Evaluating Inclusiveness in Multi-Sector Community Health Networks: The Case of Tribal Organizations

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Acknowledgements

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Systems for Action is a National Program Office of the Robert Wood Johnson Foundation and a collaborative effort of the Colorado School of Public Health, administered by the University of Colorado Anschutz Medical Campus in Aurora, CO.

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National Coordinating Center
Systems and Services Research to Build a Culture of Health

AI/AN Health

Age-Adjusted Mortality Rates, 2010

Rates per 100,000 population

	AI/AN	All Races
Alcohol-induced	50.0	7.6
Diabetes	66.0	20.8
Drug-induced	23.4	15.3
Influenza	26.6	15.1
Liver Disease	42.9	9.4
Suicide	20.4	12.1

Indian Health Services. (2019) Disparities. https://www.ihs.gov/newsroom/factsheets/disparities/

AI/AN Public Health Services

- The Indian Health Service (IHS) is tasked with providing health care to members of federally-recognized tribes at no cost.
  - Only 3% of IHS funding is allocated to preventive health and ~6% of funding is devoted to mental and behavioral health services.[1]

- AI/AN residents living outside of tribal lands are under the purview of the IHS as well as non-tribal, state and local public health agencies.

- The responsibility to deliver public health services to communities living on tribal lands primarily remains with tribes and tribal health organizations.

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1. Heisler, EJ. Indian Health Service(IHS) Funding: Fact Sheet. 2017. Congressional Research Service. https://crsreports.congress.gov/product/pdf/R/R44040.

Cross-Sector Collaboration

Table 8 THO PUBLIC HEALTH NEEDS

Need	Additional Resources (n=86)		CDC % (n=89)		Other Federal Agencies (n=84)		States % (n=77)		TOTAL
	N	%	N	%	N	%	N	%	N
Funding support	34	40%	36	40%	33	39%	34	44%	137
Training (including technical assistance)	7	8%	27	30%	12	14%	8	10%	54
Partnership support	3	3%	2	2%	9	11%	21	27%	35
Public health education/materials support (culturally relevant, including public health education, public health law; communication)	13	15%	14	16%	3	4%	3	4%	33
Staffing support	26	30%	2	2%	2	2%	2	3%	32
Data support	10	12%	10	11%	2	2%	8	10%	30
Honoring the federal trust responsibility through consultation and respecting Tribal sovereignty			3	3%	6	7%	5	6%	14
IT support (including equipment and telehealth)	14	16%							14
Infrastructure support	10	12%							10
Public health accreditation support	1	1%	2	2%	1	1%	3	4%	7
Transportation support	7	8%							7
Loan repayment/forgiveness			1	1%	1	1%	4	5%	6
Public Health Associate Program (PHAP, CDC-specific program) support			4	4%					4
Reimbursement for non-clinical services							4	5%	4

National Indian Health Board. *Public Health in Indian Country Capacity Scan Report, 2019*.

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Study Objective

To understand the variation of inclusion of tribal organizations in community health networks and the predictors of inclusion.

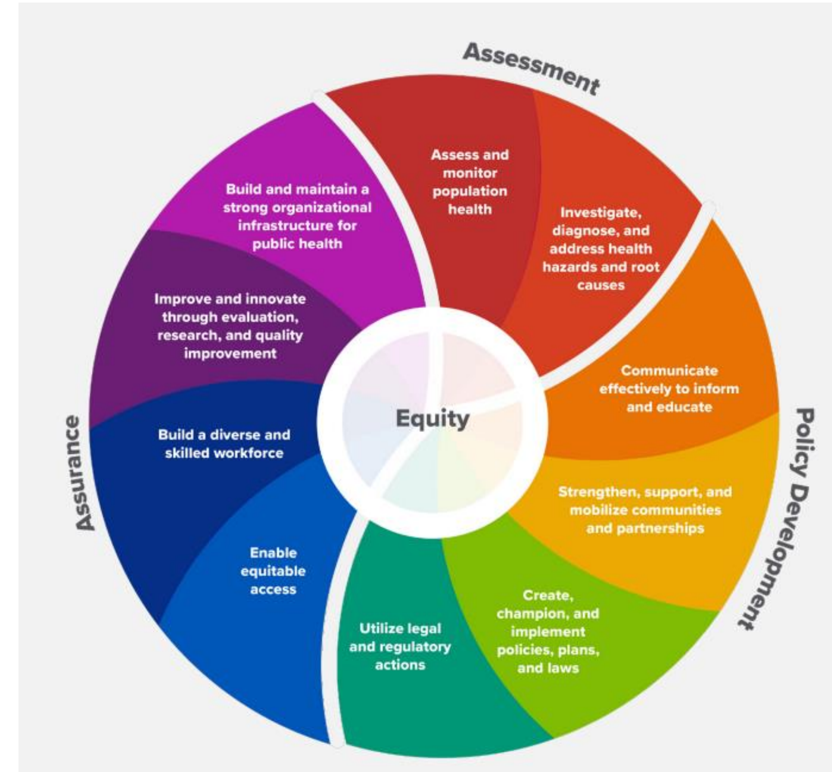
NALSYS Data

We used 2018 data from the National Longitudinal Survey of Public Health Systems (NALSYS).

NALSYS collects information about **19** public health activities.

1) Whether the activity was implemented in the community during the past 3 years.
2) The network of organizations involved in activity implementation (e.g., hospitals, primary care providers, health insurers, employers, schools, community- and faith-based organizations).
    - "Tribal organization" added in 2018.

n = 1,048 counties



https://debeaumont.org/10-essential-services/

http://systemsforaction.org/national-longitudinal-survey-public-health-systems

Outcome Measures

Tribal Inclusion in Community Health Networks

- **Extensive Margins:** Binary indicator for whether tribal organizations participated in at least one of the 19 public health activities.
- **Intensive Margins:** Proportion of activities with tribal organization participation out of the total number of activities implemented.

Diversity in Partnerships

- **Tie Strength:** Proportion of activities jointly contributed with other organizations.

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Analysis

- Two-part regression models were used to estimate predictors of tribal inclusion.
  - 1st stage – Logistic regression model (*extensive margins*)
  - 2nd stage – Generalized linear model with a log link and gamma distribution (*intensive margins*)

- Social Network Analysis visualizations were created to evaluate the diversity in partners.
  - Dyads represent the tie strength between two sectors.

Results

16% counties reported any tribal involvement (n=165)

Tribal Involvement

Percent

0
10
20
30
40

8.9%
1.8%
30.7%
10.0%

No AI/AN Facility (n=719)
AI/AN Facility Present (n=329)

Extensive
Intensive

Results –by Activity Type

Top Public Health Activities with Tribal Involvement
Conditional on Any Tribal Involvement (n = 165)

Activity	% of Activities with Tribal Involvement
Prioritize community health needs	44.2
Maintain communications network	38.2
Investigate adverse health events	34.8
Assess community health needs	34.8
Develop community health action plan	30.9

Results –by Activity Type

Bottom Public Health Activities with Tribal Involvement

Conditional on Any Tribal Involvement (n = 165)

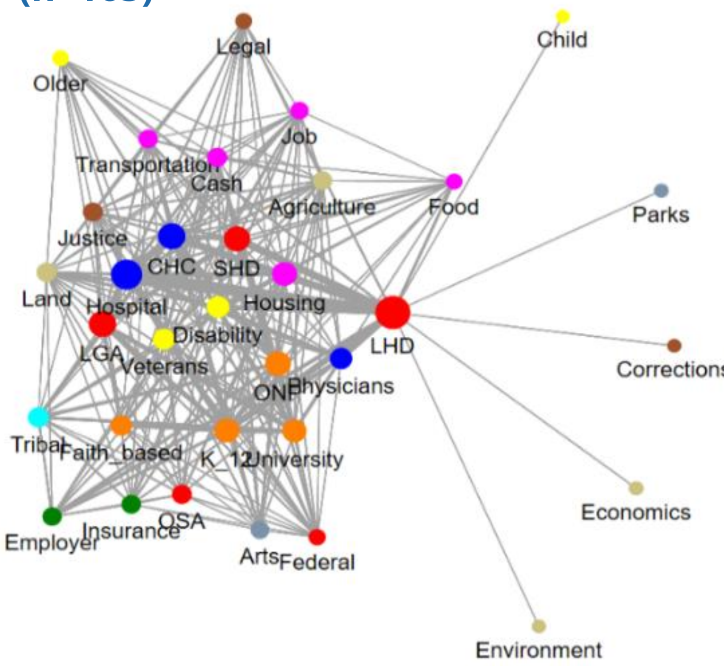
Activity	% of Activities with Tribal Involvement
Analyze preventive services use	7.5
Evaluate impact of programs on health	7.4
Conduct lab testing for health investigations	6.7
Program monitoring and quality improvement	3.7
Assess local public health agency capabilities	3.7

0 10 20 30 40

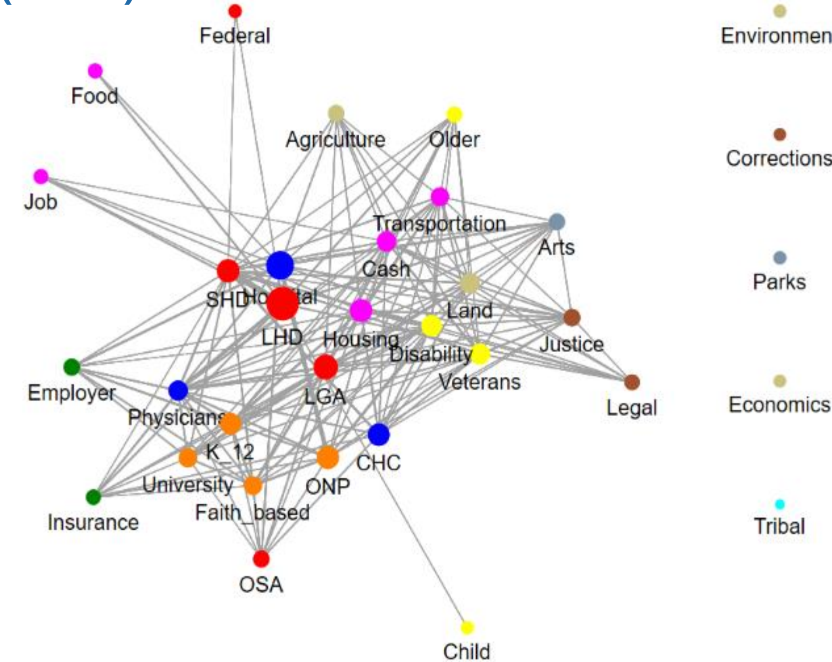
% of Activities with Tribal Involvement

Results – Network Analysis

Networks with tribal involvement (n=165)



Networks without tribal involvement (n=883)



Predictors of Tribal Involvement in Community Health Networks

VARIABLES	Logit	GLM	Overall
AIAN-Below 1%	0.054	-0.088	-0.003
	(0.065)	(0.070)	(0.020)
AIAN-Above 1%	0.027**	-0.002	0.006***
	(0.011)	(0.005)	(0.002)
Rural*AIAN-Below 1%	-0.081	0.001	-0.020
	(0.097)	(0.087)	(0.040)
Rural*AIAN-Above 1%	-0.012	0.008	0.001
	(0.012)	(0.005)	(0.003)
IHS-directed health facility	0.069	-0.003	0.017
	(0.050)	(0.040)	(0.011)
Tribal-led health facility	0.117*	0.075	0.045***
	(0.060)	(0.049)	(0.014)
Urban Indian health programs	-0.005	0.006	-0.000
	(0.039)	(0.044)	(0.012)
Non-IHS tribal health facility	-0.057	-0.037	-0.020
	(0.048)	(0.077)	(0.013)
Tribal Land Distance (10 miles)	-0.008**	-0.009**	-0.004***
	(0.004)	(0.004)	(0.001)
Tribal Epidemiology Center	-0.034	0.093	0.003
	(0.047)	(0.115)	(0.022)
Observations	1,035	165	1,035

***p<0.01, **p<0.05, *p<0.1; Table presents marginal effects. Models controlled for demographic and socioeconomic variables. Standard errors clustered at survey unit level.

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Study Limitations

- NALSYS data is self-reported data by local, **non-tribal**, health officials.
  - What constitutes a “tribal organization” is dependent on the interpretation by the local health official.
  - Future research should engage tribal stakeholders.
- Cannot assess the strength of collaboration between organizations or the intensity of participation in public health activities.

Key Findings

- The vast majority (84%) of community health networks do not report tribal organization involvement.
- Community health networks that include tribal organizations are more likely to have diverse networks compared to those without tribal involvement.
- Although the presence of tribal-led health facilities increased the likelihood of tribal involvement, IHS direct care facilities and Urban Indian Health Programs were not associated with tribal involvement in community health networks.

Public Health Implications

- Efforts to address AI/AN health should include dedicated funds to support cross-sector collaboration.
- Federal and state health agencies may promote tribal engagement at the local level by hiring a tribal health liaison.
- Community health networks may prioritize the inclusion of tribal organizations in activities where current participation is low and IHS services are insufficiently funded (e.g., preventive health services).

Questions? Suggestions?

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