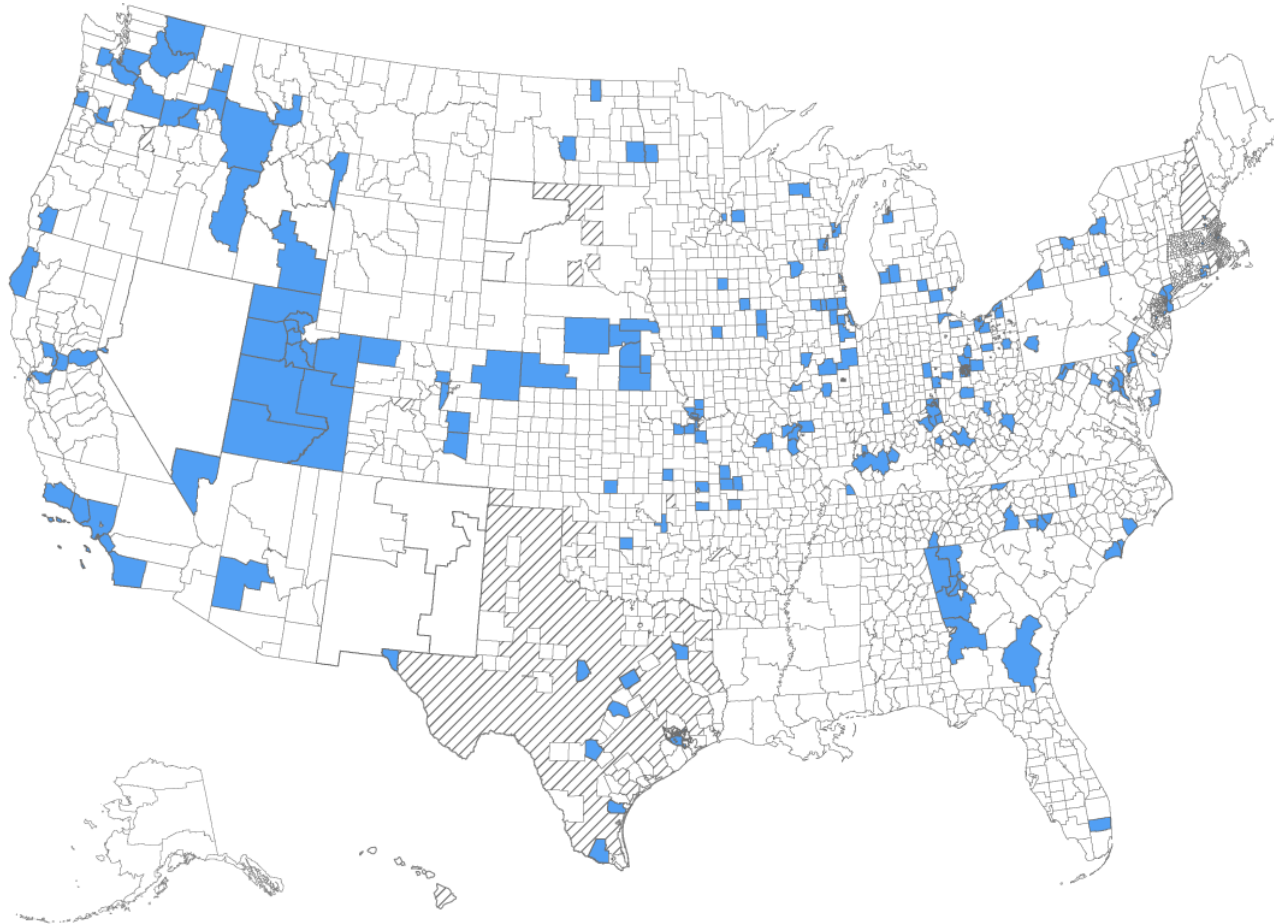# Local health department engagement with other local health departments on Twitter

@jenineharris

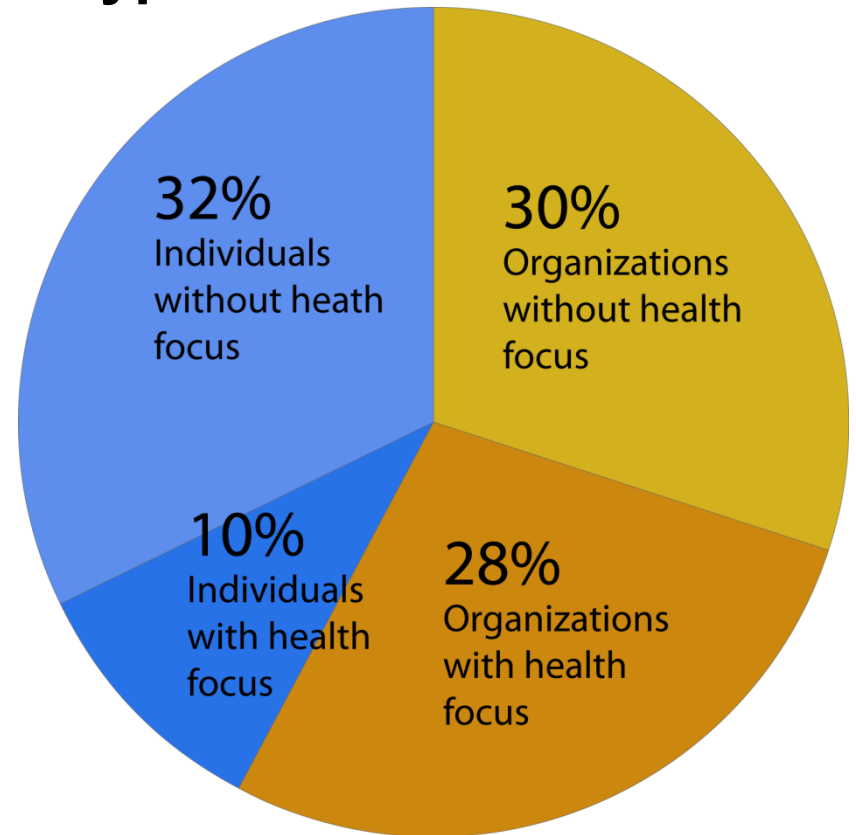# Local health department adoption of social media (2012)

Harris J.K., Mueller N.L., Snider D. 2013. Social media adoption in local health departments nationwide. *American Journal of Public Health.* 103(9):1700-7.

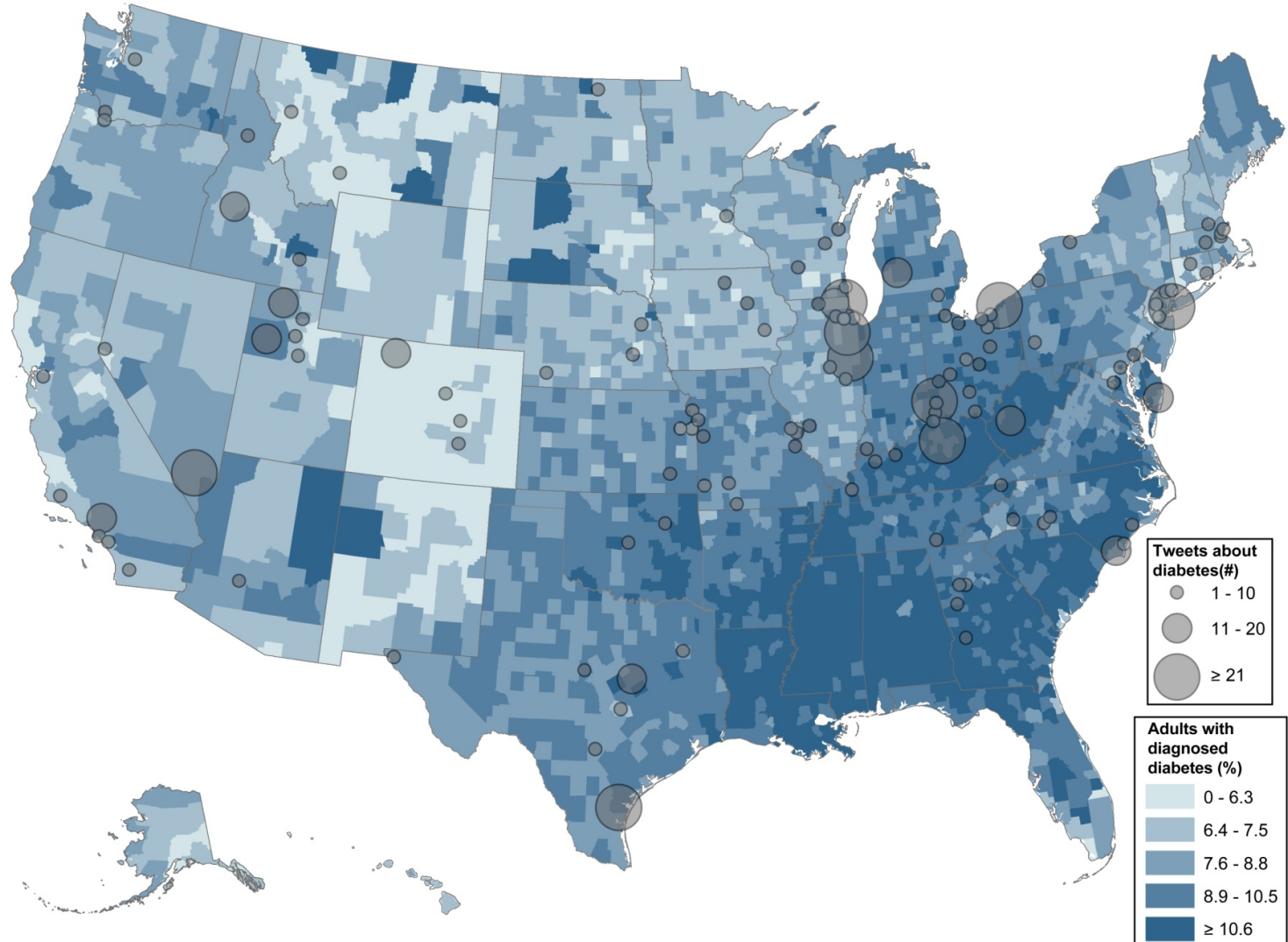# Are health departments tweeting to the choir?

More Twitter followers for LHDs with..

- Larger jurisdiction population
- Bigger budget
- Public information specialist on staff
- More tweets

Follower types in a typical network

- 32% Individuals without heath focus
- 30% Organizations without health focus
- 10% Individuals with health focus
- 28% Organizations with health focus

Harris J.K., Choucair B., *Maier R.C., Jolani N., Bernhardt J.M. 2014. Are public health organizations tweeting to the choir? Understanding local health department Twitter followership. *Journal of Medical Internet Research,* 16(2):e31, doi:10.2196/jmir.2972.

Are health departments tweeting more about local health problems? The case of diabetes

Tweets about diabetes(#)
- 1 - 10
- 11 - 20
- ≥ 21

Adults with diagnosed diabetes (%)
- 0 - 6.3
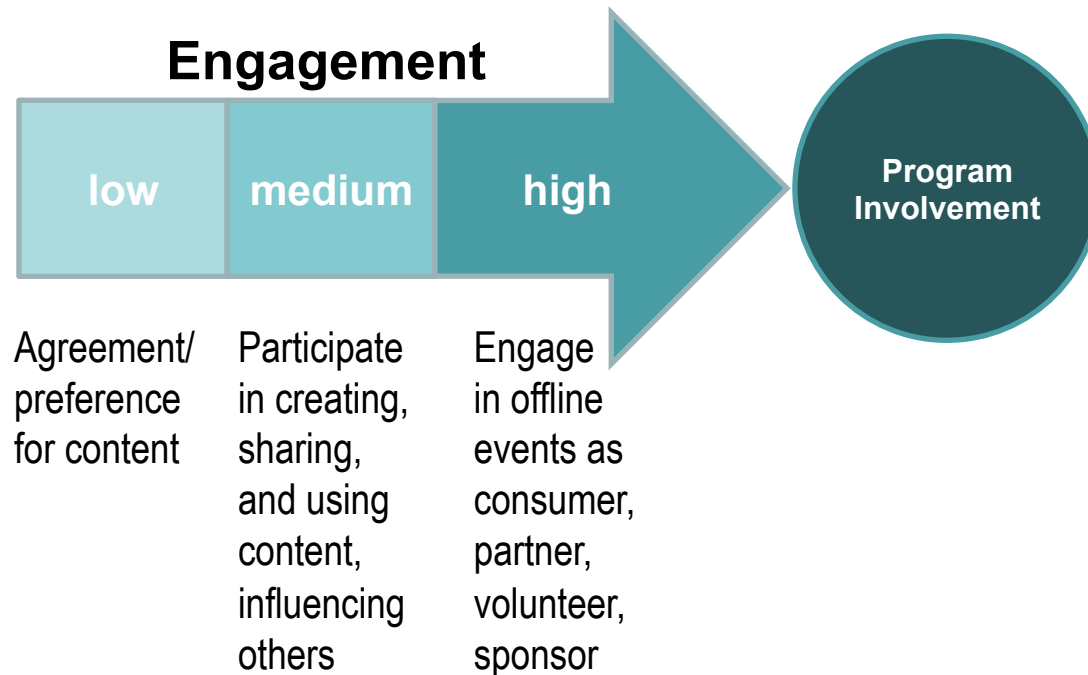- 6.4 - 7.5
- 7.6 - 8.8
- 8.9 - 10.5
- ≥ 10.6

What do health department tweets focus on?

- **Cues to action** (n=699)
  - *"Develop an effective plan to fight Diabetes with Centegra's Diabetes Center in Crystal Lake. Visit http://ow.ly/sLJv or call 815-356-2382." (McHenry County Department of Health, IL)*
- **Risk** (n=358)
  - *"Nearly 26 million Americans have diabetes, the seventh leading U.S. cause of death" (Will County Health Department, IL)*
- **Benefits** (n=82)
  - *"Tuesday is Diabetes Alert Day. Improve your chances of avoiding type 2 diabetes by eating balanced meals and being physically active." (Ross County Health District, OH)*

Harris J.K., Mueller N.L., Snider D., Haire-Joshu D. 2013. Local health department use of Twitter to disseminate diabetes information. *Preventing Chronic Disease.* 10:120215. http://dx.doi.org/10.5888/pcd10.120215.

What is social media engagement?

- Many definitions and metrics
- Neiger and colleagues proposed an engagement hierarchy for public health

Engagement

low	medium	high	Program Involvement
Agreement/ preference for content	Participate in creating, sharing, and using content, influencing others	Engage in offline events as consumer, partner, volunteer, sponsor	

How does social media engagement work?

Mass. Public Health @MassDPH · Mar 18
2 MA teens speak out against underhanded tobacco industry marketing tactics!
#KickButtsDay myfoxboston.com/video?autoStar...

Collapse   ← Reply ⇄ Retweet ★ Favorite ••• More

RETWEETS   FAVORITE
9   1

How else does social media engagement work?

How does social media work outside public health?

Engagement with other local health departments

- Why?
  - Build an information-sharing network
  - Reduce message development workload for any given health department (especially small depts)
 - LHDs have similar goals nationwide
- How?
  - Retweet or share messages from other local health departments

Data collection and characteristics

- Used Nvivo Ncapture tool to collect all tweets from 284 LHDs known to be using Twitter as of 2013
  - 162,670 total messages sent via Twitter
  - 1,124 (.6%) were retweets sent by one LHD and retweeted by another LHD
  - 140 LHDs (49.3%) retweeted something from another LHD
- Used R-statnet to develop a statistical model of the network
- Coded tweets for CDC categories using a consensus coding process (2 coders reach agreement)
  - Healthy living, disease, environmental health, emergency preparedness, injury prevention, data & stats, global health, other
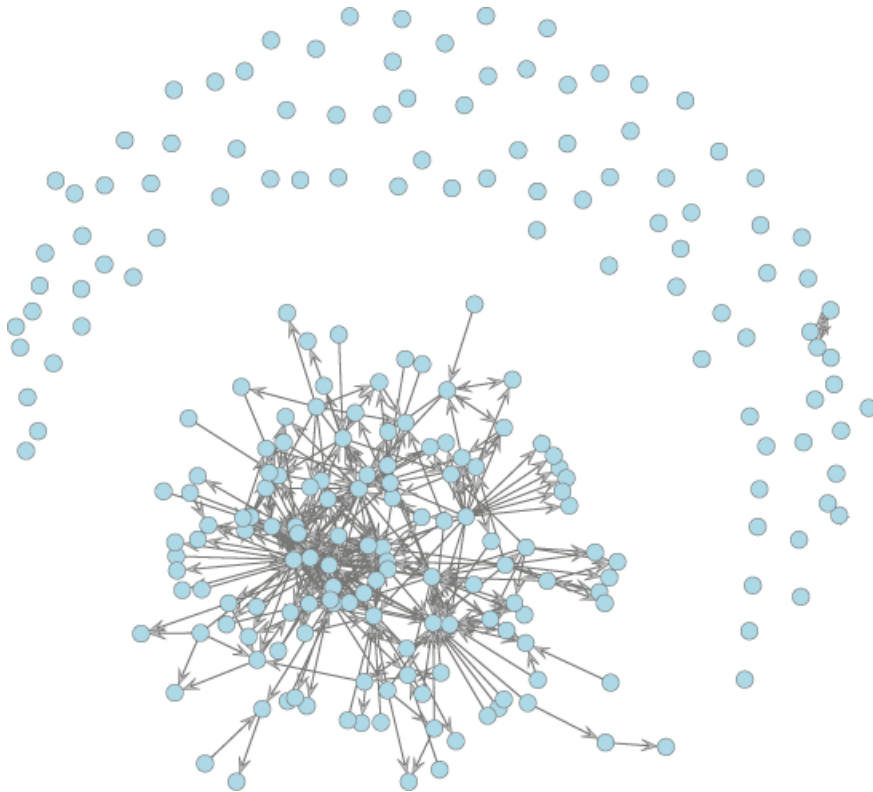
Network terminology

Node: a network member

Degree: number of ties a node has

Tie: a connection between network members

Dyad: Two network members
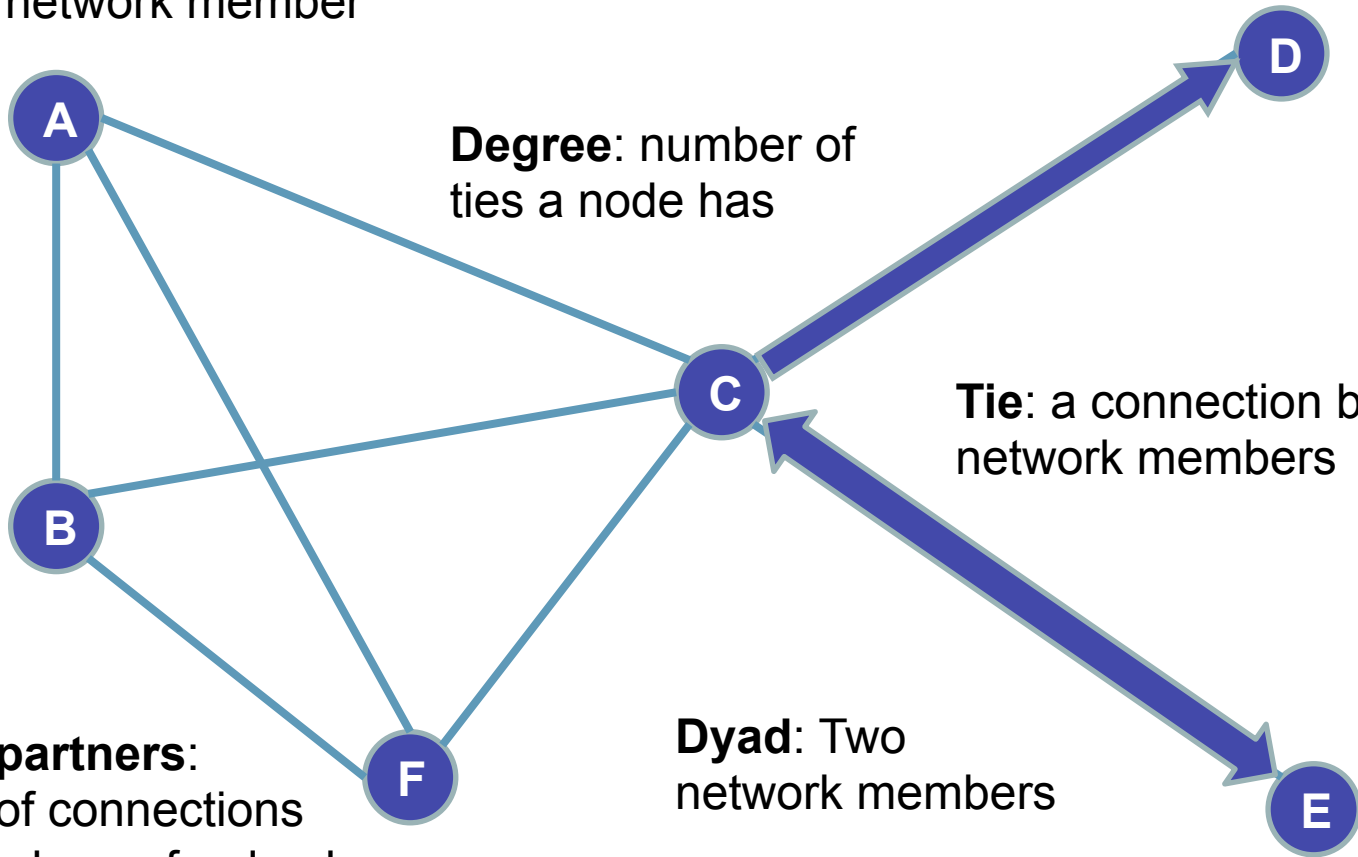
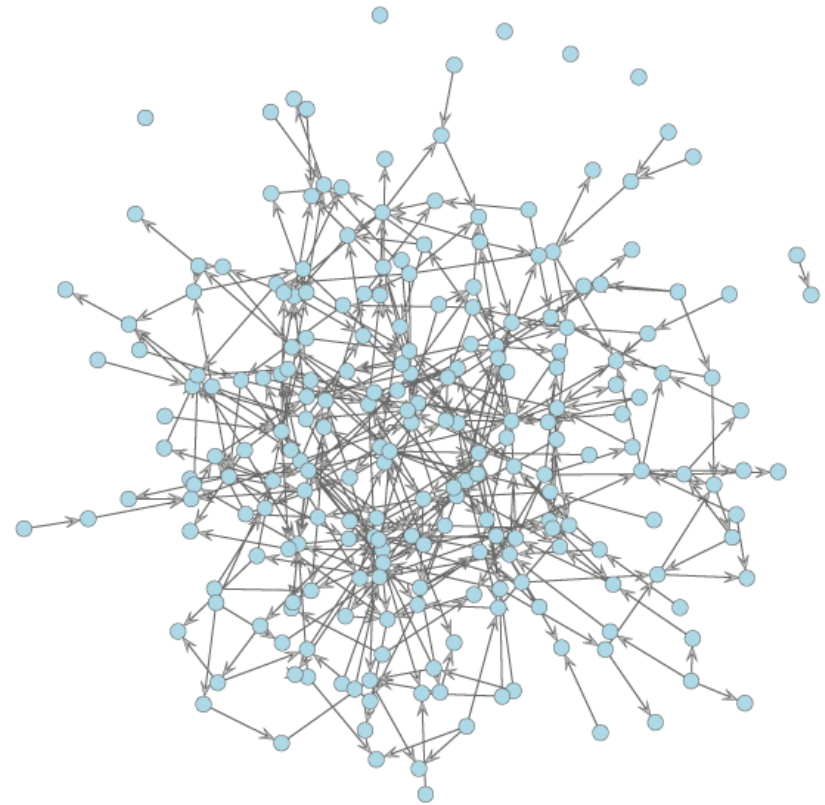**Shared partners**: number of connections both members of a dyad have in common

Comparing the retweet network and a random network of the same size and density
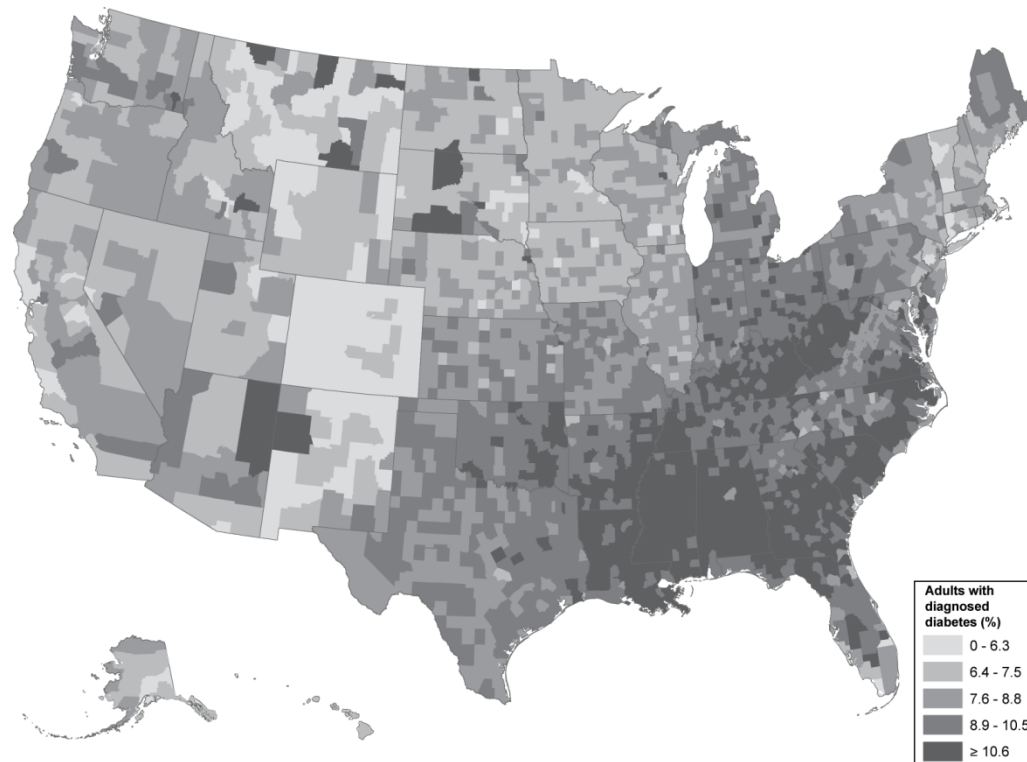
Observed retweet network

**Random network with the same size and density**

The purpose of statistical modeling

- What we observe in the world is often different than what would happen by random chance

- Statistical models aim to explain the differences between random chance and what we observe

Adults with diagnosed diabetes (%)
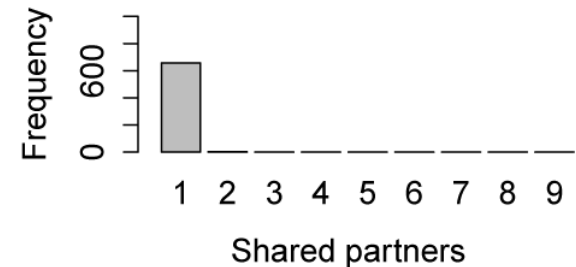- 0 - 6.3
- 6.4 - 7.5
- 7.6 - 8.8
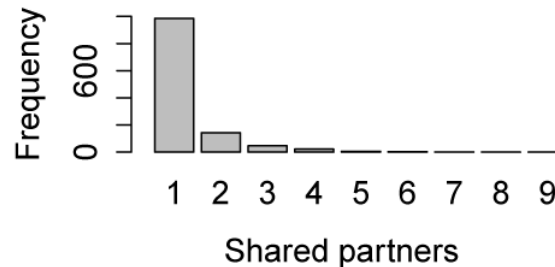- 8.9 - 10.5
- ≥ 10.6

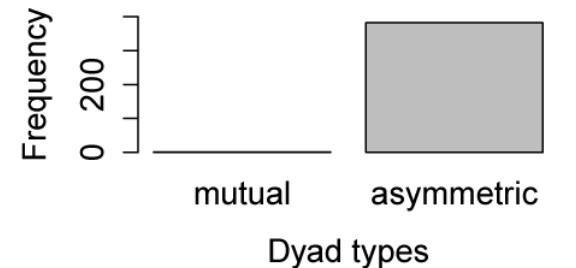# How is the observed retweet network different from a random network?

1. Distribution of degree
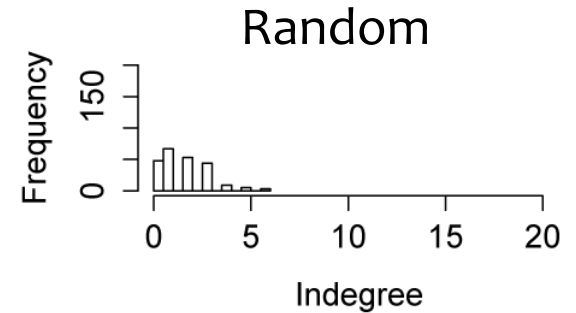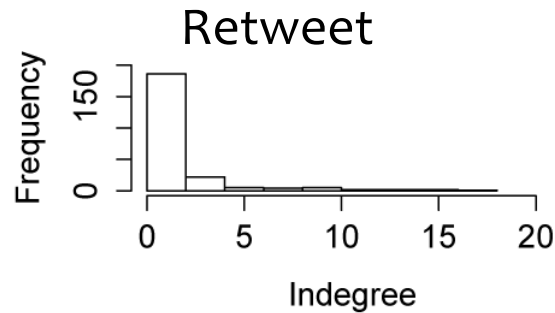
2. Distribution of shared partners
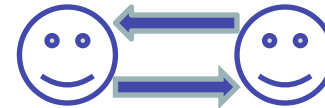
3. Number of mutual ties
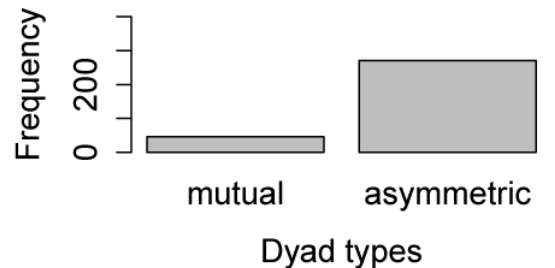
Which processes contribute to differences between observed & random networks?
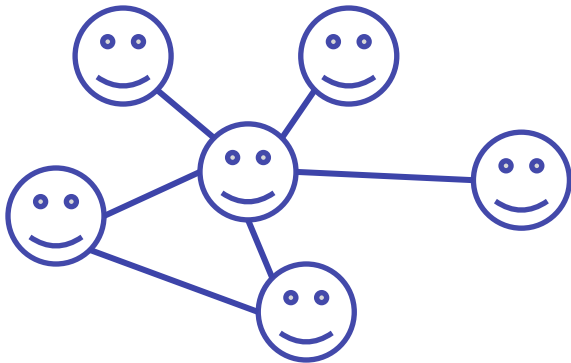
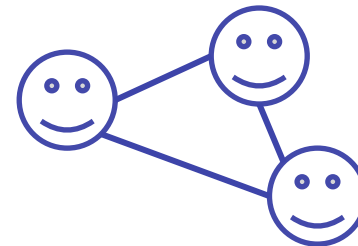**Homophily**: connecting with similar people and organizations

Reciprocity: tendency to form mutual ties

Sociality: variation in the number of ties

Transitivity: the friend of my friend is often my friend

Golder & Yardi, 2010; Goodreau et al., 2009

Statistical network model to explain differences between observed and random networks

- Exponential random graph modeling (ERGM, "ergum")
- Like logistic regression for networks
  - Predicts the probability of a tie
  - Can incorporate network member characteristics
  - Accounts for dependency in data
- In this case, we hypothesized that health depts retweet other health departments that:
  - Have more resources (staffing, per cap spending), larger populations, and were in close geographic proximity
  - Tweet more often
  - They followed

Results: characteristics associated with engagement between health departments
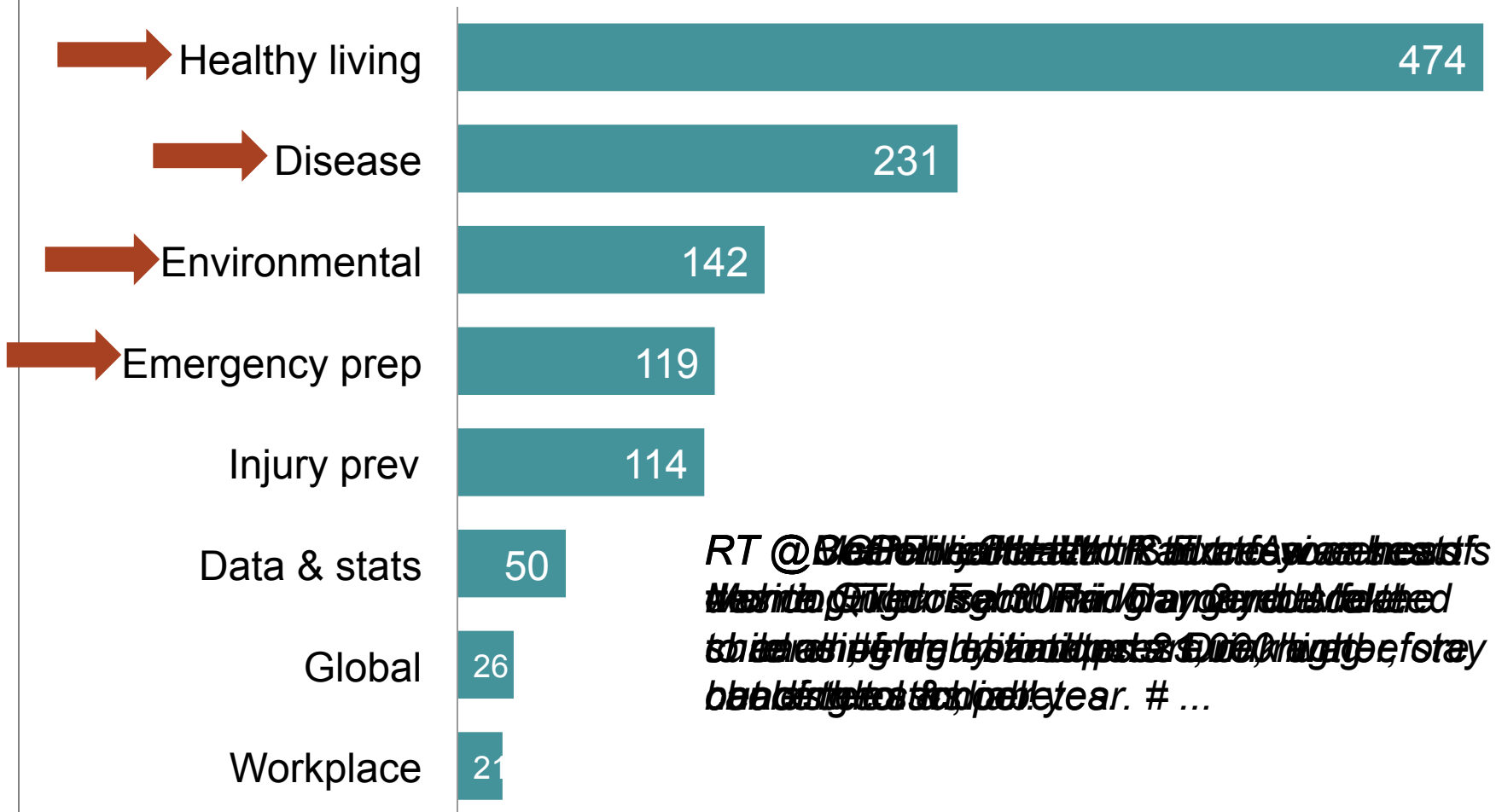
More likely to be retweeted

- Health departments tweeting more often
- Health departments in the same state
- Health departments that are following AND followed by the retweeter

NOT more likely to be retweeted

- Health departments serving larger populations
- Health departments with a public info specialist
- Health departments spending the most per capita

Which topics sent by one health department are retweeted by another

Healthy living   474
Disease   231
Environmental   142
Emergency prep   119
Injury prev   114
Data & stats   50
Global   26
Workplace   21

Implications and recommendations

- Health departments are engaging with geographically proximate peer departments
  – Good for local relevance, bad for diversity of messaging

- Health departments are engaging with peer departments that tweet more
  – Aim to tweet 3-4 times per day to engage more peers

- Health departments that follow each other, retweet each other
  – Follow any health departments following you… follow some that are not following you

- Health departments retweet healthy living
  – Focus messages on healthy living to engage more peers

Next steps…

- What engages the public with public health information?

#THANKYOU!

- Research funded through an RWJF PHSSR mentored research scientist award

- Contact me at harrisj@wustl.edu

- Follow me @jenineharris

- Subscribe to my Twitter lists:
  - https://twitter.com/jenineharris/lists/local-health-departments
  - https://twitter.com/jenineharris/lists/state-health-departments