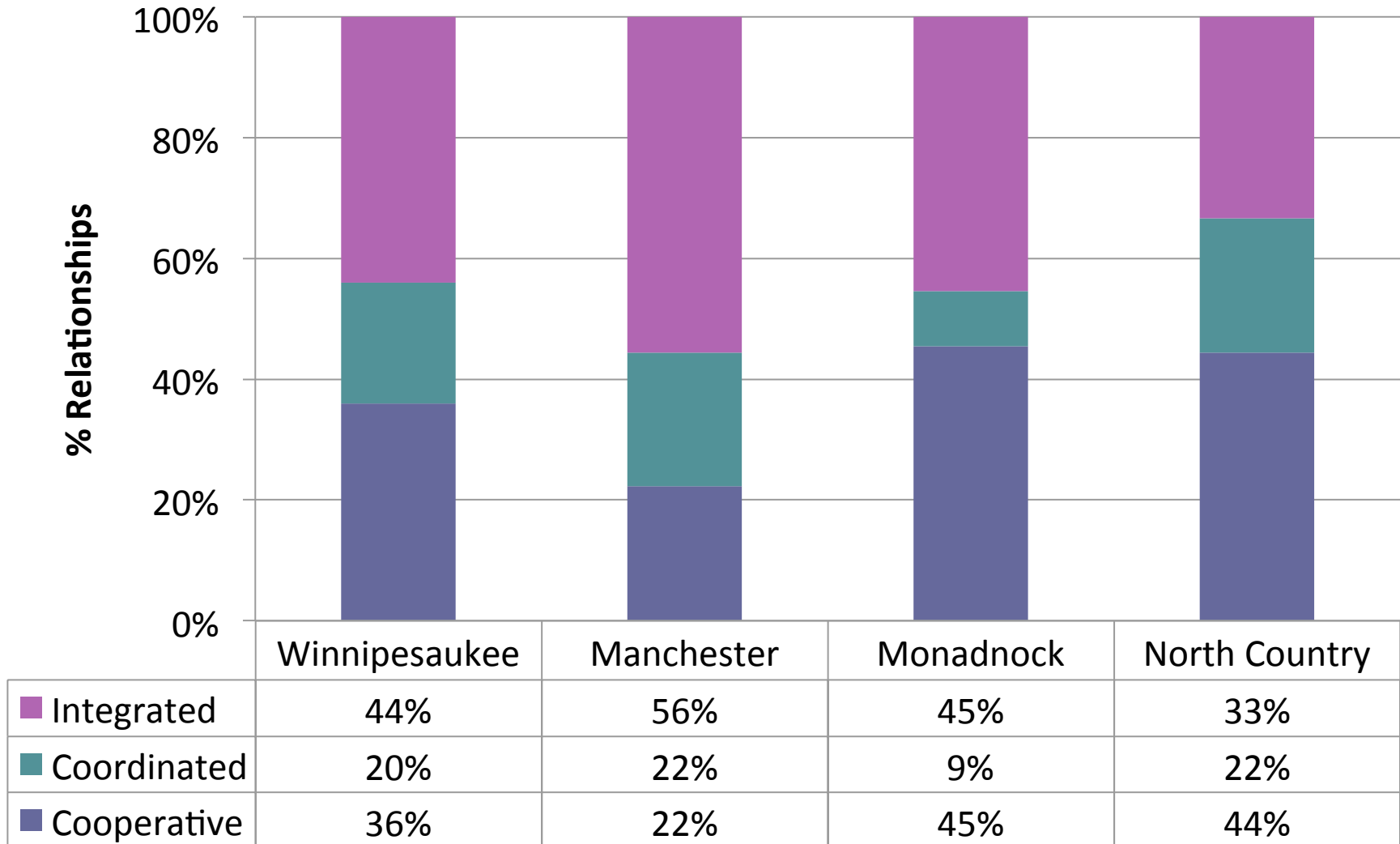
	Health Policy / Advocacy	Public / Community Ed	Professional Education / Workforce Dev	Clinical Services	Patient Education	Data Collection / Eval	QI	Environ Intervention
■ North Country	1	3	1	2	2	1	1	1
■ Winnepesaukee	0	2	1	2	3	2	1	1
■ M onadnock	2	2	2	2	2	2	1	2
■ Manchester	0	2	0	1	2	1	0	1

Settings in which Tobacco Prevention or Cessation Services are Provided – Comparison Across Regions (# of responses)



	Workplace	School	Hospital	Clinic or Outpatient Services	Community	Home or Shelter
North Country	1	1	1	2	1	1
Winnepesaukee	1	1	0	2	1	2
Monadnock	2	2	2	2	2	1
Manchester	1	2	2	2	2	3

Levels of Collaboration Among Partners within Four Regional Tobacco Networks



Region	N=	Density	Network Degree Centrality	Trust	Collaboration Levels		
					Cooperative	Coordinated	Integrated
Winnepesaukee	10	47%	53%	74%	36%	20%	44%
Manchester	8	25%	100%	72%	22%	22%	56%
Monadnock	7	43%	57%	82%	45%	9%	46%
North Country	9	22%	84%	90%	44%	22%	33%
Range	7 - 10	22 - 47%	53 - 100%	72 - 90%	22 - 46%	9 - 22%	33 - 56%
Mean		34%	73%	80%	37%	18%	45%
Median		34%	70%	78%	40%	21%	45%

Thank you!

Questions?

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