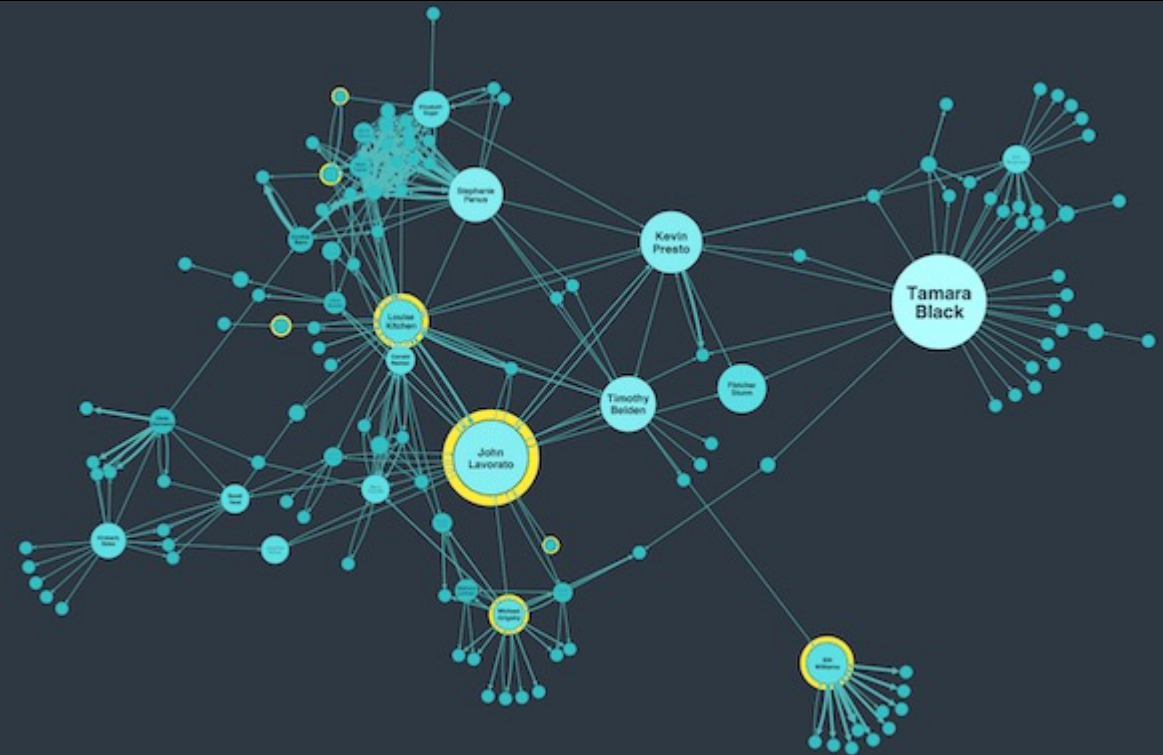


Social Networks in Public Health

Jerreed D. Ivanich, PhD



A little bit about the Ivanich Family





Metlakatla



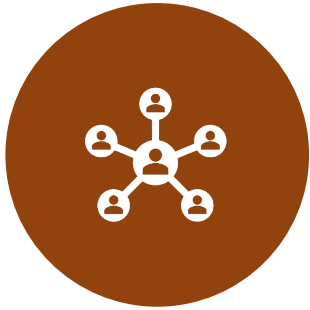
Metlakatla Indian Community (Tsimshian)



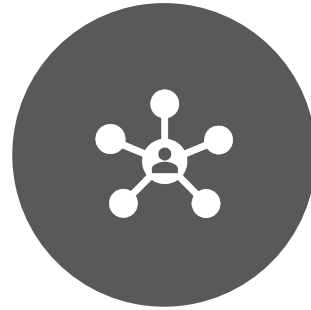
WHY SOCIAL
NETWORK
ANALYSIS (SNA)
WITH AI/AN
COMMUNITIES?



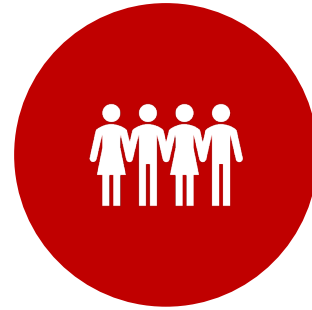
WHY SNA WITH AI/AN COMMUNITIES?



RELATIONSHIPS MATTER!



SOCIAL NETWORKS FOR
AI/ANs MAY NOT BE THE
SAME AS FOR OTHERS

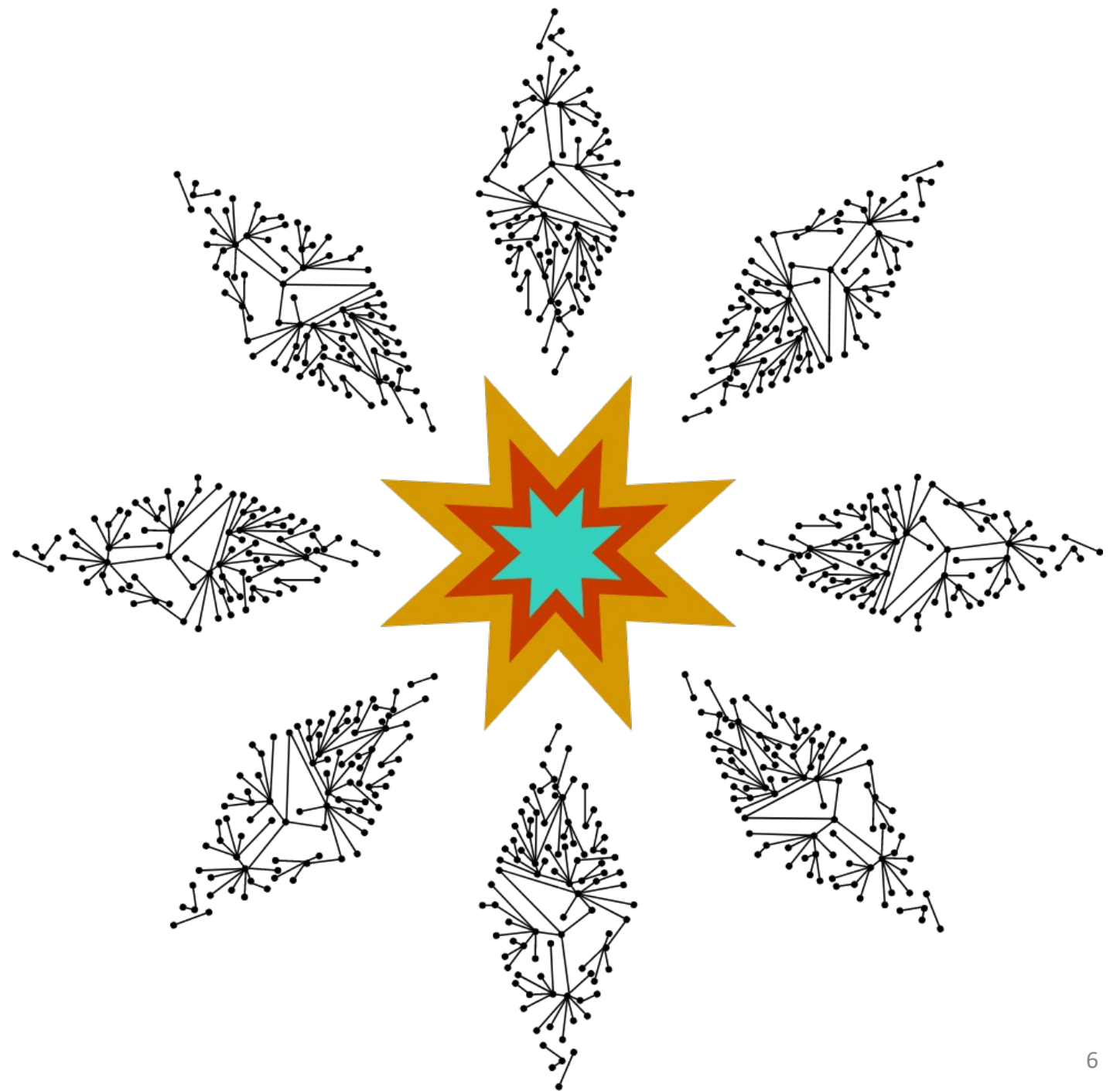


SOCIAL NETWORKS MAY HELP
US IMPROVE INTERVENTIONS
AND POLICY



SOCIAL NETWORKS MAY HELP
US IDENTIFY DEEPER
NEEDS/PRIORITIES

TRIBAL
RESERVATION
ADOLESCENT
CONNECTIONS
STUDY



Community Engagement

Grant writing

Community Advisory Boards

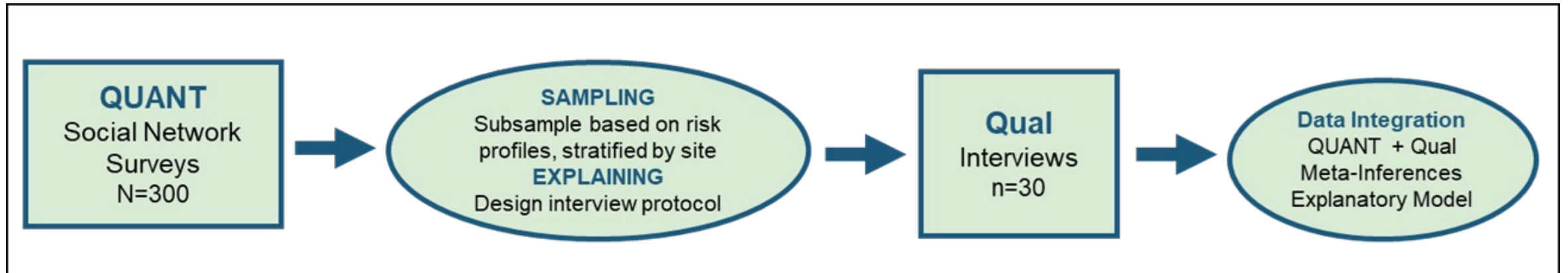
Tribal Research Review Board

School Board Meetings

Community Events

Services

Time



Aims & Design

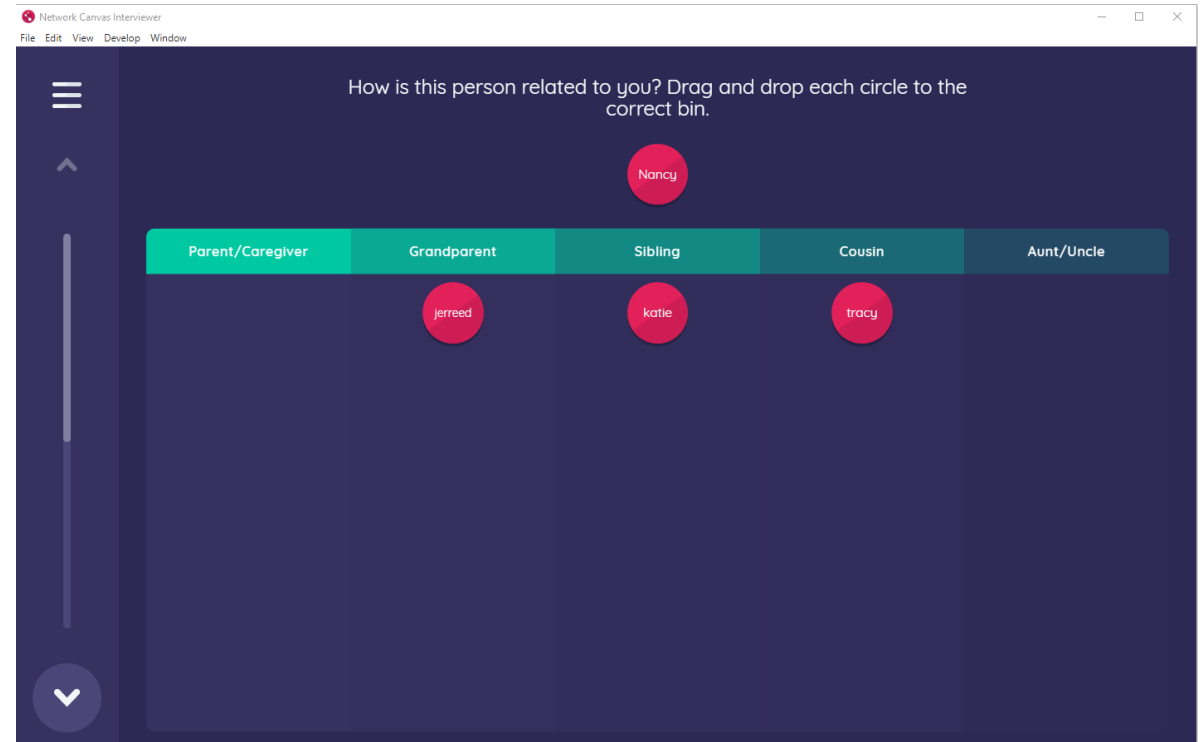
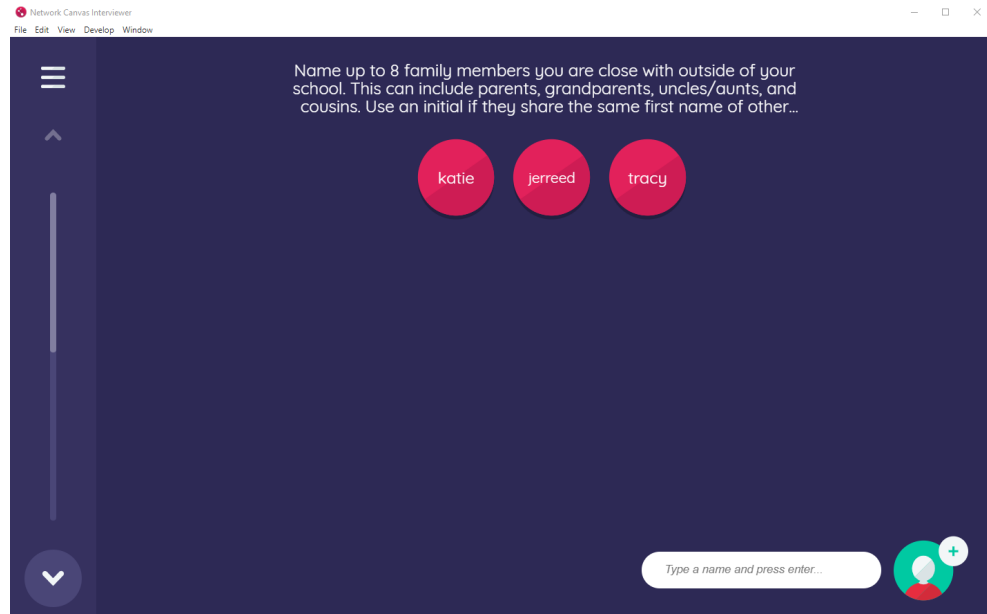
- Aims of the study
 - Describe peer, kin, and community social networks & predict risk and protective factors for substance use, violence, and suicide
- Explanatory sequential mixed method design (QUAN → Qual)
- Goal: inform prevention interventions

Quantitative Data

- Sample (N = 263)
 - Three schools (grades 9 and 10) on one reservation to assess differences within three community contexts
- Data Collection using Network Canvas
- Surveys administered on Android tablets at schools
- What do we ask?
 - Ego attributes & behaviors
 - Alter attributes & behaviors



Network Canvas



Social Network Data Analysis

- **Descriptive: Network structures (ego and whole – 1st)**
What do individual and school networks look like and how do they compare (across and within populations)?
- **Outcomes (ego)**
What factors of their network are related to outcomes (risk or protection, typologies)?
- **Dyadic**
How are ties formed? What influences why people are friends/connected (e.g., gender, grade, related, behaviors)?

Planned Social Network Data Analysis

Ego-level analysis

- Traditional inferential models

Dyadic-level analysis

- Multi-level analysis to understand social influence

Whole-network analysis

- What do individual and school networks look like and how do they compare (across and within populations)?

Descriptive Data

- Demographics:

- 40% female, 50% male, 10% another gender
- 94% Lakota (alone and in combination)

- Networks

- Average size: 14 (range 1-26)
- Native: 13 (range 0-26)
- Same gender: 73%
- Average number of nominated alters:
 - School = 6 (43%)
 - Family = 5 (36%)
 - Other = 3 (21%)

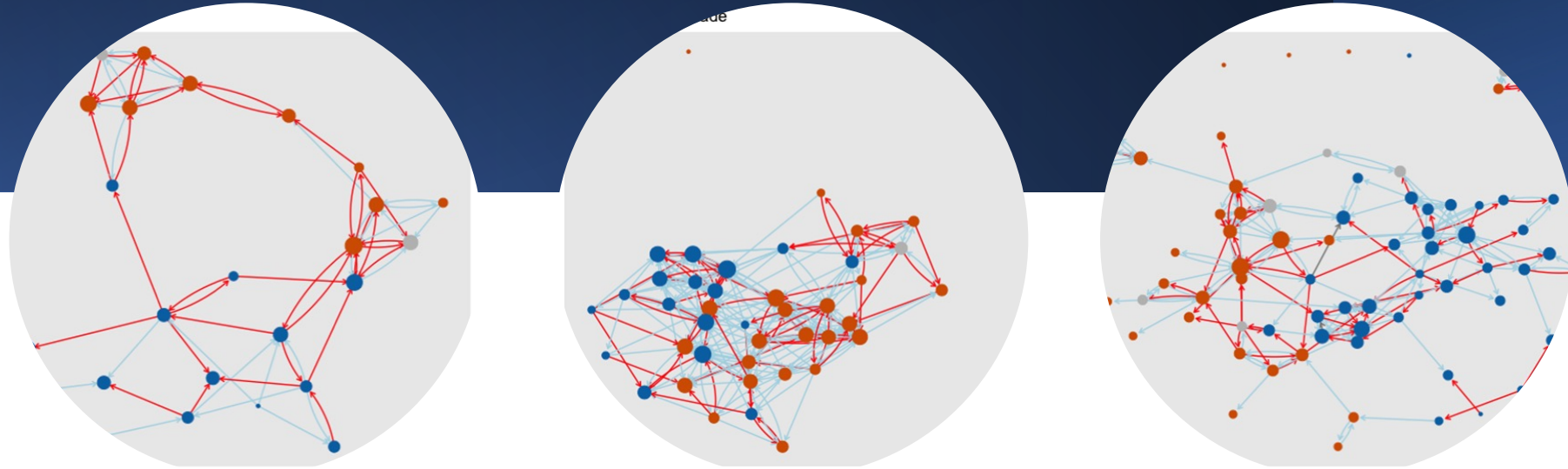
Descriptive Data

Statistic	Mean %
Age	15.38
Gender	
Female	41%
Male	51%
Non-binary, Trans, Two-Spirit, or Another Gender*	8%
School	
School #1	20%
School #2	53%
School #3	27%
Number Years at School	3.67
Race (Self-Identified)	
Lakota Combo	29%
Lakota Only	65%
Other AIAN**	2%
Other Race	5%
Race (Perceived)	
Lakota Combo	21%
Lakota Only	56%
Other AIAN	2%
Other Race	14%
White Only	8%
Note: *combined for privacy; **American Indian or Alaska Native	

Descriptive Data

	School #1				School #2				School #3			
Statistic	Mean	St. Dev.	Min	Max	Mean	St. Dev.	Min	Max	Mean	St. Dev.	Min	Max
Network Size	13.10	7.85	1.00	26.00	13.14	7.82	1.00	26.00	15.91	6.15	2.00	26.00
Proportion Network Same Gender	0.76	0.18	0.14	1.00	0.75	0.21	0.09	1.00	0.65	0.20	0.05	1.00
Proportion Same SES	0.32	0.33	0.00	1.00	0.29	0.34	0.00	1.00	0.33	0.33	0.00	1.00
Number of Native Alters	11.43	7.03	0.00	26.00	11.86	7.74	0.00	26.00	14.97	5.80	2.00	26.00
Alter Type (Proportion of network)												
School Alters	0.52	0.30	0.00	1.00	0.45	0.32	0.00	1.00	0.51	0.24	0.00	1.00
Family Alters	0.29	0.23	0.00	1.00	0.33	0.25	0.00	1.00	0.33	0.19	0.00	1.00
Other Alters	0.18	0.19	0.00	1.00	0.22	0.21	0.00	1.00	0.16	0.13	0.00	0.50
Age Groups												
< 10	0.18	0.49	0.00	2.00	0.23	0.91	0.00	9.00	0.21	0.45	0.00	2.00
10 - 12	0.29	0.65	0.00	3.00	0.36	0.86	0.00	6.00	0.20	0.53	0.00	2.00
13 - 15	4.29	4.36	0.00	18.00	4.74	4.30	0.00	16.00	7.56	4.55	0.00	17.00
16 - 18	4.18	4.38	0.00	18.00	3.46	3.63	0.00	20.00	3.01	3.32	0.00	18.00
19 - 30	1.43	1.41	0.00	5.00	1.43	1.94	0.00	9.00	1.39	1.76	0.00	10.00
31 - 60	1.61	1.69	0.00	8.00	1.98	2.25	0.00	10.00	2.59	2.04	0.00	8.00
61+	0.49	1.17	0.00	5.00	0.35	0.76	0.00	3.00	0.64	0.92	0.00	4.00

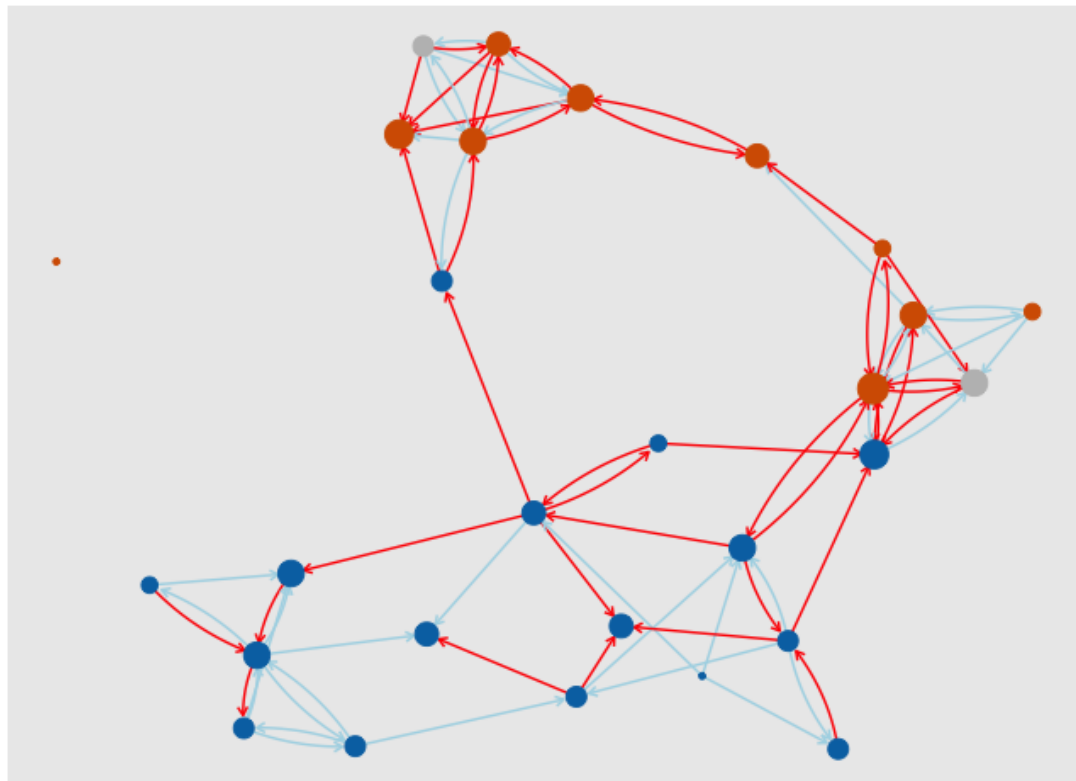
Networks by School



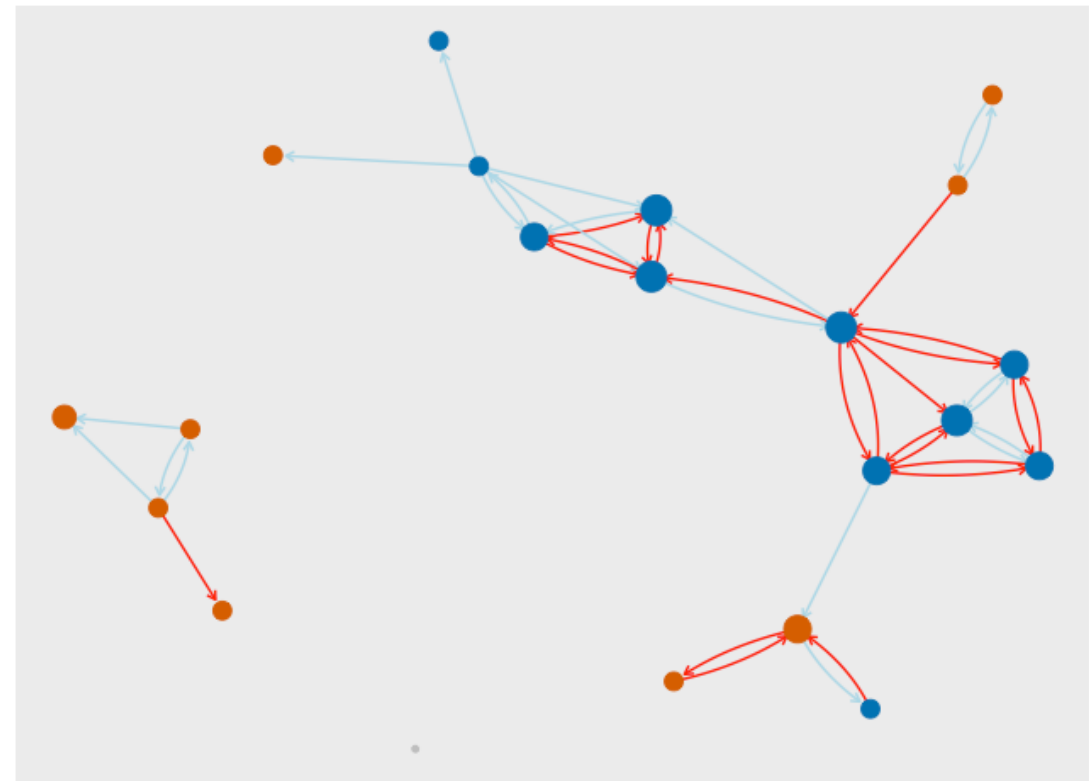
- School #1: The Smallest & most rural
- School #2: The Largest
- School #3: College Prep

Smallest School

School #1 - 9th Grade

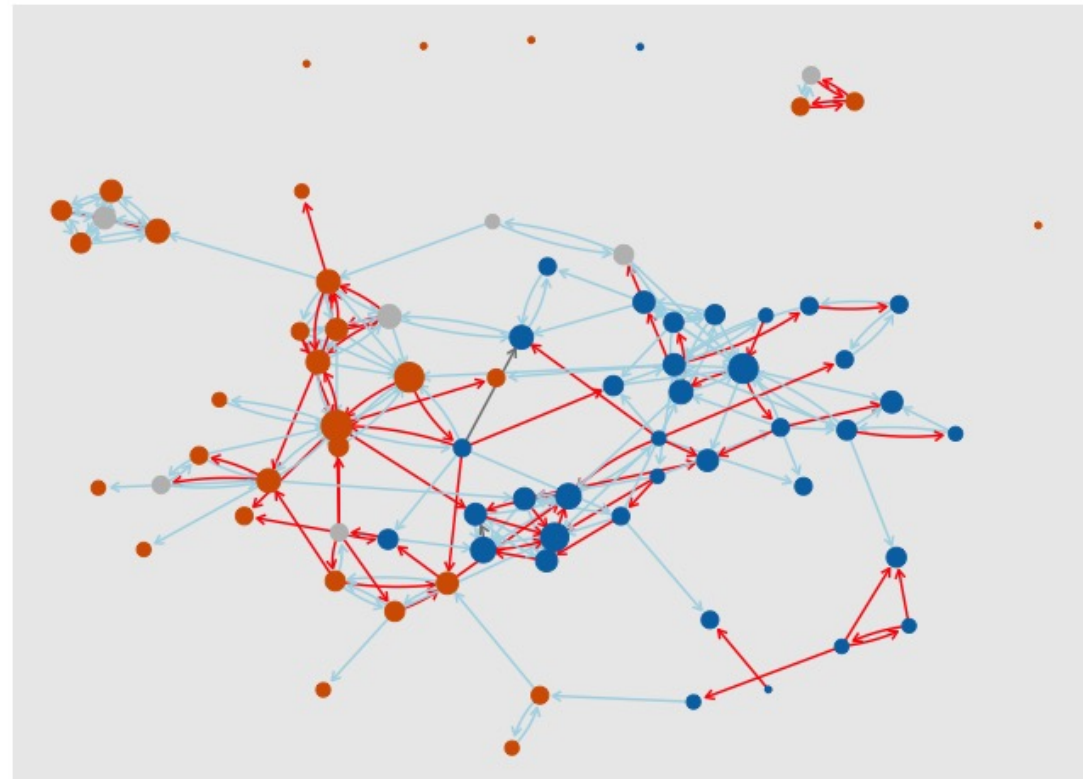


School #1 - 10th Grade



Largest School

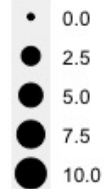
School #2 - 9th Grade



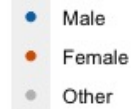
Family



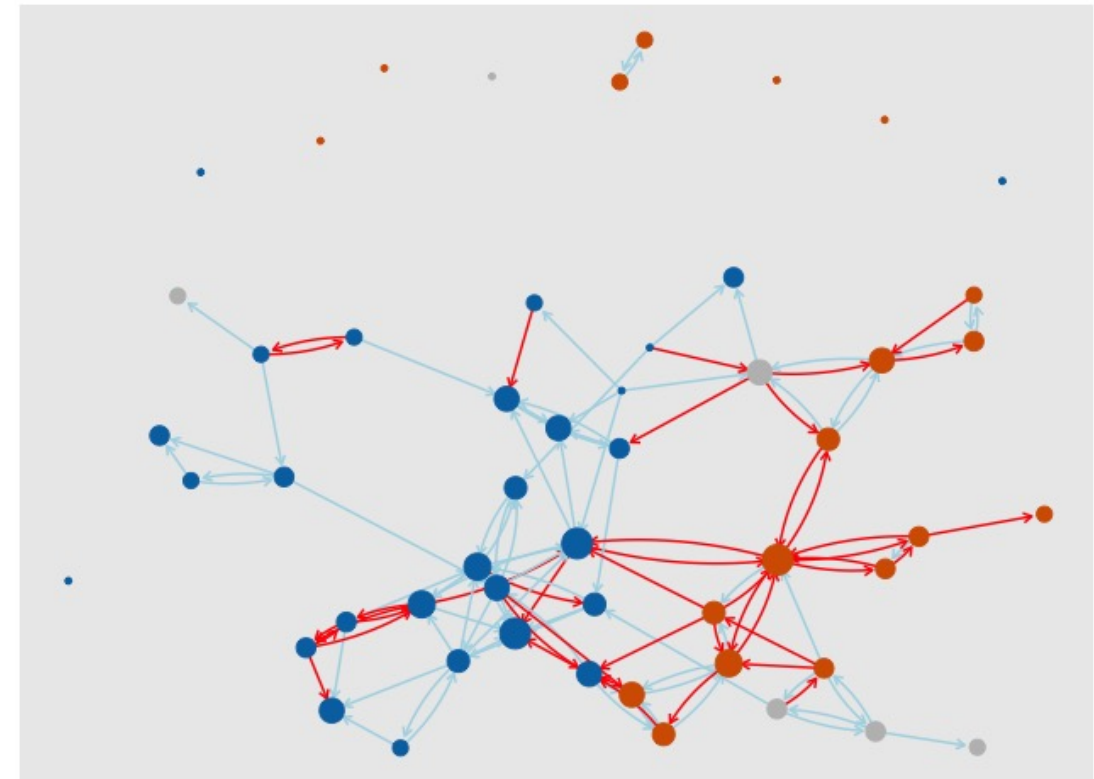
In-Degree



Gender



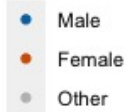
School #2 - 10th Grade



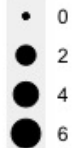
Family



Gender

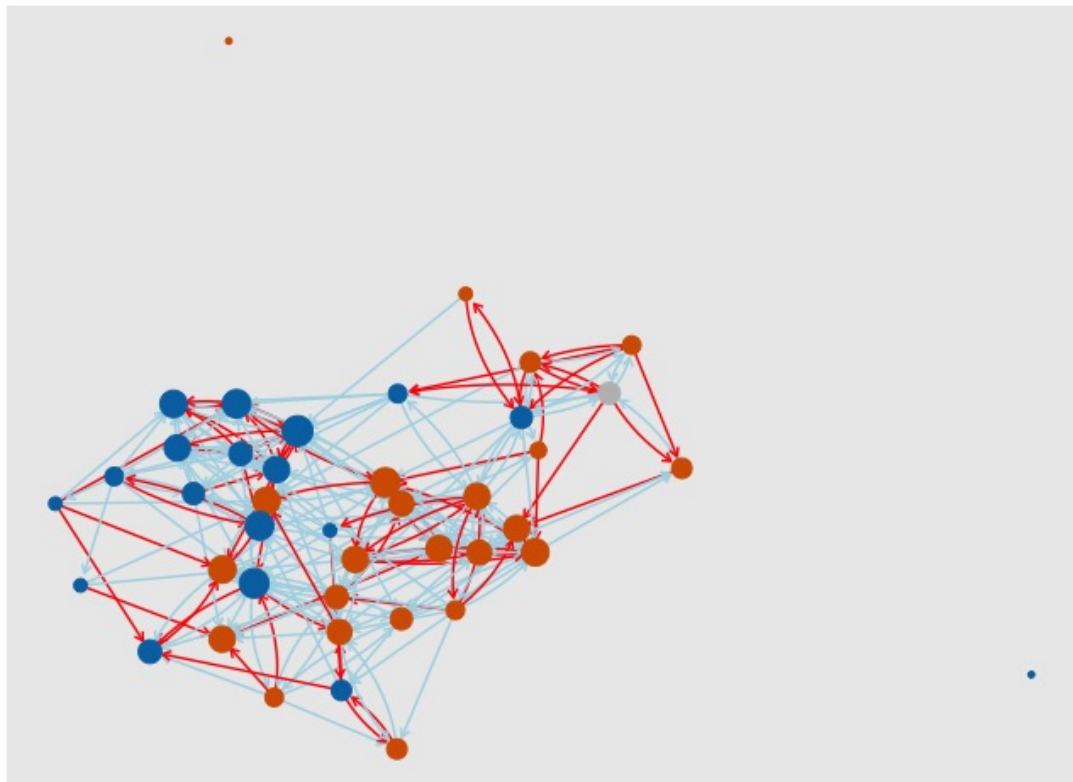


In-Degree



Private School

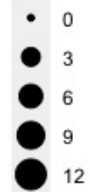
School #3 - 9th Grade



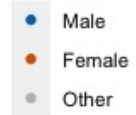
Family



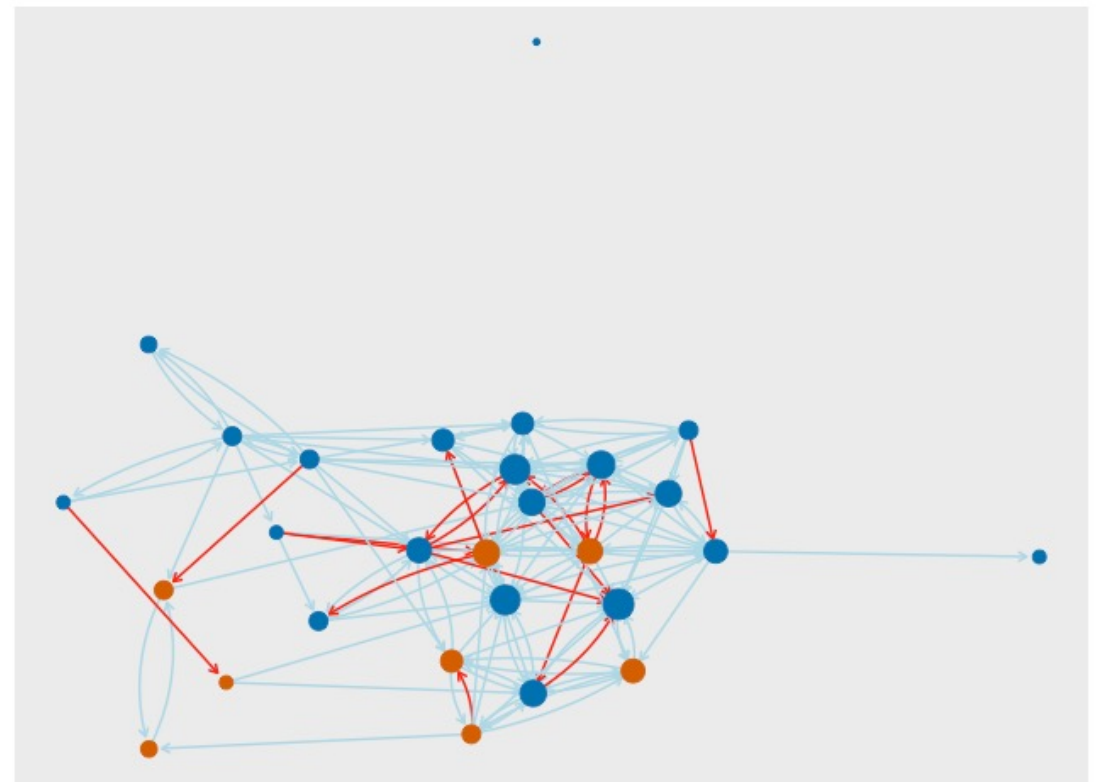
In-Degree



Gender



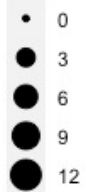
School #3 - 10th Grade



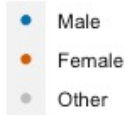
Family



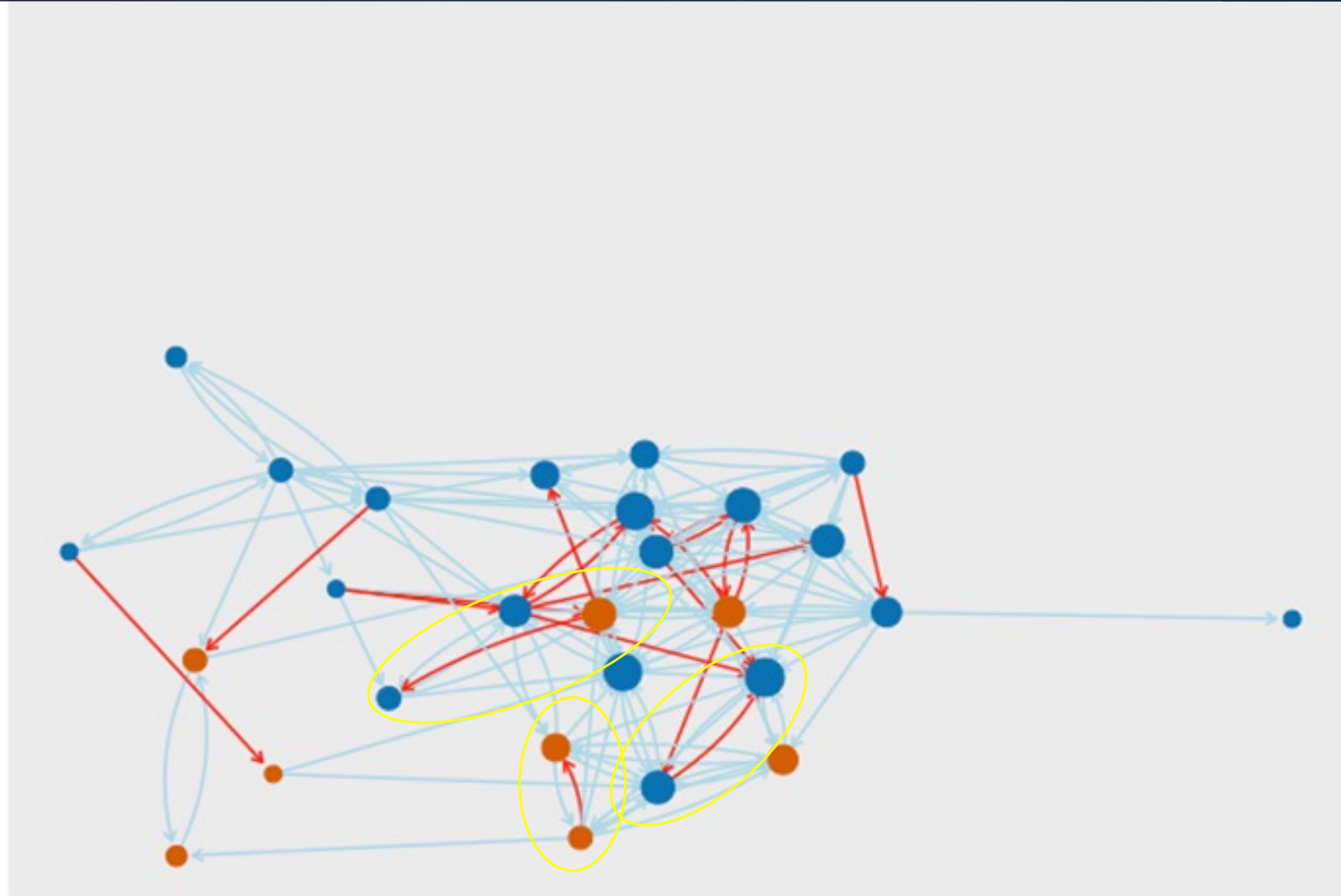
In-Degree



Gender



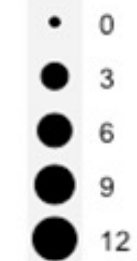
“Are we related?”



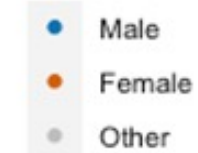
Family



In-Degree



Gender



Takeaways & Implications



Variation in networks across schools –
implications for prevention development
and implementation

One size may not fit all



Notions/understanding of family

Measurement?

Other conceptualizations?

How do we capture?



Similar in-degree within networks

Proxy for popular kids

Prevailing key opinion leader interventions
may not work

Sneak Peak: Outcomes

- Substance use
 - Increases:
 - Higher proportion of same gender in networks
 - Number of alters who drink
 - Decreases:
 - Having alters who encourage you not to use
- Suicide
 - Gender
 - High proportion family is protective
- Exposure to Violence
 - Qualitative Data

ERGMS

Gender



Grade



Sex Orientation



Depression



Lakota socialization



Race Perception

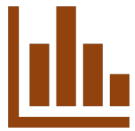


SC1

SC2

SC3

Next Steps



**Continue
Quantitative Data
Analyses**



**Qualitative
Interviews**



**Mixed Methods
Integration**



**Data from
Community to
Inform Use of
Findings**



**R01 Application
for Longitudinal
Study of Network
Formation and
Influence Over
Time to Inform
Intervention
Development or
Adaptation**

(T'oyaxsut 'nuusm)
Thank you!

**Jerreed D. Ivanich,
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Jerreed.Ivanich@cuanschutz.edu

NIH
HEAL
INITIATIVE

Preventing Opioid Use
Disorder in Older Adolescents
and Young Adults

