Vermont Blueprint for Health

Vermont's Community Health Networks

Using Network Analysis to Map and Measure Health Care and Human Service Collaboration in Vermont's Blueprint for Health Communities

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Objective

Describe the network of organizations that has emerged in each Blueprint HSA to support population and individual health, focusing on modes of collaboration and relationships between organizations

Background and Key Questions

The Vermont Blueprint for Health is a state-led, nationally-recognized initiative transforming the way primary care and comprehensive health services and delivered and paid for. The Blueprint encourages the growth of regionally-based multi-disciplinary networks of health, social and economic service providers (or "Functional Community Health Teams"). These networks are intended to bring a diverse group of service providers closer together, to deliver more seamless and holistic care to the people of their regions. This study is the first step towards answering key questions about the networks that are active in Blueprint communities: *What role did investment in core Community Health Teams have in seeding these larger networks? How are the participating organizations connected to each other? How are these relationships maintained and reinforced – how durable are they? What characteristics do the most successful networks share? And, ultimately, what impact do that have on individual and population health?*

Approach

This study used a combination of network analysis, investigating connections between organizations, and traditional polling methodology, addressing the experience of working together as a team.

Network Analysis

Network analysis was the central methodology in this study, used for its ability to characterize and quantify relationships in a complex system. Network analysis creates graphs that show the connections between individuals or (as in this case) organizations. With these graphs and quantitative network data, researchers and community members can explore the relationships that make up the network and start to look for patterns as well as changes over time. Observations of network data and network graphs can lead to smarter, better questions about how community-based teams coalesce and how they create change.

The data used in this study are responses to a survey question that asked representatives of organizations to report whether their organization interacted with other organizations in their area in any (or all) of six ways, stated as follows:

1. "My organization sends referrals to this organization"
2. "My organization receives referrals from this organization"
3. "Our organizations have clients/patients in common"
4. "Our organizations share information about specific clients/patients"
5. "Our organizations share information about programs, services and/or policy"
6. "Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)"

Additionally, several questions were included in the study that were not intended for network analysis. These included demographic questions and a set of questions about whether respondents perceived their communities to be acting as teams.

Team Based Care

In 2012 The Institute of Medicine (IOM) published the discussion paper "Core Principles & Values of Effective Team-Based Health Care." The Vermont Blueprint for Health embraces this paper's model, of how a team should function and feel, as a goal for both direct clinical care and multidisciplinary community health improvement. The five hallmarks of effective team based care given by the IOM are Shared Goals, Mutual Trust, Clear Roles, Effective Communication, and Measureable Processes and Outcomes. In the FY2015 survey, respondents were asked to think about how all of the organizations listed work together as group, and agree or disagree with statements about whether they exhibit each of those hallmarks of team-based care.

List Development

Over the course of the 2015 network survey, the list development methodology used for this study was adjusted twice in response to findings from the research, which was conducted in waves. Each adjustment pushed the network bounding towards greater consistency across HSAs and towards smaller network membership lists and shorter survey instruments. The approaches are explained below, with a discussion of pros and cons following.

Hybrid Network List Development (Wave 1)

HSAs Surveyed Using this Methodology: Brattleboro, Springfield, St. Johnsbury, Windsor

- Network lists generated using this methodology began with the lists used in a prior year's network analysis study. These lists were provided by the area's Project Manager.
- The previous survey instrument included an option for respondents to write-in organizations they believed were part of their area's network, but that weren't already listed. Some of these organizations were included in the latest network list, depending on the whether contact information was readily available for an appropriate potential respondent at the organization.

Additionally, the Blueprint team determined it would be helpful to have a core group of types of organizations consistently included in each HSA's network survey. The list of those types of organizations is given below.

Types of Organizations Included in Hybrid Network List Development	
Key	Organization
Green means mandatory	CHT
	Primary Care Practices
	Hospital
	Hospital - Emergency Department
	Hospital - Case Management/Social Work
Yellow means optional	Other Hospital Departments
	FQHC Dental
	Private or Hospital Dental
	Pharmacies
	Designated Mental Health Agency
	Designated Mental Health Agency - Developmental Services
	Designated Mental Health Agency - Emergency Services
	Designated Mental Health Agency - Adult Outpatient Services
	Designated Mental Health Agency - Community Rehabilitation and Treatment
	Designated Mental Health Agency - Children's Services
	"Hub" of Hub/Spoke Program
	Other mental health/substance abuse agencies/organizations
	VNA
	Area agency on aging
	Home care providers
	Nursing homes
	Designated Regional Housing Organizations / SASH Program

	Law enforcement
	Schools k-12
	Colleges
	Vocational programs
	Health/Medical Training programs
	AHEC
	Children's Integrated Services
	Parent child center(s)
	State of VT - Agency of Human Services (AHS)
	State of VT - AHS - Children with Special Health Needs (CSHN)
	State of VT - AHS - Department of Children and Families (DCF)
	State of VT - AHS - Department of Corrections
	State of VT - Department of Vermont Health Access (DVHA)
	State of VT - DVHA - Vermont Chronic Care Initiative (VCCI)
	State of VT - Vermont Department of Health (VDH)
	State of VT - VDH - Children with Special Health Needs (CSHN)
	Transit
	Food shelf
	Employment services
	United Way
	Vermont 2-1-1

Community Network List Development (Wave 2)

HSAs Surveyed Using this Methodology: Morrisville, St. Albans, Rutland, Middlebury, Bennington

- With this methodology, the network list began with a core group of organizations similar to the organizations represented in the area's Unified Community Collaborative, as shown below.

Types of Organizations Included in Seed List for Community Network List Development
Community Health Team
Each Blueprint PCMH primary care practice
Known non-Blueprint primary care practices
FQHC dental clinic
Hospital
Hospital – Emergency Department
Hospital – Case Management/Social Work Department
Designated Mental Health Agency
"Hub" of Hub/Spoke Program
VNA
Area Agency on Aging
Designated Regional Housing Organization – SASH Program
State of VT – Agency of Human Services (AHS)
State of VT – Vermont Chronic Care Initiative (VCCI)
State of VT – Vermont Department of Health (VDH)

- Contacts at each of the corresponding organizations in an HSA were emailed a request to review the list of organizations and add to it any organization not already included, that their organization works with on an ongoing basis to provide medical, health and wellness, or health support services. Sample email text is given below. Non-respondents were emailed a reminder request.

Sample email text inviting participation in Community Network List Development:

Hello,

The Vermont Blueprint for Health is requesting your help. We are launching the 2nd year of a study of Vermont's community health networks, including the network that is active in your area. We want to know who the players are, how they work together, and what impact they are having on individual and population health. Our first step is to create a community-generated list of network members. We have a partial list of organizations (below) and would like your help completing it.

Please review the list below and add to it any organization that your organization works with on an ongoing basis to provide medical, health and wellness, or health support services. Please add as many additional organizations as fit this description and serve the _____ Health Service Area (which encompasses _____ County). Departments of the State of VT or other large organizations may be entered on separate lines.

SEED LIST:

1.
2.
3.
4.

- Responses were compiled, sorted and tallied. Organizations receiving at least two mentions were included in the final survey list in cases where the resulting list would be less than or equal to forty organizations, organizations receiving at least three mentions were included in the final survey list in cases where the resulting list would be more than forty organizations. This approach limited the number of organizations in the survey, so that the survey would be a manageable length. Representatives of all organizations included in the final list – core members and community additions – were invited to take the survey themselves.

Core Network List Development (Wave 3)

HSAs Surveyed Using this Methodology: Burlington, Newport, Randolph, Upper Valley, Barre

- With this methodology, the network list was a core group of organizations similar to the organizations represented in the area's Unified Community Collaborative, as shown below. No additional organizations were included.

Types of Organizations Included in Core Network Methodology
Community Health Team
Each Blueprint PCMH primary care practice
Known non-Blueprint primary care practices
FQHC dental clinic
Hospital
Hospital – Emergency Department
Hospital – Case Management/Social Work Department
Designated Mental Health Agency
"Hub" of Hub/Spoke Program
VNA
Area Agency on Aging
Designated Regional Housing Organization – SASH Program
State of VT – Agency of Human Services (AHS)
State of VT – Vermont Chronic Care Initiative (VCCI)
State of VT – Vermont Department of Health (VDH)
area United Way

Discussion of List Development Learning

The list development approach used in the previous year's study was to use the list of network members provided by the Project Manager of each Health Service Area. This approach led to network maps that reflected the network as understood and envisioned by the Project Manager. Some networks were small and focused on health care providers, others were large and included a wide range of social services and community service organizations. The identification and inclusion of partners not dictated by a pre-defined set of organization types was a key benefit of this approach. The most important downside was the difficulty of comparing networks and network data from one HSA to another.

The first round of data collection in FY2015 used the Hybrid Network List Development methodology. This added some degree of standardization across HSAs, while allowing for the network-specific inclusions of the previous year's study including both the Project Manager generated list and survey write-ins. However, several problems emerged with this approach. Most importantly, the resulting network membership lists were long, including up to 72 organizations. In the network analysis section of the survey instrument, this meant respondents were presented with six questions about up to 72 organizations – an onerous exercise that likely resulted in some respondents abandoning the survey.

The second round of FY2015 data collection used the Community Network List Development approach. This aimed to create a shorter survey – the seed list of organizations represented a pared-down version of the mandatory inclusions from the first round. Most importantly, this approach aimed to create a network membership list more representative of the community's understanding of the network – a less Blueprint-centric view. However, this advantage was not fully realized because the response rate to the emailed request for list additions was so low (6 responses in Rutland, Middlebury, and St. Albans, 9 responses in Morrisville, 15 responses in Bennington). This approach also added to the number of survey requests made by the Blueprint to its field, increasing the potential for "survey fatigue."

The third round of FY2015 data collection used the Core Network List Development approach. One advantage of this approach is that it created the shortest survey instruments. It is possible that this led to higher completion rates. The percentage of respondents who, having begun the survey, completed

every question, was 87% in this third round of data collection. This compares favorably to the 81% survey completion rate in Wave 2 and the 80% survey completion rate in Wave 1. Additionally, this approach makes the comparison of one network to another simple, as every node in a map generated from this round of data collection can be compared to a node in any other map (primary care practice to primary care practice, agency on aging to agency on aging etc.)

The streamlined approach of Core Network List Development is recommended if this study is continued, based on the advantages of a short survey, minimized potential "survey fatigue," and opportunity to compare results across HSAs. This is the opinion of the researcher and should be checked with the opinions/needs of Blueprint field staff and other consumers of the survey findings.

Data Collection

Survey Instrument

A sample survey instrument is available as an appendix to this report. The key difference from one HSA's survey instrument to the next is the organizations listed. The only other difference in survey instruments is that, beginning in Wave 2 of data collection, a question was added that asked respondents to provide their email address. This enabled respondent tracking even when invitations were sent via standard email rather than a Survey Monkey generated email (see discussion in "Data Collection" below).

Survey Invitations

In Wave 1 of data collection, all data was collected via a Survey Monkey generated email to potential respondents. Each email had a link that was unique to the invitation/potential respondent, which allowed for tracking of response/non-response and automatic generation of reminder emails. In Waves 2 and 3, initial invitations and first reminders were sent using the type of same Survey Monkey generated email. Additional reminder emails were sent via email directly from the researcher's state partner email account, because it was determined that some hospital spam filters were catching Survey Monkey generated emails and keeping them out of the inboxes of potential respondents. The link used in these emails was not attached to any particular potential respondent and could be forwarded by the recipient and used by the person receiving the forwarded email even if the sender had already taken the survey (not the case with the Survey Monkey generated emails – the link in those emails could only be used once). In these HSAs, it was possible for the "surveys started" count to include respondents not directly targeted with an initial invitation, meaning the upper limit of the response rate (calculated by surveys started divided by invitations sent) is not 100% but some unknown higher rate. Additionally, in both St. Albans and Middlebury a respondent reached out the researcher to request permission to share the survey with additional individuals in their organization/program and the researcher provided a link they could use to do so (the same link used in the direct reminder emails).

Survey Participation Statistics

Health Service Area	Wave	Invitations Sent	Surveys Started	Response Rate	Completed Surveys	Completion Rate
Brattleboro	1	84	29	35%	21	72%
Springfield	1	142	34	24%	27	79%
St. Johnsbury	1	97	37	38%	33	89%
Windsor	1	80	40	50%	31	78%
Bennington	2	66	37	56%	30	81%
Middlebury	2	37	25	68%	22	88%
Morrisville	2	37	27	73%	21	78%
Rutland	2	38	26	68%	20	77%
St. Albans	2	40	37	93%	33	89%
Barre	3	27	18	67%	15	83%
Burlington	3	51	31	61%	26	84%
Newport	3	31	14	45%	11	79%
Randolph	3	29	9	31%	8	89%
Upper Valley	3	29	10	34%	10	100%

Data Analysis

Non-network data analysis was conducted in Survey Monkey and Excel.

Network analysis was conducted using Gephi. Data is input into Gephi in node lists and edge lists. Node lists are lists of the names/labels of the organizations included in the study and a corresponding number. Edge lists are lists of the connections between organizations. In this study each edge list represented all the instances of a single type of connection (sharing resources, for instance) in a single HSA. Each edge list began with an extract of data from Survey Monkey, a grid format showing every time a respondent indicated that their organization works with another organization. This grid was transformed in a series of steps into the edge lists, which code connections in pairs of numbers giving the "Source" and "Target" of each connection. The edge lists used in this study have been de-duplicated – in cases where multiple respondents answered on behalf of a single organization a connection between that organization and any other organization will appear only once per list. This choice was made to prevent over representing the role of any given organization in the network, based on how many individuals from that organization participated in the survey.

Results

Network Analysis Glossary

The following are brief definitions of network terminology that will be used throughout the Results section.

Node

The "nodes" on these graphs are the dots that represent organizations

Edge

The "edges" on these graphs are the lines representing connections between organizations (connections of any sort, whether they represent sharing information, resources, or referrals)

Centrality

Importance or prominence of an actor in a network

Betweenness Centrality

A measure of how often a given node appears on the shortest paths between pairs of nodes in the network. Betweeness Centrality takes the entire network into consideration when calculating a score for an individual node, and is therefore considered one of the most powerful centrality measures.

Average Degree

The average number of edges connected to each node in the network

Average Shortest Path Length

The average number of edges on the shortest path between each pair of nodes in the network

Graph Density

The proportion of all possible connections (represented as edges) that are present

Modularity

A measure of how readily a network decomposes into modular communities or sub-networks. The modularity numbers given here are based on the modularity function used in the Gephi software program (there are many other "modularity" or "community detection" functions that may be used in network analysis.

Network Maps

See Appendix A: *Network Maps* for all health service area (HSA) maps.

Network Statistics

Full Network Statistics: Wave 1				
	Brattleboro	**Springfield**	**St. Johnsbury**	**Windsor**
Degree	14.0	15.2	15.6	13.9
Weighted Degree	31.4	35.2	49.0	34.6
Network Diameter	4	3	3	3
Graph Density	22%	21%	25%	26%
Modularity	0.10	0.11	0.10	0.17
Avg. Path Length	2.0	1.8	1.4	1.8

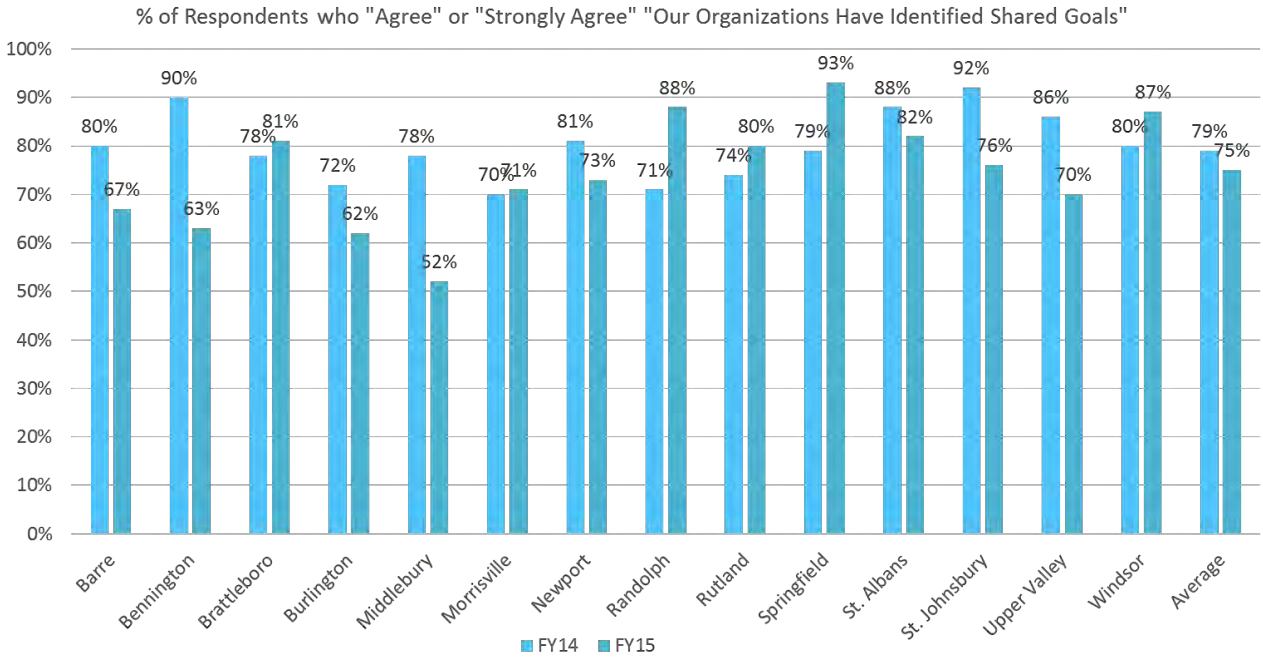
Full Network Statistics: Wave 2					
	Bennington	**Middlebury**	**Morrisville**	**Rutland**	**St. Albans**
Degree	18.3	14.6	13.7	10.7	21.0
Weighted Degree	47.0	40.3	36.4	13.8	61.0
Network Diameter	3	2	2	3	2
Graph Density	45%	56%	39%	45%	58%
Modularity	0.08	0.09	0.07	0.08	0.07
Avg. Path Length	1.6	1.4	1.6	1.6	1.4

Full Network Statistics: Wave 3					
	Barre	**Burlington**	**Newport**	**Randolph**	**Upper Valley**
Degree	13.8	16.0	7.7	5.3	6.7
Weighted Degree	34.7	38.8	19.4	11.1	19.35
Network Diameter	3	2	2	3	3
Graph Density	51%	39%	43%	26%	35%
Modularity	0.06	0.08	0.06	0.10	0.06
Avg. Path Length	1.5	1.6	1.2	1.8	1.7

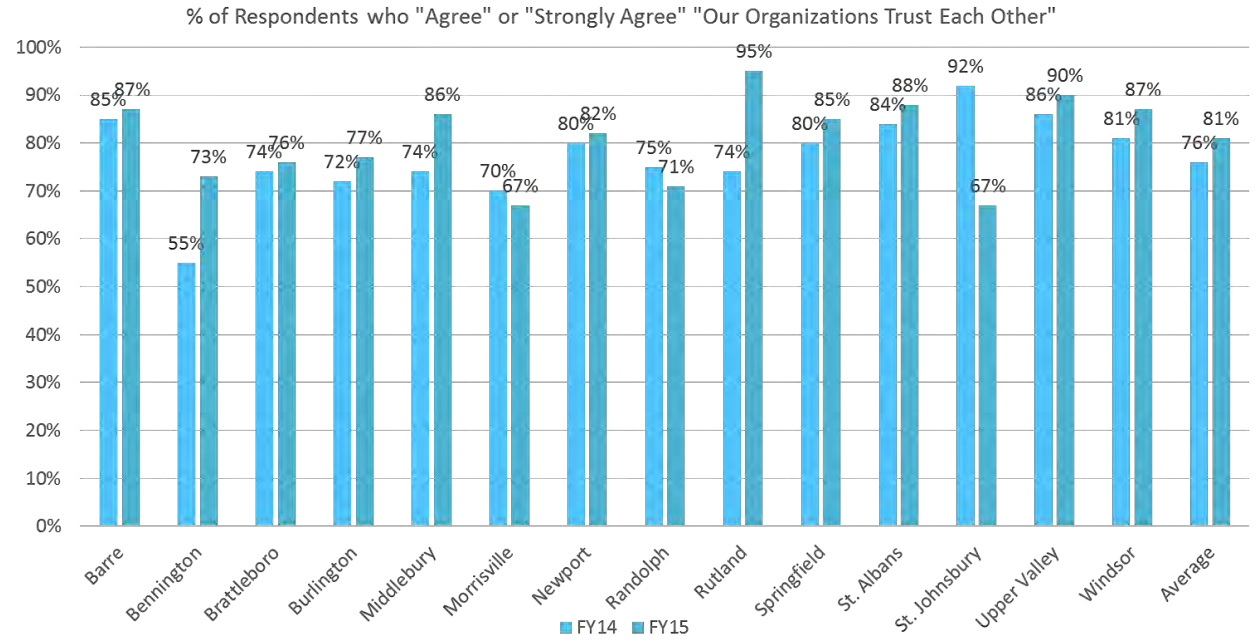
Team Based Care Statistics

Team Based Care % of Respondents Who "Agree" or "Strongly Agree" That Their Community Exhibits the Following Characteristics										
	Shared Goals		**Trust**		**Clear Roles**		**Communication**		**Measurement**	
	FY14	FY15	FY14	FY15	FY14	FY15	FY14	FY15	FY14	FY15
Barre	80%	67%	85%	87%	70%	40%	65%	67%	26%	33%
Bennington	90%	63%	55%	73%	77%	69%	82%	37%	44%	20%
Brattleboro	78%	81%	74%	76%	55%	52%	65%	52%	25%	29%
Burlington	72%	62%	72%	77%	54%	52%	61%	64%	37%	40%
Middlebury	78%	52%	74%	86%	55%	71%	65%	67%	25%	24%
Morrisville	70%	71%	70%	67%	82%	62%	79%	62%	55%	48%
Newport	81%	73%	80%	82%	86%	64%	76%	64%	43%	45%
Randolph	71%	88%	75%	71%	58%	57%	59%	57%	26%	13%
Rutland	74%	80%	74%	95%	72%	70%	72%	60%	28%-	50%
Springfield	79%	93%	80%	85%	65%	93%	70%	78%	52%	48%
St. Albans	88%	82%	84%	88%	63%	76%	63%	67%	29%	45%
St. Johnsbury	92%	76%	92%	67%	77%	73%	71%	64%	43%	30%
Upper Valley	86%	70%	86%	90%	67%	70%	70%	40%	30%	30%
Windsor	80%	87%	81%	87%	69%	80%	77%	73%	31%	40%
Average	**79%**	**75%**	**76%**	**81%**	**68%**	**66%**	**69%**	**61%**	**38%**	**35%**

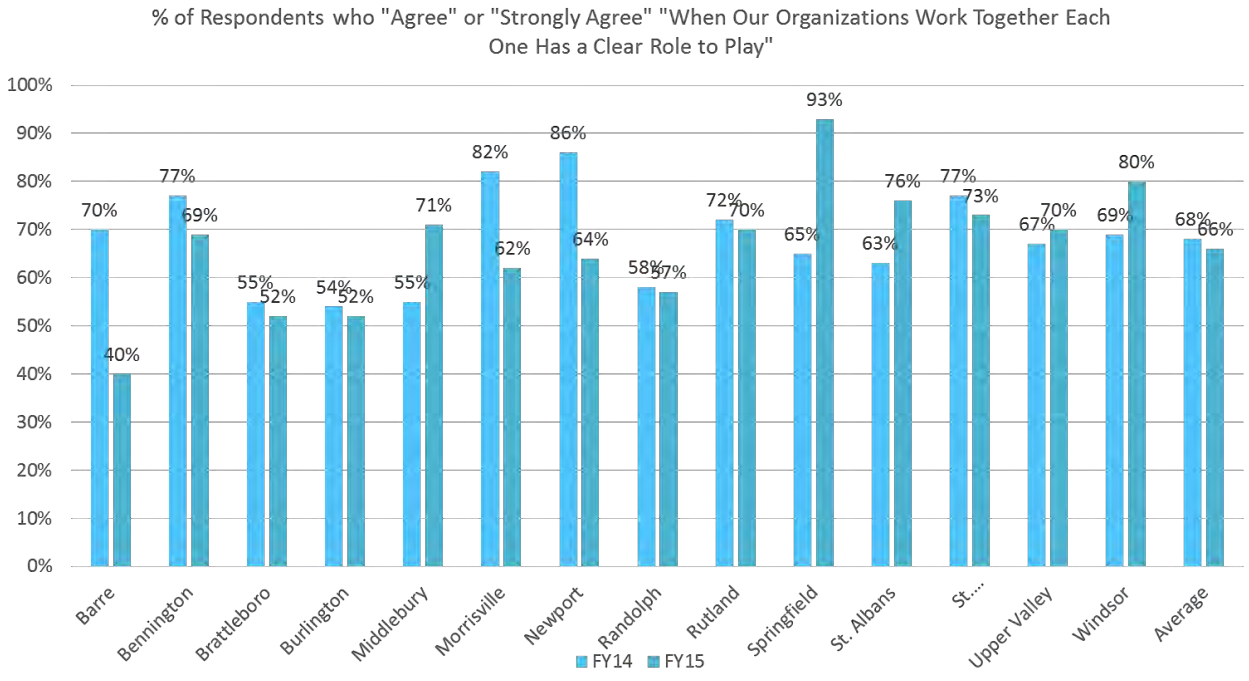
Shared Goals Chart



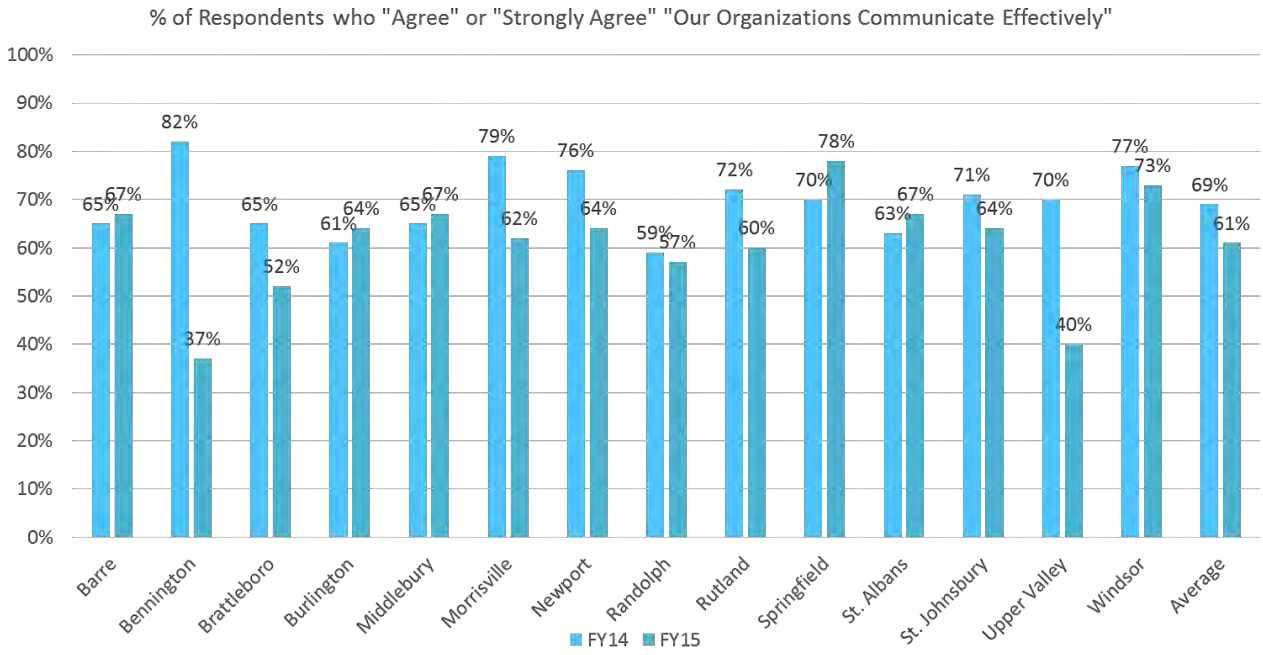
Trust Chart



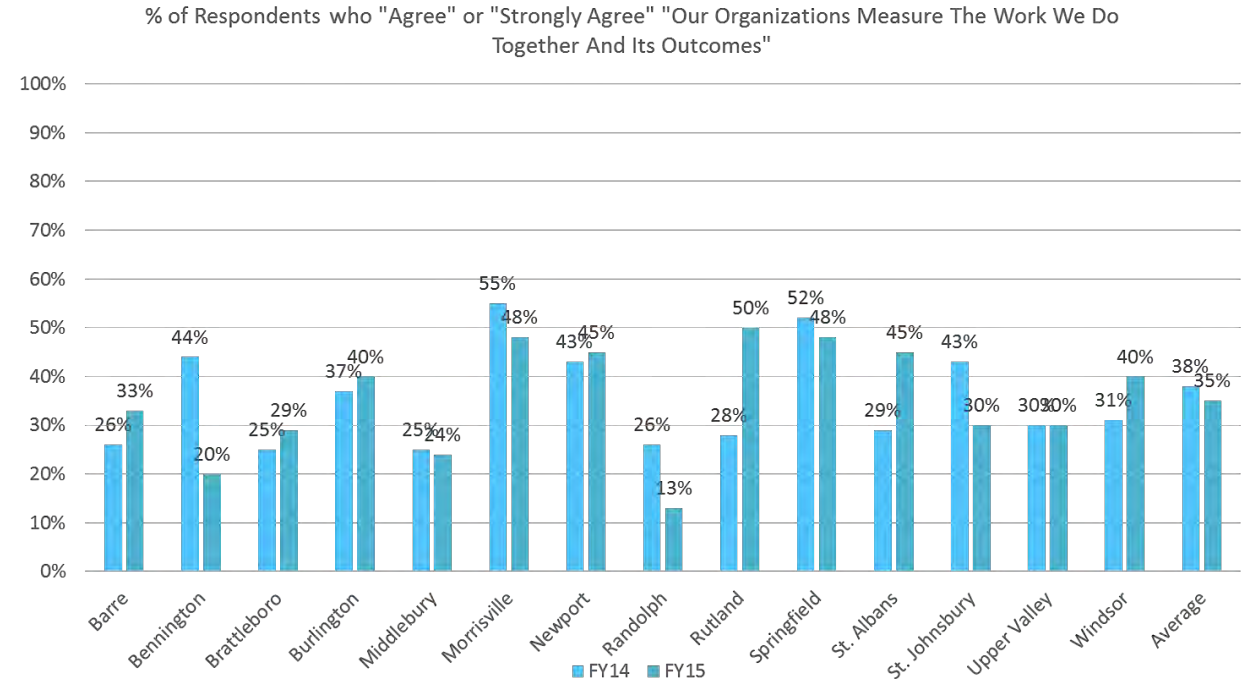
Clear Roles Chart



Effective Communication Chart



Measurable Process and Outcomes Chart



Network Maps

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July 2015

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Wave 1 HSAs

Hybrid Network List Development

Brattleboro Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

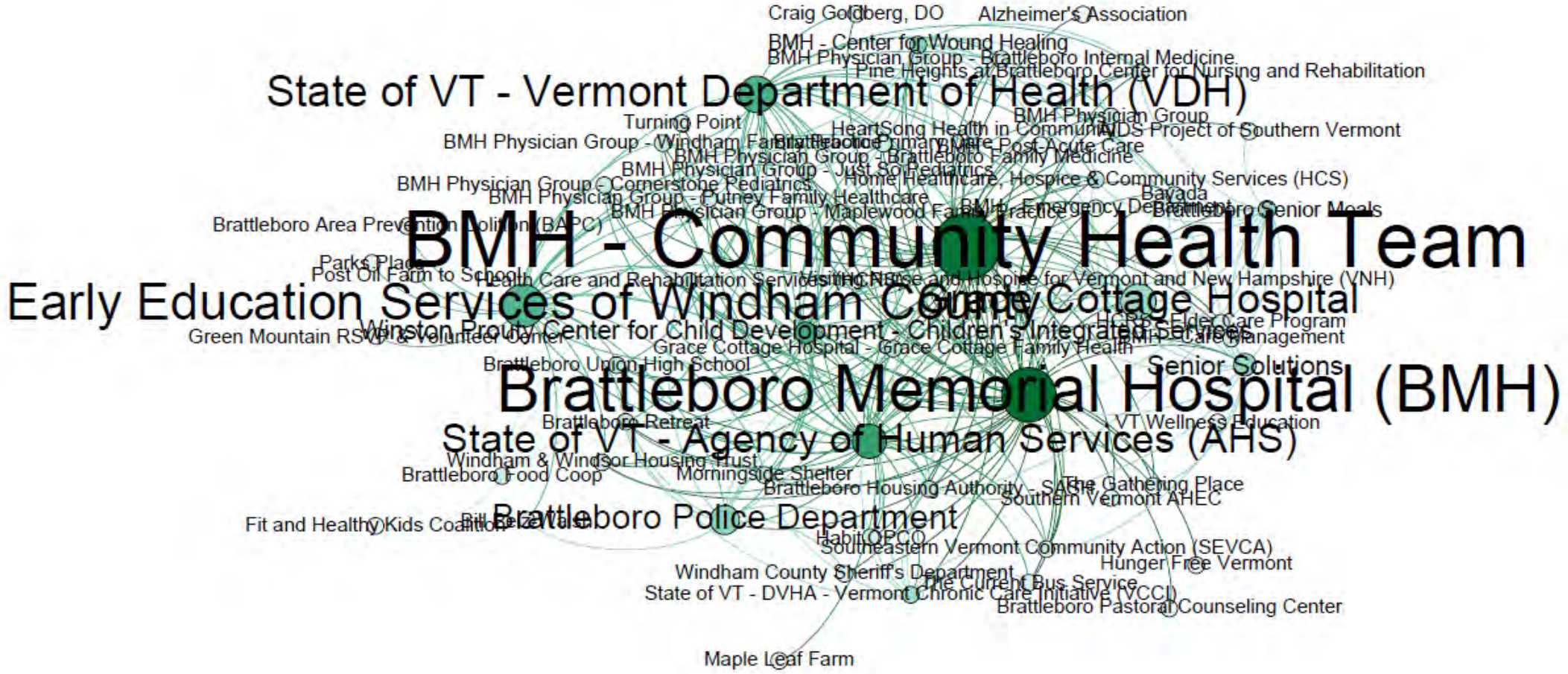
Node size shows Betweeness Centrality

Brattleboro Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

Node size shows Betweeness Centrality

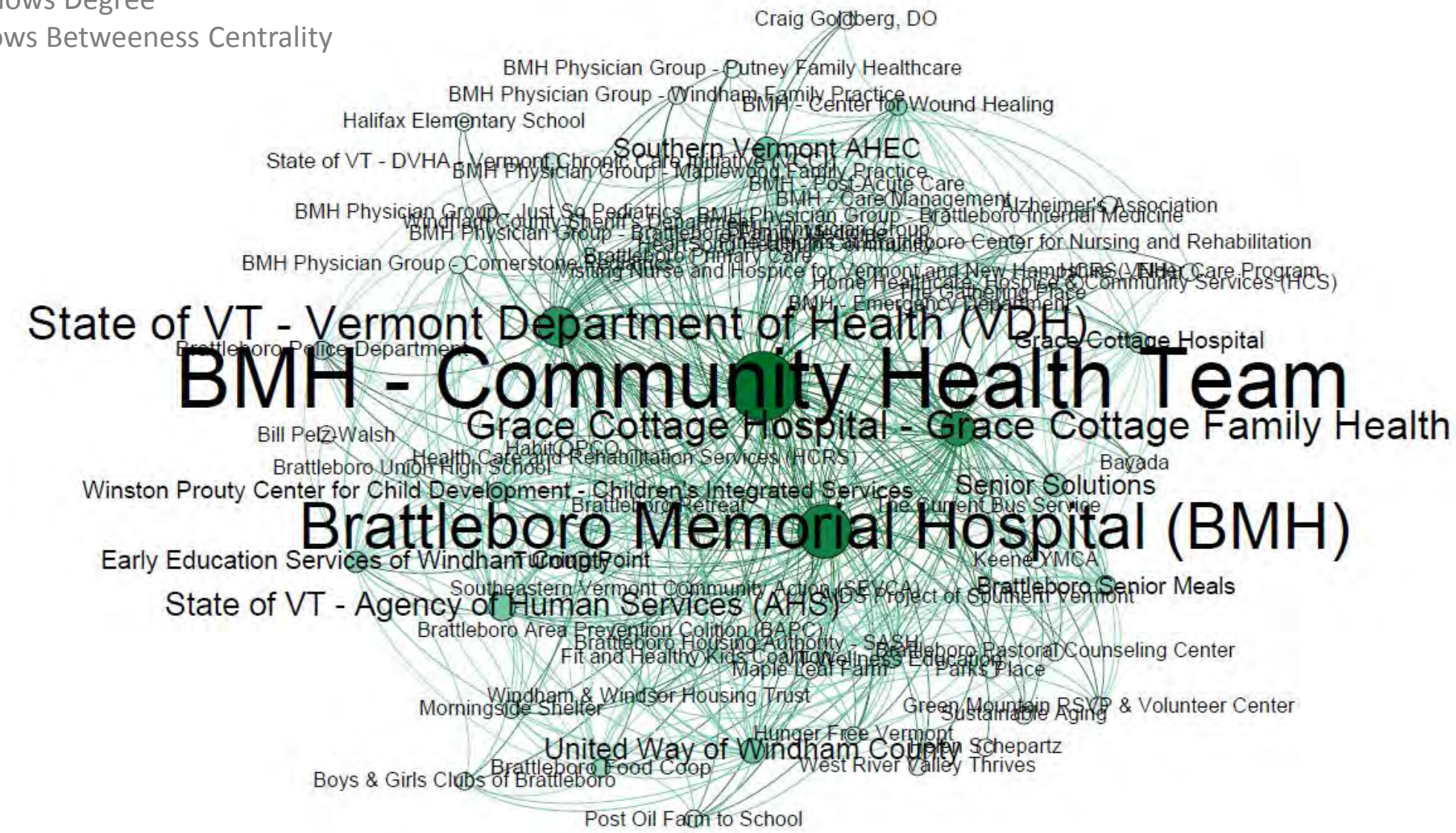


Brattleboro Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

Node size shows Betweeness Centrality

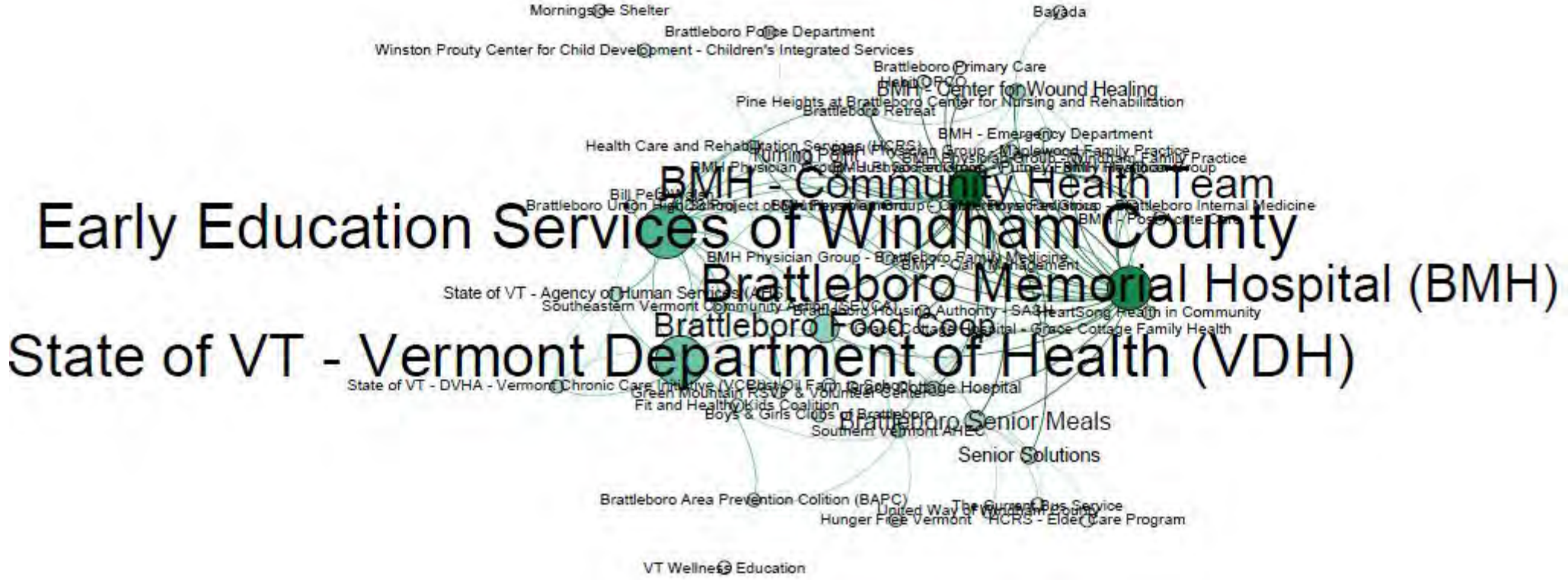


Brattleboro Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality



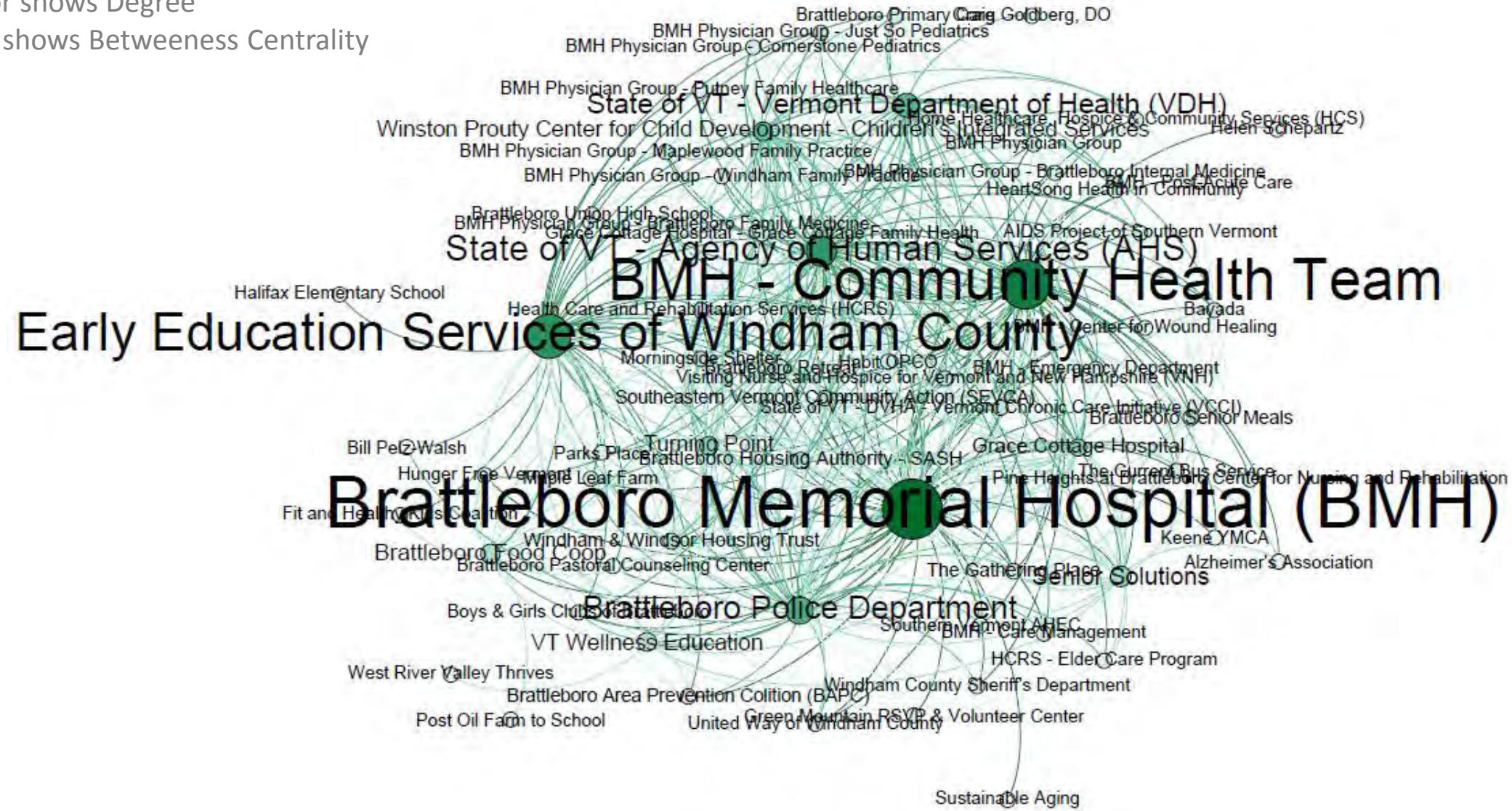
Brattleboro Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

Node color shows Degree

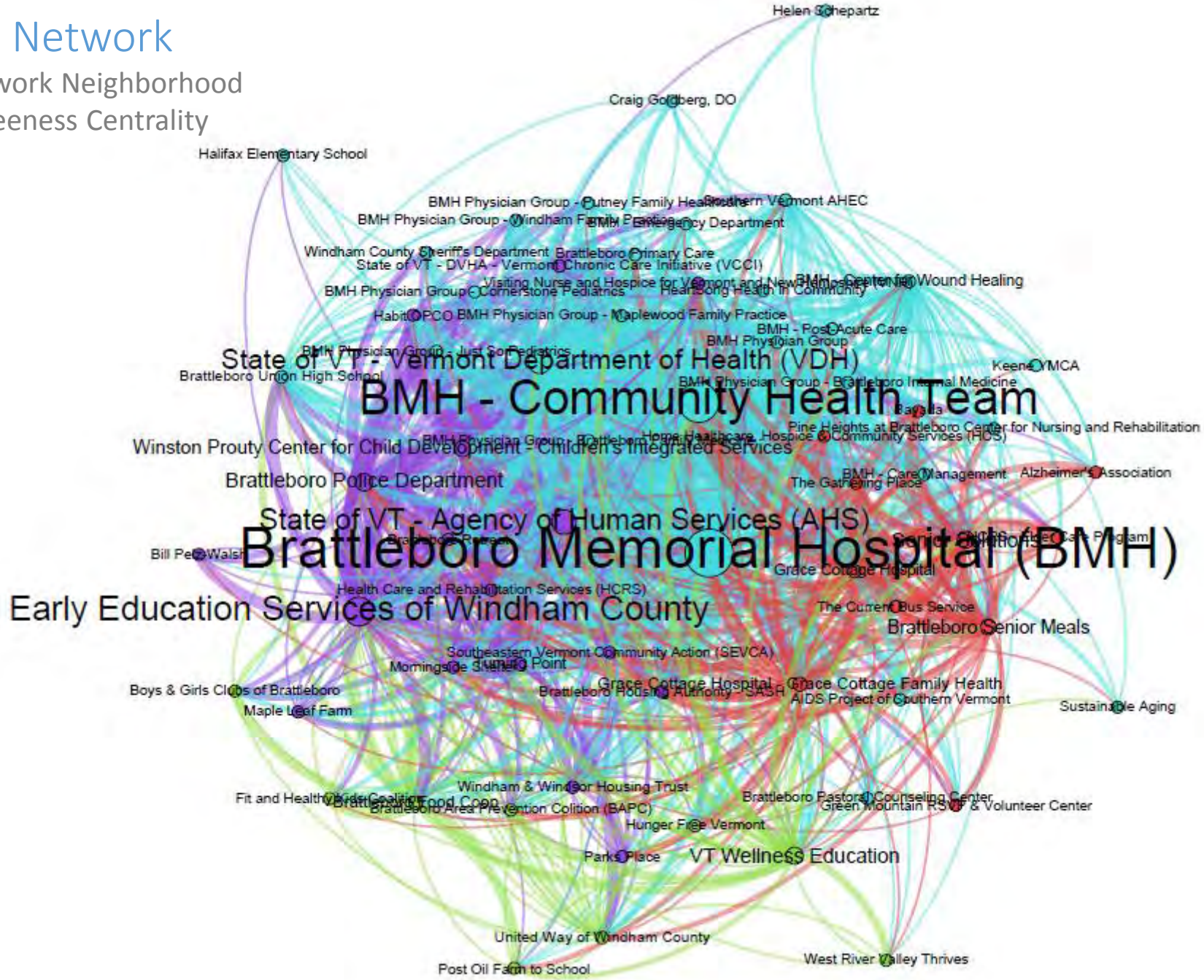
Node size shows Betweeness Centrality



Brattleboro Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality

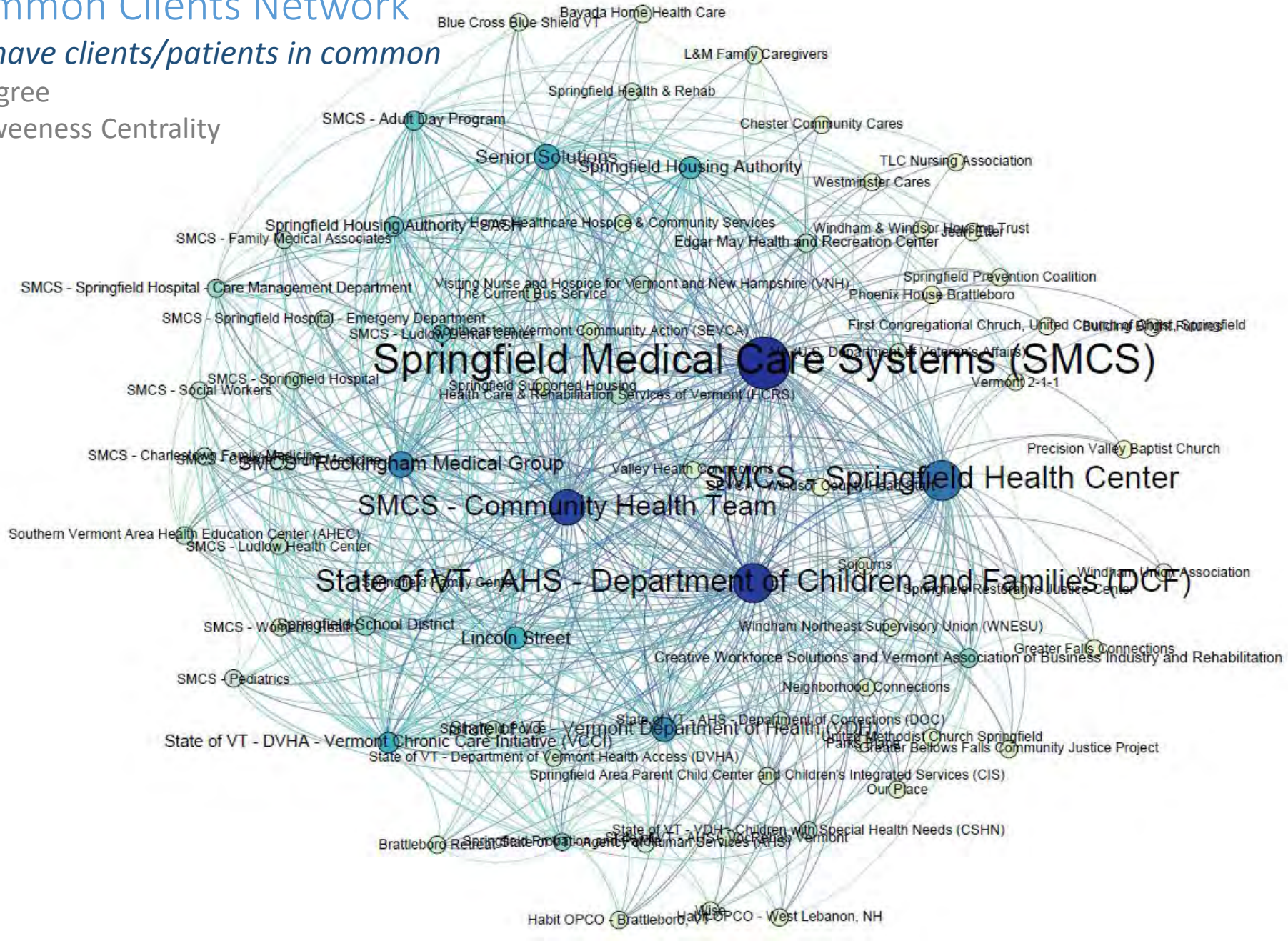


Springfield Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

Node size shows Betweeness Centrality

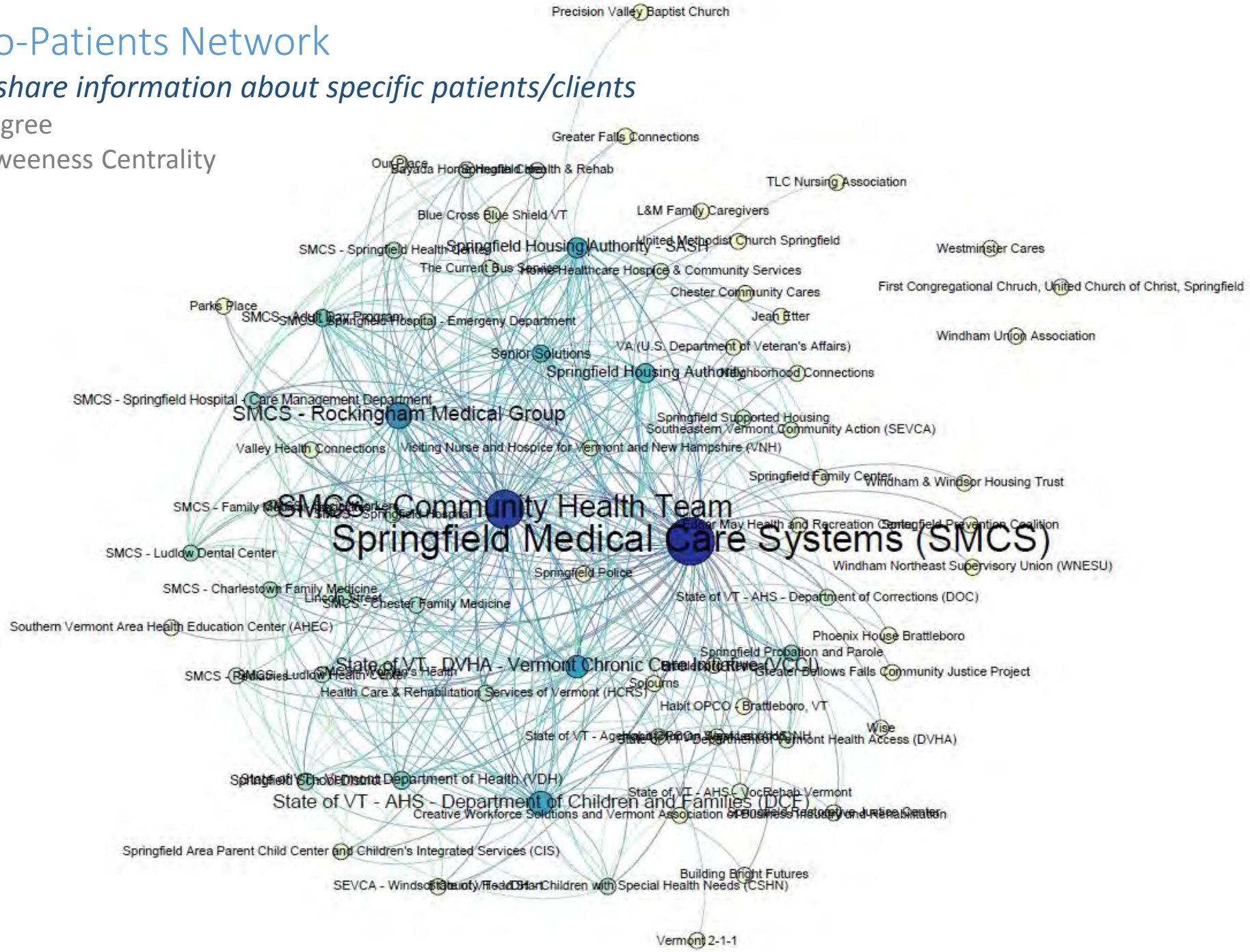


Springfield Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

Node size shows Betweeness Centrality

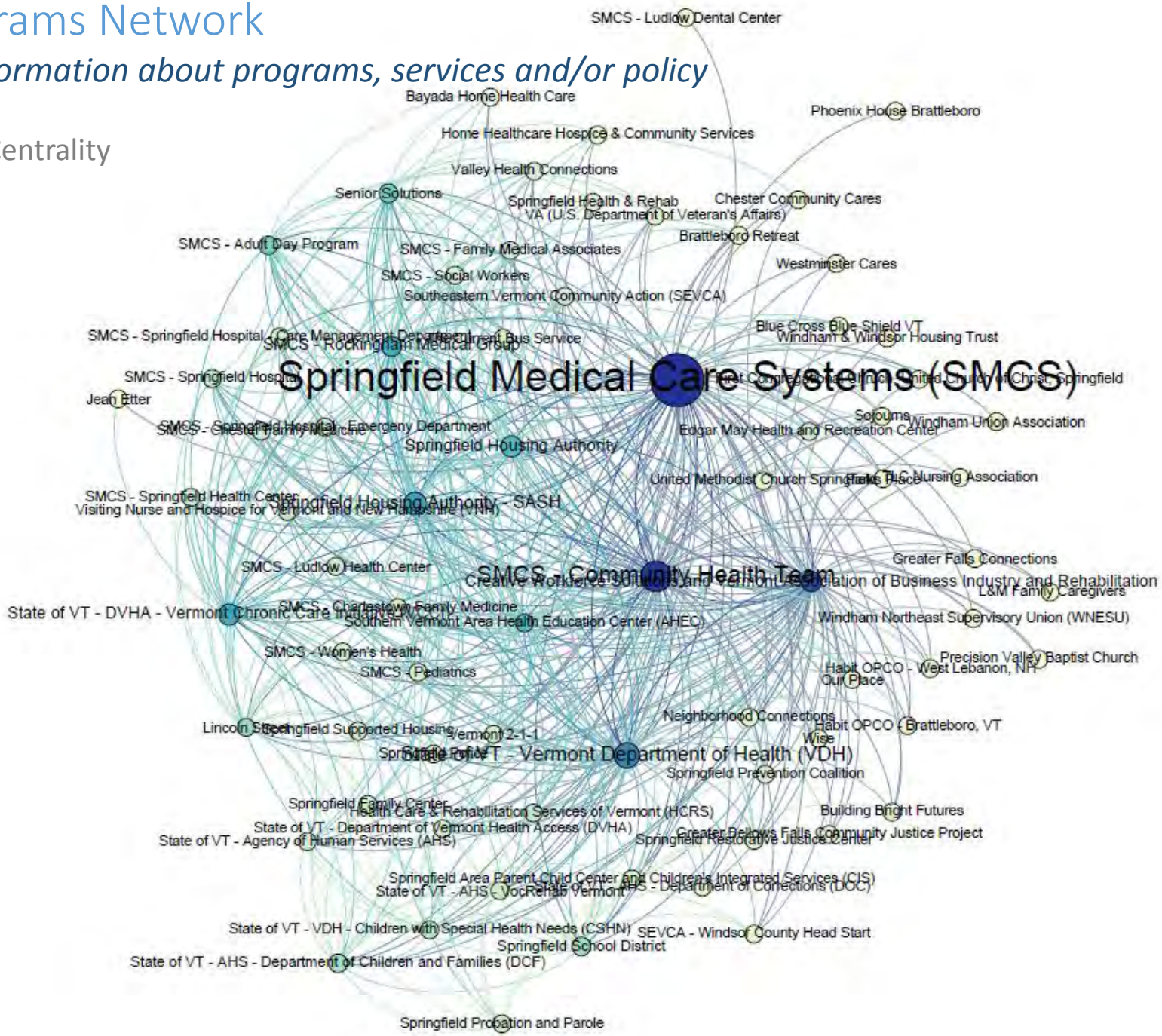


Springfield Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

Node size shows Betweeness Centrality

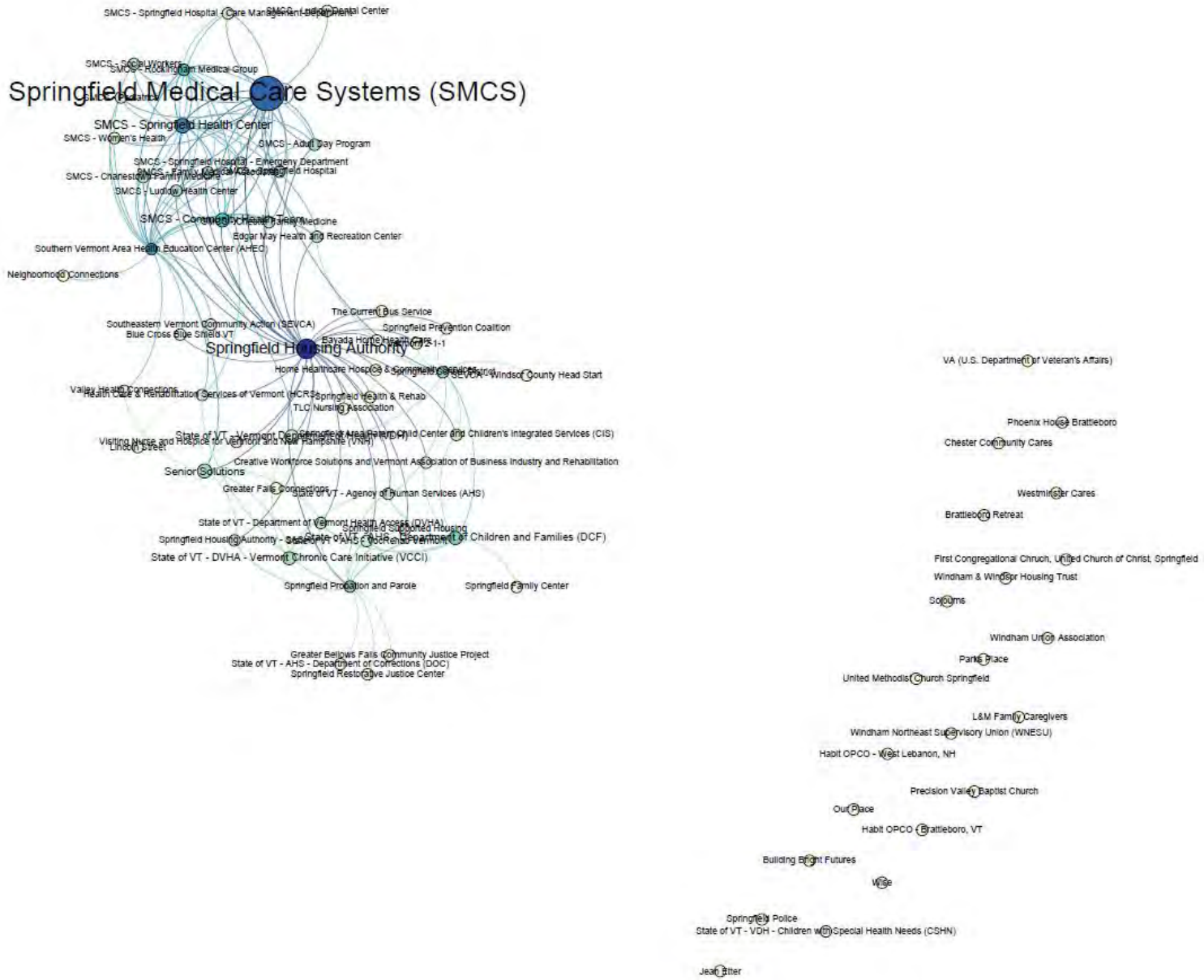


Springfield Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality



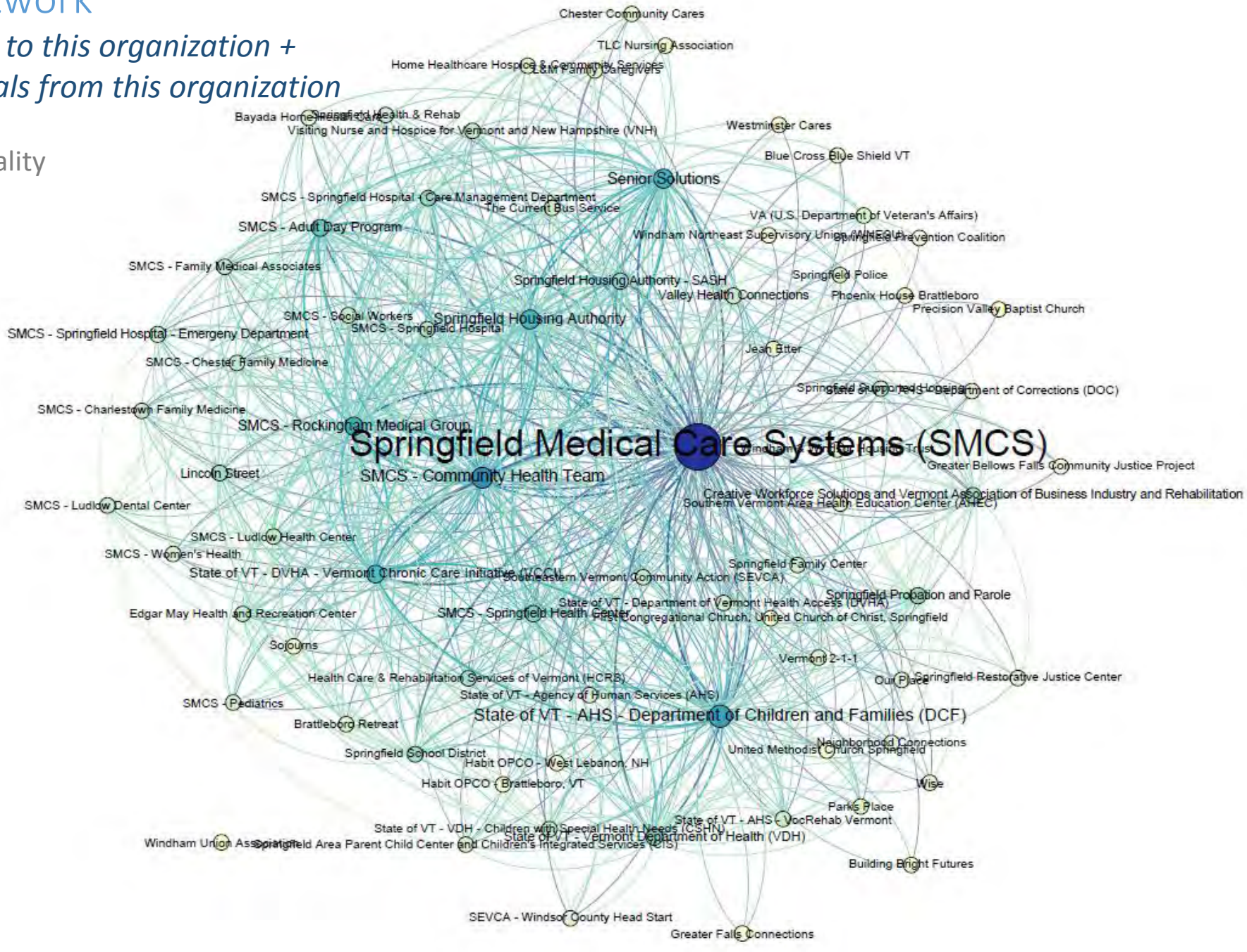
Springfield Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

Node color shows Degree

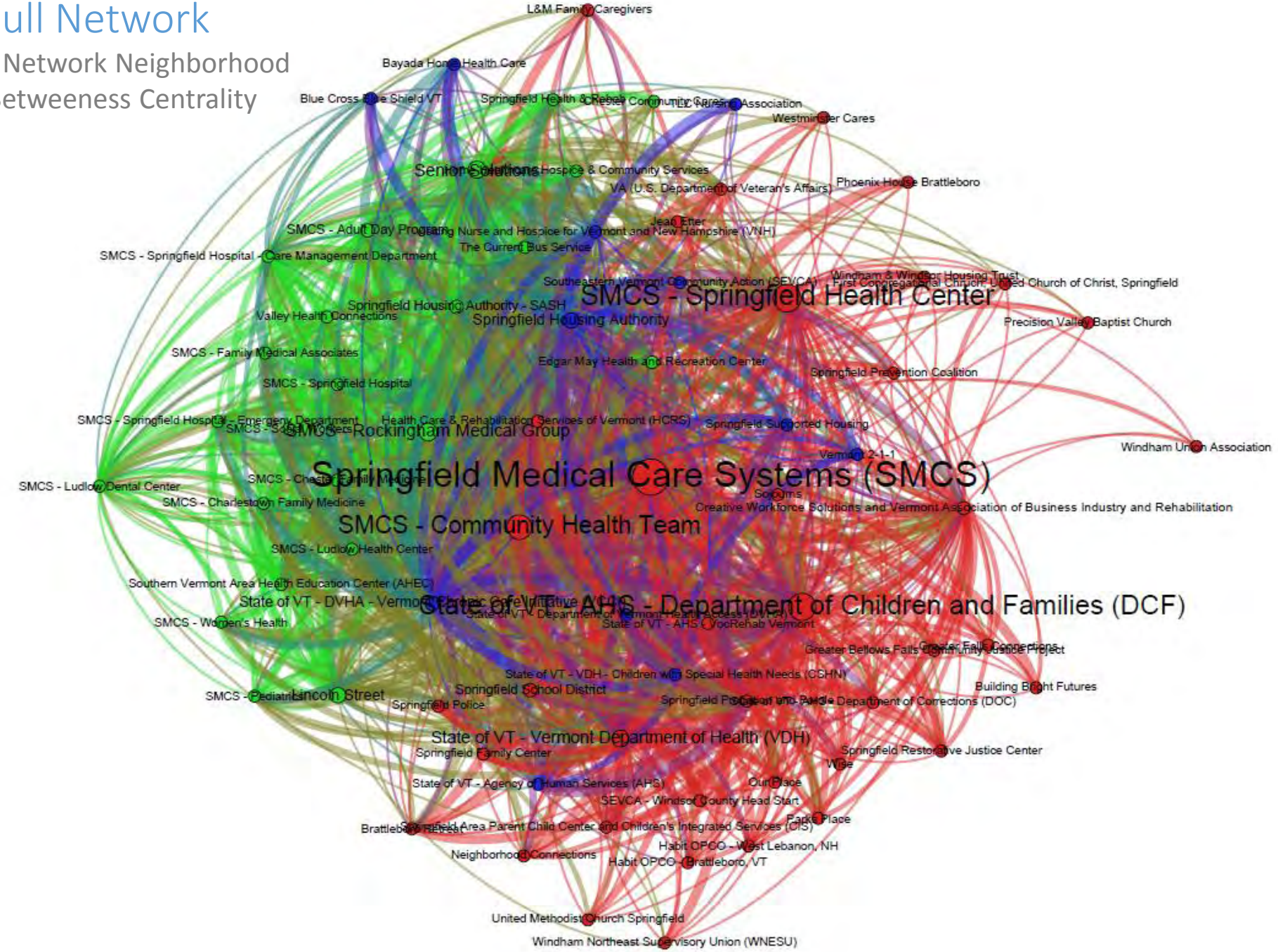
Node size shows Betweeness Centrality



Springfield Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality

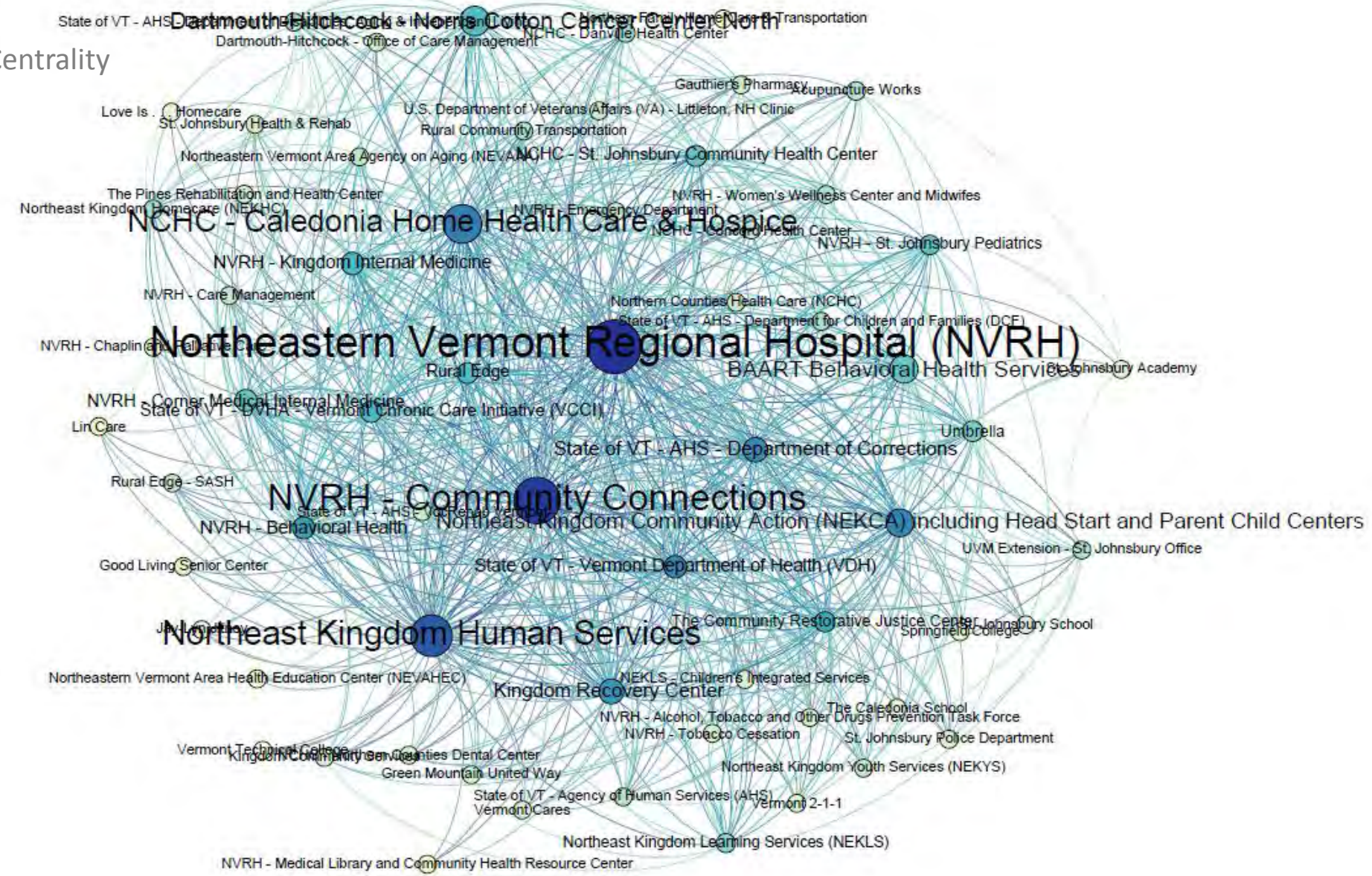


St. Johnsbury Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

Node size shows Betweeness Centrality

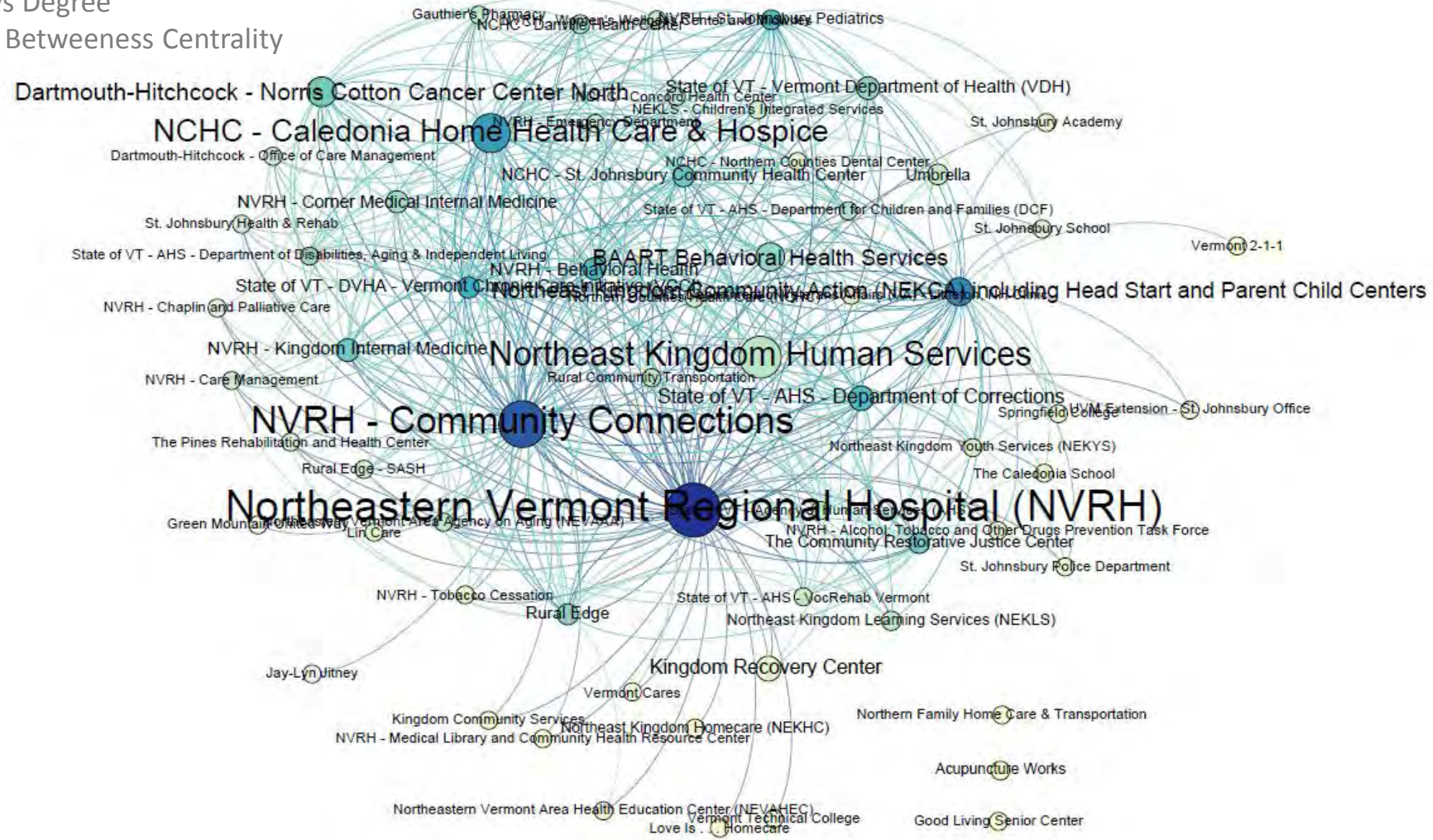


St. Johnsbury Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

Node size shows Betweeness Centrality

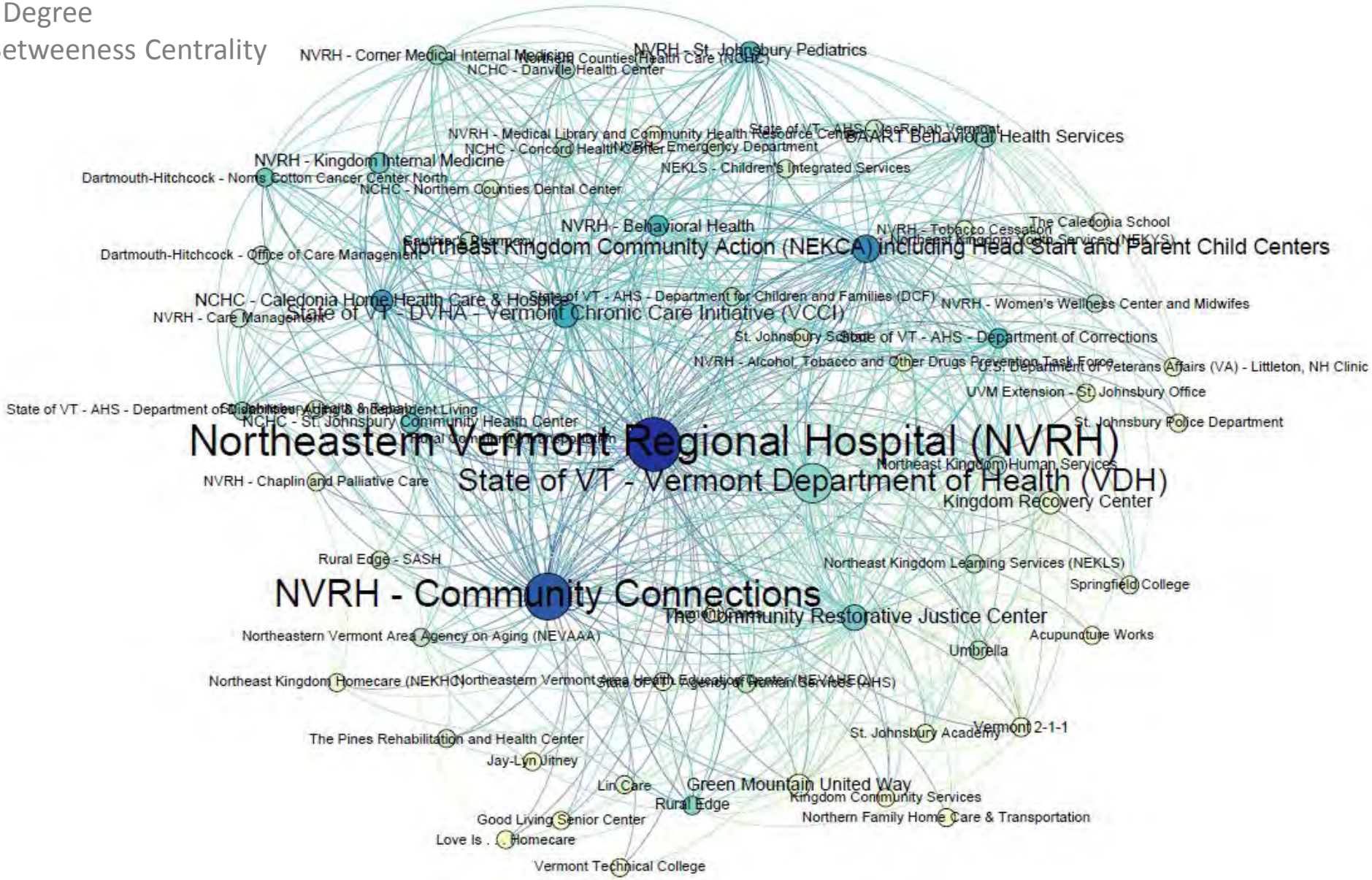


St. Johnsbury Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

Node size shows Betweeness Centrality

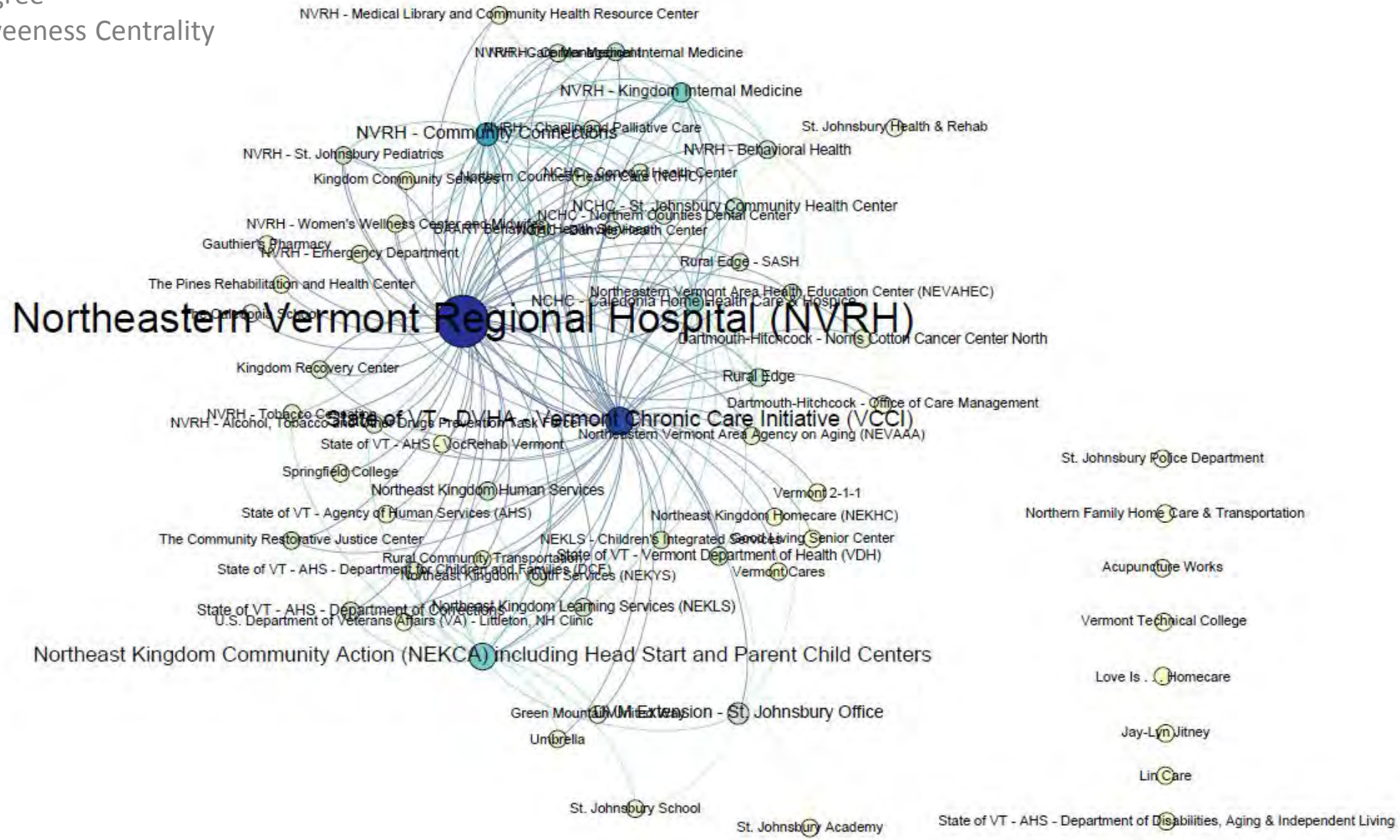


St. Johnsbury Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality



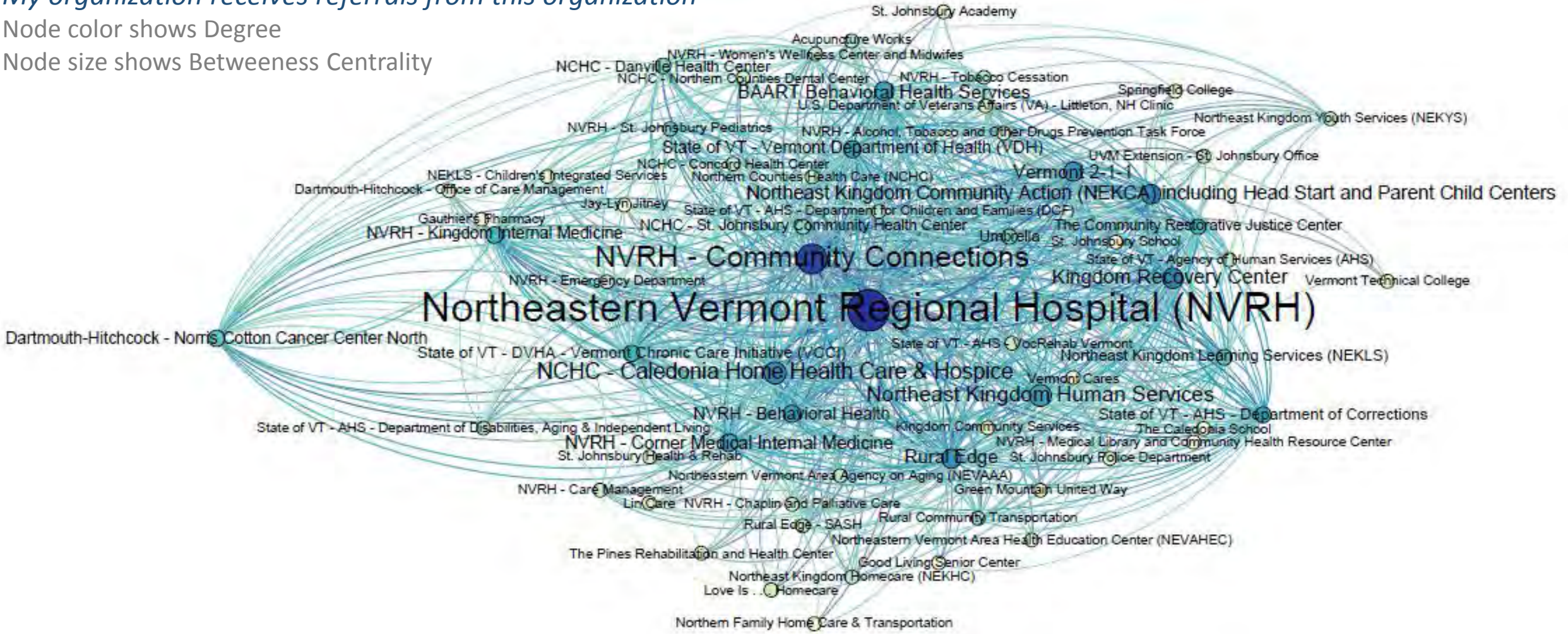
St. Johnsbury Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

Node color shows Degree

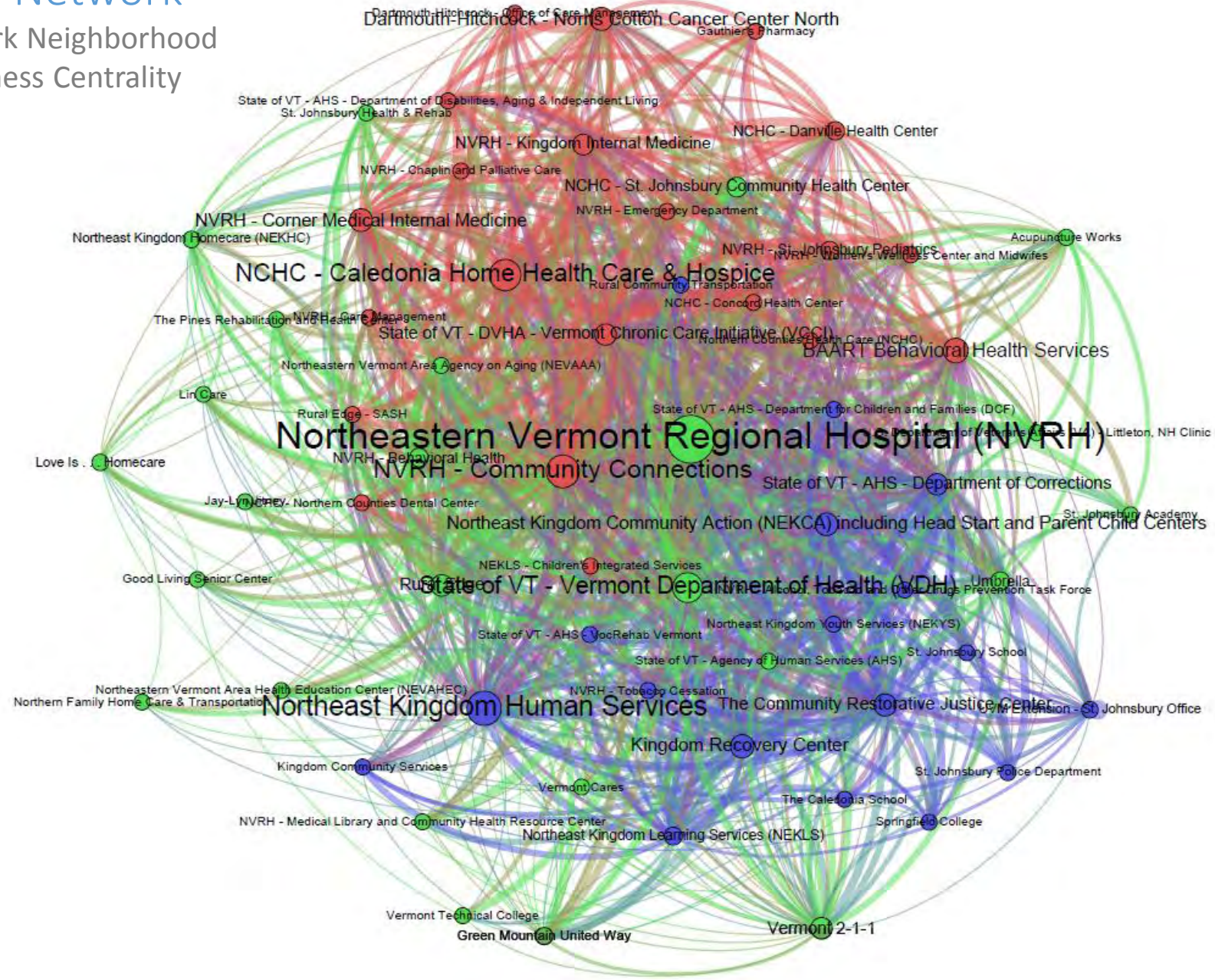
Node size shows Betweeness Centrality



St. Johnsbury Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality

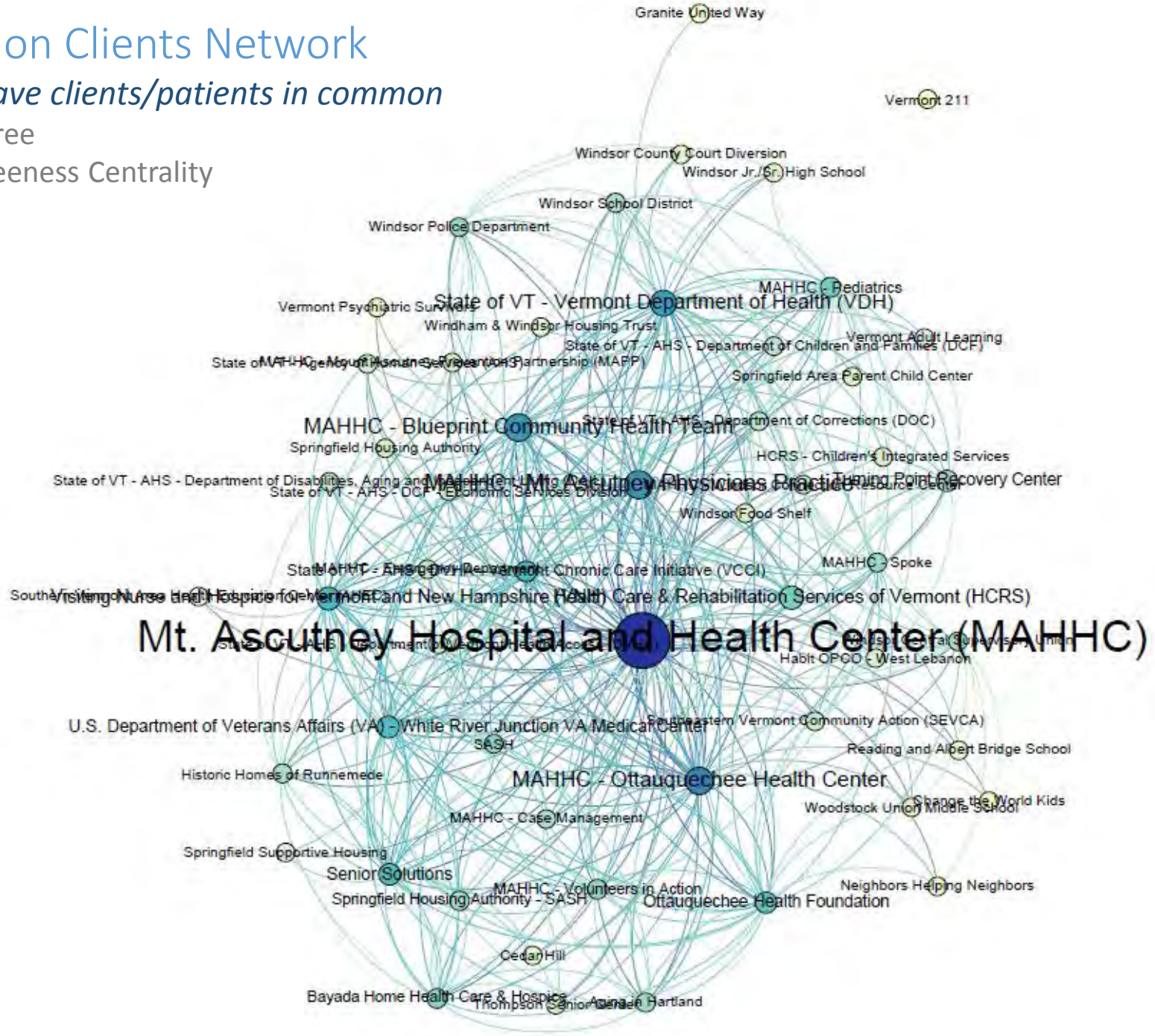


Windsor Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

Node size shows Betweeness Centrality

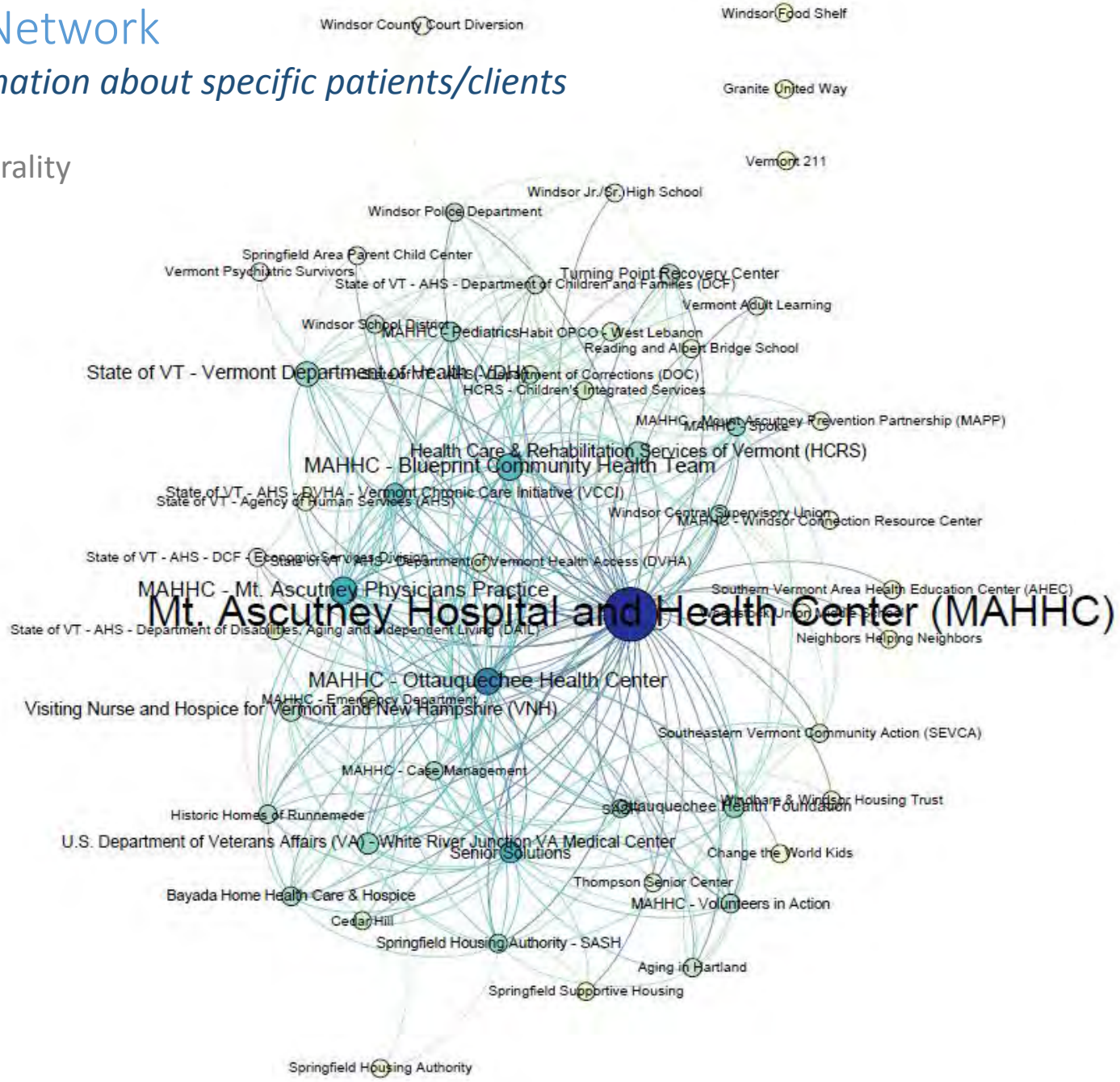


Windsor Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

Node size shows Betweeness Centrality

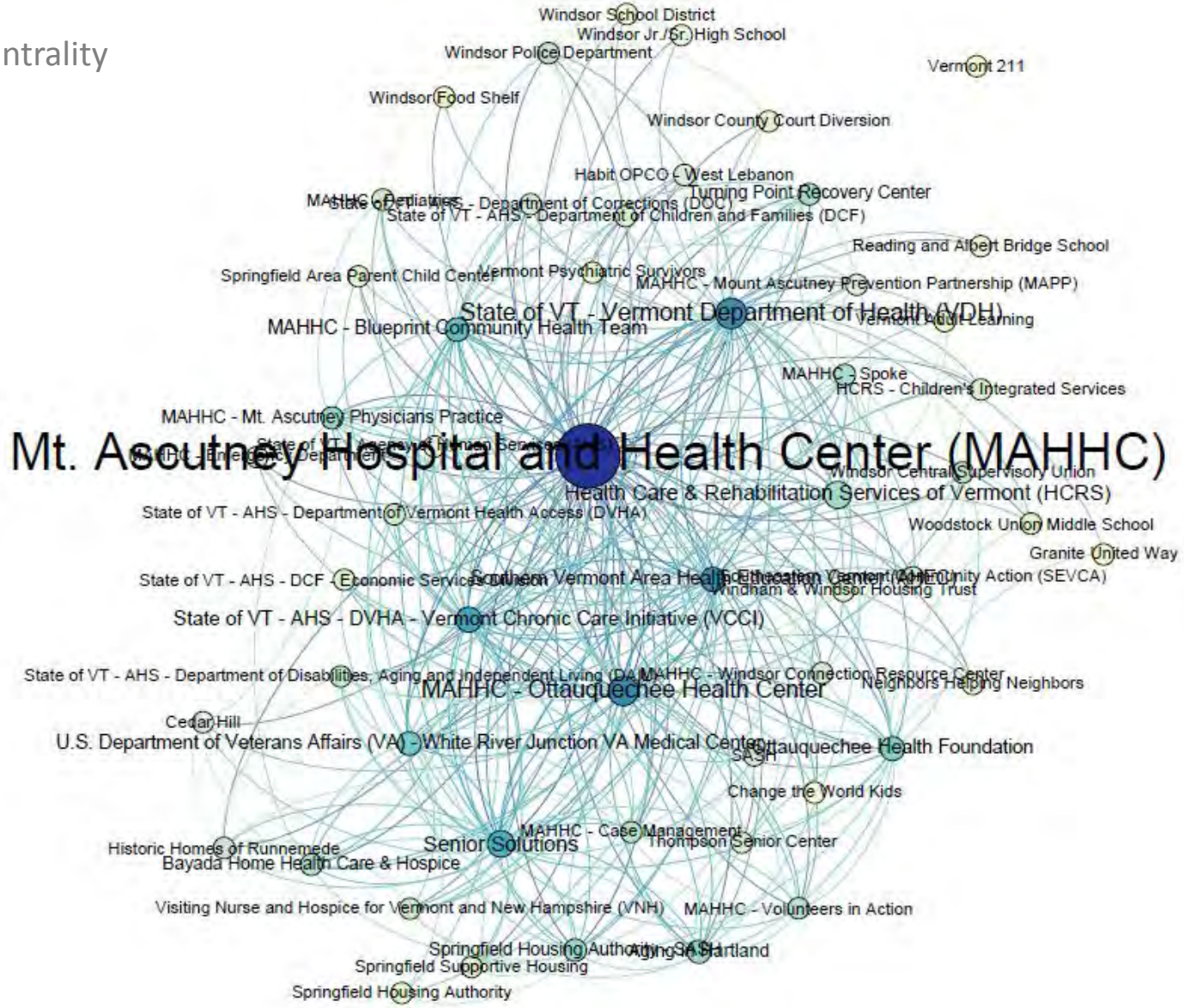


Windsor Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

Node size shows Betweeness Centrality

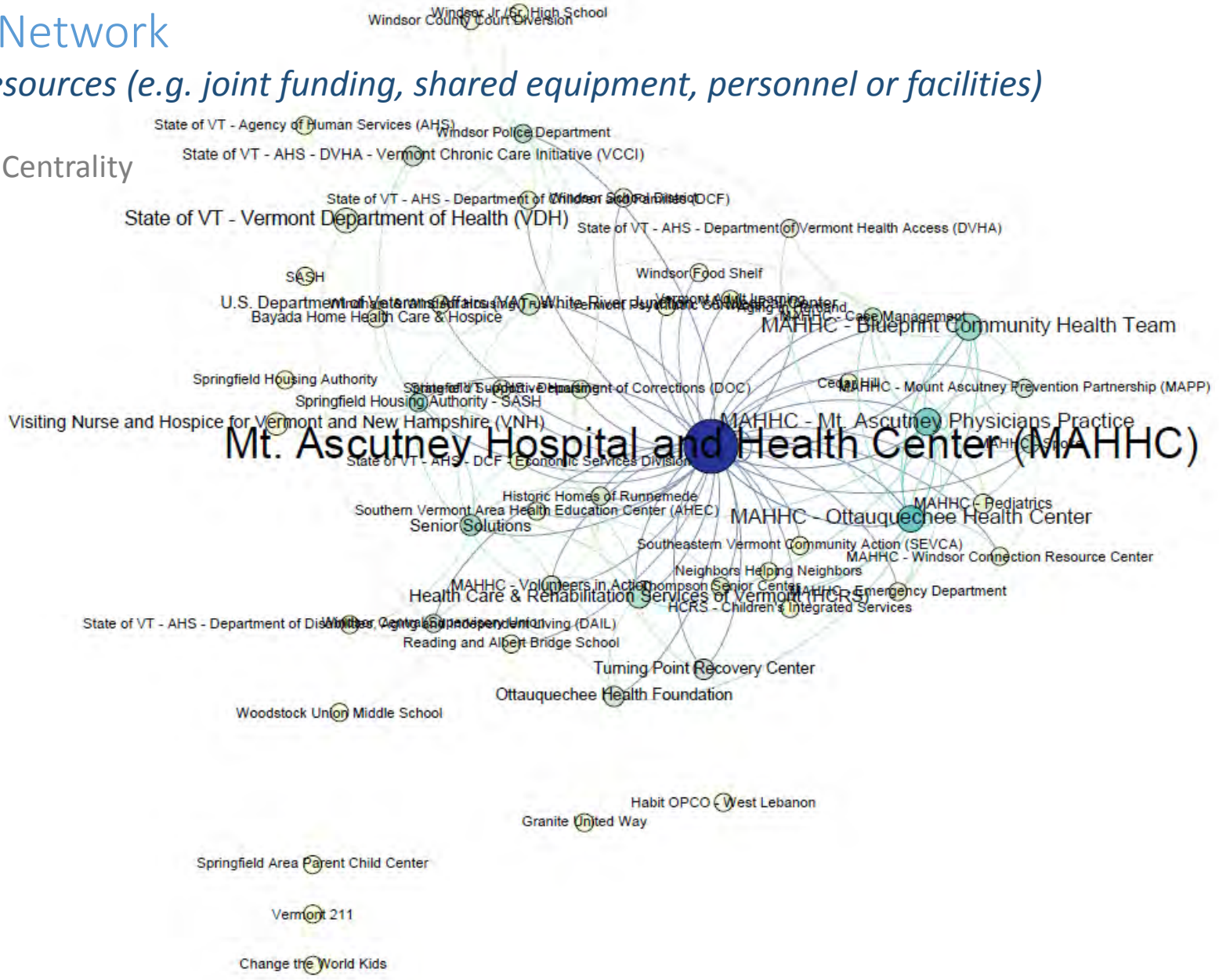


Windsor Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality



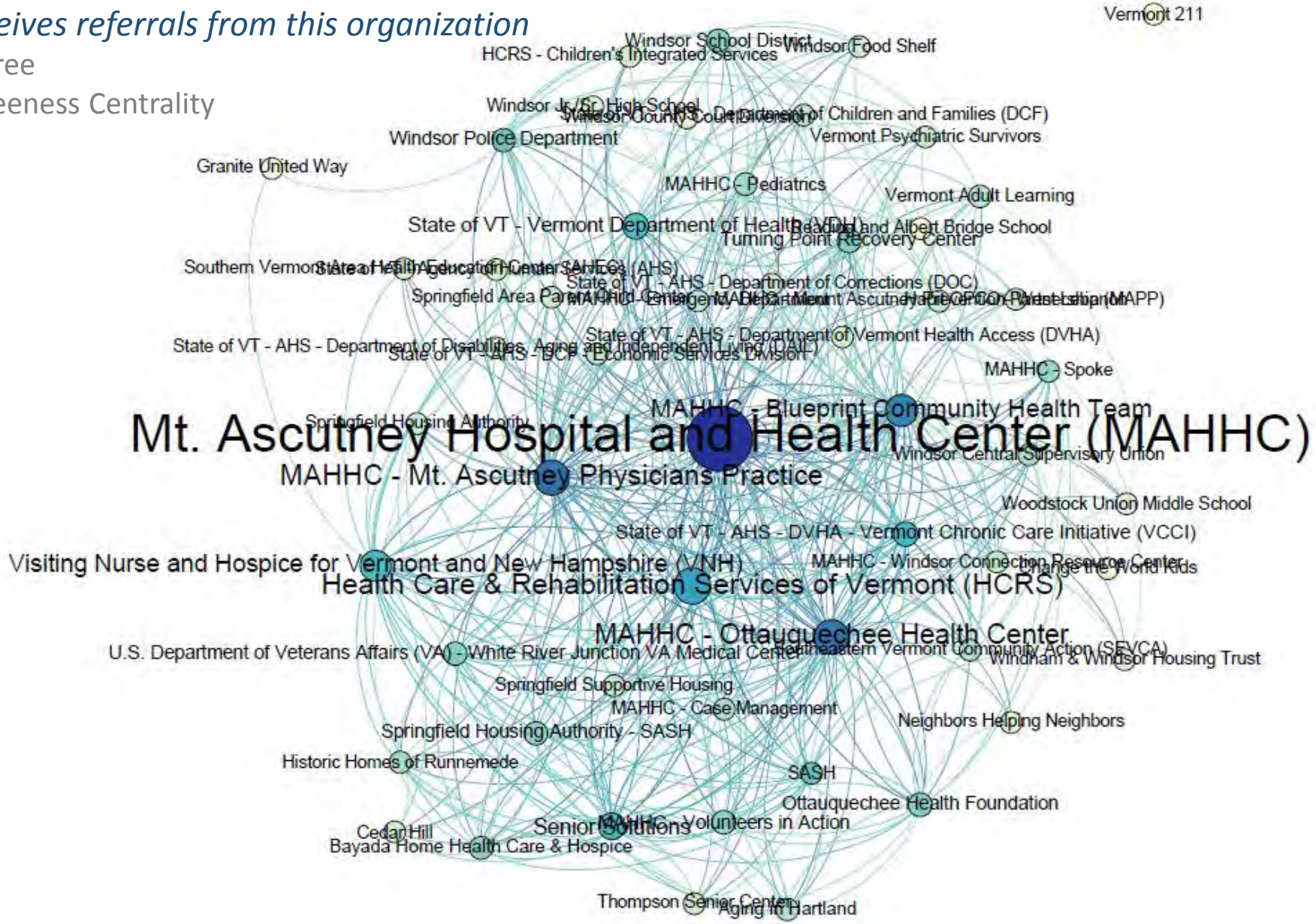
Windsor Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

Node color shows Degree

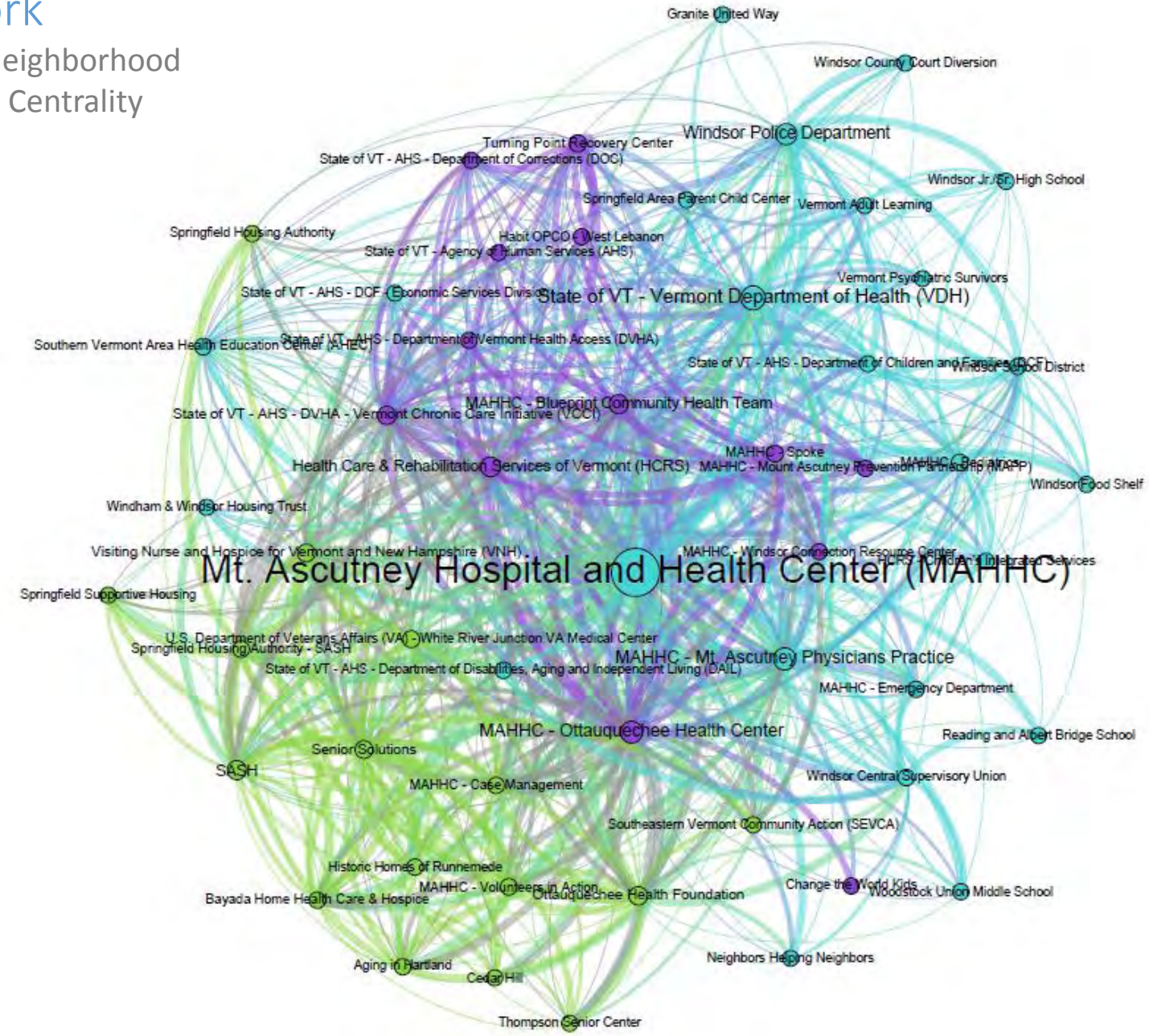
Node size shows Betweeness Centrality



Windsor Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality



Wave 2 HSAs

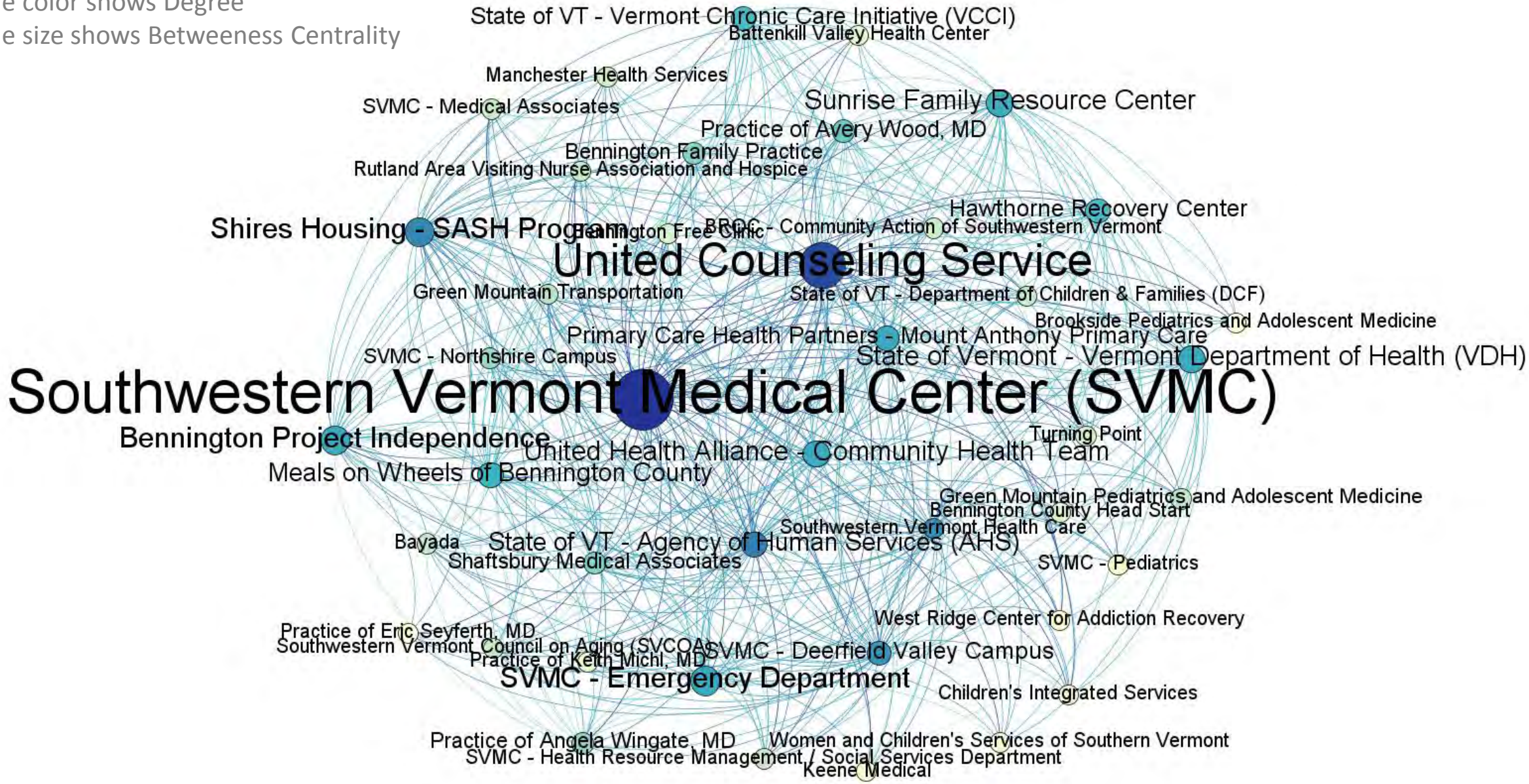
Community Network List Development

Bennington Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

Node size shows Betweeness Centrality

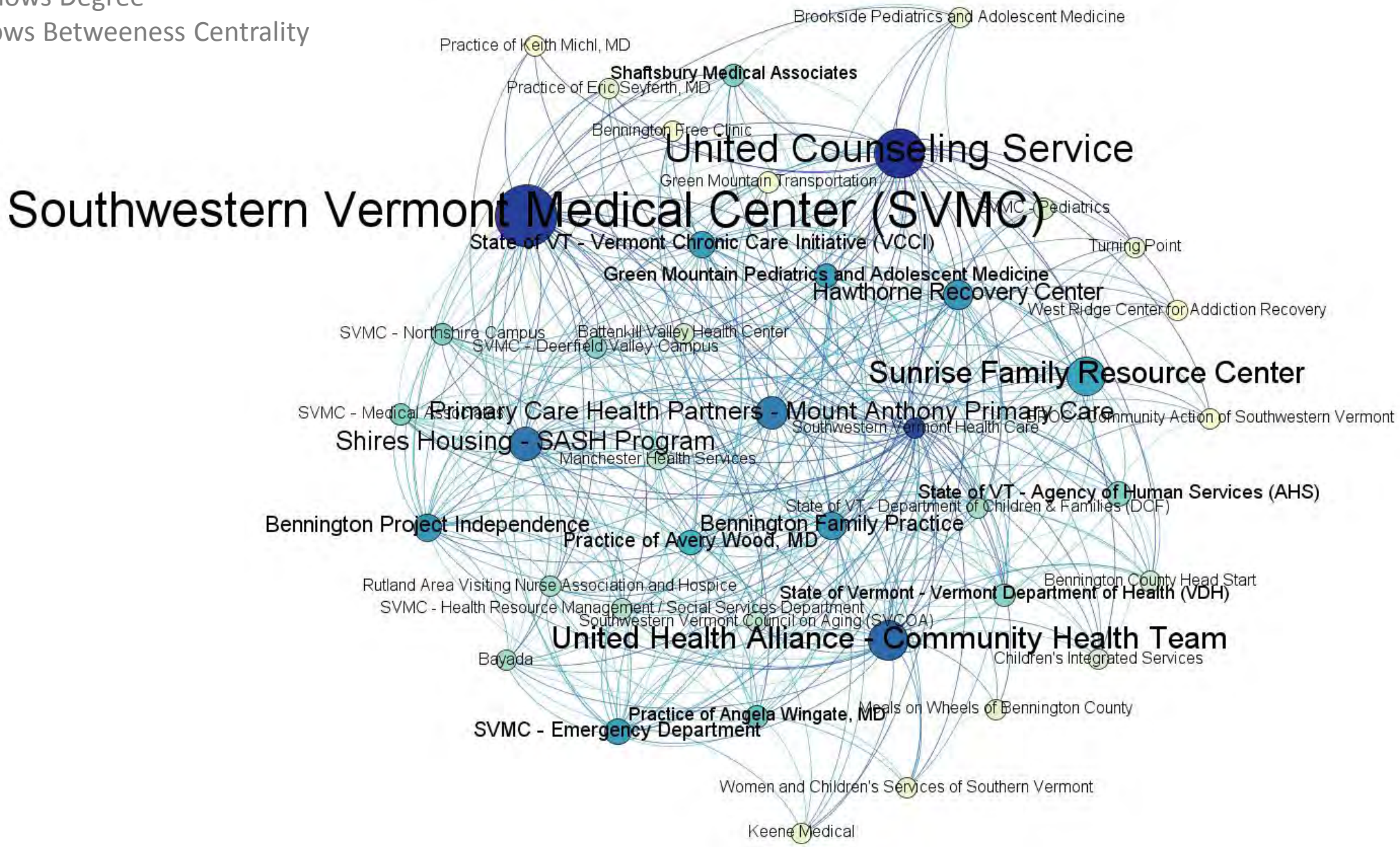


Bennington Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

Node size shows Betweeness Centrality

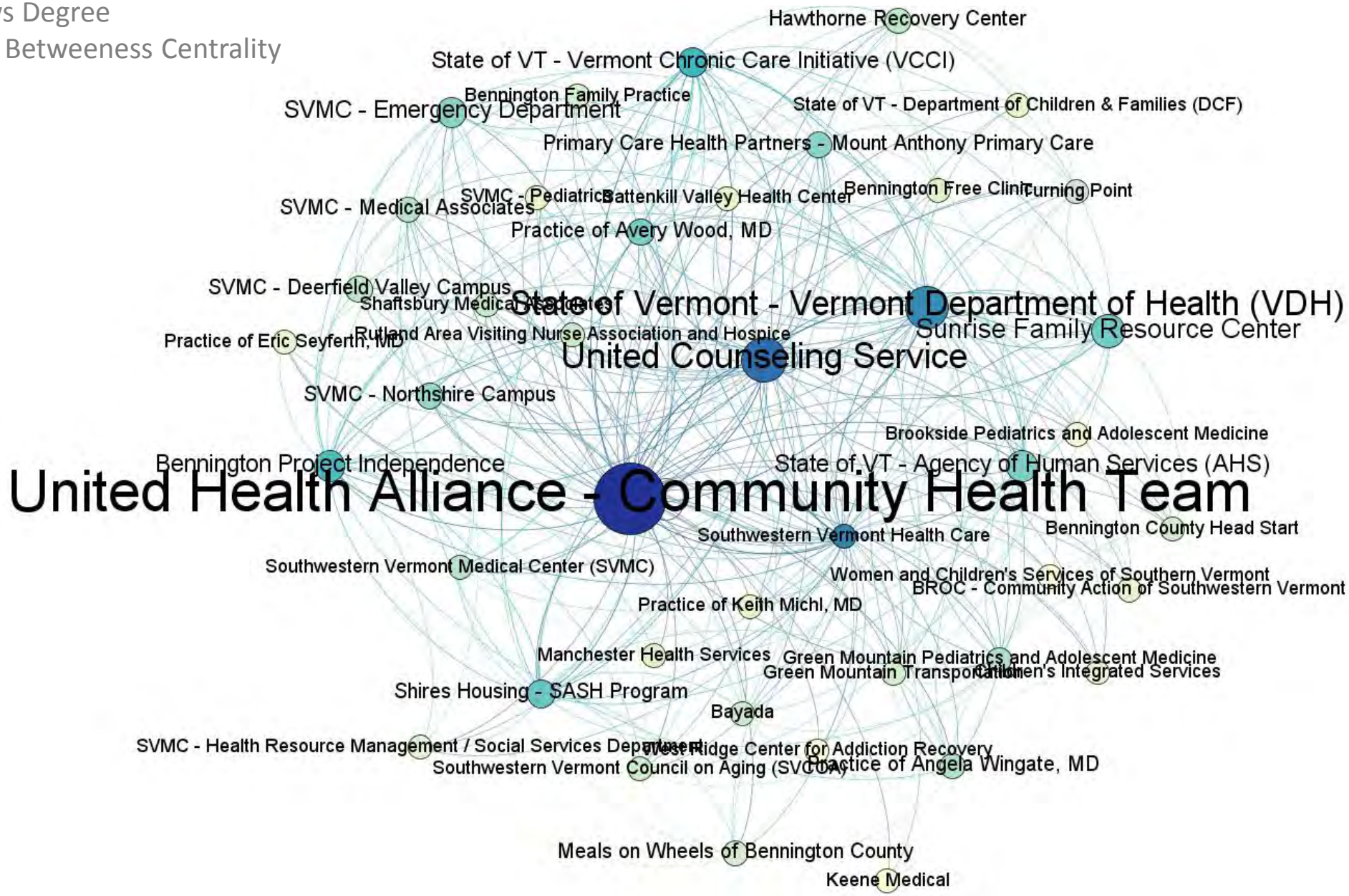


Bennington Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

Node size shows Betweeness Centrality



Bennington Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality

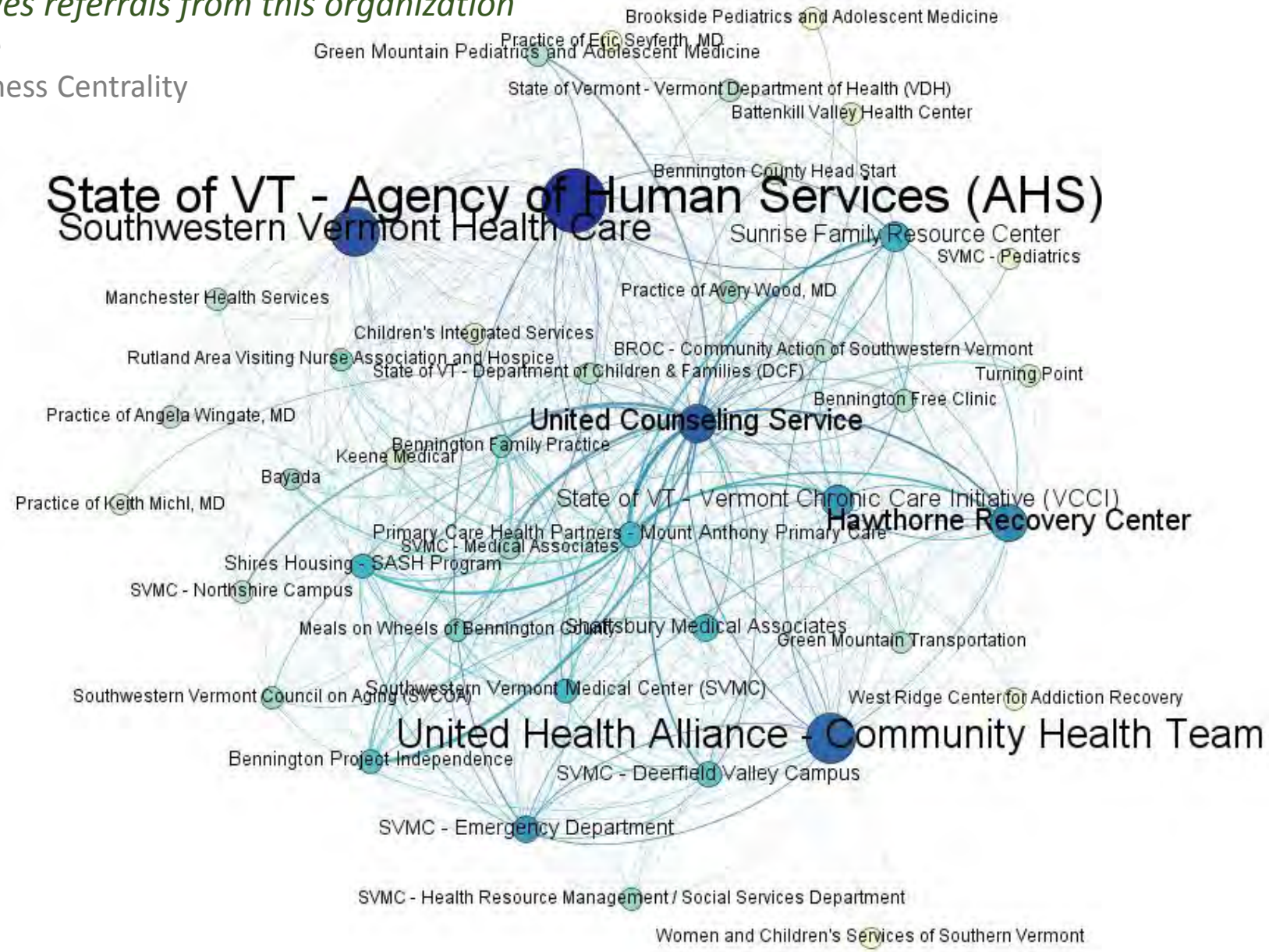
Bennington Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

Node color shows Degree

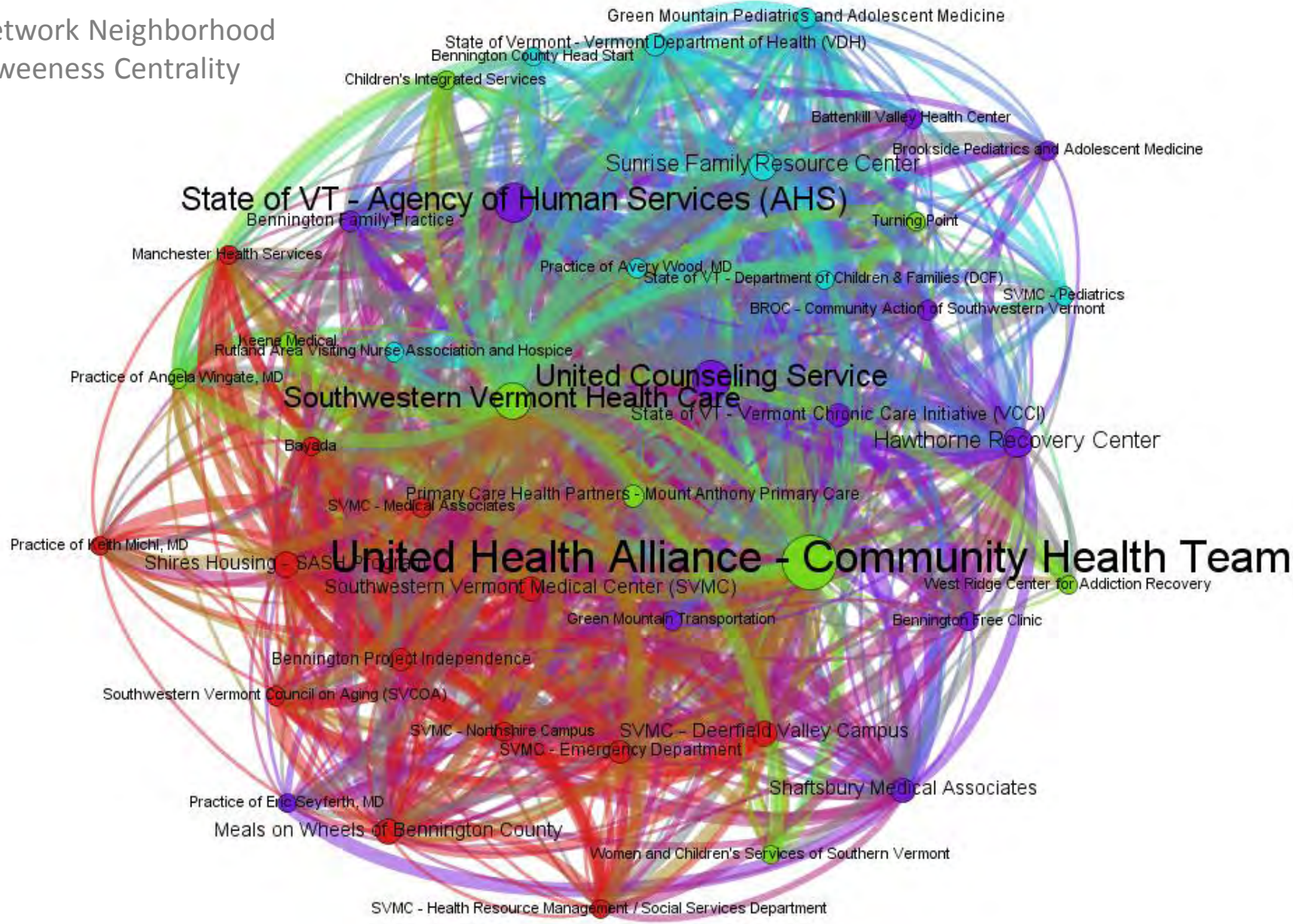
Node size shows Betweeness Centrality



Bennington Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality



Middlebury Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

Node size shows Betweeness Centrality

Middlebury Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

Node size shows Betweeness Centrality

Middlebury Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

Node size shows Betweeness Centrality

Middlebury Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality

Middlebury Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

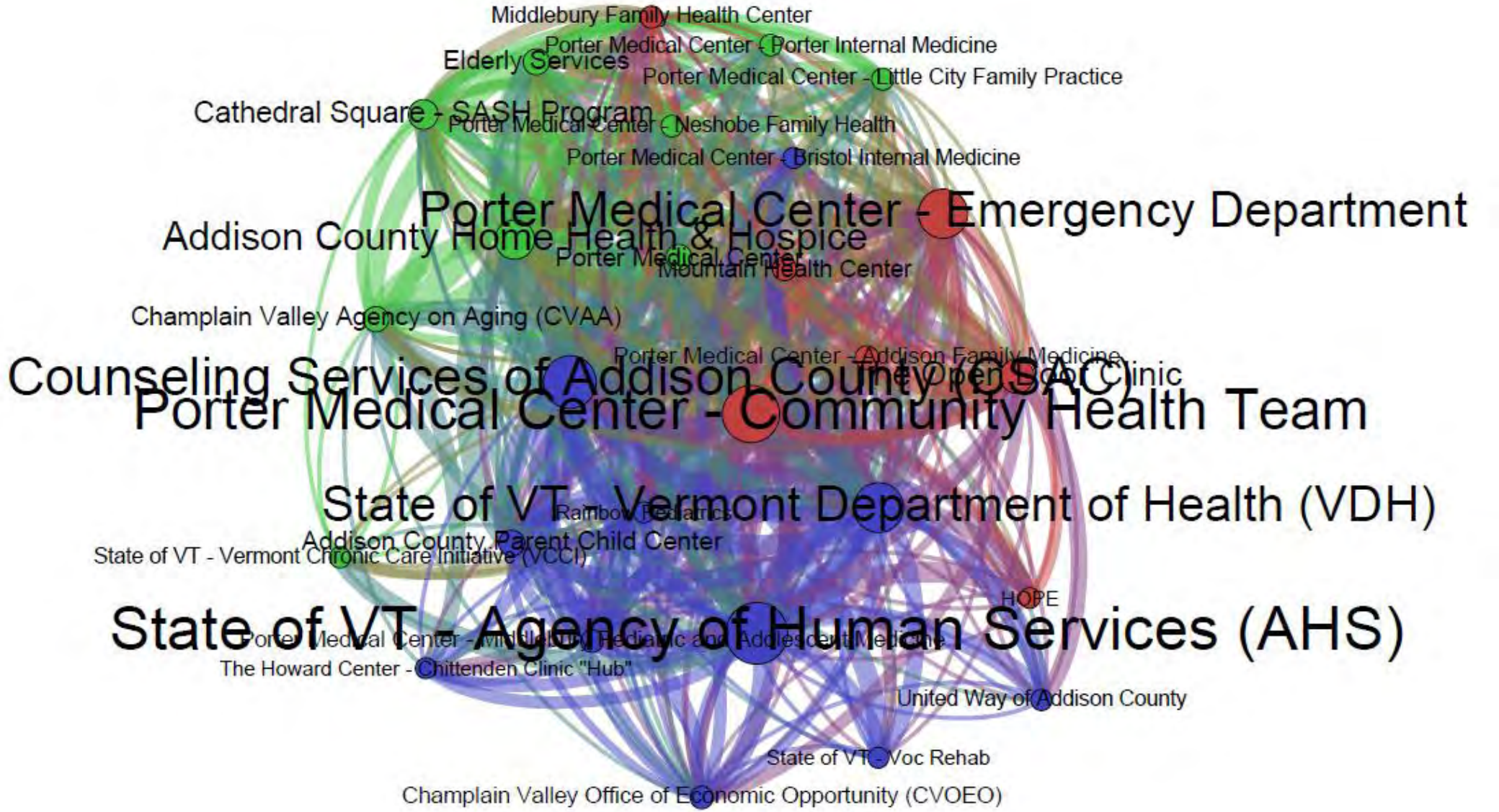
Node color shows Degree

Node size shows Betweeness Centrality

Middlebury Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality

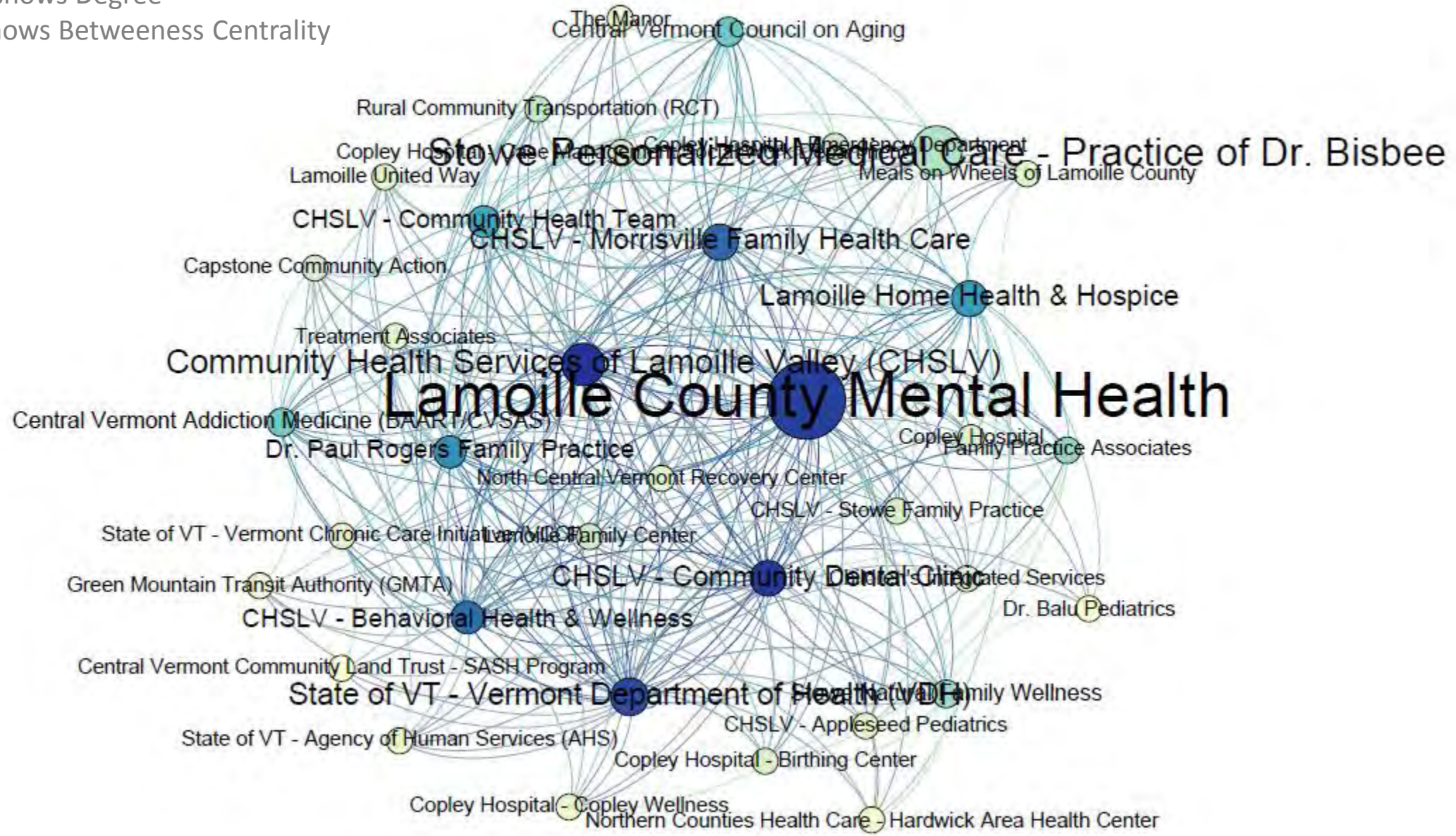


Morrisville Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

Node size shows Betweeness Centrality

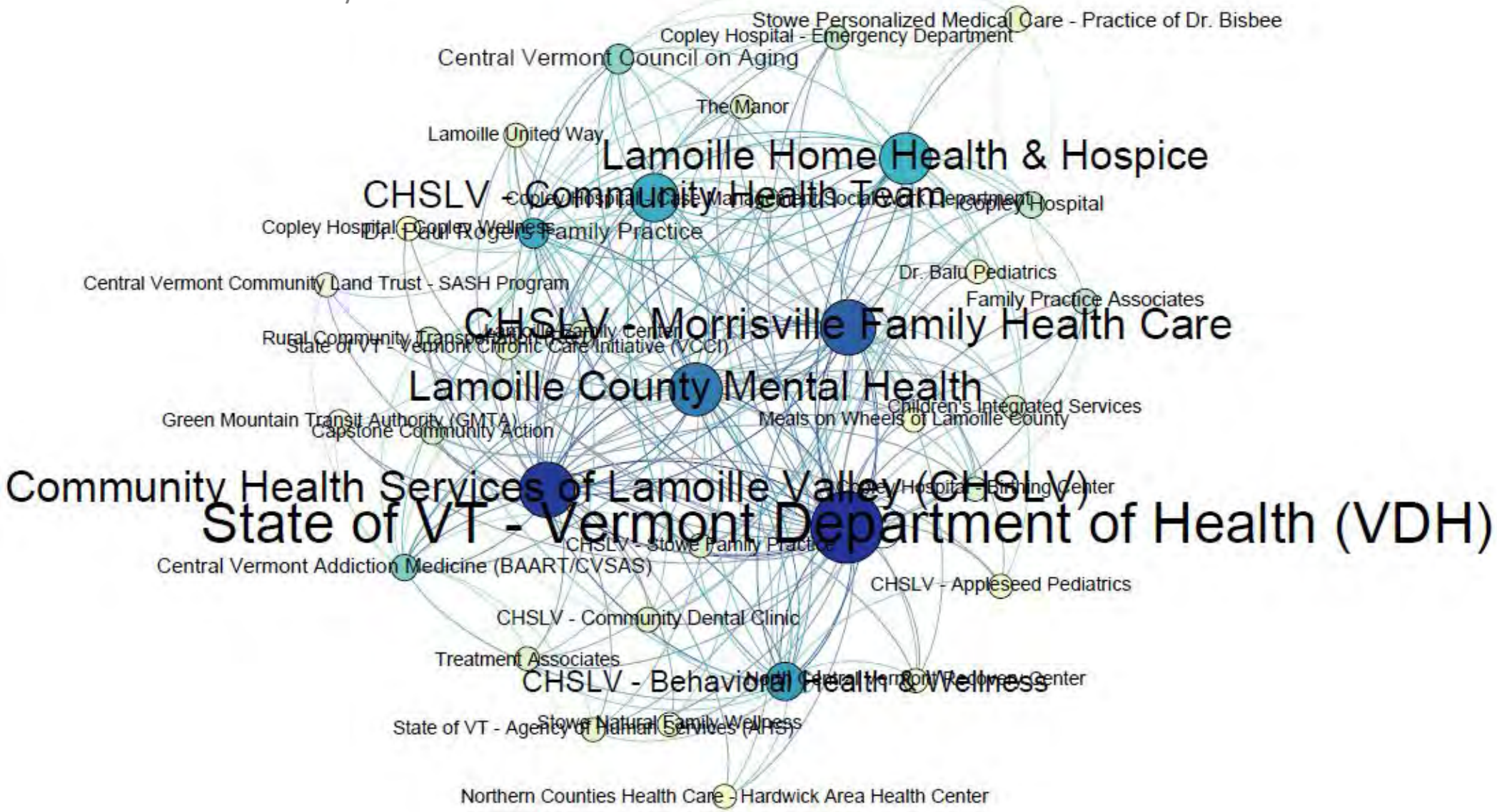


Morrisville Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

Node size shows Betweeness Centrality

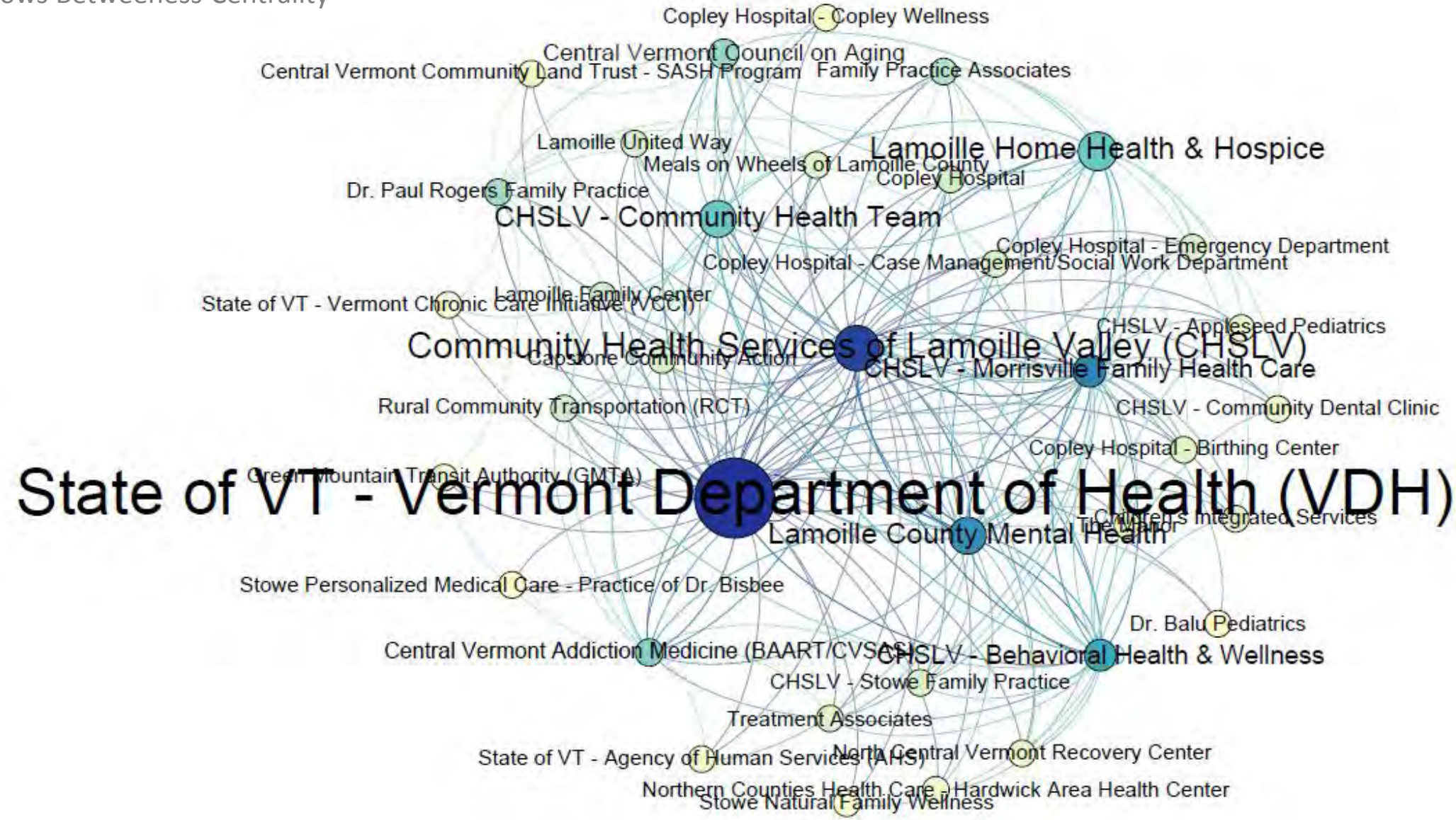


Morrisville Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

Node size shows Betweeness Centrality



Morrisville Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality

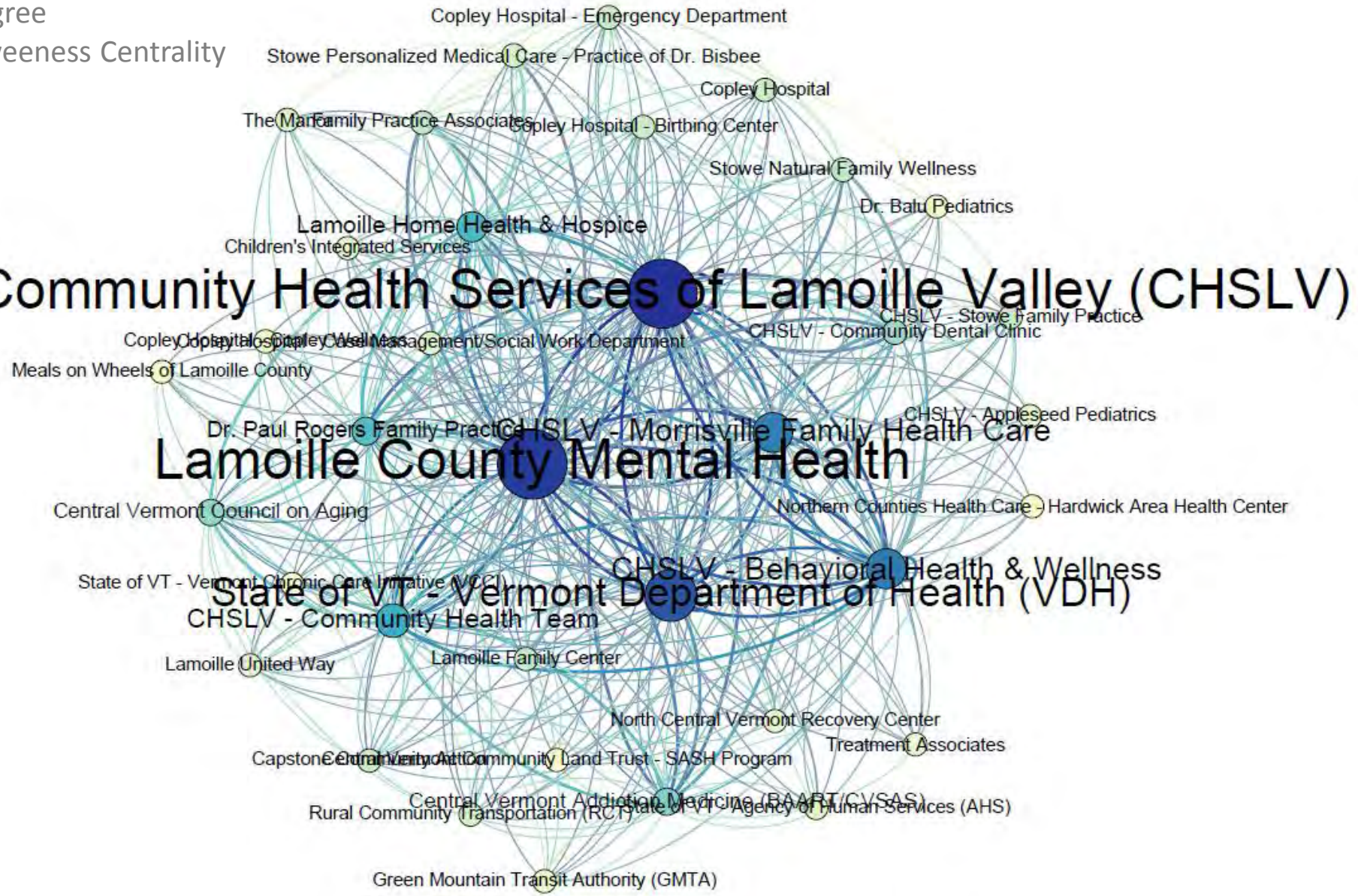
Morrisville Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

Node color shows Degree

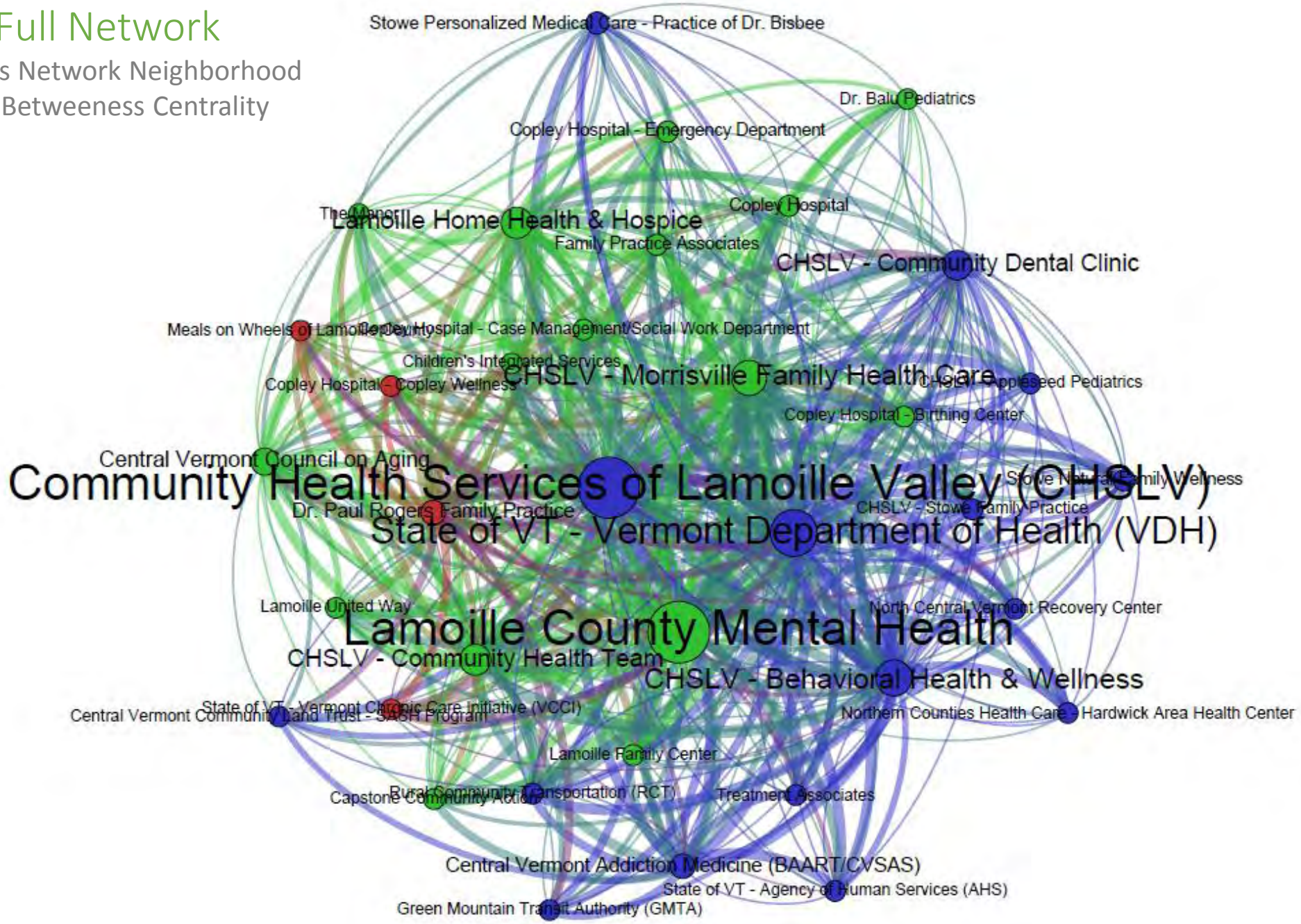
Node size shows Betweeness Centrality



Morrisville Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality

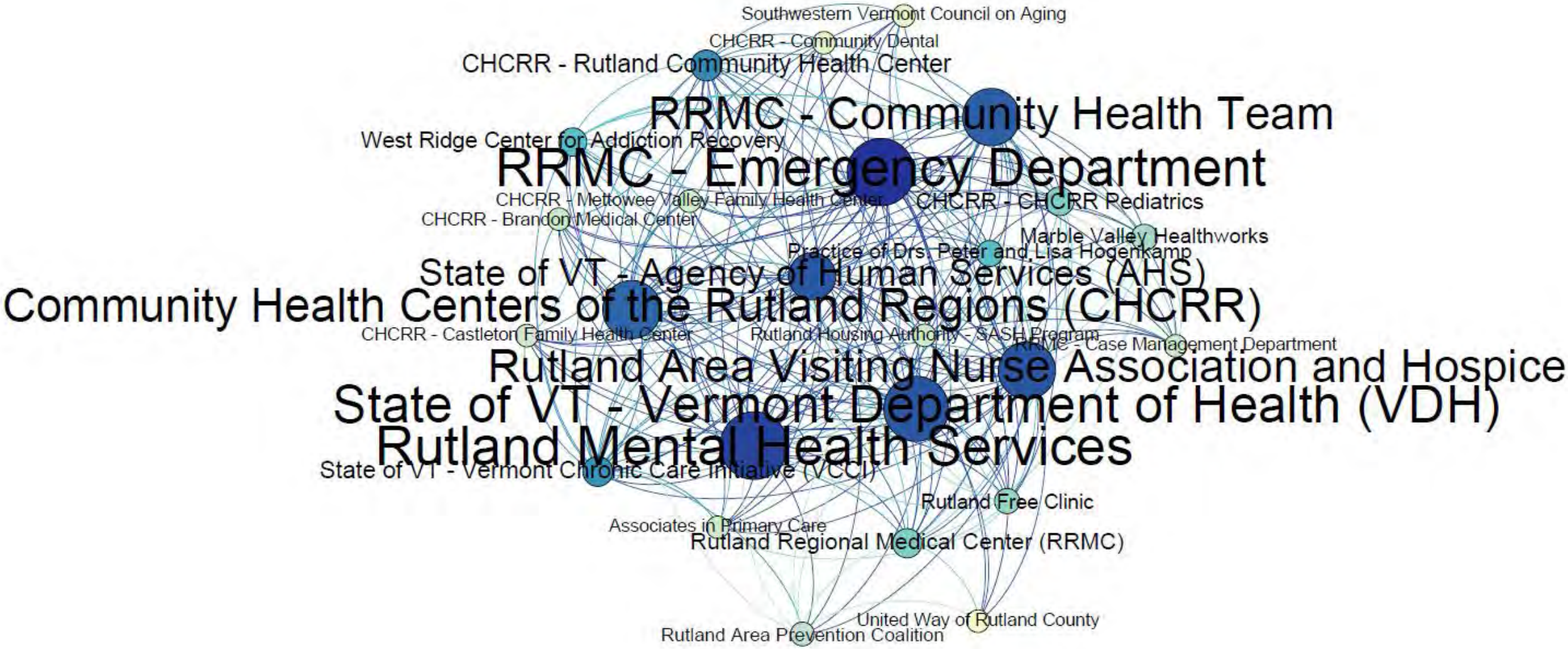


Rutland Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

Node size shows Betweeness Centrality



Rutland Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

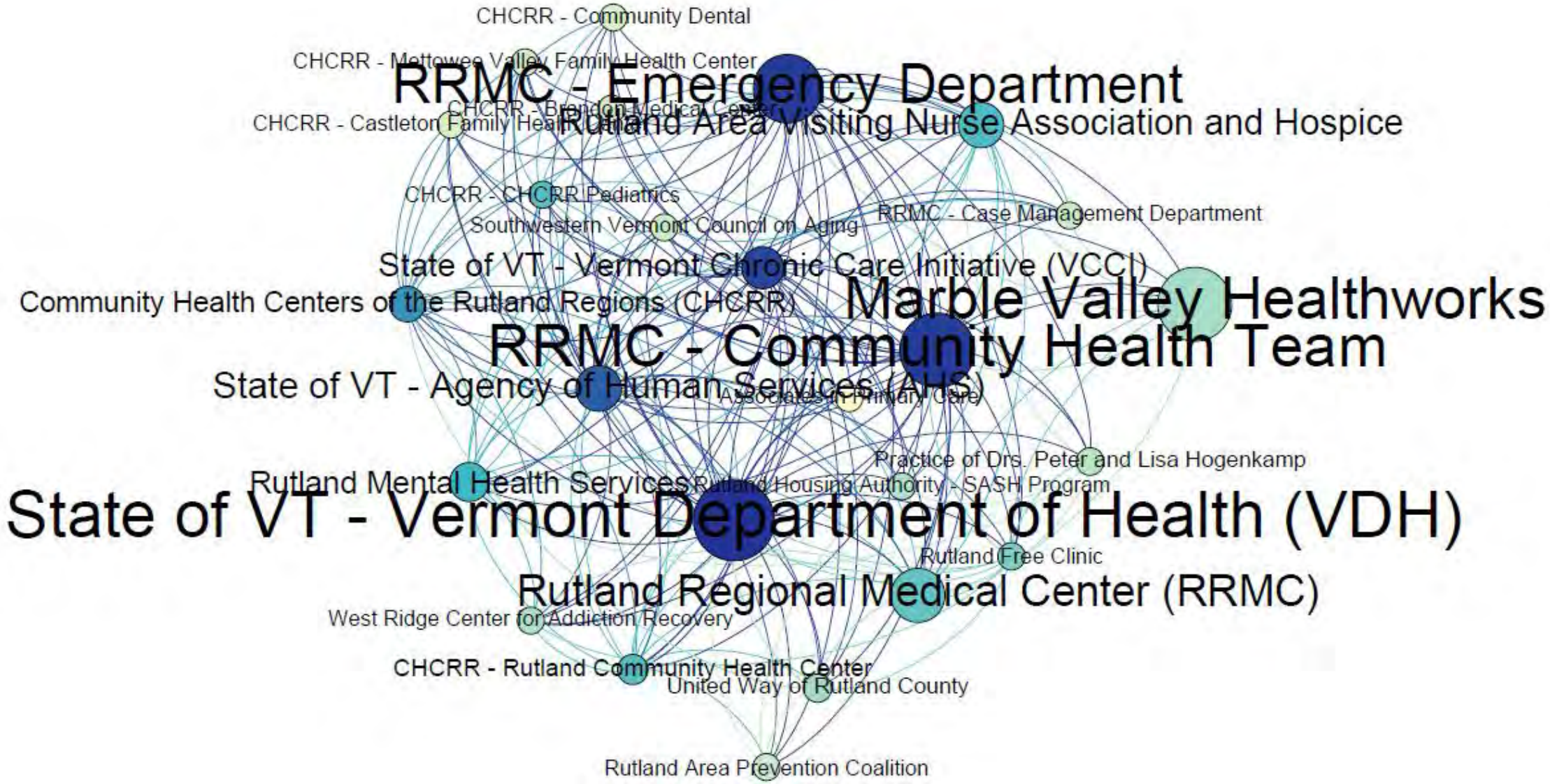
Node size shows Betweeness Centrality

Rutland Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

Node size shows Betweeness Centrality

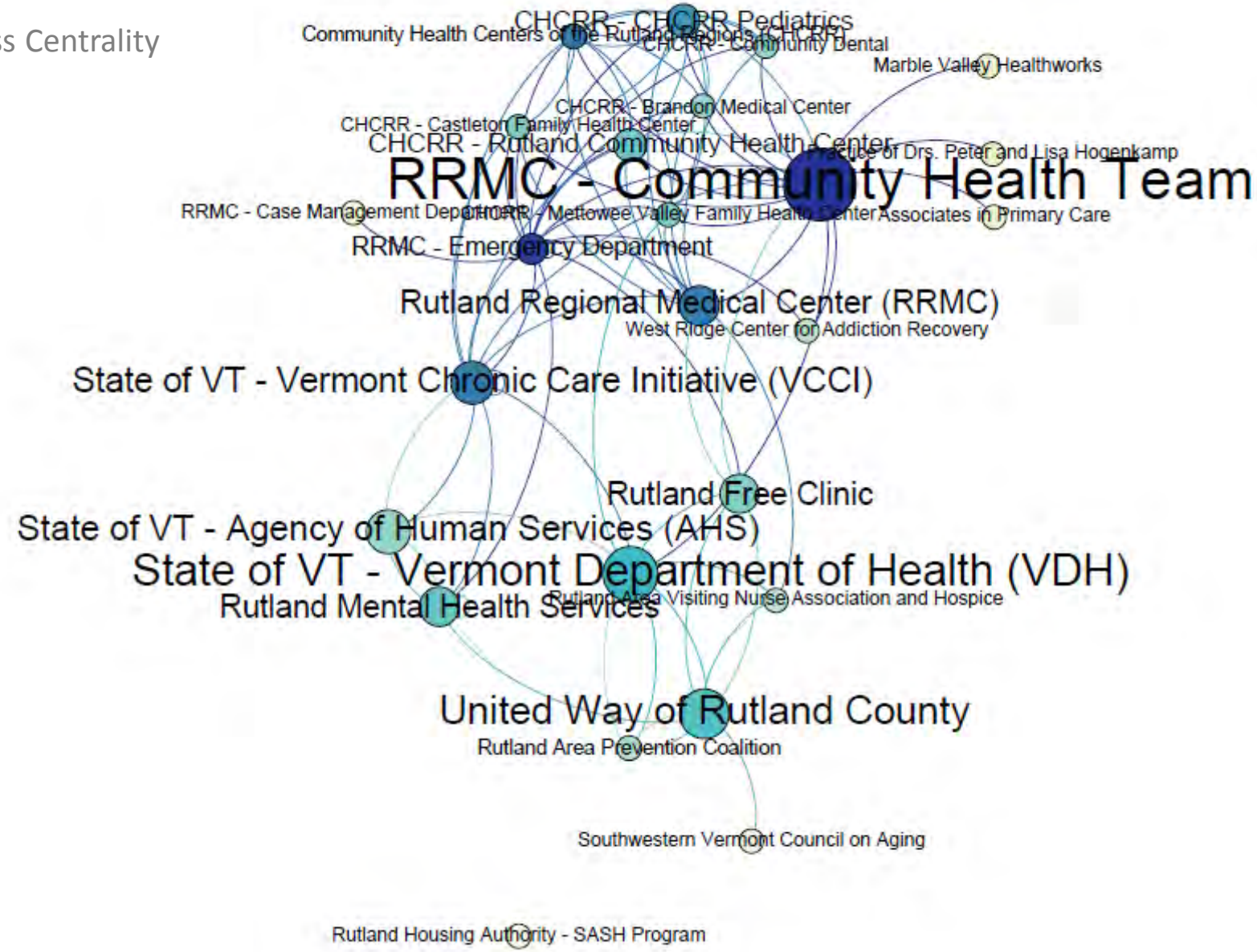


Rutland Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality



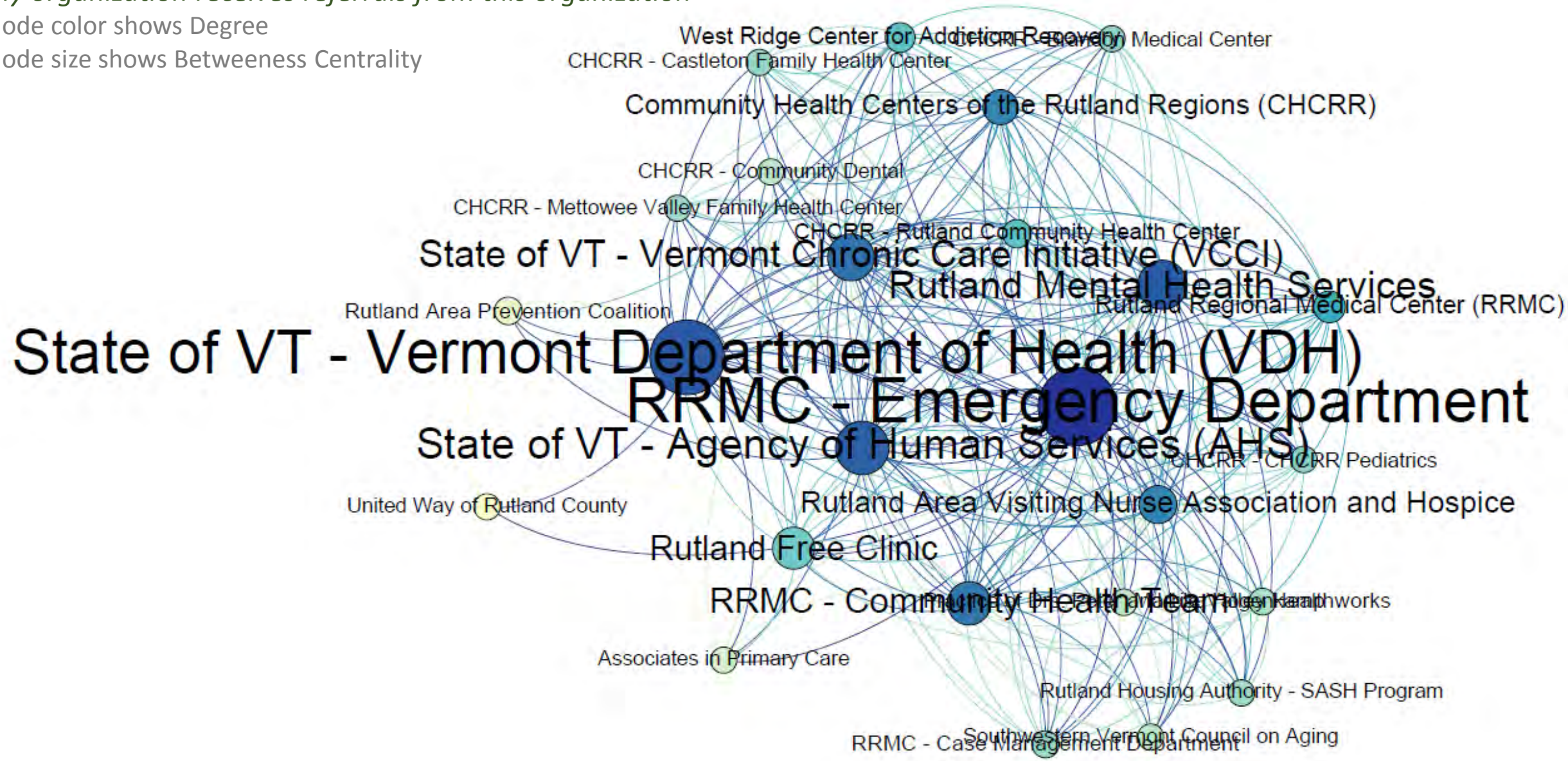
Rutland Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

Node color shows Degree

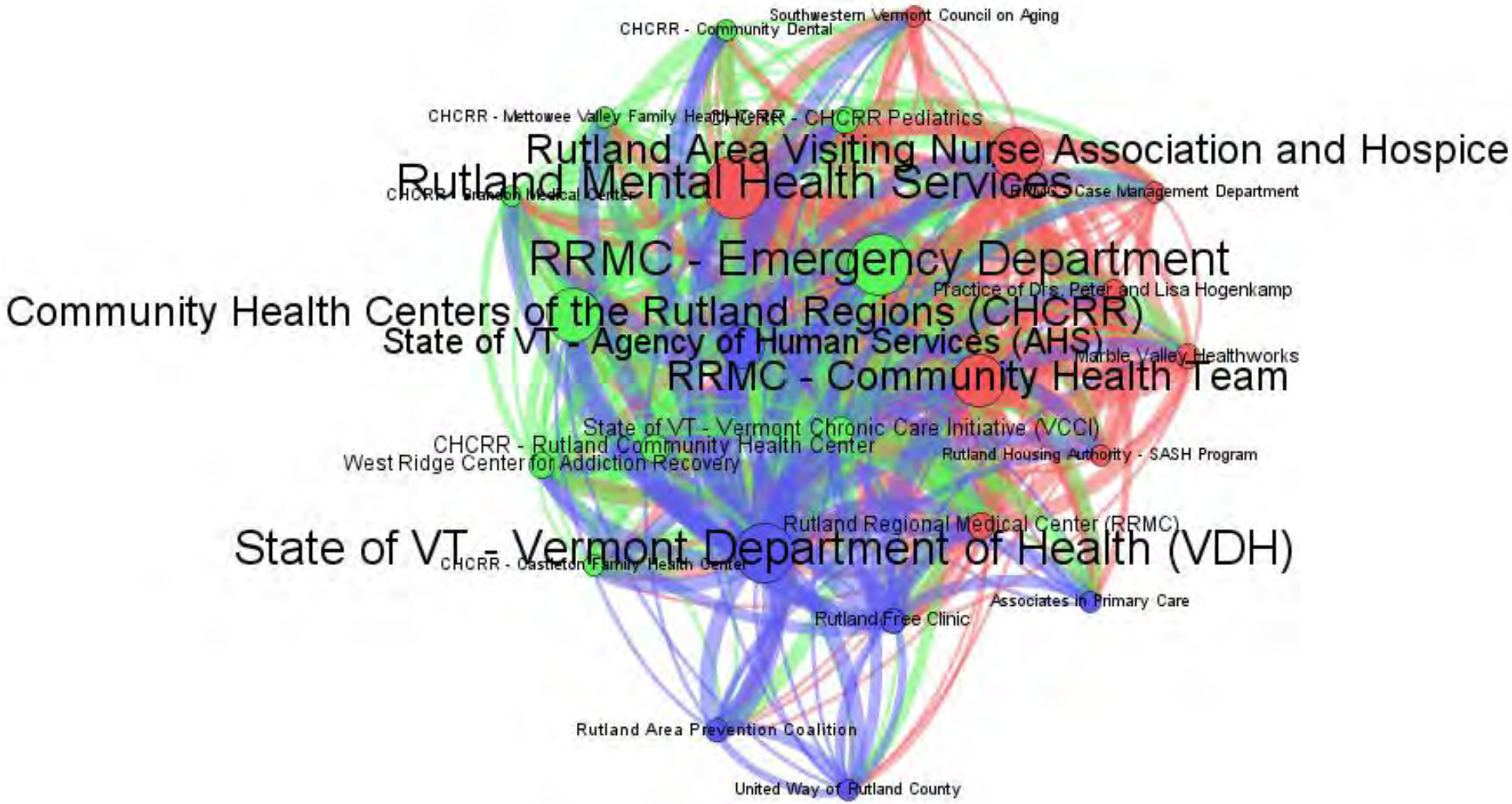
Node size shows Betweeness Centrality



Rutland Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality

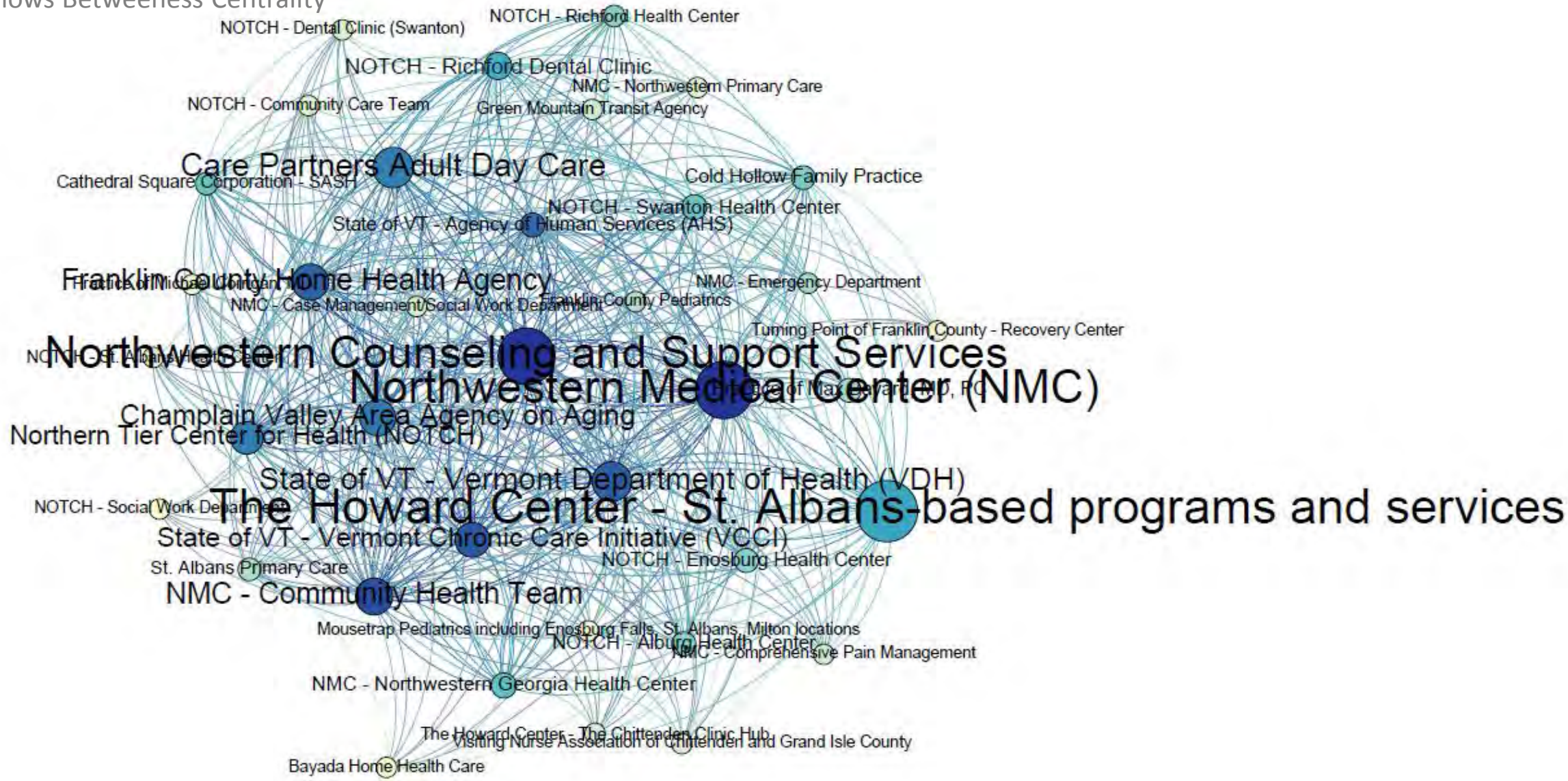


St. Albans Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

Node size shows Betweeness Centrality

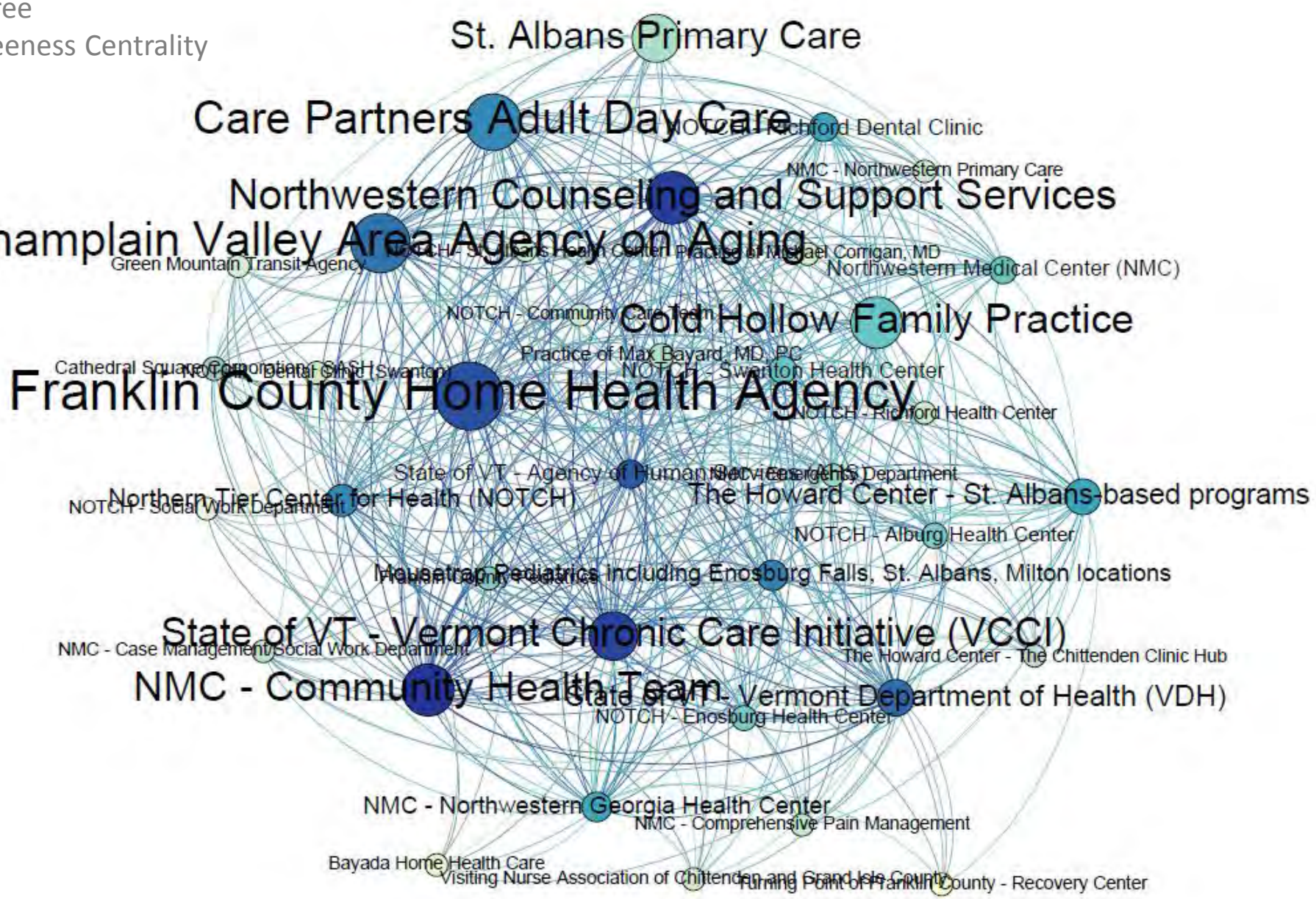


St. Albans Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

Node size shows Betweeness Centrality

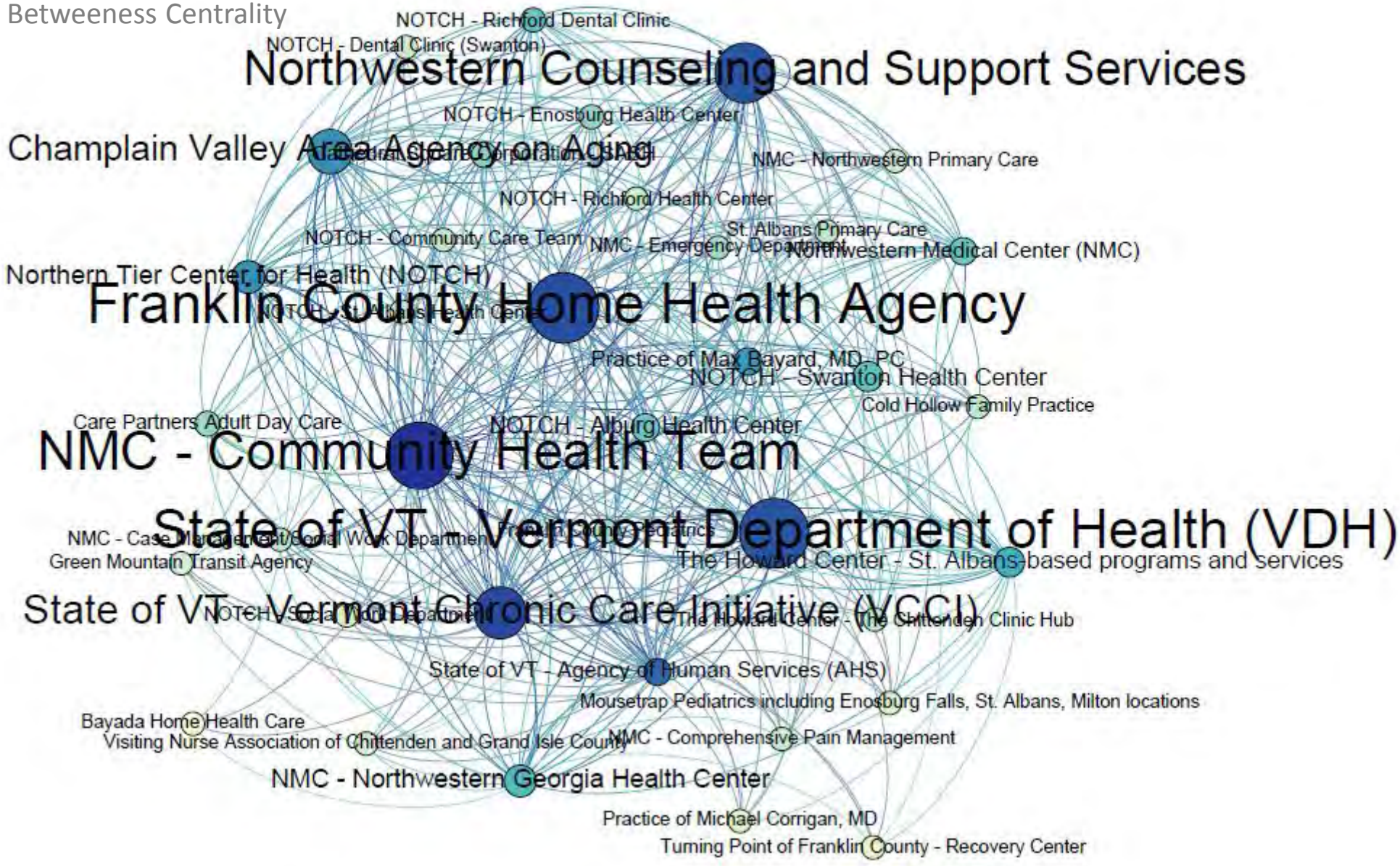


St. Albans Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

Node size shows Betweeness Centrality

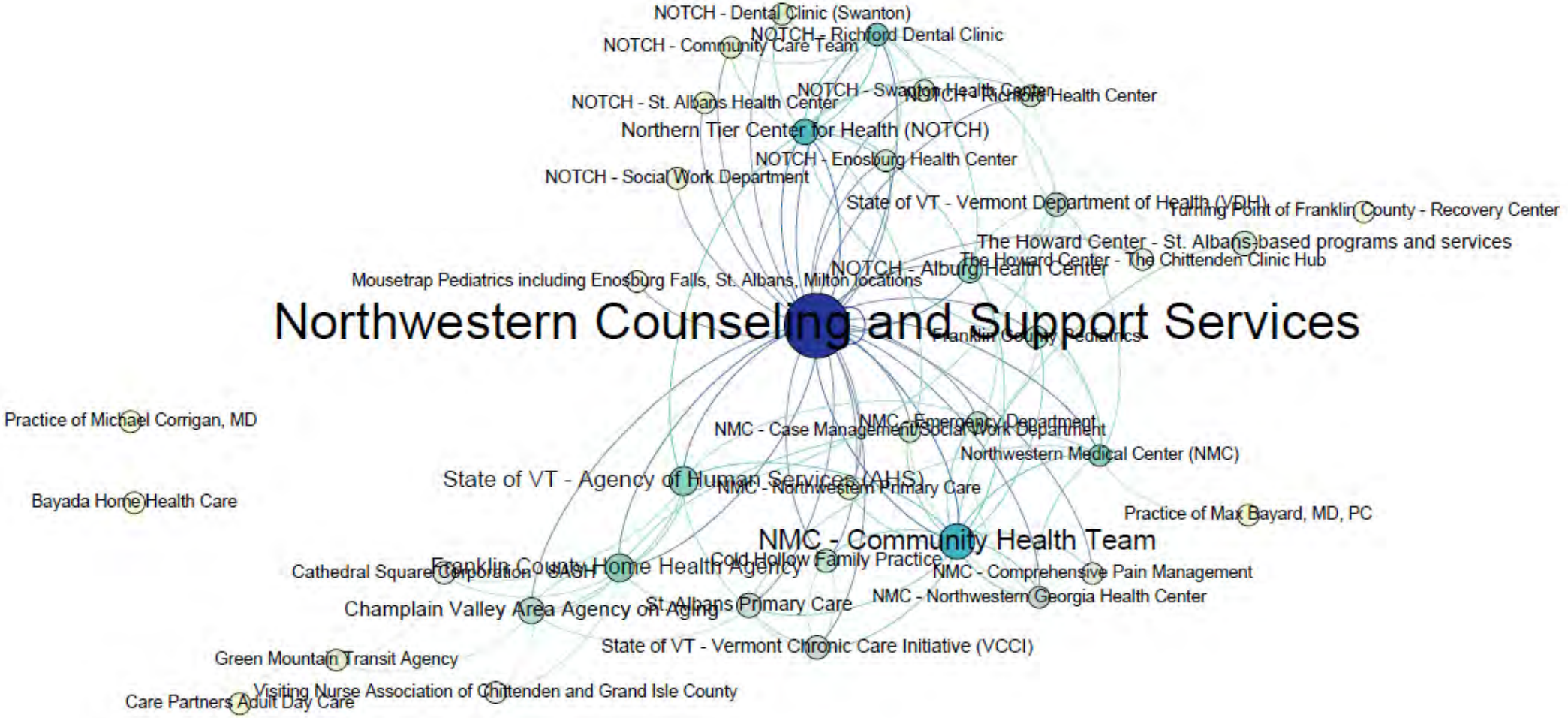


St. Albans Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality



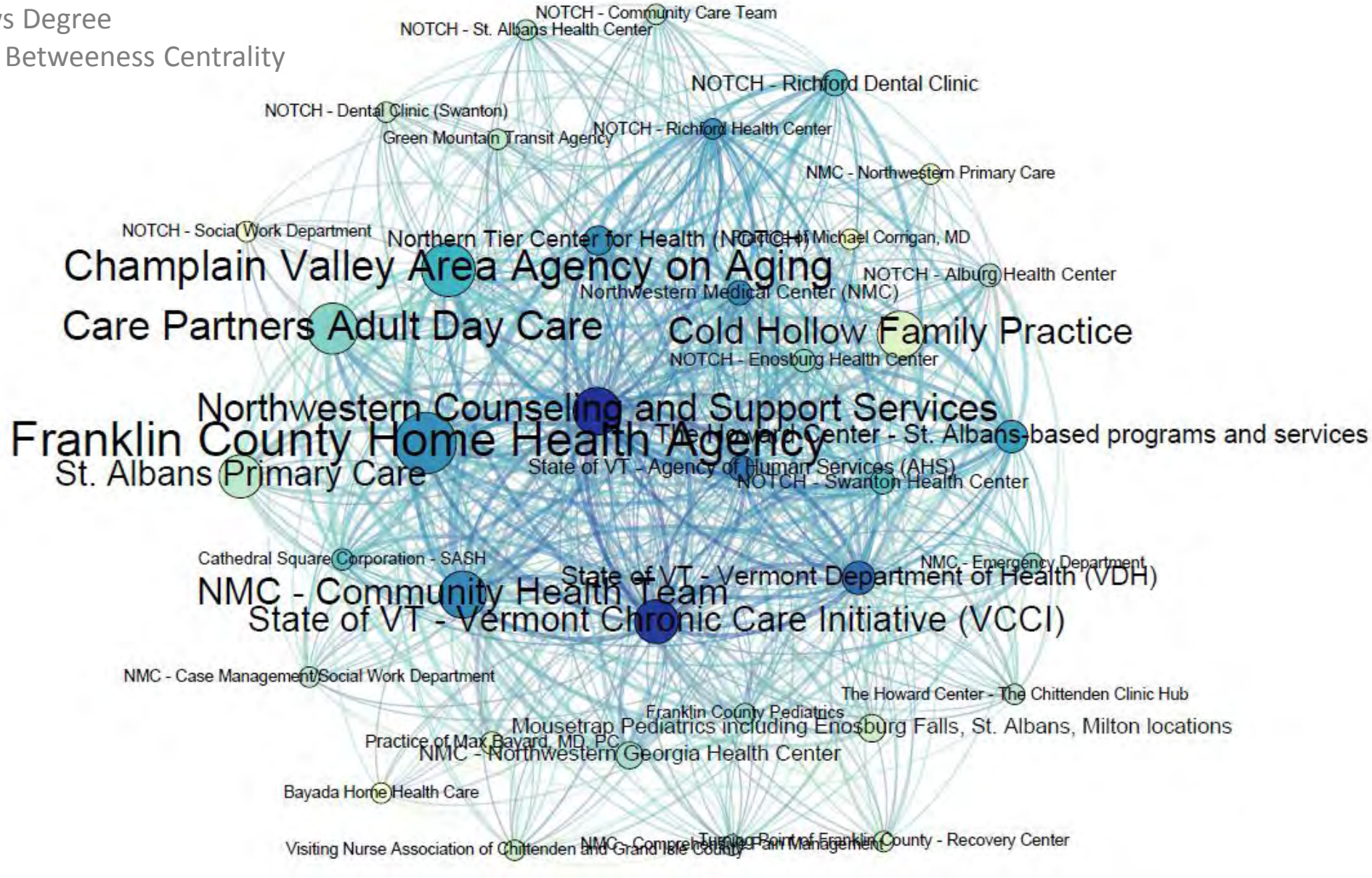
St. Albans Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

Node color shows Degree

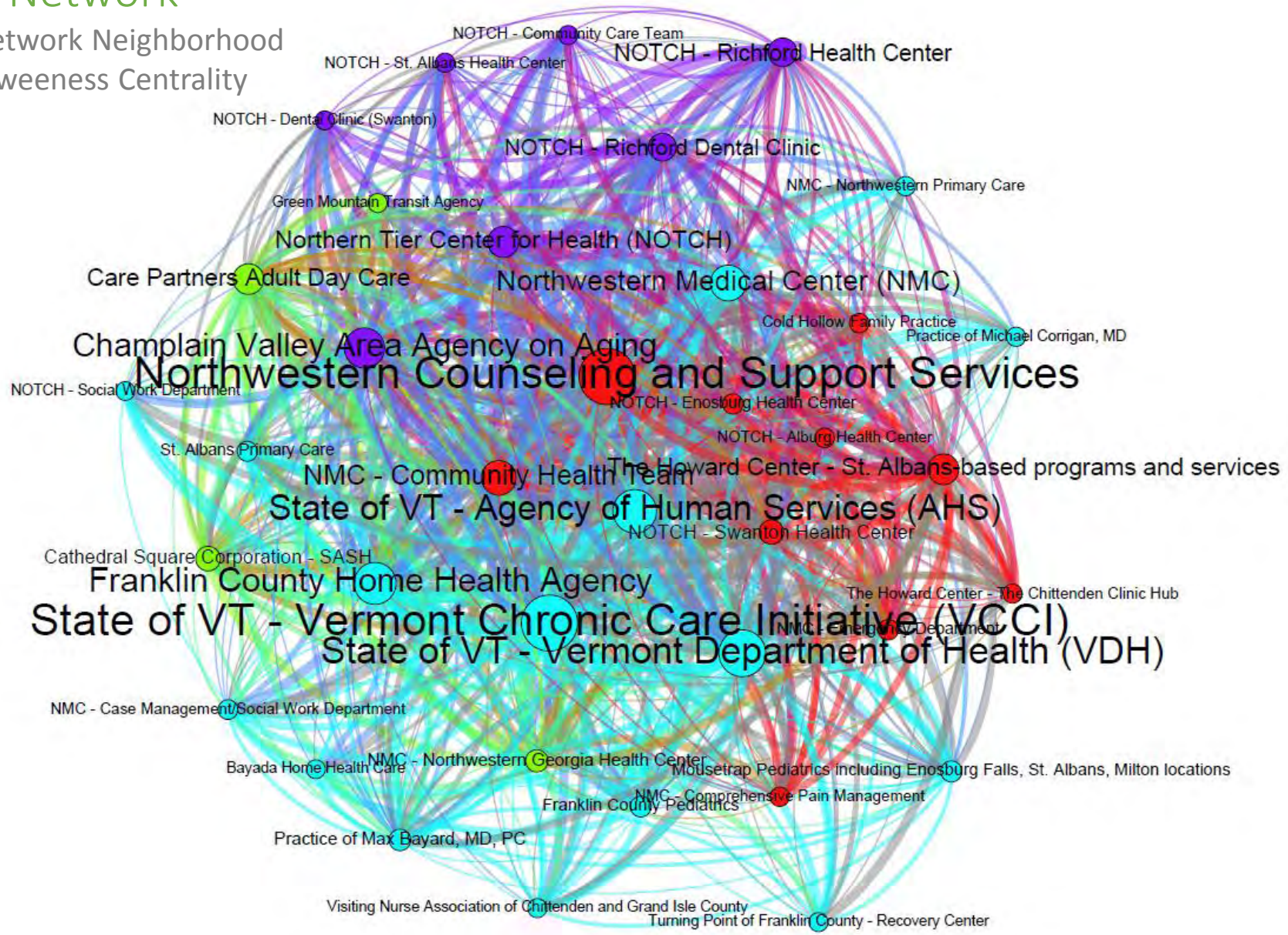
Node size shows Betweeness Centrality



St. Albans Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality



Wave 3 HSAs

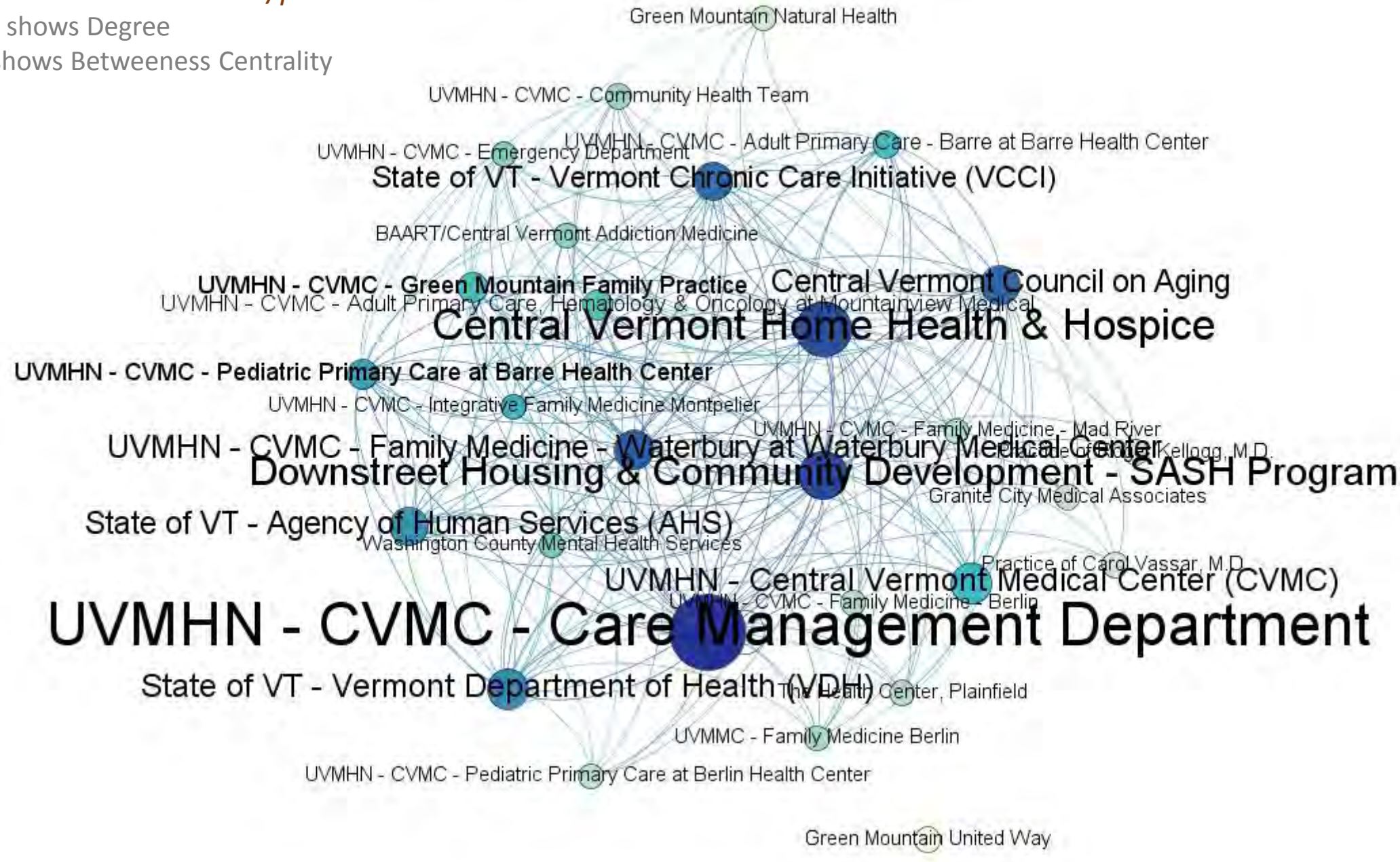
Core Network List Development

Barre Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

Node size shows Betweeness Centrality



Barre Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

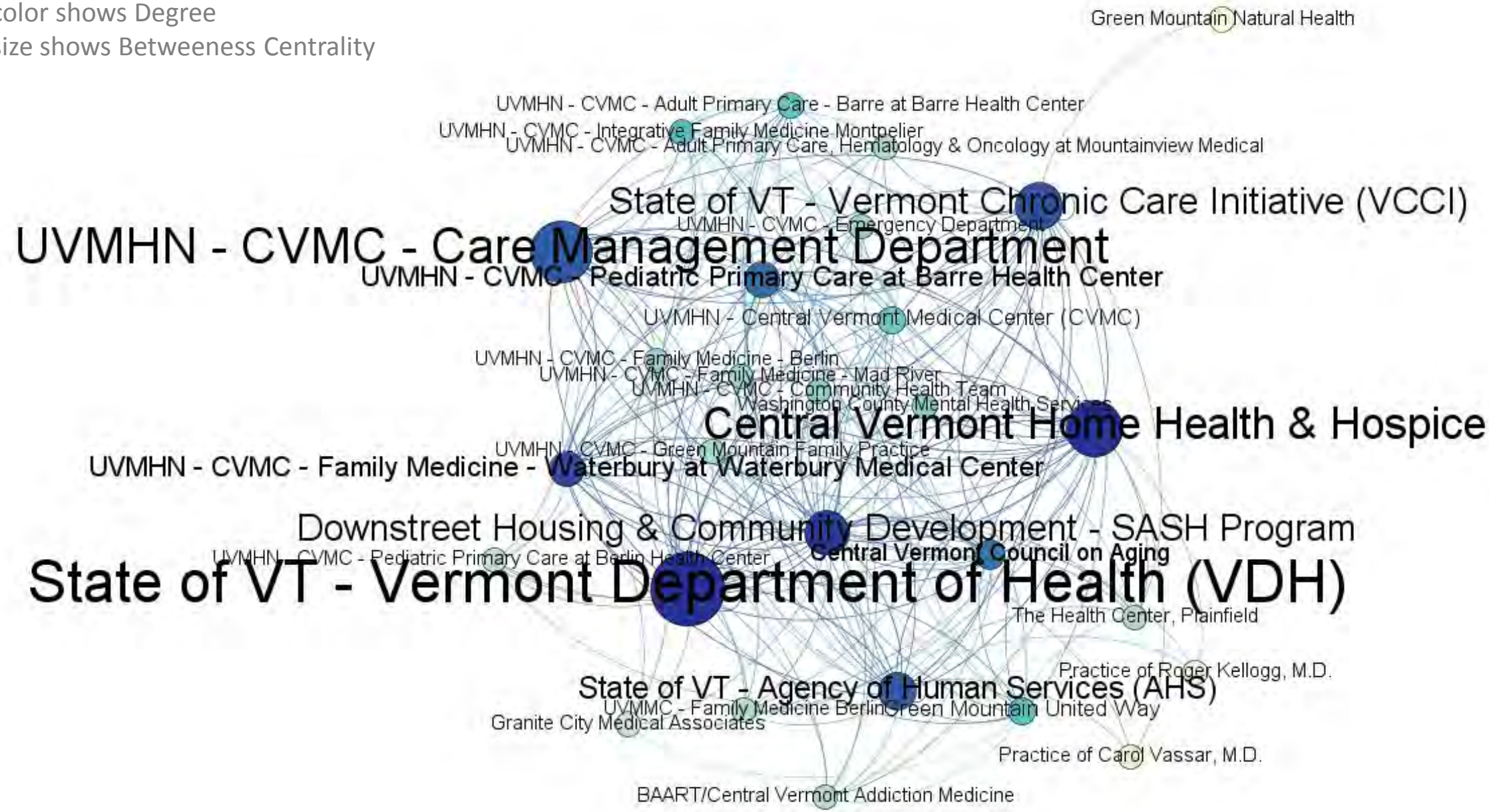
Node size shows Betweeness Centrality

Barre Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

Node size shows Betweeness Centrality



Barre Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality

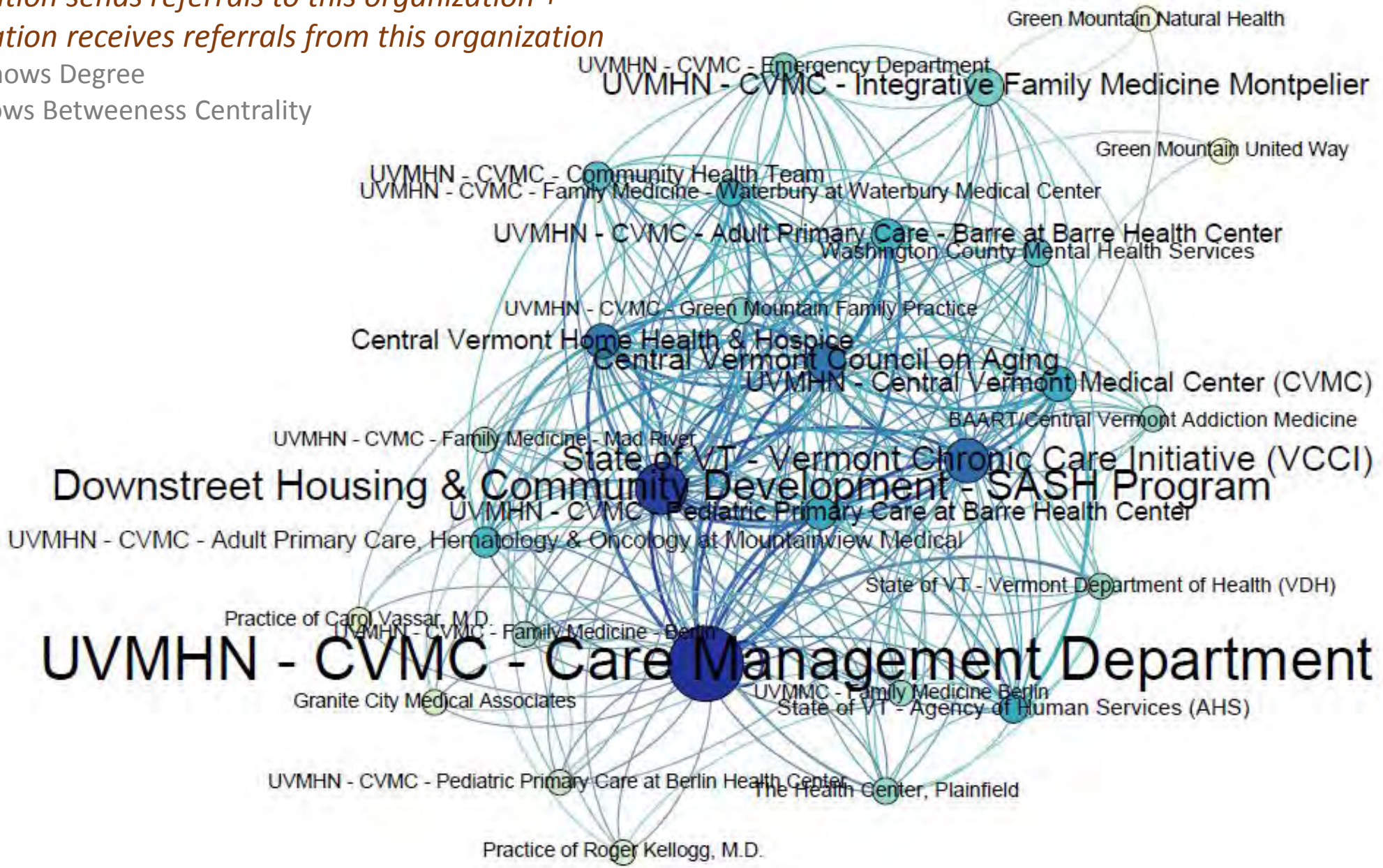
Barre Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

Node color shows Degree

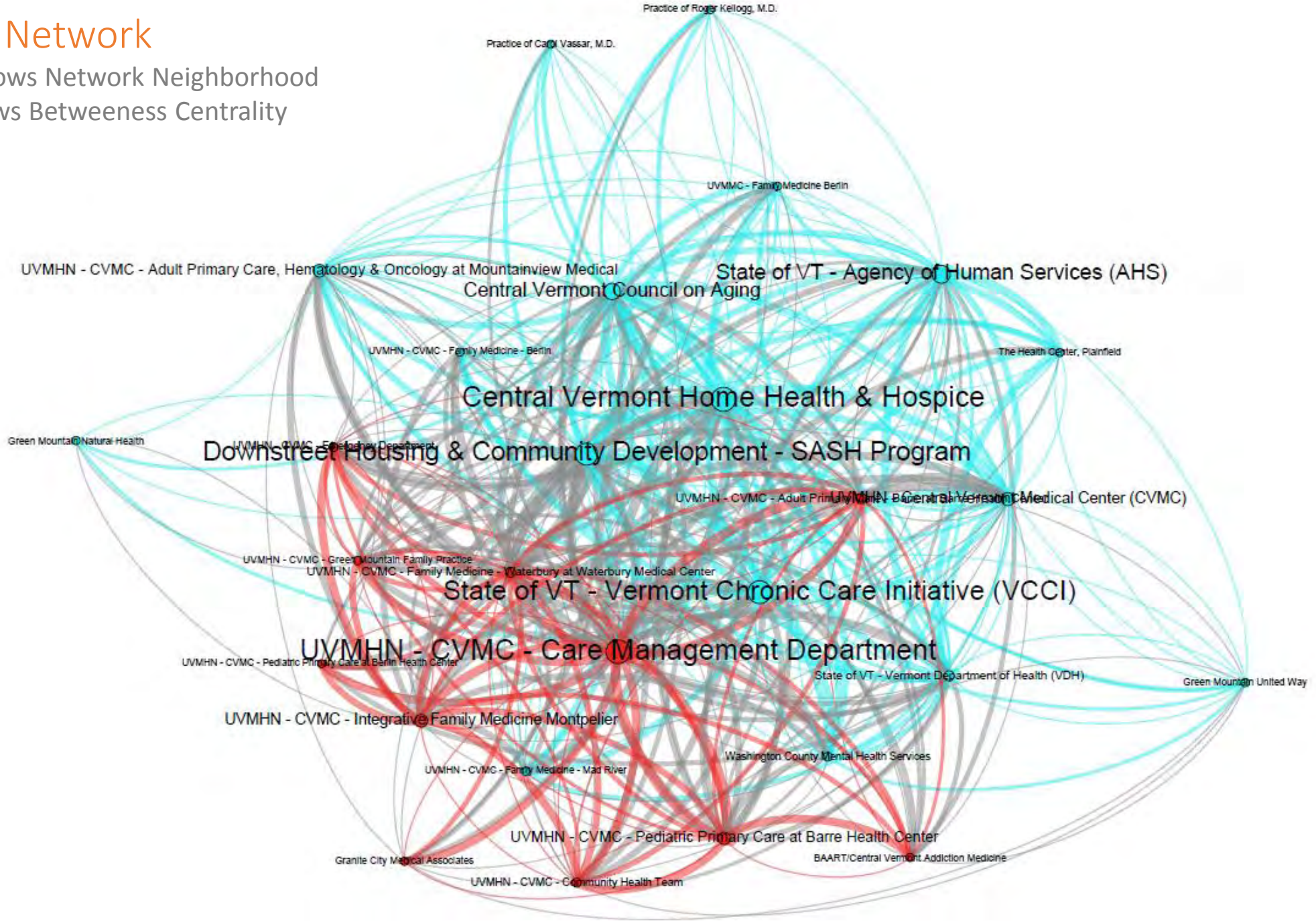
Node size shows Betweeness Centrality



Barre Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality

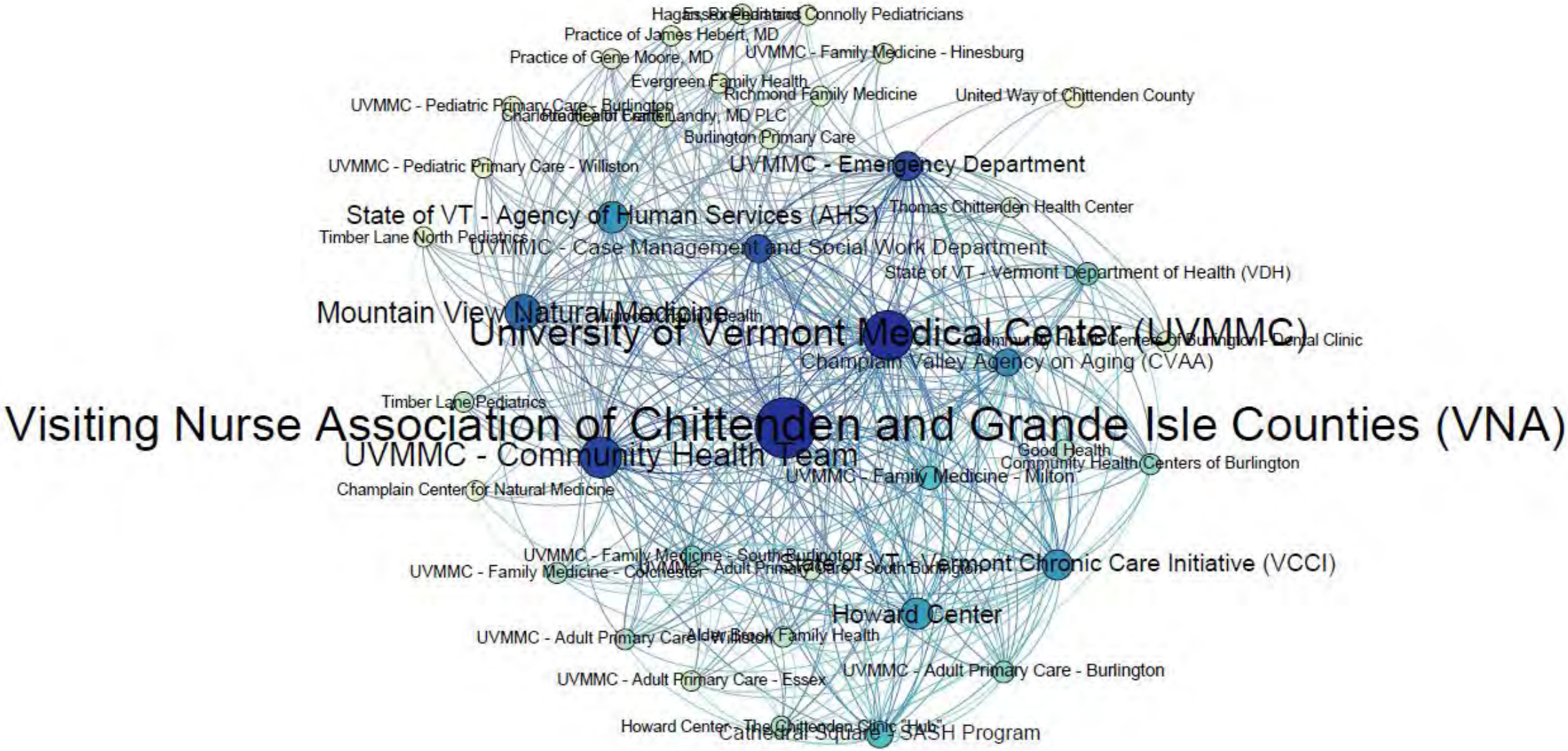


Burlington Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

Node size shows Betweeness Centrality



Burlington Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

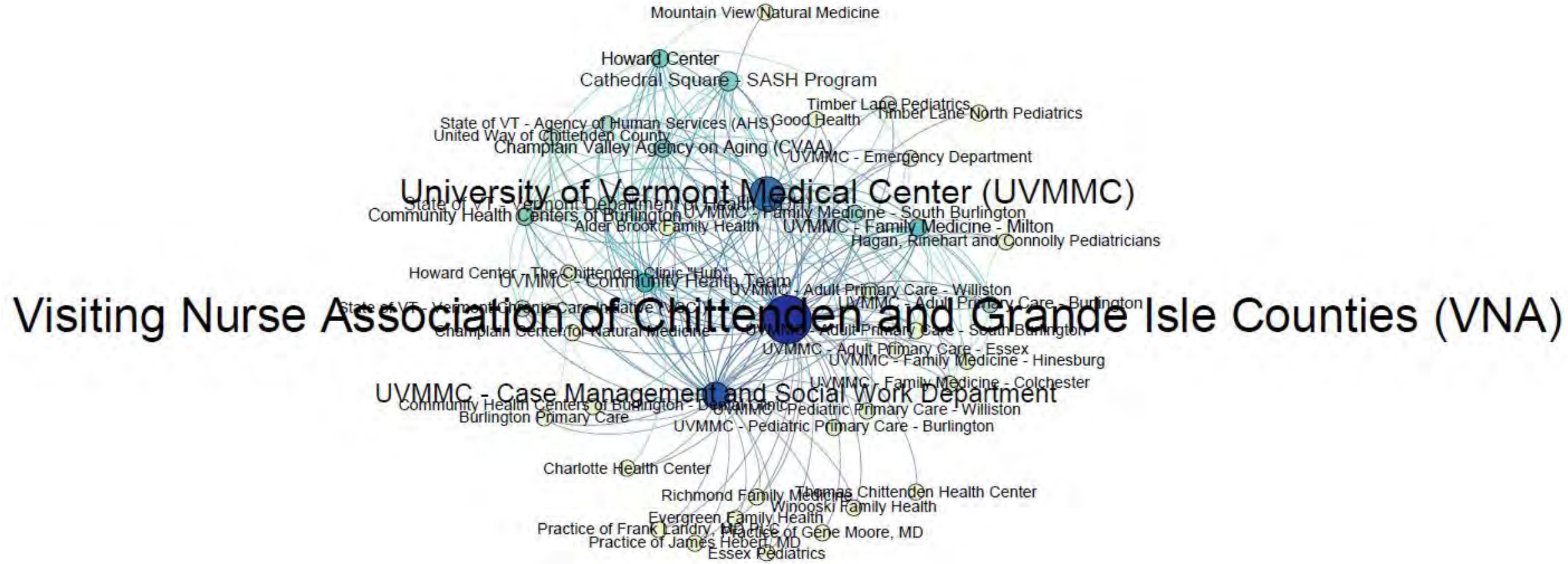
Node size shows Betweeness Centrality

Burlington Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

Node size shows Betweeness Centrality

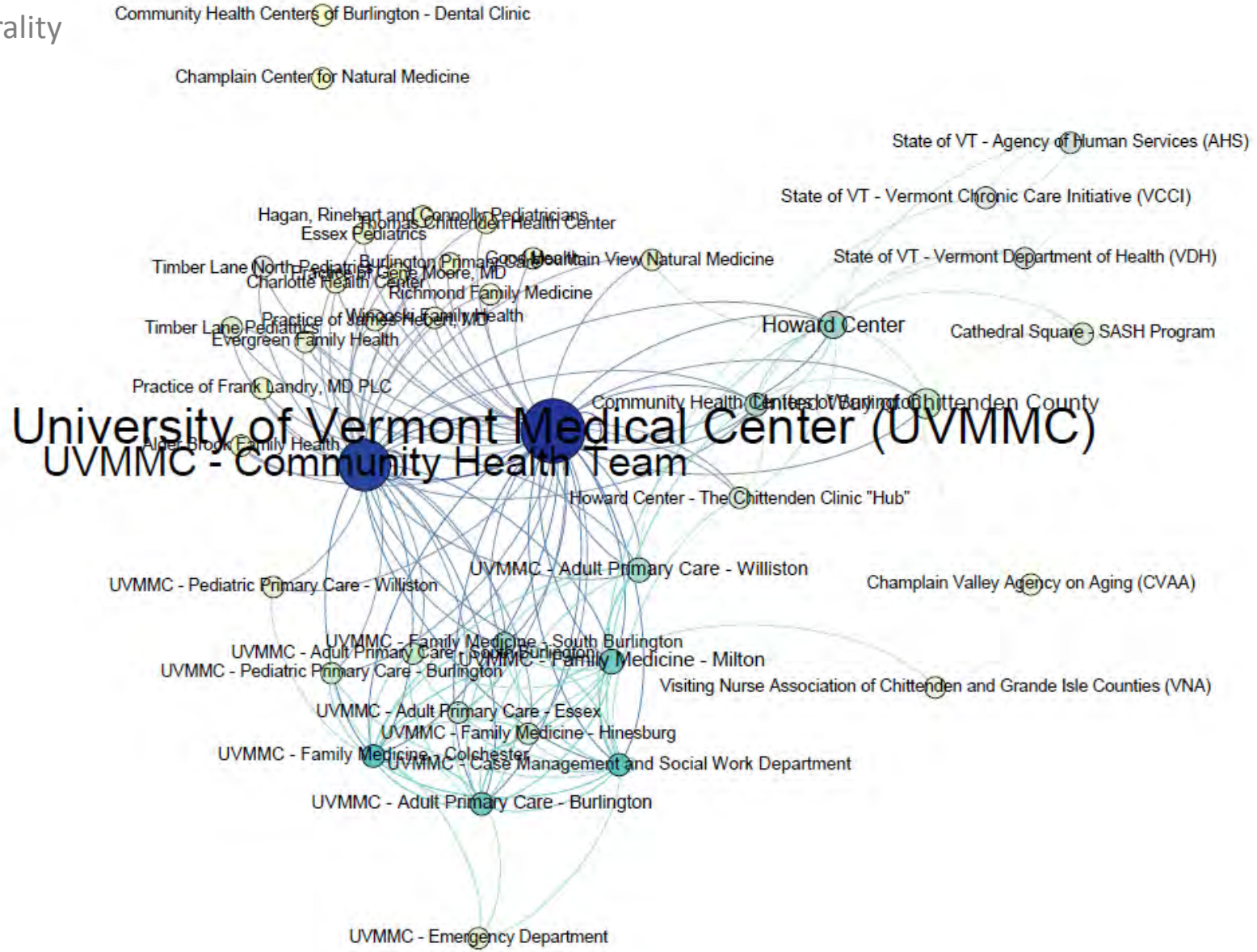


Burlington Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality



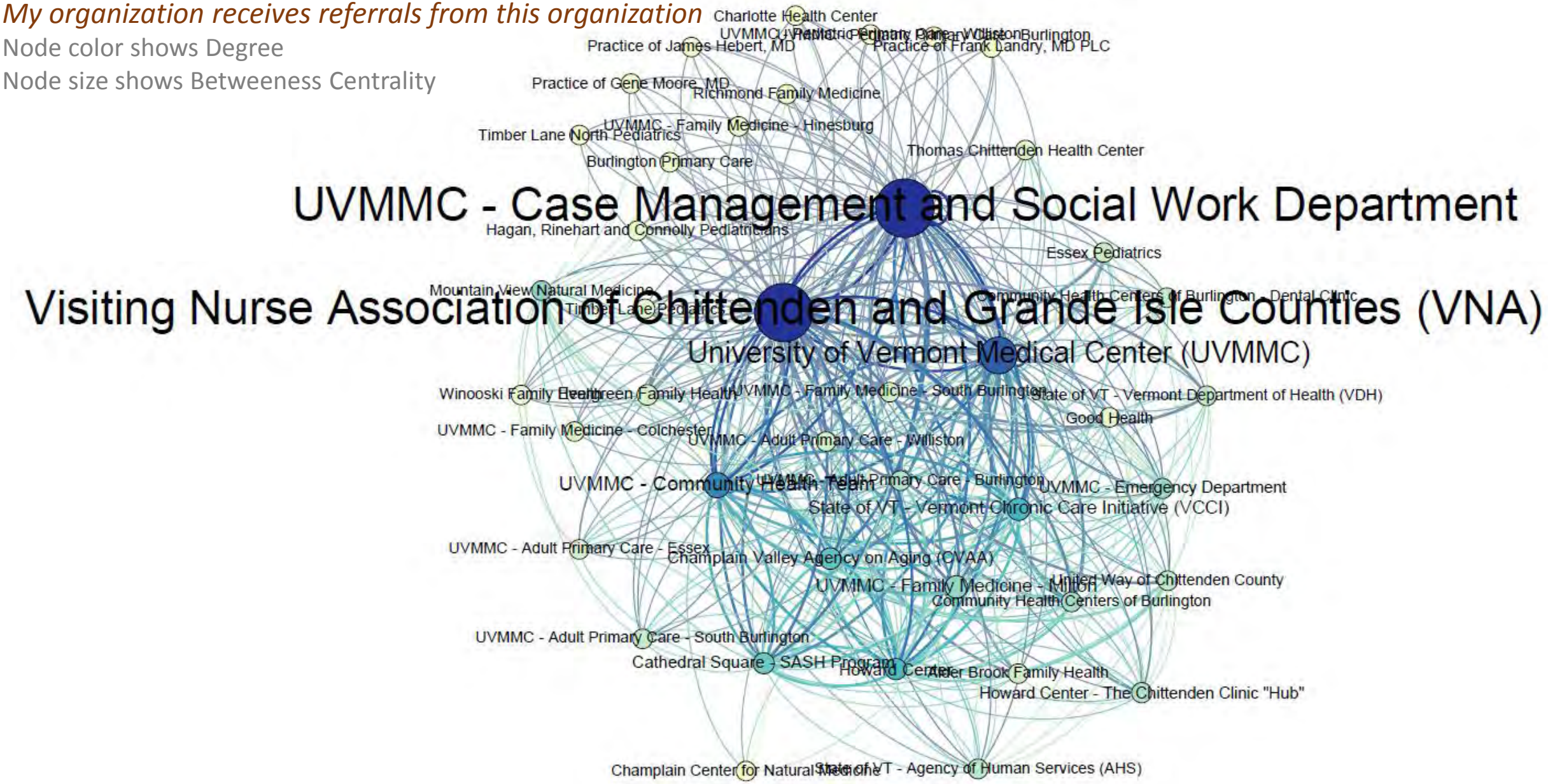
Burlington Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

Node color shows Degree

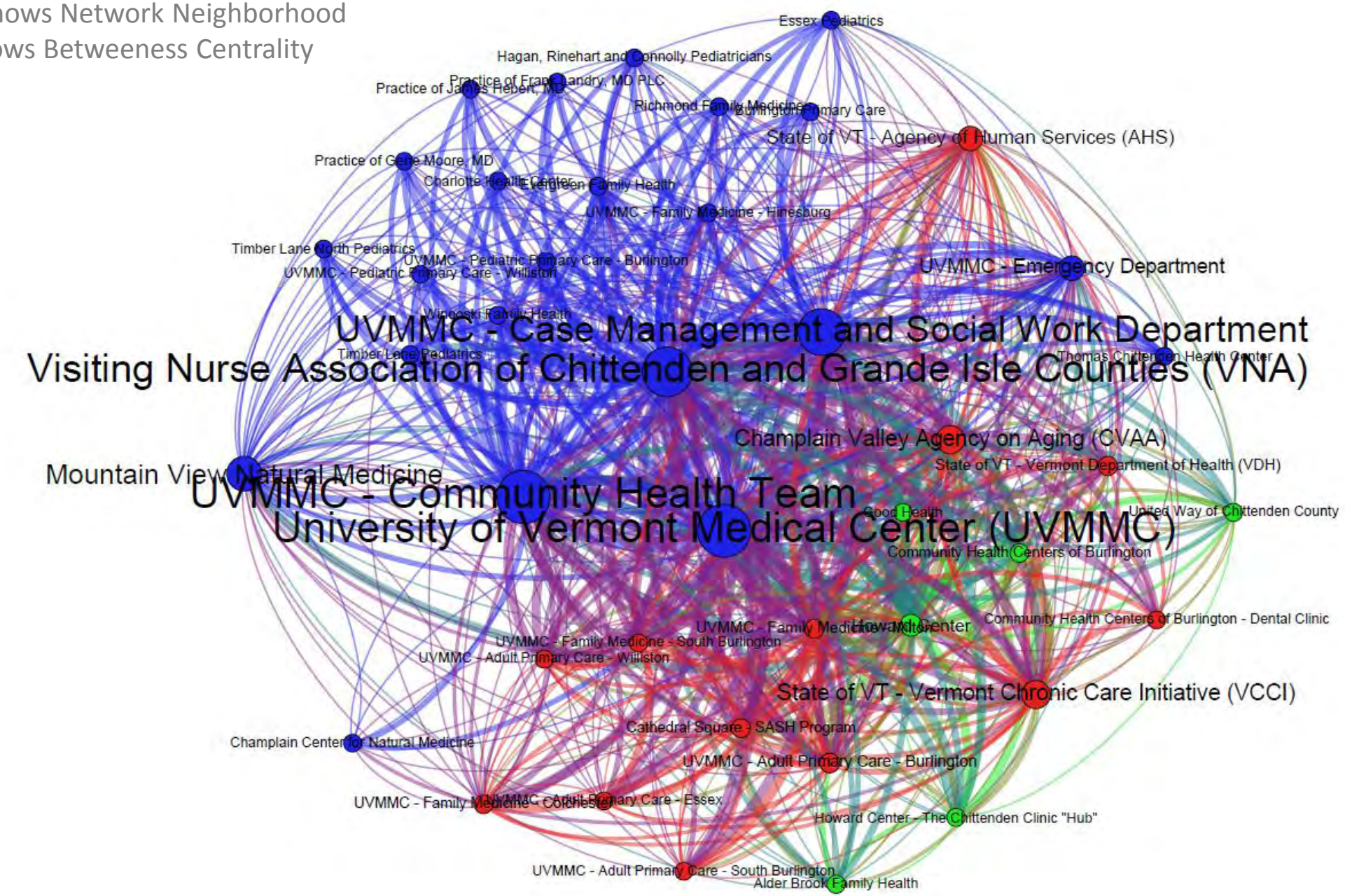
Node size shows Betweeness Centrality



Burlington Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality

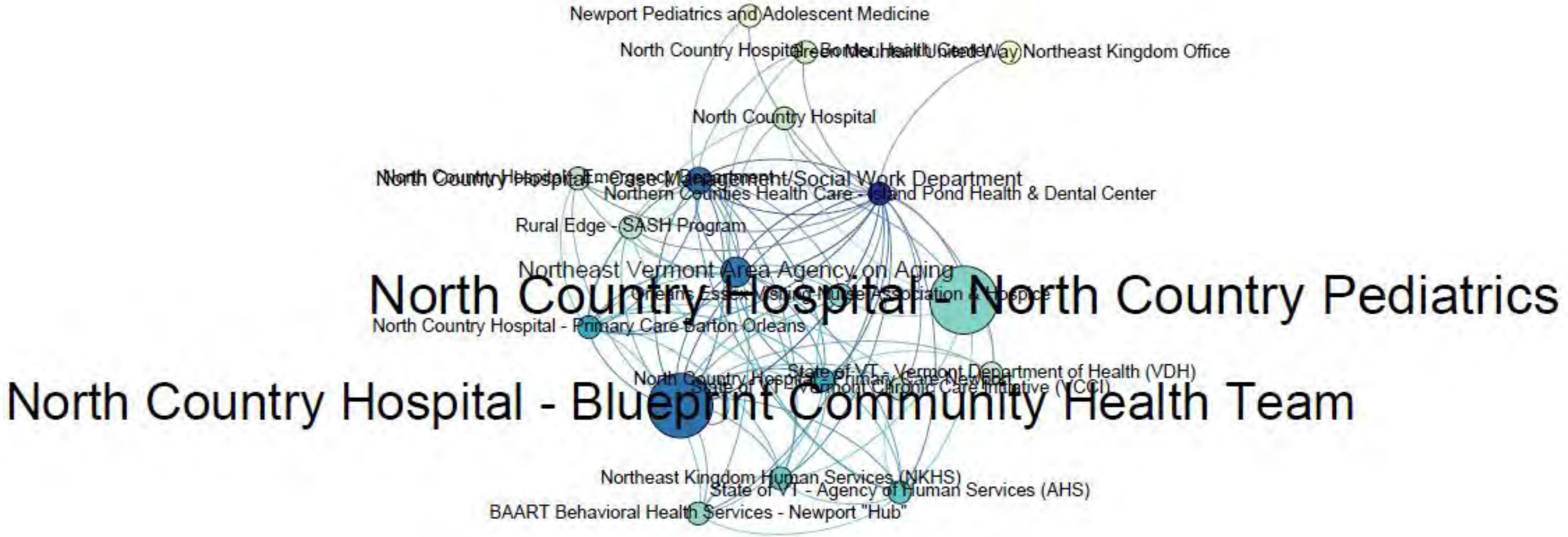


Newport Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

Node size shows Betweeness Centrality

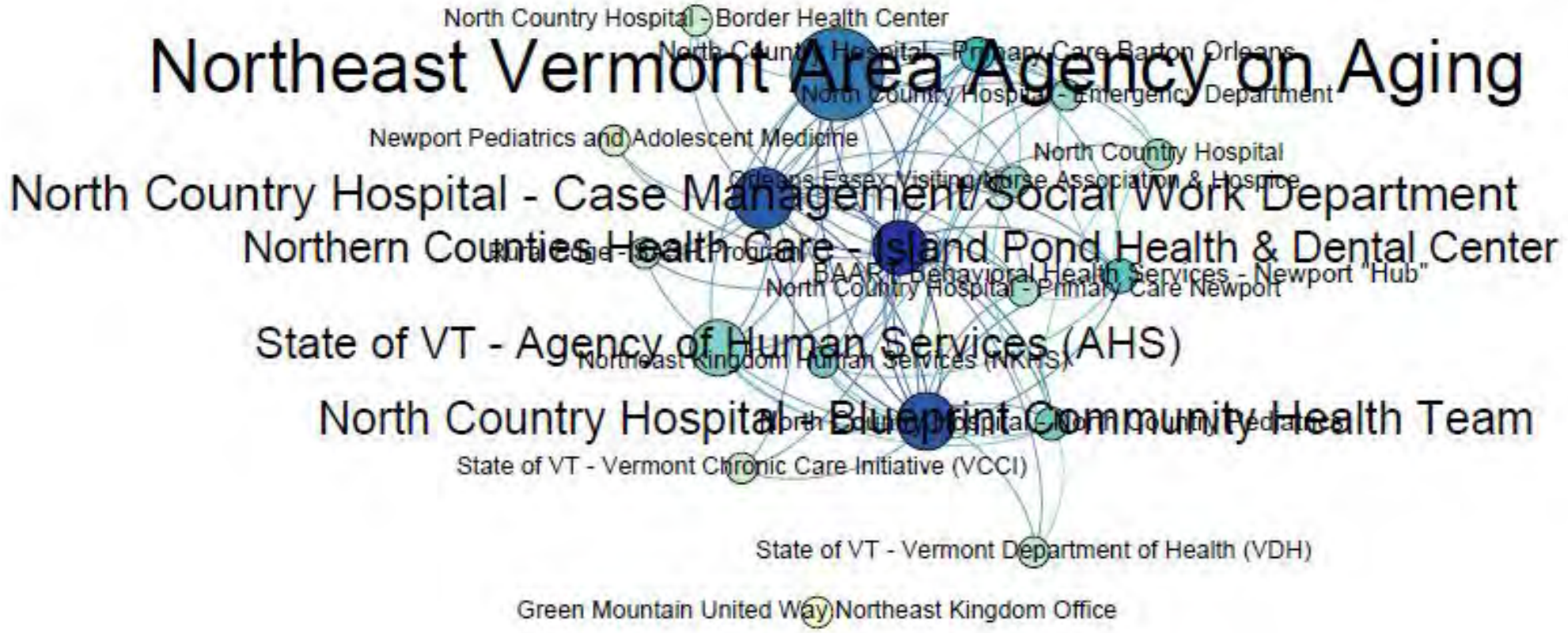


Newport Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

Node size shows Betweeness Centrality



Newport Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

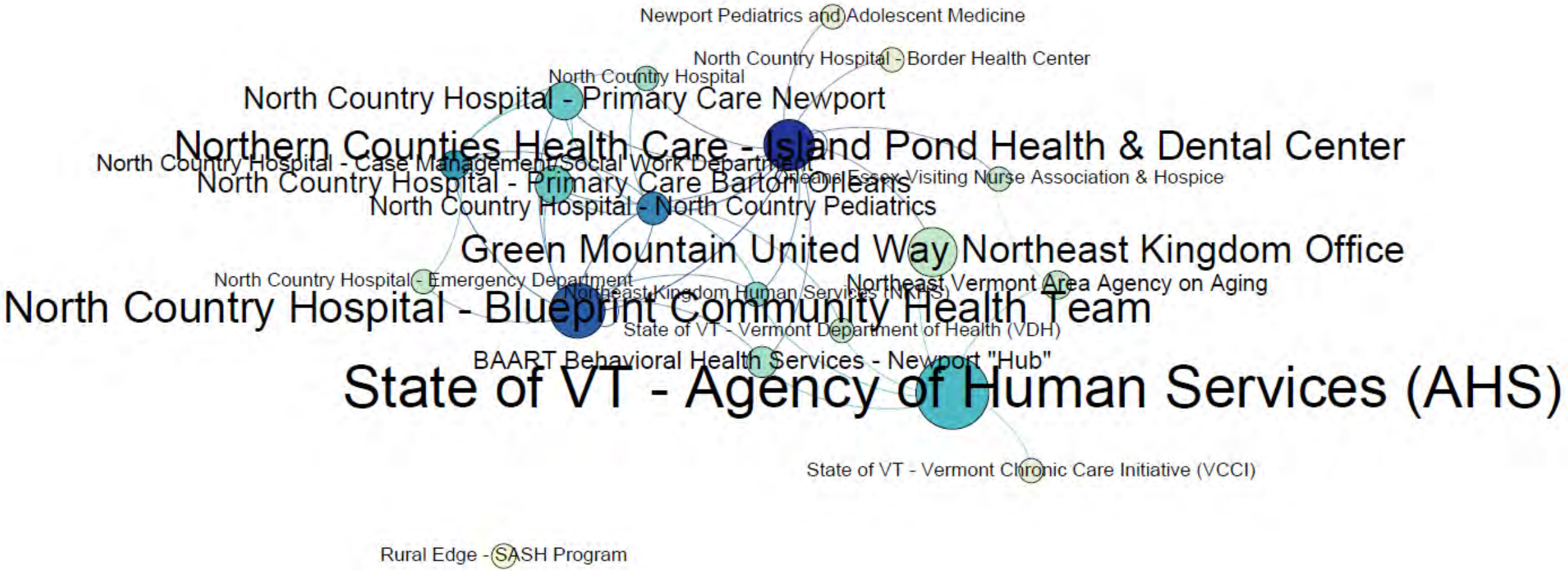
Node size shows Betweeness Centrality

Newport Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality



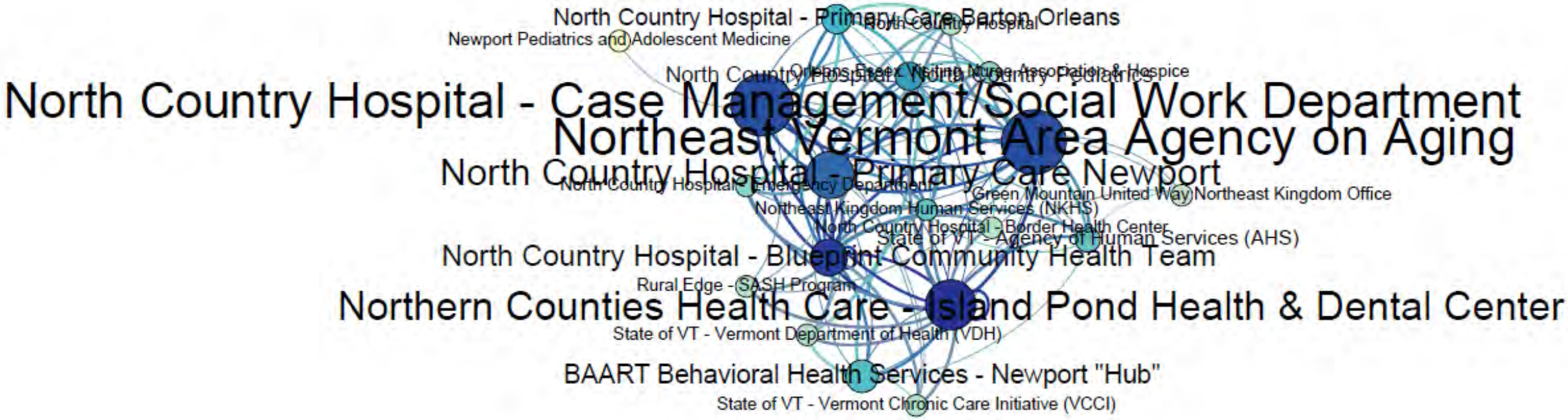
Newport Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

Node color shows Degree

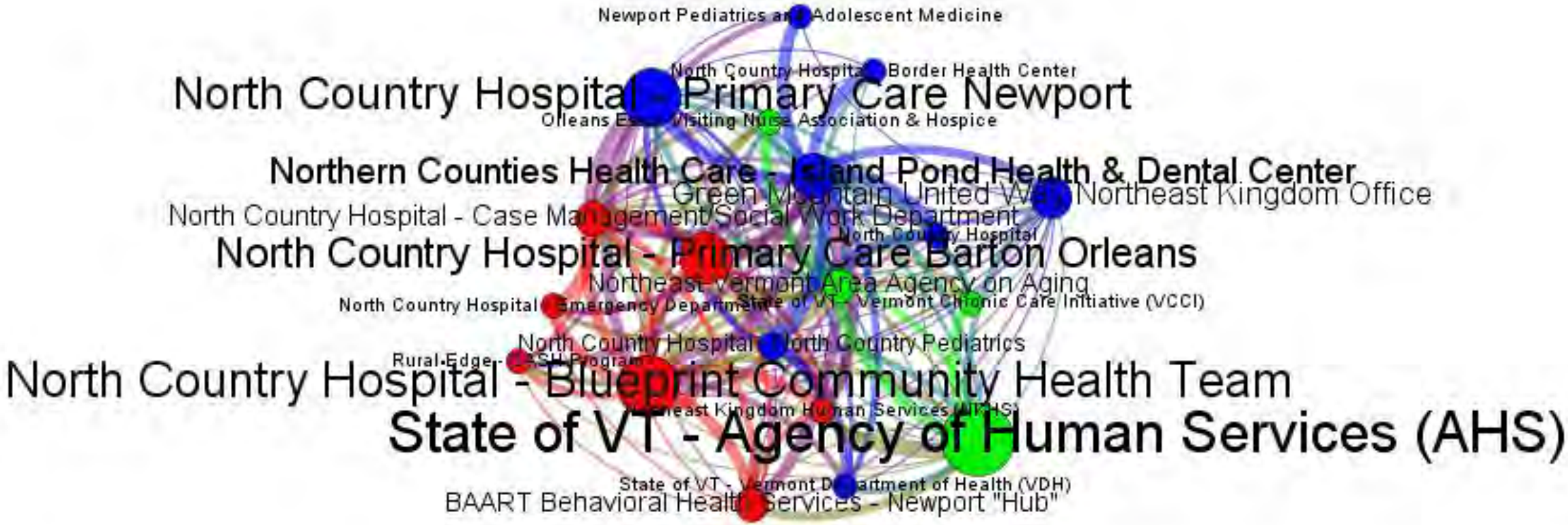
Node size shows Betweeness Centrality



Newport Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality



Randolph Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

Node size shows Betweeness Centrality

Randolph Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

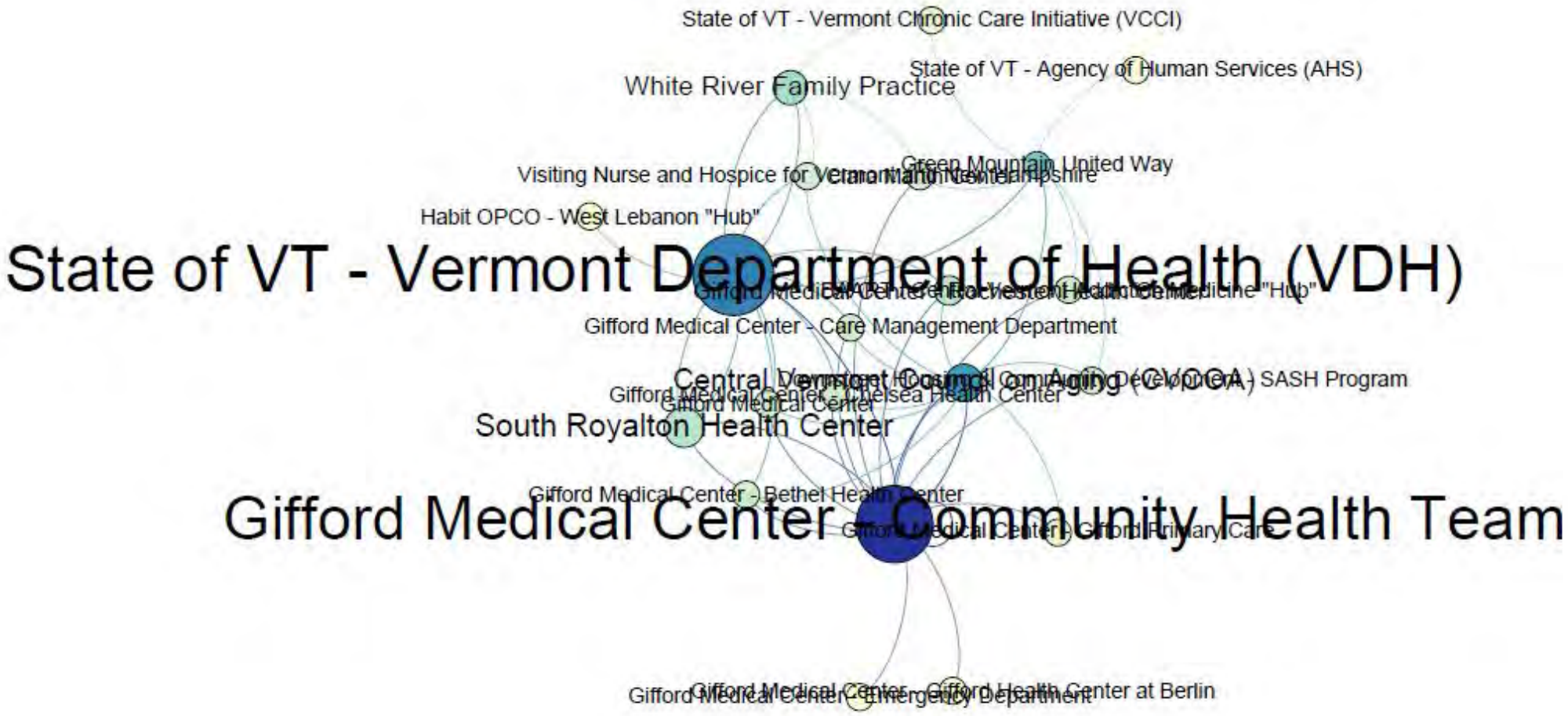
Node size shows Betweeness Centrality

Randolph Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

Node size shows Betweeness Centrality



Randolph Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality

Randolph Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

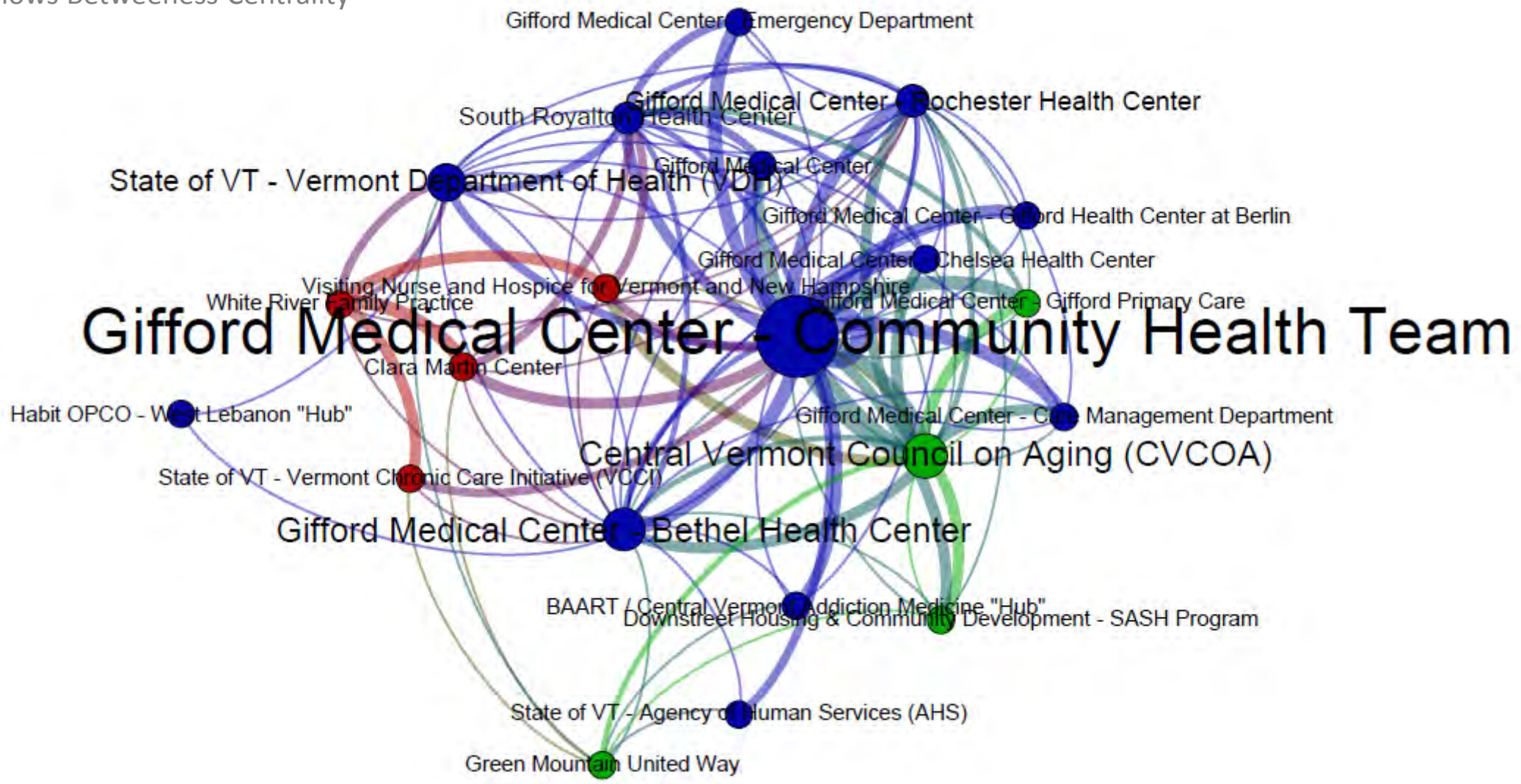
Node color shows Degree

Node size shows Betweeness Centrality

Randolph Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality



Upper Valley Common Clients Network

Our organizations have clients/patients in common

Node color shows Degree

Node size shows Betweeness Centrality

Upper Valley Info-Patients Network

Our organizations share information about specific patients/clients

Node color shows Degree

Node size shows Betweeness Centrality

Upper Valley Info-Programs Network

Our organizations share information about programs, services and/or policy

Node color shows Degree

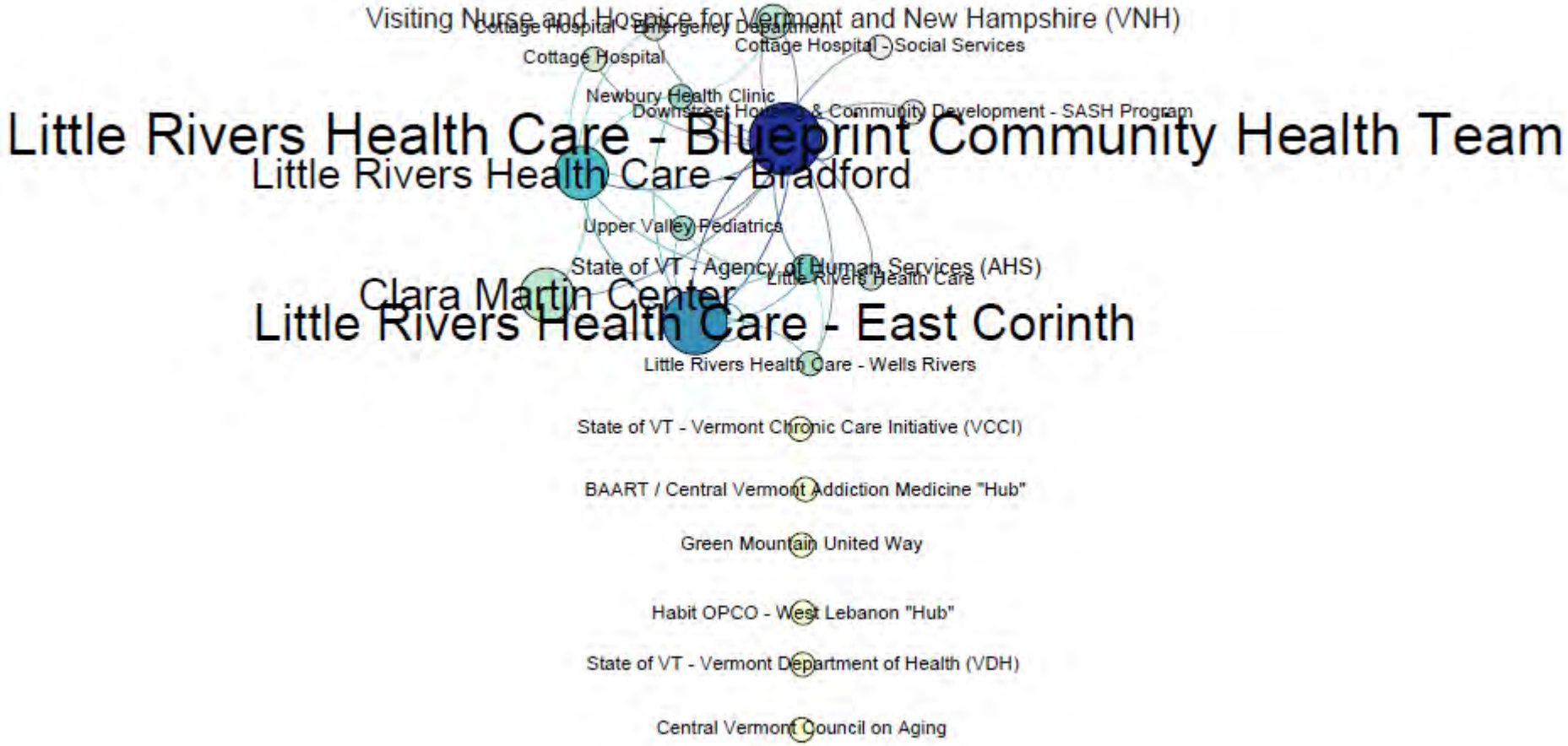
Node size shows Betweeness Centrality

Upper Valley Resources Network

Our organizations share resources (e.g. joint funding, shared equipment, personnel or facilities)

Node color shows Degree

Node size shows Betweeness Centrality



Upper Valley Referrals Network

My organization sends referrals to this organization +

My organization receives referrals from this organization

Node color shows Degree

Node size shows Betweeness Centrality

Upper Valley Full Network

Node color shows Network Neighborhood

Node size shows Betweeness Centrality