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Patterns of Interaction in Public Health Research Networks: Insight from Network Analysis

Glen Mays



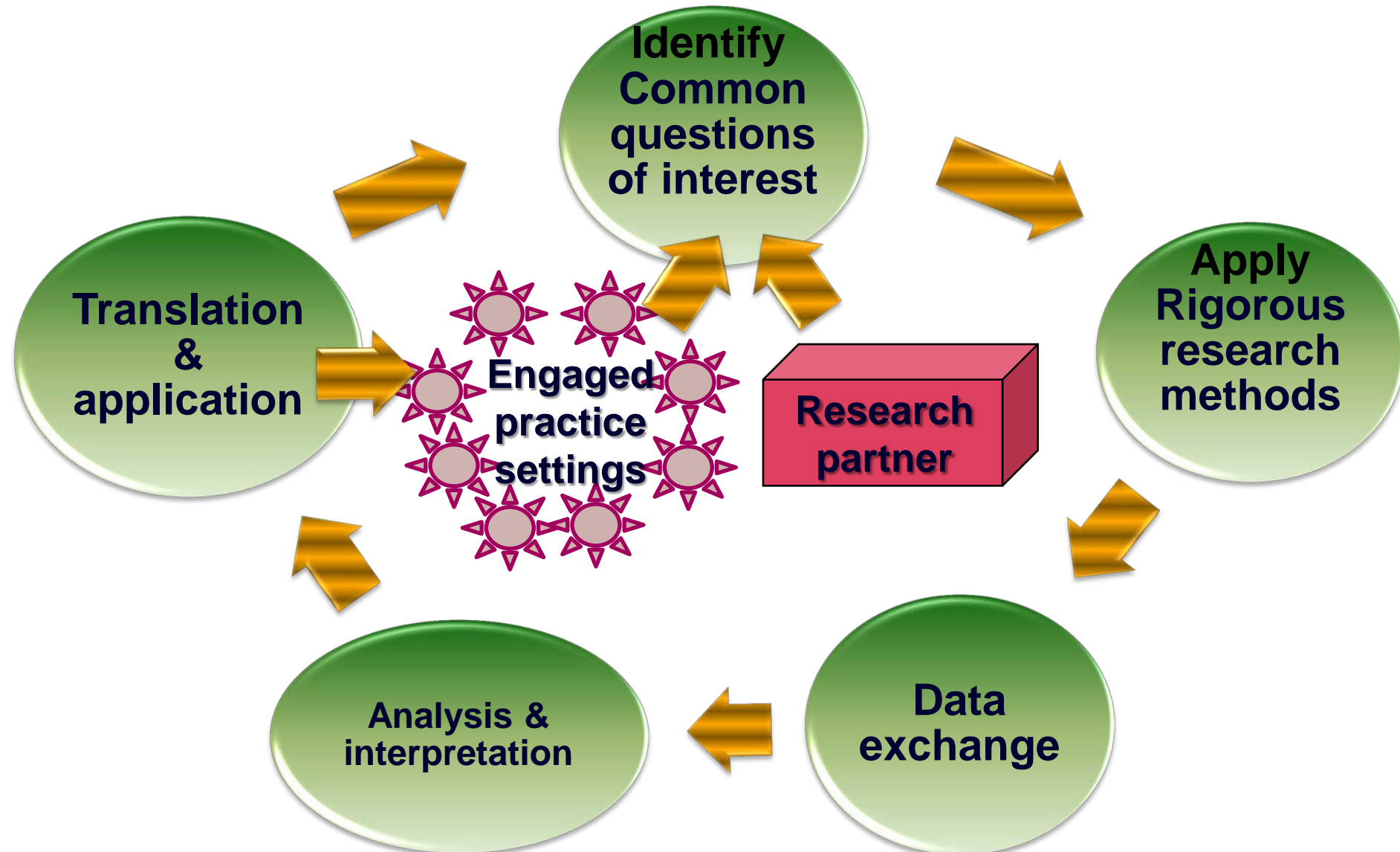
Available at: https://works.bepress.com/glen_mays/14/

Patterns of Interaction in Public Health Research Networks: Insight from Network Analysis

Glen P. Mays, PhD, MPH
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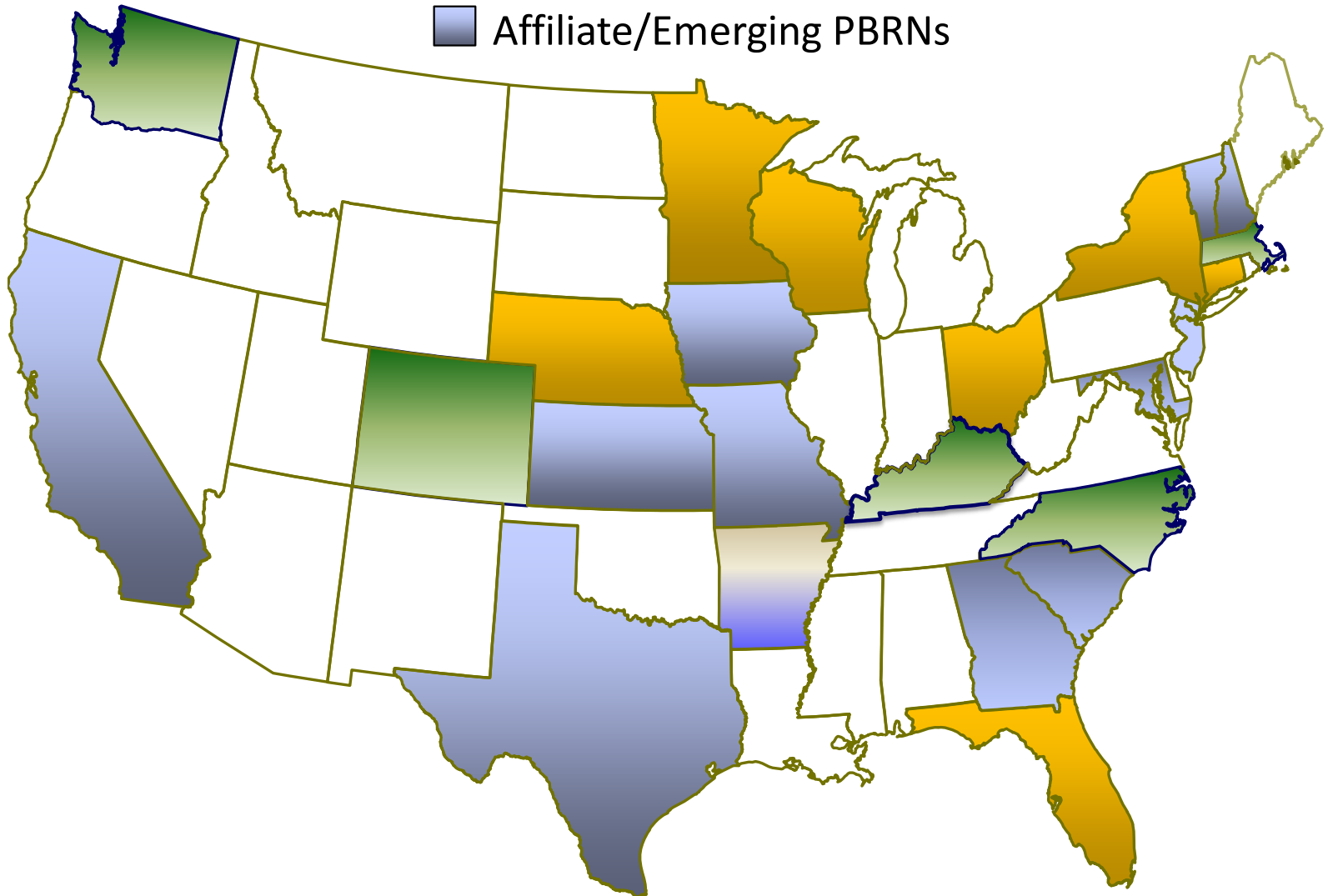
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The Logic of Public Health PBRNs



The Robert Wood Johnson Foundation's Public Health PBRN Program

- First cohort (December 2008 start-up)
- Second cohort (January 2010 start-up)
- Affiliate/Emerging PBRNs



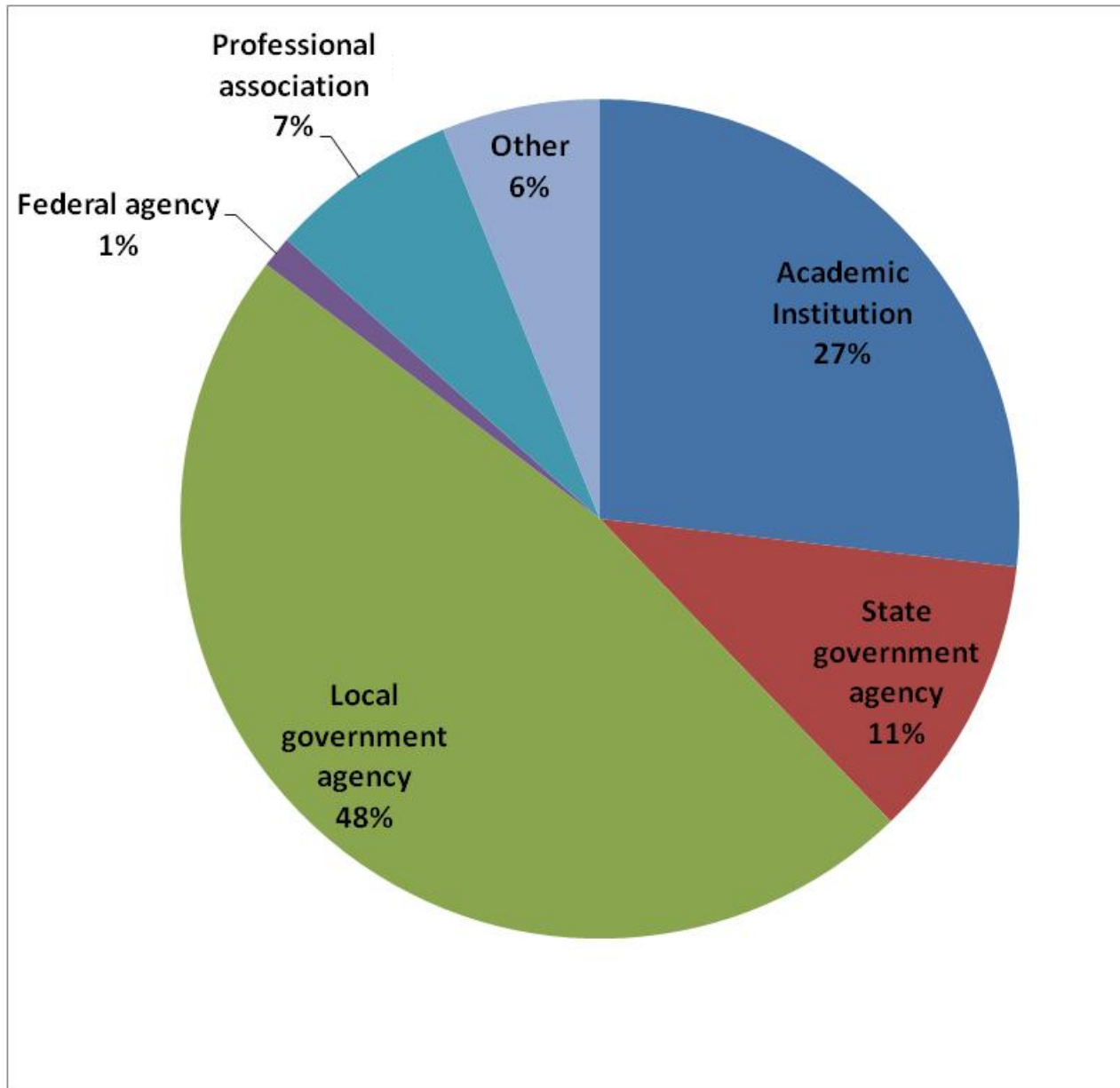
PBRN Network Analysis Methods

- Used to take an early “snapshot” of network structure and interaction
- Draft instrument developed and validated with Round I networks
- Fielded with first cohort of five PBRNs in 2010, second cohort of 9 PBRNs in 2011

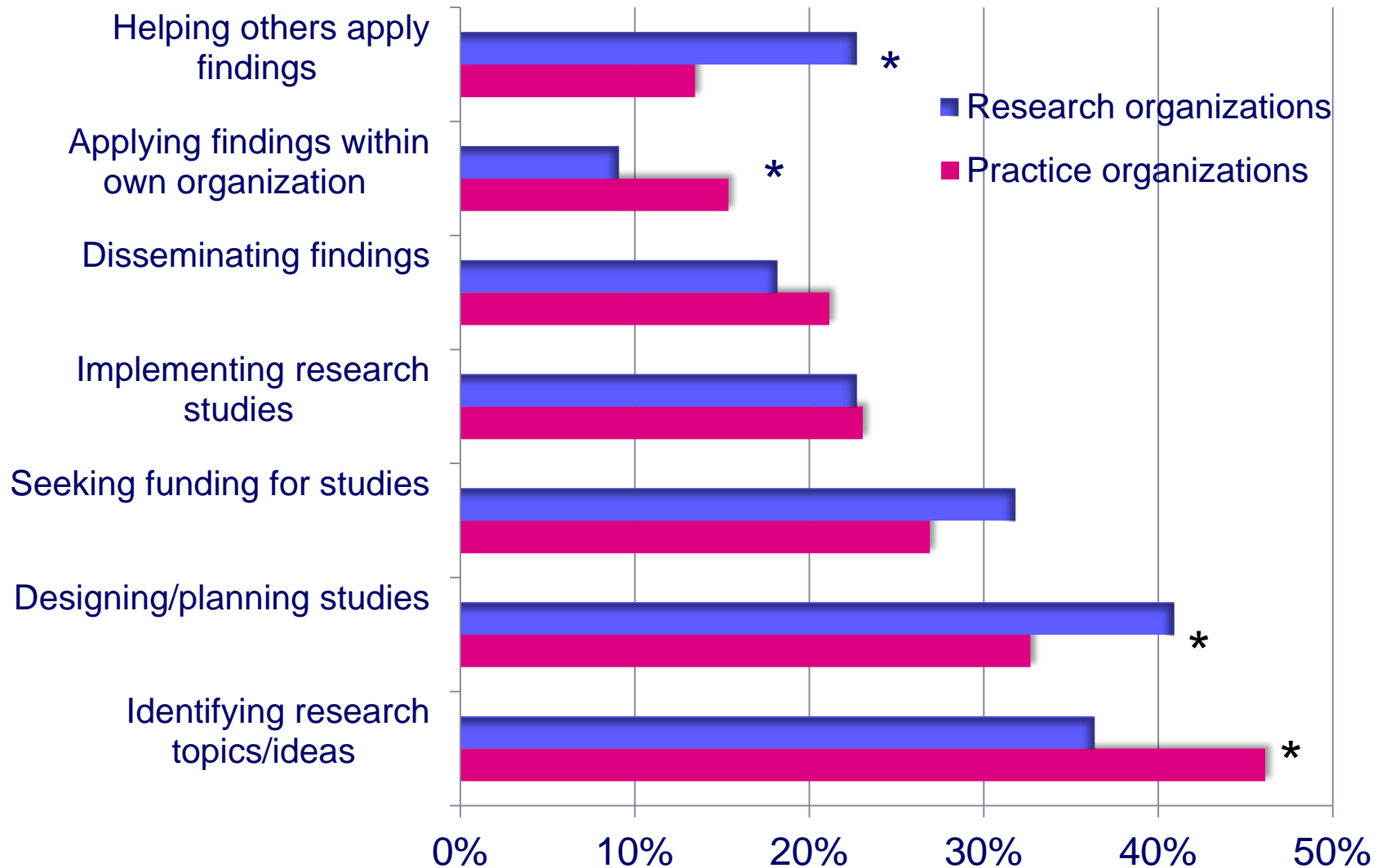
PBRN Network Analysis Methods

- Responses from 356 of 420 individuals meeting case definition for PBRN participant (85%)
- 391 separate organizational participants identified
- 4376 organizational ties
- Constructed network summary measures and diagrams from responses to question about ***frequency*** and ***types*** of interaction for research

Types of Public Health PBRN Participants

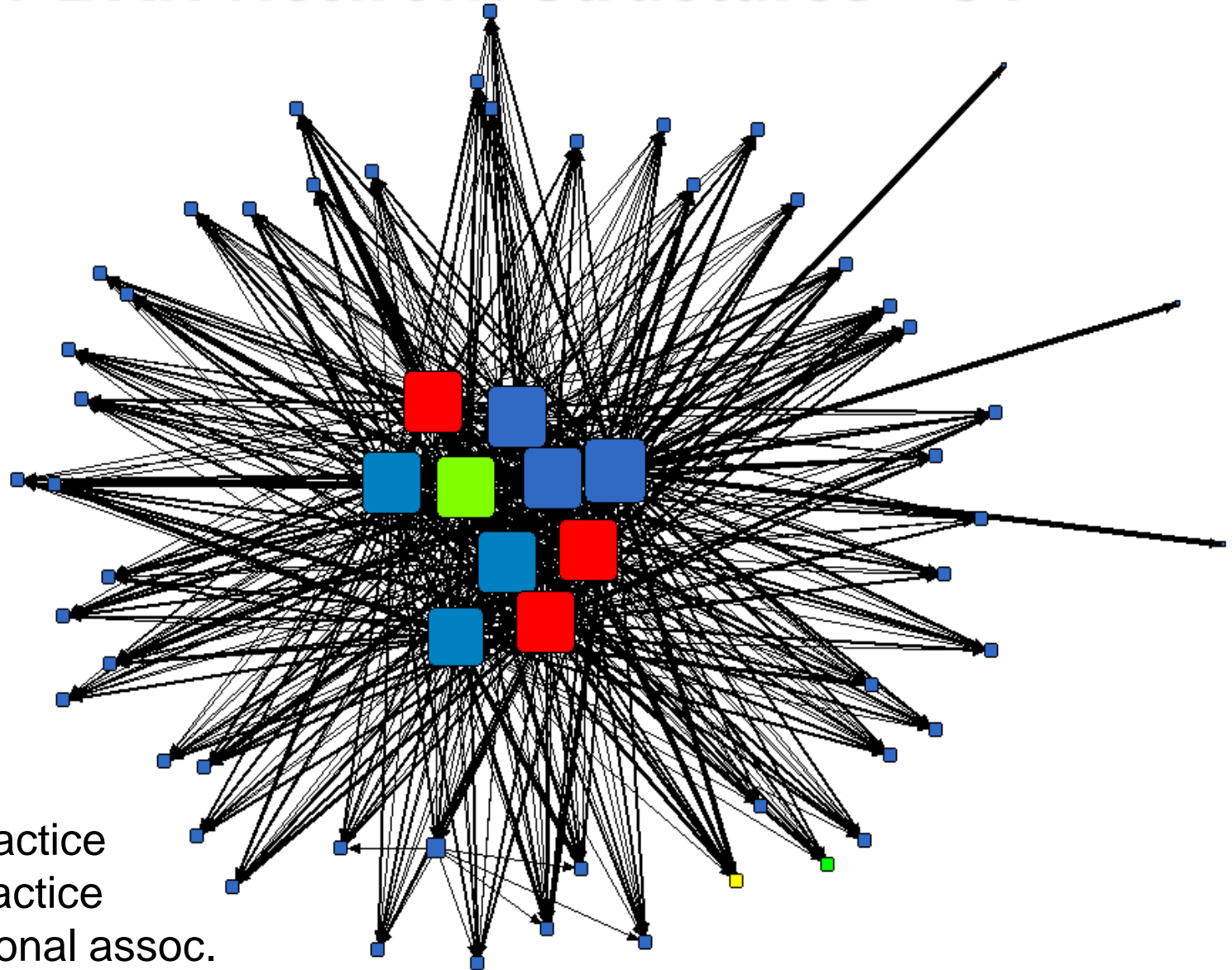


Roles played by participants in PBRN activities



* $p < 0.05$

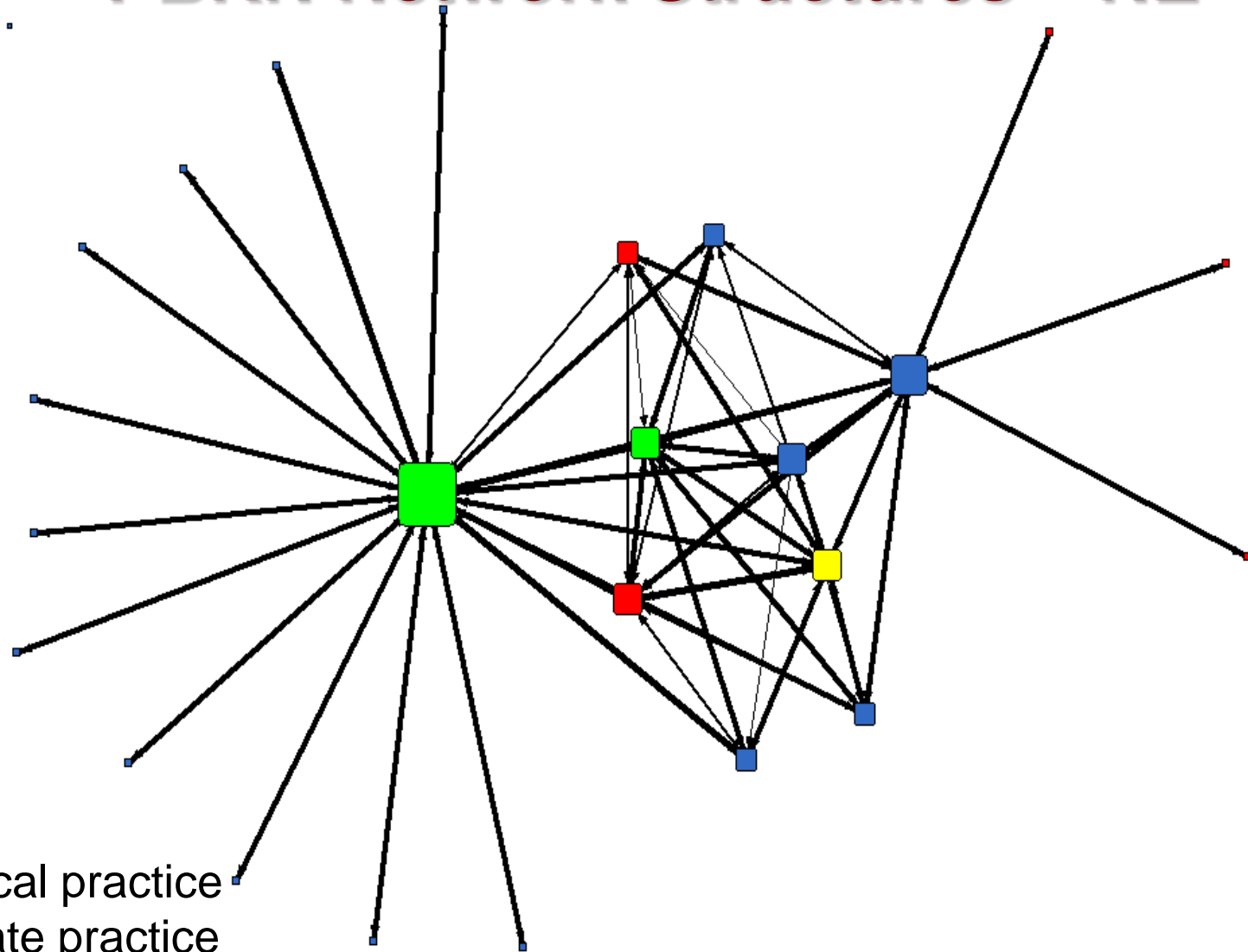
PBRN Network Structures - CT



- Local practice
- State practice
- Professional assoc.
- Research

Network Centralization = 35.4%

PBRN Network Structures – NE



- Local practice
- State practice
- Professional assoc.
- Research

Network Centralization = 42.5%

Network Measures and Organization Type

Type of Organization	Degree Centrality		Betweenness Centrality	
All practice organizations	31.84	(16.16)	0.04	(0.08)
All research organizations	41.37	(19.43)	0.13	(0.21)
All organizations	34.84	(17.56)	0.07	(0.14)

Network Structures Associated with Perceived Benefit

<u>Characteristic</u>	<u>Perceived Benefit Rating</u>	
	<u>Coeff.</u>	<u>S.E.</u>
Network density	0.341	0.112**
Degree centrality	-0.521	0.227**
Betweenness centrality	0.148	0.108
Practice orientation	0.283	0.144*

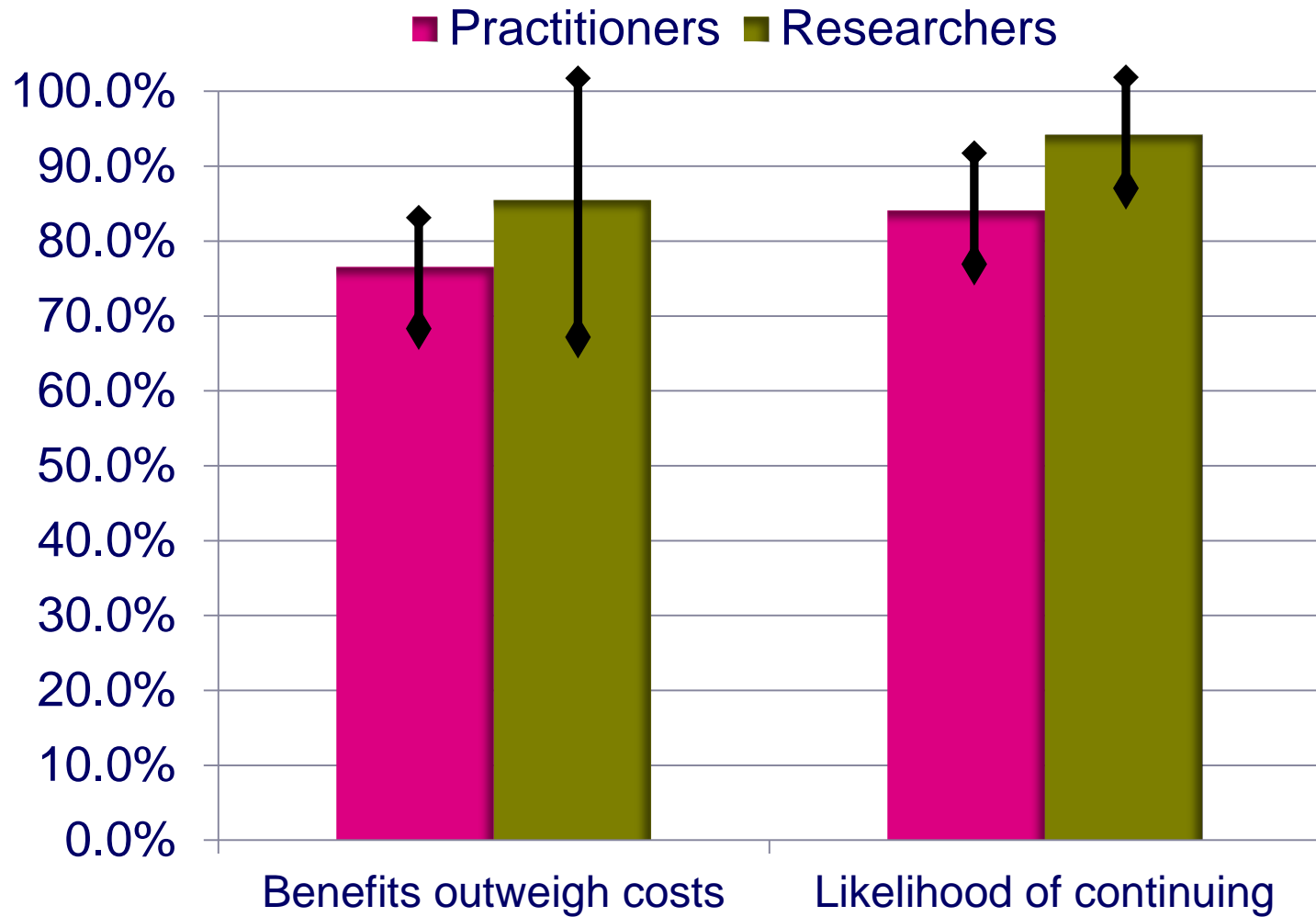
Estimates from hierarchical ordered logit model controlling for PBRN random effects **p<0.05 *p<0.10

Network Structures Associated with Engagement in Dissemination and Translation Activities

<u>Characteristic</u>	<u>Likelihood of Engagement</u>	
	<u>Coeff.</u>	<u>S.E.</u>
Network density	0.325	0.109**
Degree centrality	0.673	0.318**
Betweenness centrality	0.914	0.231**
Practice orientation	0.883	0.274***

Estimates from hierarchical logit model controlling for PBRN random effects **p<0.05 *p<0.10

Perceived Value of PBRN Participation



Conclusions and Implications

- Roles and patterns of interaction within PBRNs vary widely
- PBRNs can serve as effective mechanisms for research engagement and translation
- Practice agencies that locate peripherally within networks are especially likely to benefit
- Due to their peripheral location, practice agencies may require targeted resources and incentives to sustain their research engagement