

Evolution of the Interdisciplinary Co-Citation Network Supported by the Georgia Clinical and Translational Science Alliance Program from 2006 Through 2016

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BACKGROUND

- The National Institutes of Health (NIH) has provided continual support for the Georgia Clinical and Translational Science Alliance (CTSA) since 2006 with the goal of accelerating clinical and translational research to impact health in Georgia & beyond.
- A primary objective has been to support **interdisciplinary research projects** encompassing two or more disciplinary domains (Casadevall & Fang, 2014; Falk-Krzesinski et al., 2011).

Research Question:

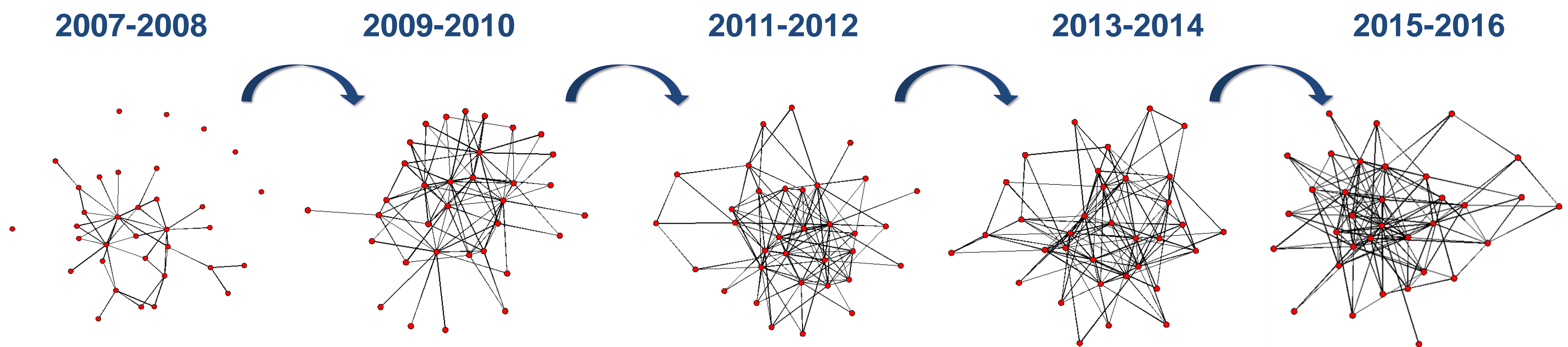
Have interdisciplinary research publications increased in prevalence during the first decade of the Georgia CTSA?

METHOD

- Used PubMed to identify all publications between 2007-2016 citing the Georgia CTSA hub (n = 1,865)
- Categorized each article to determine research domain(s) represented using taxonomy derived from the Web of Science and created interdisciplinary publication networks for each two year period across the 10 years
- Conducted **longitudinal network analyses** using MCMC MLE Temporal Exponential Random Graph Models – this approach identifies antecedents of network emergence and development by comparing “observed structural signatures” to signatures in distribution of randomly generated networks (Handcock et al., 2015)

NETWORKS

Interdisciplinary Publication Network Supported by the Georgia CTSA from 2007 to 2016



Note: Nodes represent research domain; Ties between pairs of nodes represent one or more publication incorporating both domains

RESULTS

Temporal Exponential Random Graph Model of the Interdisciplinary Publication Network Supported by the Georgia CTSA from 2007 to 2016

Network Structural Signature	Estimate (SE)
Propensity for Interdisciplinary Ties	-3.72(.25)**
Network Centralization	.95(.13)**
Time x Propensity for Interdisciplinary Ties	.55(.17)**
Time x Ties Quadratic	-.06(.03)*

Note. ** $p < .01$, * $p < .05$

CONCLUSION

- Supporting Georgia CTSA objectives, results suggest the probability of publications connecting multiple research areas increased over time.
- Substantially greater increases appeared in *initial* years as compared to later years.
- This study advances an innovative approach to modeling the system-wide impact of CTSA hub funding.
- Longitudinal network analyses provide quantitative tests of hypotheses related to the impact of the CTSA program on scientific output over time.

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