Insurer Contributions to Core Population Health Capabilities & Diabetes-Related Preventable Hospitalizations

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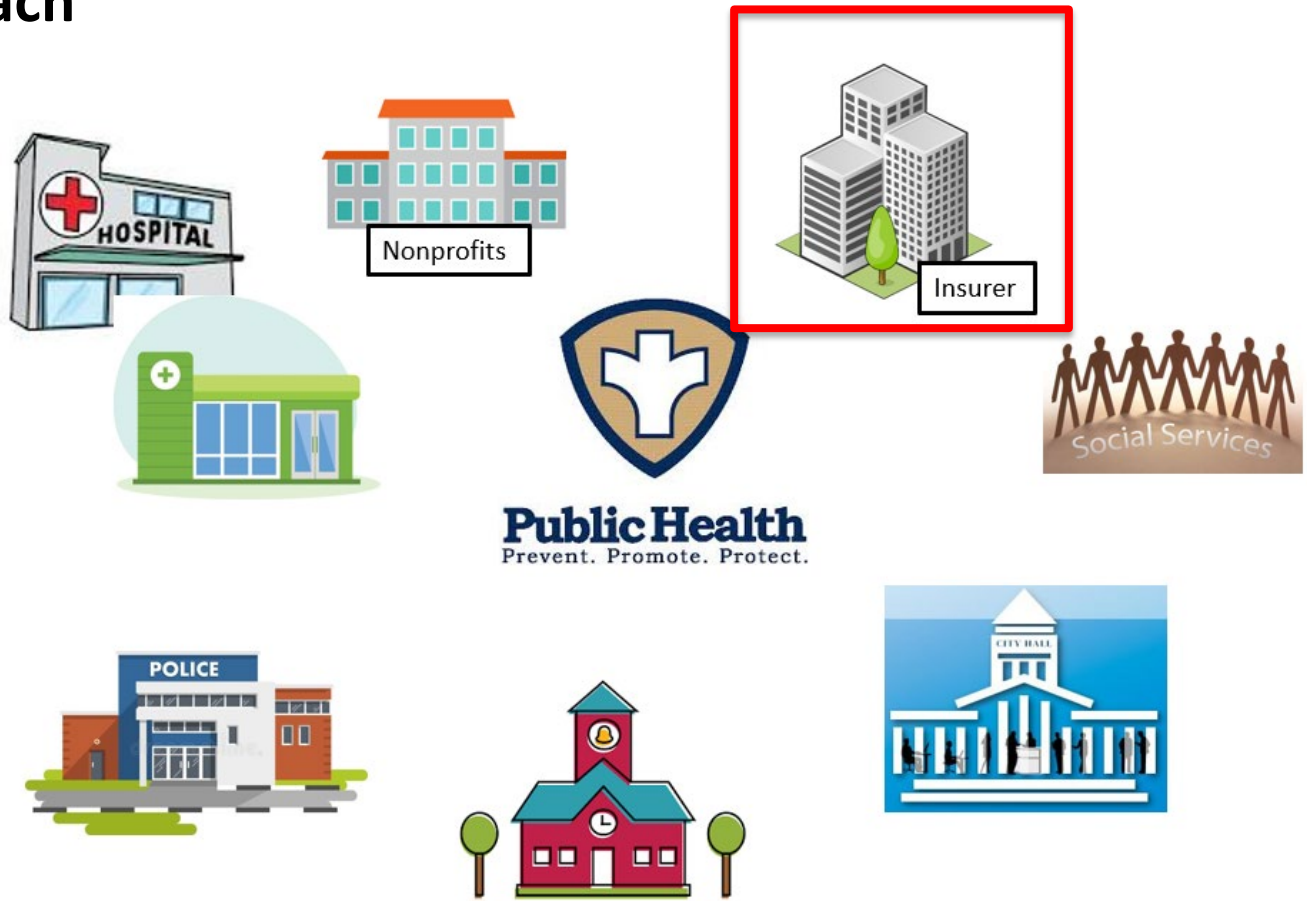
- Findings and conclusions are my own and do not necessarily represent views of AHRQ and RWJF

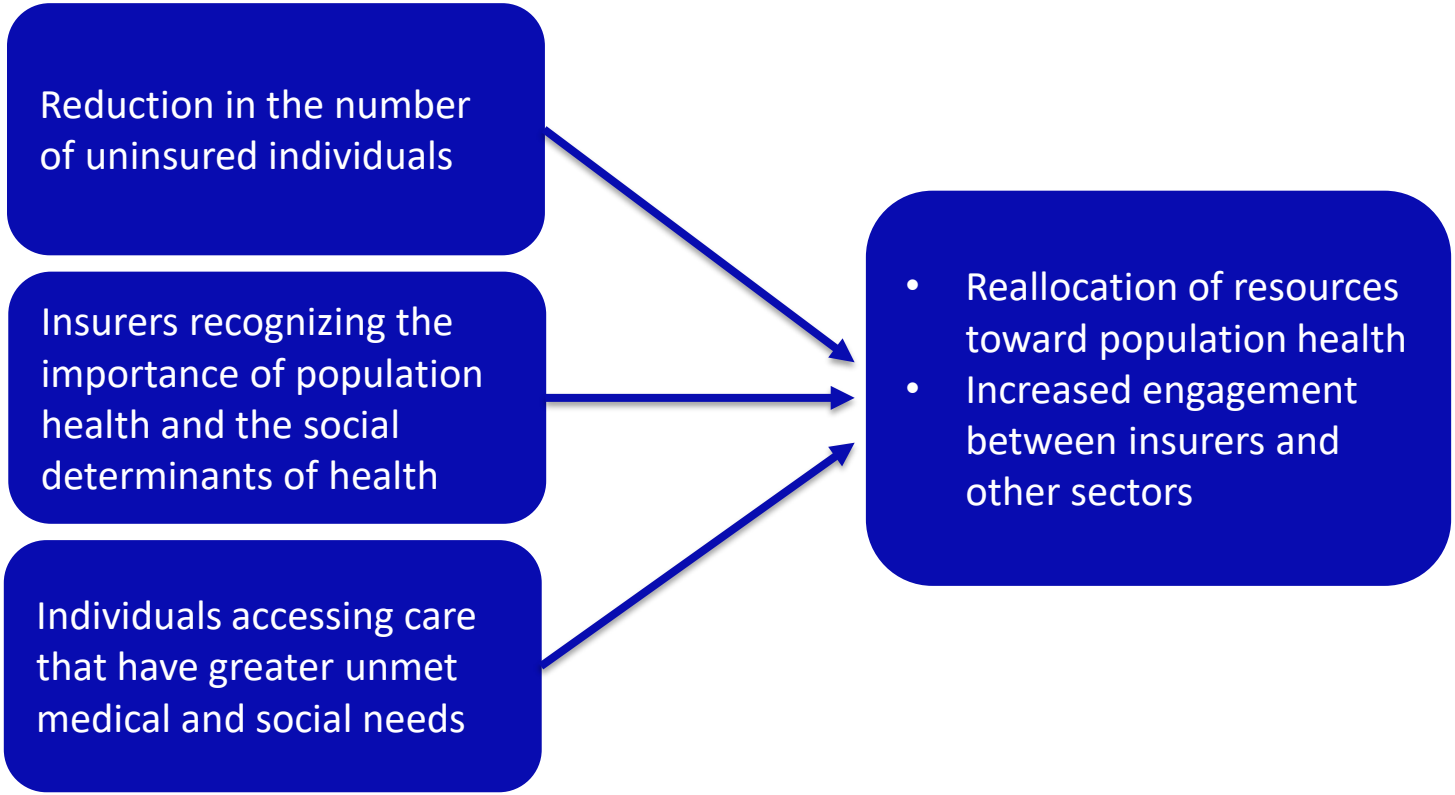
Addressing population health outcomes requires a multisector approach



Background

- Attention toward addressing the social and environmental factors that influence health outcomes continues to grow
- Payers and providers thinking about health in different ways
- Potential financial gains for insurers when they participate in population health initiatives

System-wide factors driving change



Questions of Interest

- How do insurers engage in population health activities at the community level?
- How has insurer participation in population health networks changed over time?
- What is the relationship between insurer participation and diabetes-related preventable hospitalizations?

Data Used

- National Longitudinal Survey of Public Health Systems (NALSYS)
- Cohort of 360 communities with at least 100,000 residents
- Followed from 1998-2018
- Local public health officials report:
  - **Scope:** availability of 20 recommended core public health activities
  - **Network:** organizations contribution to each activity
  - **Centrality of effort:** contributed by the governmental public health agency
  - **Quality:** perceived effectiveness of each activity

NALSYS activities

Assessment

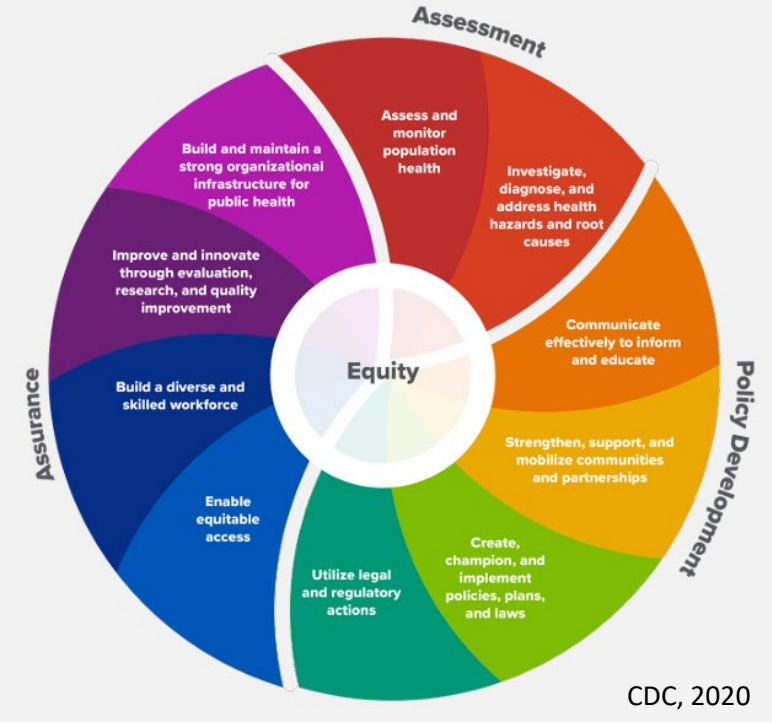
Conduct periodic assessment of community health status and needs
Survey community for behavioral risk factors
Investigate adverse health events, outbreaks, and hazards
Conduct laboratory testing to identify health hazards and risks
Analyze data on community health status and health determinants
Analyze data on preventative services use

Policy and planning

Routinely provide community health information to elected officials
Routinely provide community health information to the public
Routinely provide community health information to the media
Prioritize community health needs
Engage community stakeholders in health improvement planning
Develop a community-wide health improvement plan
Allocate resources based on community health plan
Develop policies to address priorities in community health plan
Maintain a communication network among health-related organizations

Assurance and evaluation

Link people to needed health and social services
Implement legally mandated public health activities
Evaluate health programs and services in the community
Evaluate public health agency capacity and performance
Monitor and improve implementation of health programs and policies



CDC, 2020

Data Used

- NALSYS data from 2012 - 2018
- Linked with:
  - HCUP (Healthcare Cost and Utilization Project) State Inpatient Databases (SID), 2016 and 2018
  - Area Health Resource File to control for community and delivery system characteristics
- Final sample n=586 local public health jurisdictions across 20 states

Analytic Approach

- Key explanatory variables:
  - Insurer contributions to population health activities
    - Any activity, total contributions, and three functions of public health
  - Insurer connectivity in population health networks
    - Insurer betweenness centrality- how frequently insurers maintain stronger connectivity with other sectors than those sectors have with each other directly

Analytic Approach

- Key dependent variables:
  1. Diabetes short-term complications
     - Emergencies from imbalance of glucose and insulin
  2. Diabetes long-term complications
     - Complications from sustained poor control of diabetes
  3. Uncontrolled diabetes
     - High blood sugar levels
  4. Lower extremity amputation in diabetic patients
  5. Composite of all diabetes-related hospitalizations

Why diabetes-related preventable hospitalizations?

- Preventable hospitalizations are a set of acute and chronic conditions for which access to strong outpatient care can prevent, or significantly reduce, the chance of hospitalization
- Very little is understood about the relationship between hospitalization and other community supports

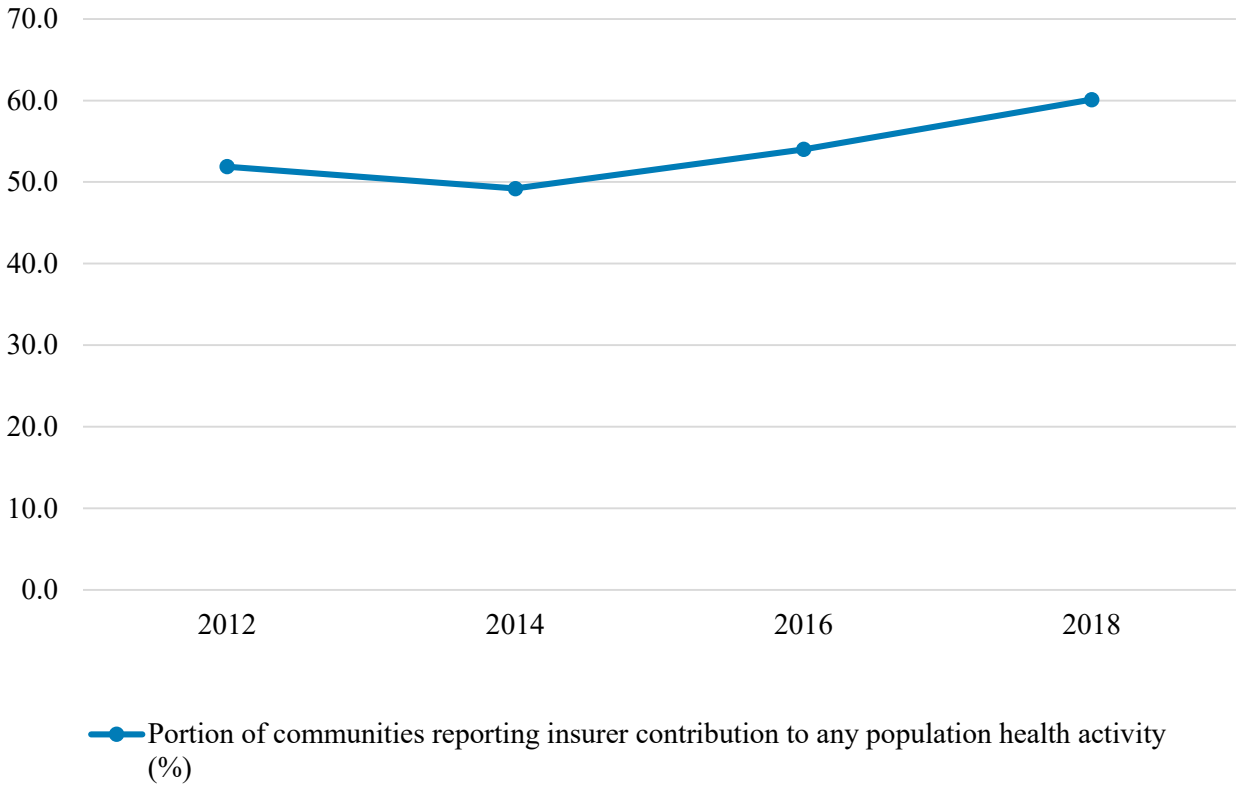
Why diabetes-related preventable hospitalizations?

- Diabetes is costly to patients and providers
  - Over 10% of the US population has diabetes
- High prevalence of unmet social needs in diabetic patients
- Insurers may offset financial risk by adopting population health approaches to address health and social needs in their enrollees

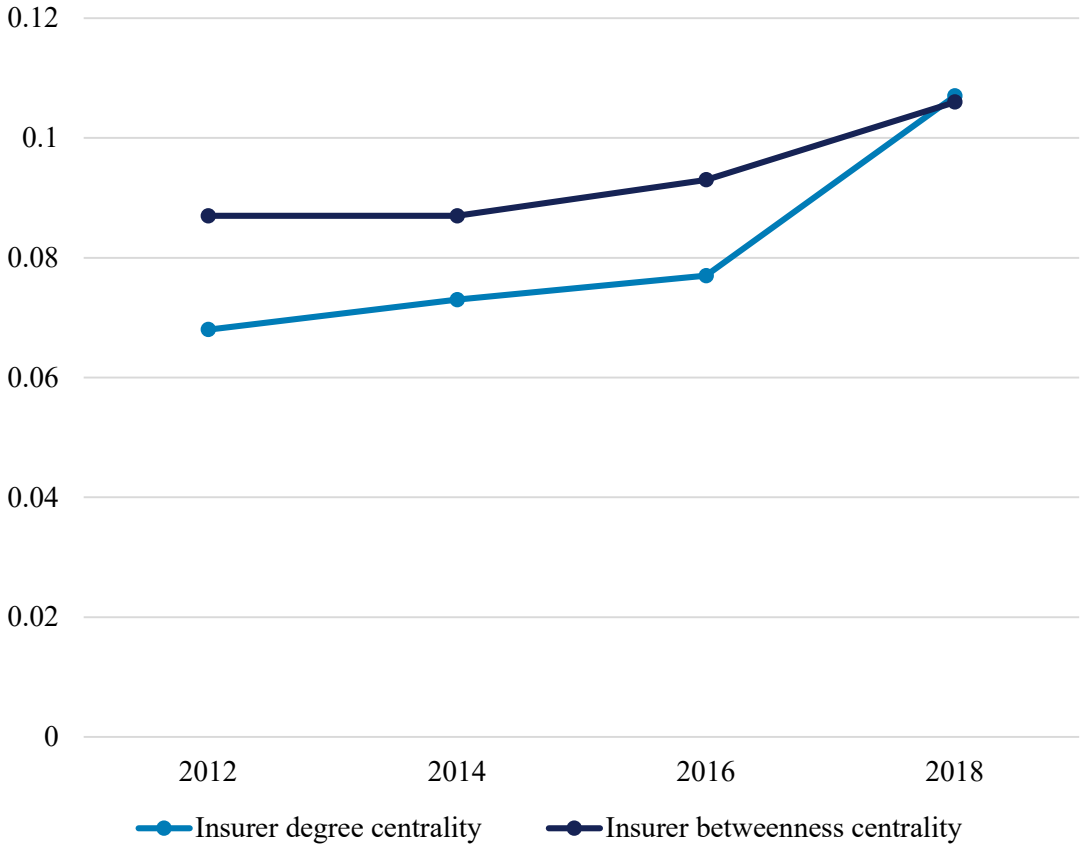
Analytic Approach

- Generalized linear models with a longitudinal specification
- Control for community socioeconomic and demographic characteristics

Trends in community uninsured rate and insurer engagement in population health activities



Insurer connectivity in population health networks



Longitudinal trends in insurer contributions to population health activities

	2012	2014	2016	2018	Percent change 2012-2018
Composite Measures (%)					
All activities	8.4	9.3	10.3	13.7	62.7
Assessment	6.7	7.3	9.4	13.2	96.3
Policy and planning	13.9	14.7	16.3	19.8	42.4
Assurance and evaluation	4.6	5.7	5.3	8.1	74.5

Longitudinal trends in insurer contributions to population health activities

	2012	2014	2016	2018	Percent change 2012-2018
Individual Activities (%)					
Assessment					
Conduct periodic assessment of community health status and needs	14.9	12.2	20.2	28.1	88.0
Survey community for behavioral risk factors	4.6	4.3	5.2	7.1	55.9
Investigate adverse health events, outbreaks, and hazards	1.7	2.8	1.6	2.6	58.0
Conduct laboratory testing to identify health hazards and risks	1.2	1.2	3.3	3.7	200.9
Analyze data on community health status and health determinants	10.8	15.4	17.6	23.6	118.7
Analyze data on preventative services use	7.1	8.3	8.8	13.9	96.5

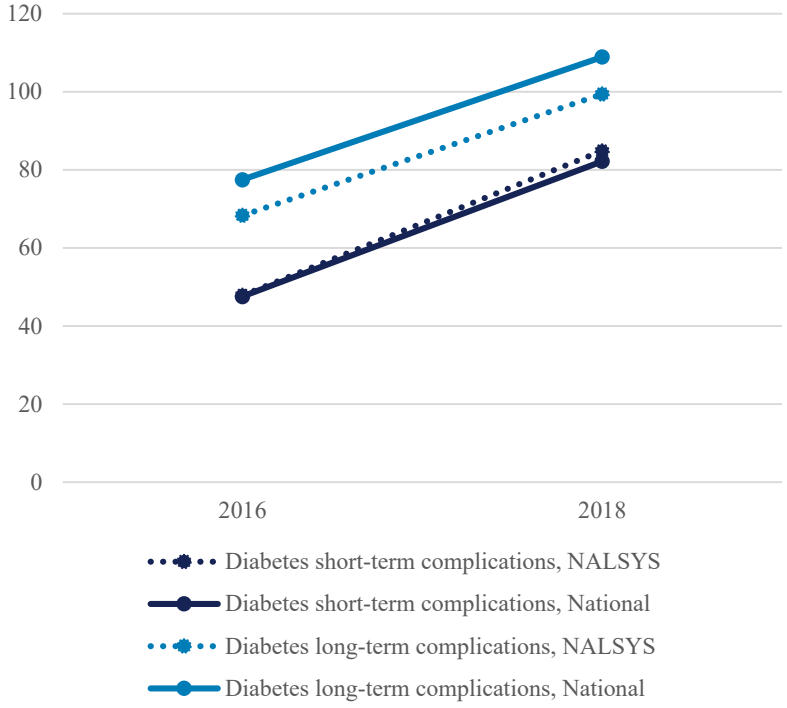
Longitudinal trends in insurer contributions to population health activities

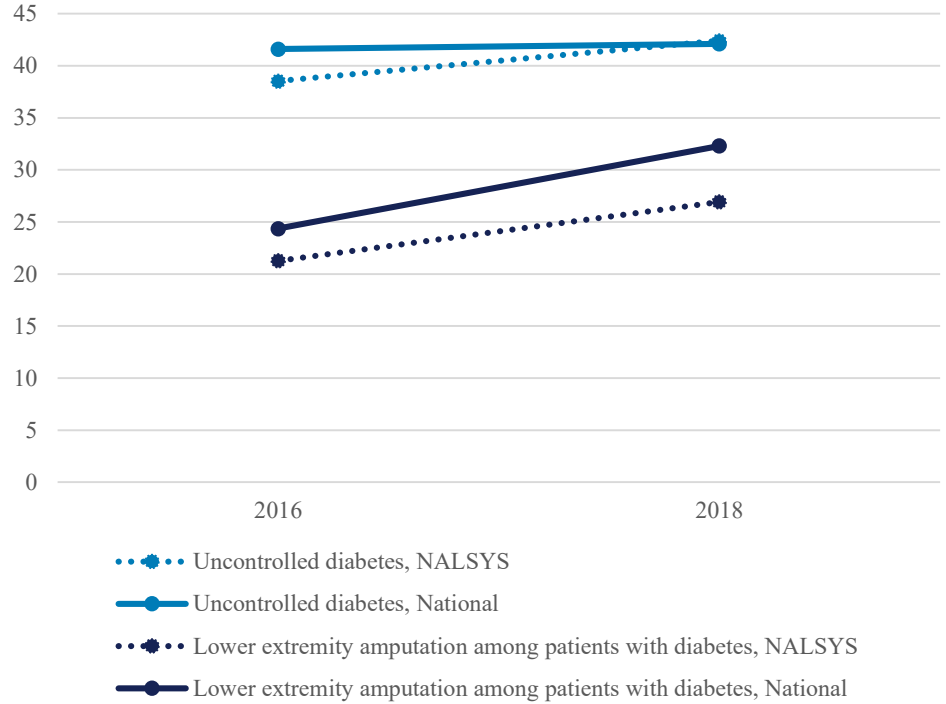
	2012	2014	2016	2018	Percent change 2012-2018
Individual Activities (%)					
Policy and planning					
Routinely provide community health information to elected officials	9.5	14.6	8.8	10.1	6.0
Routinely provide community health information to the public	22.0	19.7	22.5	18.0	-18.3
Routinely provide community health information to the media	13.7	14.2	13.7	12.4	-9.7
Prioritize community health needs	17.0	15.7	20.5	27.7	62.9
Engage community stakeholders in health improvement planning	14.5	17.7	17.6	27.7	90.8
Develop a community-wide health improvement plan	17.8	17.3	22.1	30.7	72.1
Allocate resources based on community health plan	5.0	4.7	8.5	11.6	133.2
Develop policies to address priorities in community health plan	10.0	8.7	13.7	17.6	76.8
Maintain a communication network among health-related organizations	15.4	19.3	19.2	22.1	43.9

Longitudinal trends in insurer contributions to population health activities

	2012	2014	2016	2018	Percent change 2012-2018
Individual Activities (%)					
Assurance and evaluation					
Link people to needed health and social services	14.5	14.6	13.0	19.5	34.1
Evaluate health programs and services in the community	4.1	4.3	5.2	6.7	62.5
Evaluate local public health agency capacity and performance	1.7	4.3	3.6	7.1	328.7
Monitor and improve implementation of health programs and policies	2.9	5.5	4.6	7.1	145.0

Longitudinal trends in diabetes-related hospitalizations





Association between insurer connectivity in health and social services networks and diabetes-related preventable hospitalizations

	Insurer betweenness centrality	Insurer participation in any activity	Insurer total contributions
Prevention Quality Indicators (PQIs)			
Individual PQIs			
Diabetes short-term complications	-5.8	-2.6	-2.2
Diabetes long-term complications	-55.0***	-15.22***	-25.5
Uncontrolled diabetes	-14.8**	0.4	-2.5
Lower extremity amputation among patients with diabetes	-8.7*	-2.7**	-5.7
Composite PQIs			
All diabetes-related preventable hospitalizations	-72.4**	-15.8**	-26.4
Observations=586			

***p<0.01, **p<0.05, *p<0.10

Note: Models control for community health and social service network density, population size, geographic location, hospital beds per capita, primary care physicians per 100,000 population, percent of the population non-white, unemployment rate, percent of the population below the poverty level, percent of the population over 65, uninsured rate

Association between insurer connectivity in health and social services networks and diabetes-related preventable hospitalizations

	Policy and planning	Assessment	Assurance and Evaluation
Prevention Quality Indicators (PQIs)			
Individual PQIs			
Diabetes short-term complications	-3.9	-8.4	14.8
Diabetes long-term complications	-21.5**	-35.8***	45.8**
Uncontrolled diabetes	-2.6	-6.4	7.1
Lower extremity amputation among patients with diabetes	-3.2	-7.7**	6.0
Composite PQIs			
All diabetes-related preventable hospitalizations	-26.8*	-50.3**	74.2**
Observations=586			

***p<0.01, **p<0.05, *p<0.10

Note: Models control for community health and social service network density, population size, geographic location, hospital beds per capita, primary care physicians per 100,000 population, percent of the population non-white, unemployment rate, percent of the population below the poverty level, percent of the population over 65, uninsured rate

Conclusions

- Insurers participation in population health networks increased over time
- Insurers are playing more central roles in the delivery of population health activities and functioning as a bridging organization

Conclusions

- Insurer participation is associated with lower diabetes-related preventable hospitalization rates, BUT with variation in measures
- Assurance and evaluation activities associated with higher rates in the composite and long-term complications

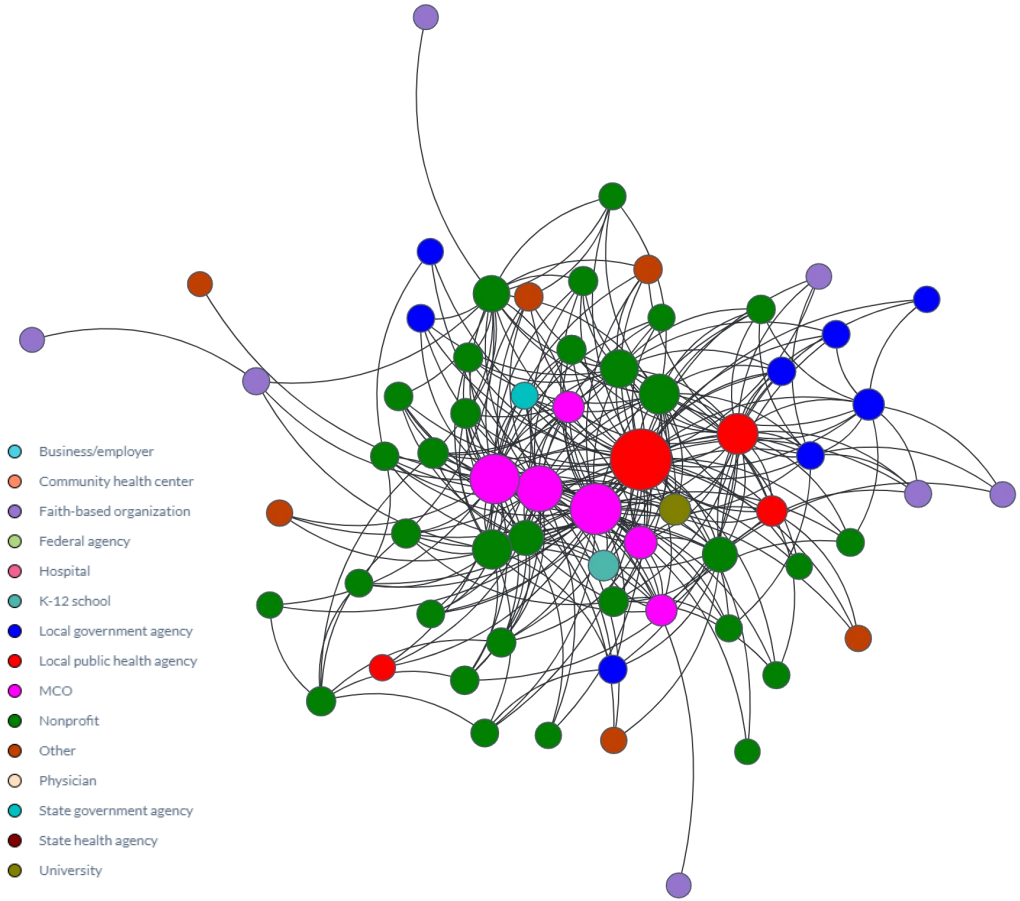
Implications for Policy and Practice

- Insurer participation in the delivery of core population health capabilities has the potential to improve diabetes-related health outcomes
- Implementing policies that expand insurance coverage will likely continue to shift insurer orientation toward population health initiatives

Limitations and Next Steps

- Limited to those networks we could link to HCUP
- Broad insurer category, but not depth
- Not measuring quality of interaction
- Data coming from the local public health perspective
- Merging with additional data on the market
- Additional mixed methods work to further understand insurer roles

What's happening in these networks?



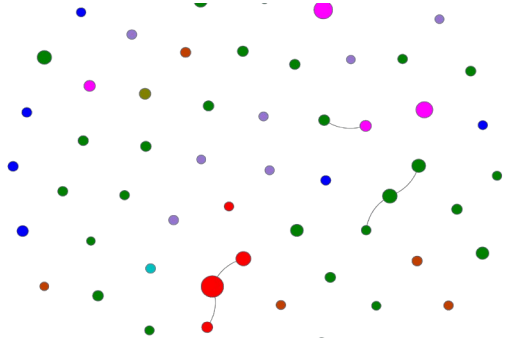
Network Structure

- Largely centralized structure arranged around a few organizations
- Effort is evenly distributed between the less central organizations
- Low density, with only 7% of relationships in place
- Majority of partners are nonprofit organizations
- MCOs play an important role in the screening and referral network, but local public health and community nonprofits also hold central positions

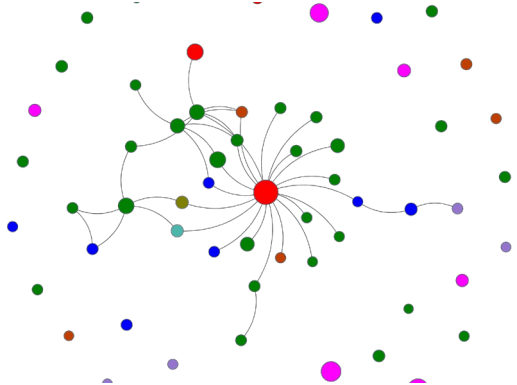
*SNA completed with PARTNER Tool, https://visiblenetworklabs.com/partner-cprm/

How frequently is your organization referring enrollees for an unmet social need?

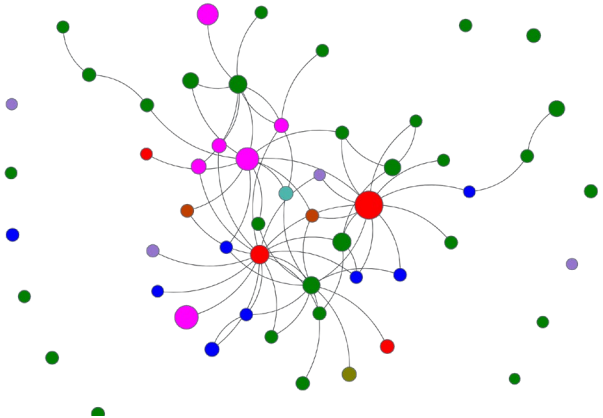
Daily



Weekly

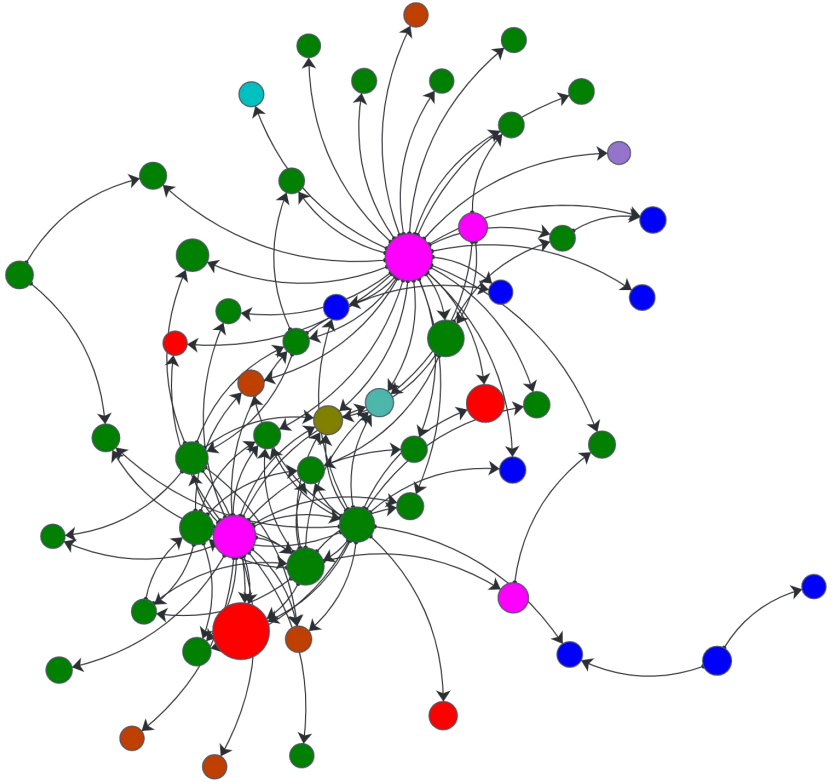


Monthly

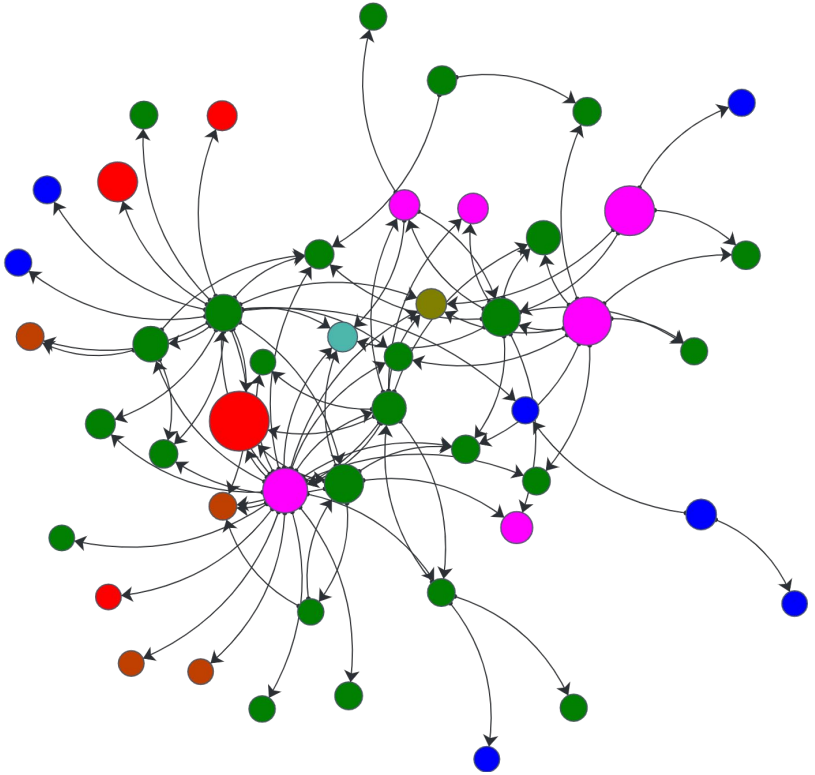


Partnership Outcomes

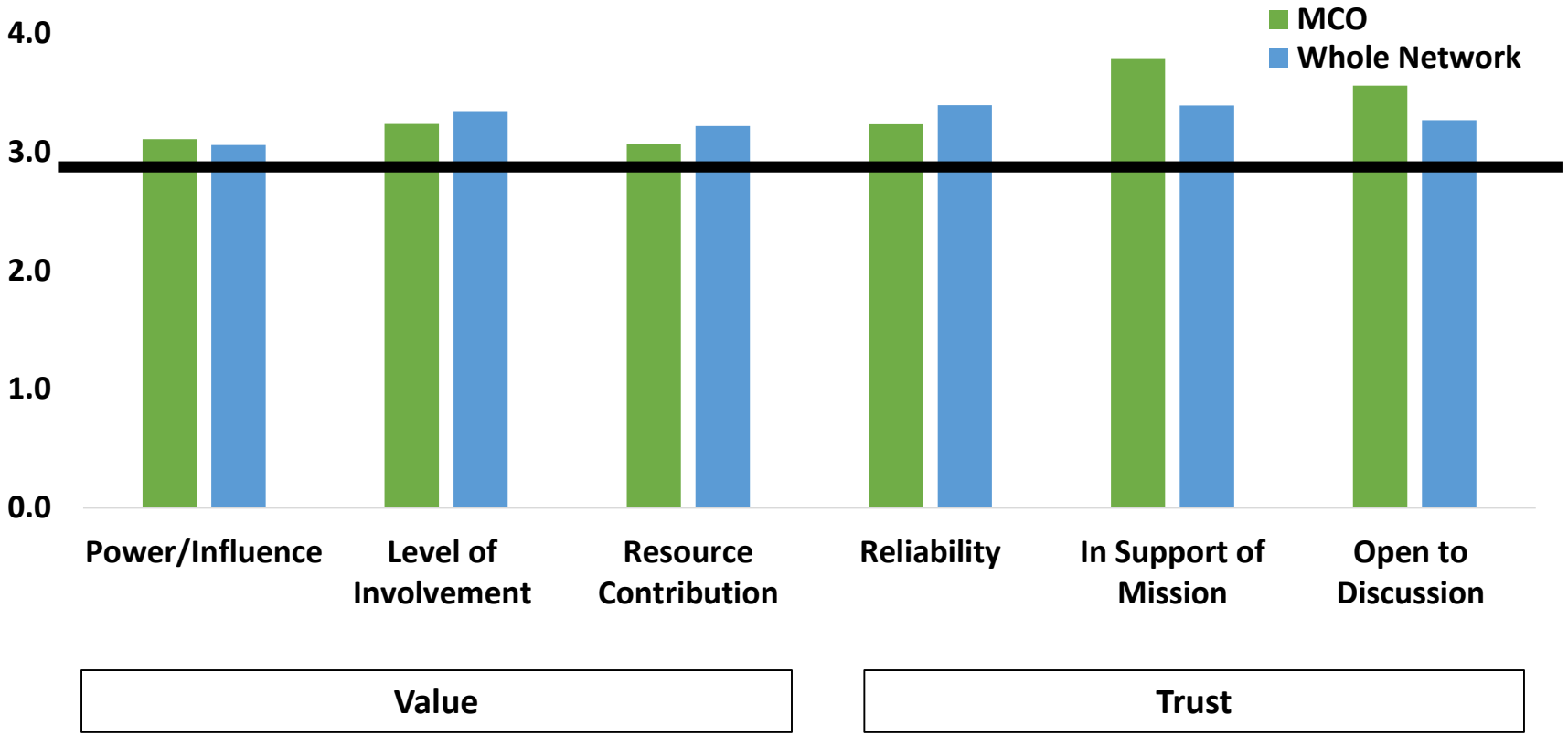
Improved services and community capacity to address unmet social needs



Led to an exchange of resources and new funding opportunities



Trust and value perceptions



Questions?

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