# Network centralization and the dissemination of evidence-based guidelines in eight state tobacco control networks

# Background -

Due to limited resources, public health organizations often partner to effectively address complex problems. Since little is known about the structural properties of public health partnerships, it is important to understand how, with scarce resources, these organizations work together to be efficient and effective. The use of evidence-based guidelines is one way to ensure effective strategies are being used to address a given public health problem. Evidence-based guidelines summarize interventions that have undergone rigorous testing and have been successful in addressing a particular problem.

Because this is one of the first studies to examine the dissemination of evidence-based guidelines, little is known about the differences in network structure that result from these three types of relationships: contact, collaboration, and information diffusion.

# Hypothesis

The centralization of the state networks would increase from the least formal interaction among partners (contact), through the next formal interaction (collaboration), to the most formal (dissemination of guidelines).

# Methods

#### **Sample & Composition**

- Eight state tobacco control programs were invited to participate in an evaluation on the awareness, use, and dissemination of evidence-based guidelines.
- State tobacco control networks ranged in size from 14 agencies to 25 agencies.
- 202 key tobacco control partners were identified, representing an average of 17 agencies per state.
- Programs were comprised of 6 different agency types.

#### **Network Questions**

Each partner was provided with a list of previously identified agencies within their state and asked three questions.

1) How often have you had direct contact (such as meetings, phone calls, or emails) with [agency name] in the past year?

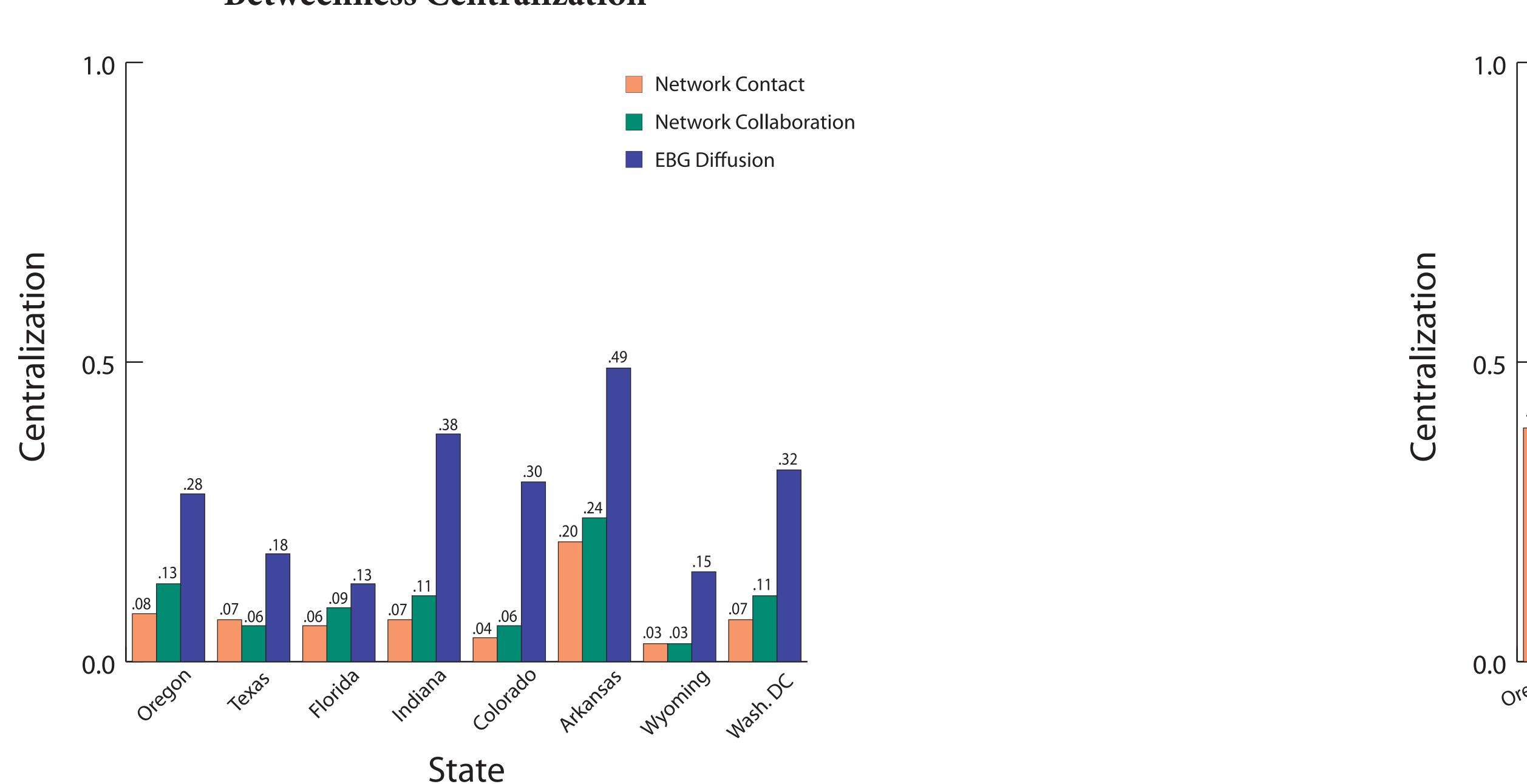
No Contact - Daily - Weekly - Monthly - Quarterly - Yearly

- Please choose the response that best describes the current relationship between you and [agency name].
  - Don't work together at all.
  - Share information only.
  - Work together informally to achieve common goals.
  - Work together as a formal team to achieve common goals.
  - Work together as a formal team on multiple projects to achieve common goals.
- 3) Have you ever talked about the 2007 Best Practices guideline with [agency name] in the past year?
  - Yes
  - No

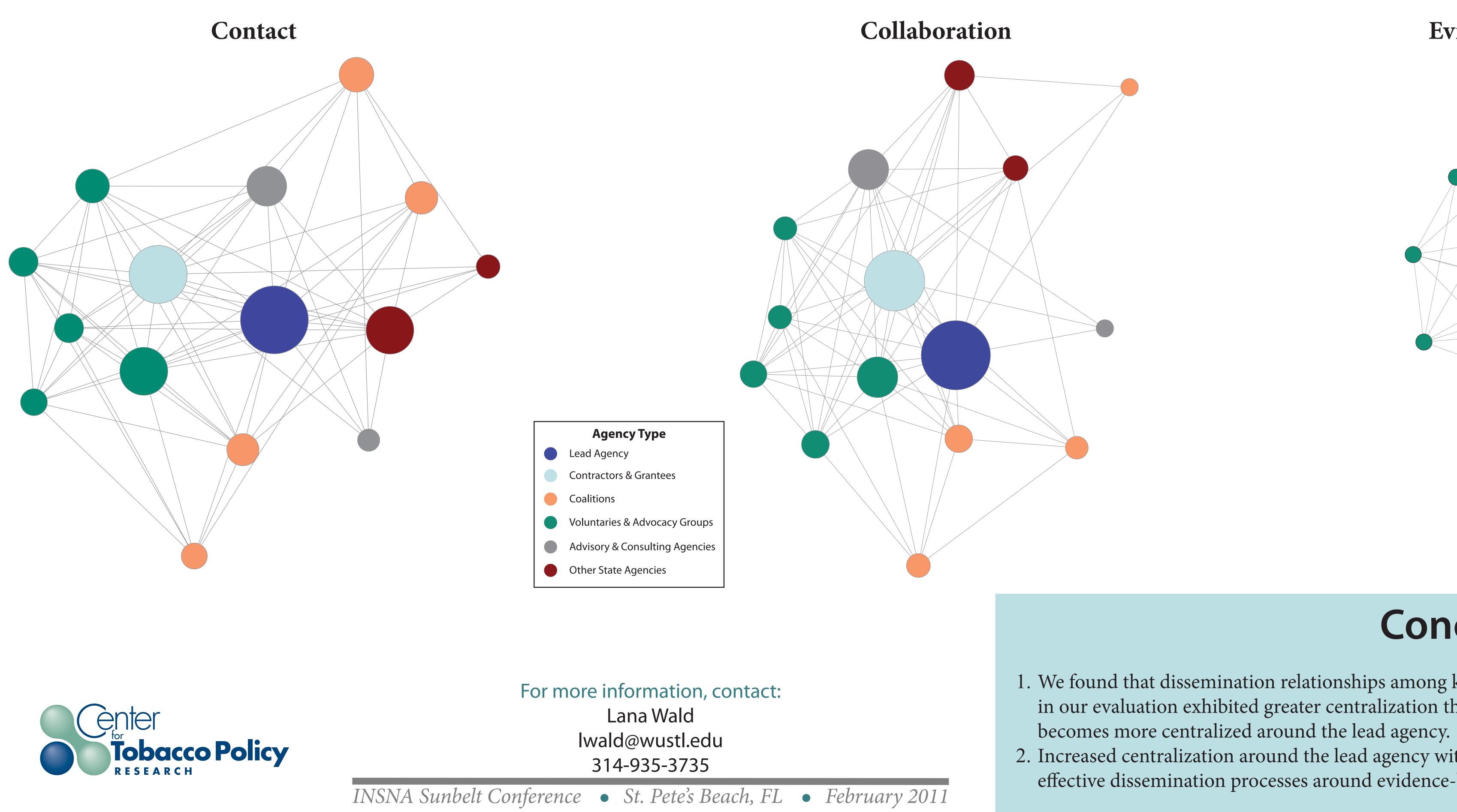
### **Network Development**

- Partners were considered to have contact with one another if they communicated on a quarterly basis or more.
- Partners were considered to collaborate with one another if they at least shared information.
- Pajek 1.28 was used to analyze network data.
- Graphics were imported from Pajek 1.28 into Adobe Illustrator for final network visualizations.

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Network Contact (Across State Averages) Betweenness Centralization Degree Centralization Density (no loops) Size 0.38 0.08 0.63





## **Betweenness Centralization**

#### Network Collaboration (Across State Averages)

Size	Density (no loops)	<b>Betweenness Centralization</b>	Degree Centralization
17	0.63	0.10	0.42



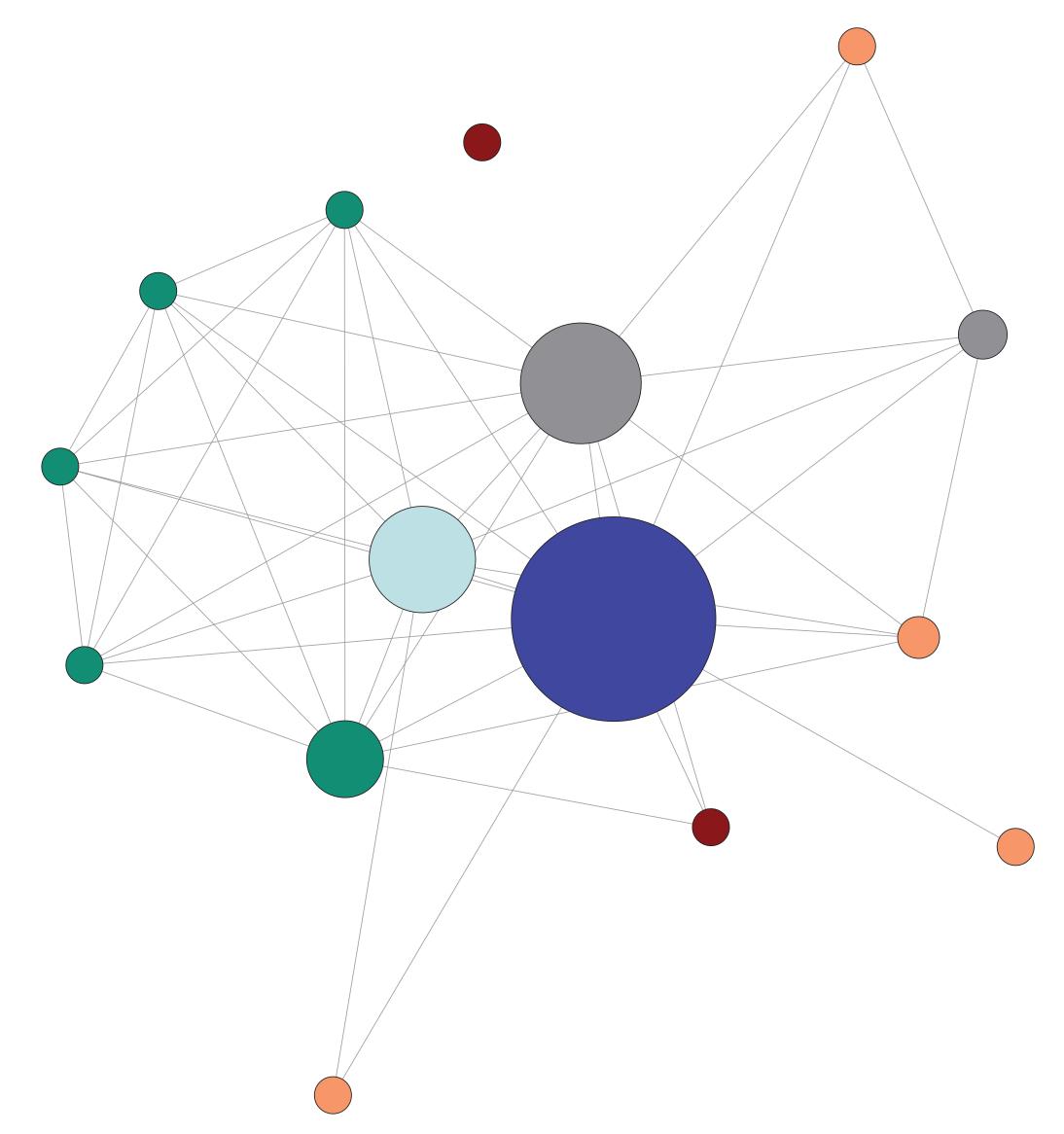
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**Degree Centralization** Network Contact Network Collaboration EBG Diffusion Indiana colorado Arkansas

State

EBG Diffusion (Across State Averages)					
Size	Density (no loops)	<b>Betweenness Centralization</b>	Degree Centralization		
17	0.47	0.28	0.58		

## **Evidence-based Guideline Diffusion**



# Conclusions

1. We found that dissemination relationships among key tobacco control partners within the eight states included in our evaluation exhibited greater centralization than simpler contact relationships and that the network

2. Increased centralization around the lead agency within state tobacco control programs can aid in developing effective dissemination processes around evidence-based guidelines and other informational resources.