Use of Social Determinants of Health Data to Improve Access to Care in a Tribal Health System

ALPHA Summit 2020

Jaedon Avey, PhD
John Trainor, PhD, MPH
Kyle Wark, MA
Theresa Harris

65,000 Voices
The presenters were supported by Award #1CPIMP171148 from the U.S. Department of Health and Human Services’ Office of Minority Health. The contents of this manuscript are the sole responsibility of the authors and do not necessarily represent the official view of the Office of Minority Health.

Conflicts of Interest: The presenters have nothing to disclose.
Project Aims

1. Identify & link tribal healthcare data to SDOH
2. Increase access to SDOH-related data
3. Expanded engagement with SDOH data
4. Increased availability of SDOH-related data
Social Determinants of Health

The social determinants of health are the conditions in which we are born, we grow and age, and in which we live and work. The factors below impact on our health and wellbeing.

- Childhood experiences
- Housing
- Education
- Social support
- Family income
- Employment
- Our communities
- Access to health services

Source: NHS Health Scotland
Defining SDOH

Project Domains

- Demographics
- Economy
- Employment
- Political, Historical Conditions, & Colonialism
- Environmental
- Housing
- Medical Care
- Governmental
- Public Health
- Psychosocial
- Behavioral
- Transportation
- Relationships
- Cultural Identity
Project Activities

- Identifying existing data sources and elements
  - Culturally-responsive process
  - Not asking for new collection
  - No benchmarks

- Developing meta data, dictionaries, & methodologies

- Data structuring for multiple uses & ease of access
  - Data that can be transformed for varied reports
  - Include external data to supplant elements in some reports

- Data discovery & On the fly analytics
  - Maternal Child Health
Initial Thoughts About Uses of Data

- Targeted service delivery, prevention, and engagement
- Identify Service Mismatch
  - High risk + Low utilization
  - Low risk + High utilization
- Spark Conversations with Customer Owners
- Drive Community Advocacy
- Link SDOH to Grants
Referral and Follow-up

Internal / External Community Support Services
(Dena A Coy, Pathway Home, 4 Directions, Guayana Clubhouse, FWWI, Learning Circles, Elders Program, Health Education, WIC, Food Stamps, Division of Public Assistance, other State Programs)

Ongoing System SDOH Evaluation
Access to Care/ Cultural Support/ Support Activities / Customer Engagement/ System Integration/ Quality of Care / Continuity of Care/ Relationships/ External Recognition

System Performance Measurement (Data Mall) and Evaluation
Access: Minutes Available to see customers today (not 3rd next), Access Questionnaire
Cultural Support: Culture Respected (Questionnaire)
Support Activities: Program Evaluation of Support Activities and Services
Customer Engagement: Customer Engagement Survey
System Integration: Behavioral, Nutritionist and Pharmacy Integration and Metrics
Quality of Care: Primary, Secondary, Tertiary Care Metrics for Clinical Care
Continuity of Care: Empannelment to Primary Care and OB when pregnant; Did you see your provider?
Relationships: Core Concepts Training, Involved in decision making (questionnaire), Team training
External System Evaluation: Malcom Baldrige Performance Excellence Program participation & feedback
SDOH Referral and Follow-up: Qualify Applications Submitted/accepted

Data Science and Predictive Analytics via QA/QI and Research

Understand Potential Risks and Protective Factors
Early Issues with Data

**Project Activities**

- Identifying existing data sources and elements
- Developing meta data, dictionaries, & methodologies
- Data structuring for multiple uses & ease of access
- Data discovery & On the fly analytics
Data Sources

Internal (EDW)
- Cerner (Medical)
- Tier (Behavioral Health)
- Other operational databases

External
- Federal/State benefits qualification data from our customer-owners
- American Community Survey
- Municipality of Anchorage data
A third party handles qualification data
• 209,605 Rows going back to January of 2013.
• Priority elements are:
  • Housing type (rent/own)
  • Homeless
  • Gross Income
  • Assets
• 53,000 unique names
  • 7600 in the members table not in our table.

Validation of the 7600
• Compare data from iQualify_members Table with Customer_OWNER_demgraf Table
• First by MRN
• Then by DOB, First and Last name

Sandra Bullock
Jiminy Crocket
Honey Lit Duff
Benefits Qualification Data

- Solutions
  - Relationship with department
  - Renegotiation of data points
  - Changes in beta testing process
Screening Data Biased Towards Problems

Project Activities

1. Identifying existing data sources and elements
2. Developing meta data, dictionaries, & methodologies
3. Data structuring for multiple uses & ease of access
4. Data discovery & On the fly analytics
Most health paradigms emphasize risk
- Risk = odds of developing negative health states
- Resilience or protective factors = mitigation of risk

Resilience most often discussed as
- Three “processes”
  - Immunity (not affected by trauma)
  - Bounce back (affected by trauma, but return to baseline)
  - Post-traumatic growth (affected, then improve over baseline)
- Two “characteristics”
  - Personal resources (skills, abilities, interests)
  - Social resources (family, friends, community)
Scoping Review Findings

Total unique articles ($n = 2,459$)
- PUBMED search = 2,349
- Preliminary Searches = 96
- Citations from original grant = 12
- Bibliography Review = 2

Excluded ($n = 2,242$)
- Duplicates = 102
- Foreign language = 125
- Irrelevant by titles = 1,861
- Irrelevant by abstracts = 155

Articles requiring full-text review ($n = 217$)

Excluded ($n = 197$)

Articles meeting criteria for complete data abstraction ($n = 20$)

Stage 1:
Review of titles & abstracts

Stage 2:
Full-text review
Dearth of Strengths-Based Data

- Resilience - Upon re-review of our internal data, we have virtually no data sources for resilience.

1. Continue to work with data we have potentially looking at correlates?

2. Examine resilience factors at zip code factor?

3. Ask new questions?
Stakeholder Engagement & Identifying Uses of SDOH Data

Project Activities

- Identifying existing data sources and elements
- Developing meta data, dictionaries, & methodologies
- Data structuring for multiple uses & ease of access
- Data discovery & On the fly analytics
Stakeholder Engagement

- **Customer-Owners**: 23 via 5 focus groups
- **Providers & Staff**: 40+ via focus groups and meetings
- **External Groups**: Partner native groups, strategic partners (e.g., Epi Center), conferences, scoping review
Defining SDOH

- Demographics
- Economy
- Employment
- Political, Historical Conditions, & Colonialism
- Environmental
- Housing
- Medical Care
- Governmental
- Public Health
- Psychosocial
- Behavioral
- Transportation
- Relationships
- Cultural Identity
<table>
<thead>
<tr>
<th>Customer-Owner Priorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use SDOH to remove barriers to accessing care</td>
</tr>
<tr>
<td>Use SDOH to improve referrals</td>
</tr>
<tr>
<td>Include treatment preferences in SDOH and make them more visible to providers</td>
</tr>
<tr>
<td>Use the SDOH project to make sure EHR data is used- stop asking the same questions that don't change</td>
</tr>
<tr>
<td>Use SDOH to strengthen CO/Provider relationships</td>
</tr>
<tr>
<td>Use the SDOH project to strengthen privacy principles</td>
</tr>
<tr>
<td>Always consider the impact on how Alaska natives are represented, even on internal documents</td>
</tr>
<tr>
<td>Use SDOH data to improve continuity of care</td>
</tr>
<tr>
<td>Use SDOH data to improve quality of care</td>
</tr>
<tr>
<td>Use SDOH data to improve renewals, i.e. Medicaid, SNAP, etc.</td>
</tr>
<tr>
<td>Use SDOH to improve pharmacy refills and prescription expirations</td>
</tr>
</tbody>
</table>
# Internal Priorities

<table>
<thead>
<tr>
<th>Source</th>
<th>SDOH Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kickoff</strong></td>
<td>Tailor interactions based on needs, values, preferred mode of communication and what is important to individuals</td>
</tr>
<tr>
<td><strong>Kickoff</strong></td>
<td>Identify fixed SDOH and stop asking the same questions repeatedly</td>
</tr>
<tr>
<td><strong>Kickoff</strong></td>
<td>Target care</td>
</tr>
<tr>
<td><strong>Kickoff</strong></td>
<td>Improve continuity of care</td>
</tr>
<tr>
<td><strong>Kickoff</strong></td>
<td>Utilize social history in medical record</td>
</tr>
<tr>
<td><strong>Stakeholders</strong></td>
<td>Target high-risk groups such as Nutaqsiivik</td>
</tr>
<tr>
<td><strong>Stakeholders</strong></td>
<td>Create panel-level and higher dashboards</td>
</tr>
<tr>
<td><strong>Stakeholders</strong></td>
<td>Heat maps and action lists</td>
</tr>
<tr>
<td><strong>Stakeholders</strong></td>
<td>Performance measurement</td>
</tr>
<tr>
<td><strong>Stakeholders</strong></td>
<td>Capacity management: Service availability and need</td>
</tr>
<tr>
<td><strong>Stakeholders</strong></td>
<td>Use SDOH data to determine strengths/resilience factors</td>
</tr>
<tr>
<td><strong>Stakeholders</strong></td>
<td>Use SDOH to see if they are related to significant health outcomes</td>
</tr>
<tr>
<td><strong>Stakeholders</strong></td>
<td>Expand on PEDS analysis to see how SDOH-related issues appear across panels and groups (i.e. age, gender, etc.)</td>
</tr>
<tr>
<td><strong>Stakeholders</strong></td>
<td>Demand Forecasting: Age; Clinical scores; Action List</td>
</tr>
<tr>
<td><strong>Stakeholders</strong></td>
<td>Medicaid qualification</td>
</tr>
<tr>
<td><strong>Stakeholders</strong></td>
<td>Demand Management: Outreach RE existing services; Timing Reminders (birthdays); Method Rx refills by mail; Action List</td>
</tr>
<tr>
<td><strong>One-on-one</strong></td>
<td>Clinical decision making</td>
</tr>
<tr>
<td><strong>One-on-one</strong></td>
<td>Relationship building</td>
</tr>
<tr>
<td>Source</td>
<td>SDOH Use</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>External Tribal Partner</td>
<td>Expanded epidemiological/public health data to inform needs on a state-wide level</td>
</tr>
<tr>
<td>External Tribal Partner</td>
<td>Target resources to meet mental and behavioral health needs in remote areas</td>
</tr>
<tr>
<td>External Tribal Partner</td>
<td>Target resources to substance misuse treatment in remote areas</td>
</tr>
<tr>
<td>External Tribal Partner</td>
<td>Make the case for expanded safety resources in remote areas</td>
</tr>
<tr>
<td>External Tribal Partner</td>
<td>Highlight need for more technology in rural clinics</td>
</tr>
<tr>
<td>External Tribal Partner</td>
<td>Highlight need/address housing shortages</td>
</tr>
<tr>
<td>External Tribal Partner</td>
<td>Target resources to create or expand elder care in rural settings</td>
</tr>
<tr>
<td>Literature</td>
<td>Add SDOH to Health Information Exchanges (HIEX)</td>
</tr>
<tr>
<td>Literature</td>
<td>Identify eligibility for local services</td>
</tr>
<tr>
<td>Literature</td>
<td>Highlight need/address housing issues</td>
</tr>
<tr>
<td>Literature</td>
<td>Target resources for various immigration statuses</td>
</tr>
<tr>
<td>Literature</td>
<td>Identify transportation needs that create a barrier to accessing care</td>
</tr>
<tr>
<td>Literature</td>
<td>Use SDOH in a single EHR to improve clinical care</td>
</tr>
</tbody>
</table>
Prioritization

- Renewals & Referrals to Services
- SDOH for Provider use in EHR
- Strengthen CO/Provider Relationships
- Improve Continuity of Care
- Improve Quality of Care
- Remove Barriers to Care
Priority Uses of SDOH Data

- Projects to utilize SDOH data were prioritized using needs identified in stakeholder engagement, identifying projects where teams & data were ready, and a focus on maternal and child health.

- Identified projects include:
  - Medicaid and social services eligibility
  - Understanding needs in pediatric clinics
  - Nurse-family partnership clinic
Meeting Needs Using SDOH Data

Project Activities

- Identifying existing data sources and elements
- Developing meta data, dictionaries, & methodologies
- Data structuring for multiple uses & ease of access
- Data discovery & On the fly analytics
Medicaid & Social Services Eligibility: Benefits Qualification with FHR

- FHR identified data need for change of eligibility, new diagnosis, new SDOH need within 90 days of screening
  - This data can be extracted from problem lists, diagnostic codes, or other mapped SDOH Data.
  - Working on integrating this data into on-going PDSA process improvements (Plan, Do Study Act) in the coming year.
Benefits Qualification with FHR - Current State

Customer-owner (CO) identified by insurance status or income

CO asked to complete a questionnaire online or in person to identify eligibility

If no eligibility is found, the CO is asked to reapply in 90 days

Repeat until needs are met

Note: This timeframe was shorter, but it was felt that this was burdensome to COs
Benefits Qualification with FHR- Potential Future State

Customer-owner (CO) identified by insurance status or income

CO asked to complete a questionnaire online or in person to identify eligibility

Preemptively identify eligibility changes using SDOH and medical data & have CO reapply

If no eligibility is found, the CO is asked to reapply in 90 days

Repeat until needs are met

The goal is to make need(s) identification as close to real time as possible, i.e. to shorten the time between the identification of a need and meeting the need.
Identifying Eligibility Using the EDW

- Problem list from providers
  - Unemployment
  - Loss of a family member
  - Food insecurity
  - Safety concerns
  - Transportation concerns
- Changes in insurance status
  - Customer check-in data
  - Pharmacy refill data
- Change in medical needs-New Diagnoses
Understanding Needs in Pediatric Clinics: Pediatric Problem List

Empaneled Clinic Per 100 of visits with SDOH dx in the past year - sorted by highest visit count

| CODE_CAT                        | 0.06  | 0.05  | 0.08  | 0.04  | 0.21  | 0.03  | 0.22  | 0.24  | 0.38  | 0.36  | 0.26  | 0.25  | 0.31  | 0.50  | 0.89  | 0.09  | 0.08  | 0.09  | 0.11  | 0.07  | 0.05  | 0.06  | 0.44  | 3.44  | 4.50  | 4.32  | 4.94  | 2.82  | 3.35  | 2.90  | 72.44 | 4.55  | 0.56  | 0.36  | 0.36  | 0.42  | 0.24  | 0.24  | 0.26  | 0.42  | 0.84  | 1.26  | 0.51  | 0.84  | 0.52  | 0.55  | 0.72  | 5.11  | 2.88  | 3.76  | 3.98  | 4.18  | 4.03  | 3.39  | 4.24  | 3.95  | 0.05  | 0.06  | 0.09  | 0.09  | 0.05  | 0.08  | 0.44  | 0.57  | 2.21  | 1.31  | 5.40  | 2.58  | 1.96  | 0.92  | 2.18  | 0.44  | 0.08  |

COUNTD([Visit Key])/ATTR([CLINIC_SIZE])*100 broken down by Clinic Name vs. CODE_CAT. Color shows log(COUNTD([Visit Key])/ATTR([CLINIC_SIZE])*100,10). The marks are labeled by COUNTD([Visit Key])/ATTR([CLINIC_SIZE])*100. The data is filtered on Admit Dt Tm and _OC_COMB. The Admit Dt Tm filter ranges from 10/31/2017 12:00:00 AM to 10/31/2018 11:14:52 PM. The LOC_COMB filter excludes Null.
Visits with SDOH Dx since ICD10 started (10/1/2015)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z65.8</td>
<td>Other specified problems related to psychosocial circumstances</td>
<td>4,310</td>
</tr>
<tr>
<td>Z59.0</td>
<td>Homelessness</td>
<td>3,520</td>
</tr>
<tr>
<td>Z63.0</td>
<td>Problems in relationship with spouse or partner</td>
<td>902</td>
</tr>
<tr>
<td>Z63.21</td>
<td>Child in welfare custody</td>
<td>1,862</td>
</tr>
<tr>
<td>Z63.8</td>
<td>Other specified problems related to primary support group</td>
<td>892</td>
</tr>
<tr>
<td>Z63.4</td>
<td>Parent-biological child conflict</td>
<td>875</td>
</tr>
<tr>
<td>Z63.9</td>
<td>Disappearance and death of family member</td>
<td>867</td>
</tr>
<tr>
<td>Z63.79</td>
<td>Problem related to primary support group, unspecified</td>
<td>692</td>
</tr>
<tr>
<td>Z63.79</td>
<td>Other stressful life events affecting family and household</td>
<td>464</td>
</tr>
<tr>
<td>Z63.6</td>
<td>Disruption of family by separation and divorce</td>
<td>368</td>
</tr>
</tbody>
</table>

Number of Providers making SDOH dx in the past year

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z65.8</td>
<td>Other specified problems related to psychosocial circumstances</td>
<td>60</td>
</tr>
<tr>
<td>Z66.8</td>
<td>Other specified problems related to psychosocial circumstances</td>
<td>59</td>
</tr>
<tr>
<td>Z63.4</td>
<td>Disappearance and death of family member</td>
<td>57</td>
</tr>
<tr>
<td>Z63.0</td>
<td>Problems in relationship with spouse or partner</td>
<td>54</td>
</tr>
<tr>
<td>Z59.0</td>
<td>Homelessness</td>
<td>53</td>
</tr>
<tr>
<td>Z63.9</td>
<td>Problem related to primary support group, unspecified</td>
<td>51</td>
</tr>
<tr>
<td>Z62.820</td>
<td>Parent-biological child conflict</td>
<td>49</td>
</tr>
<tr>
<td>Z62.21</td>
<td>Child in welfare custody</td>
<td>48</td>
</tr>
<tr>
<td>Z62.10</td>
<td>Personal history of physical and sexual abuse in childhood</td>
<td>47</td>
</tr>
<tr>
<td>Z63.79</td>
<td>Other stressful life events affecting family and household</td>
<td>44</td>
</tr>
<tr>
<td>Z63.6</td>
<td>Disruption of family by separation and divorce</td>
<td>37</td>
</tr>
<tr>
<td>Z59.9</td>
<td>Problem related to housing and economic circumstances, unspecified</td>
<td>29</td>
</tr>
</tbody>
</table>
1. Annual performance benchmarks need to be submitted to the funder (Administration for Children and Families)

- Program team would like detailed methodology of how the data is compiled and reported
- Data architect reviewing script for efficiency and identifying structural solutions
- Filter by nurse home visitor and customer-owner status (active, discharged)
<table>
<thead>
<tr>
<th>Core Measure</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Receipt of home visits</td>
<td>Cerner Clinical Events</td>
</tr>
<tr>
<td>2 Home visit implementation observation</td>
<td>Performance Measurement Tracker Excel spreadsheet</td>
</tr>
<tr>
<td>3 Reflective supervision</td>
<td>Performance Measurement Tracker Excel spreadsheet</td>
</tr>
<tr>
<td>4 <strong>Depression screening</strong></td>
<td>Cerner Clinical Events</td>
</tr>
<tr>
<td>5 <strong>Substance abuse screening</strong></td>
<td>Cerner Clinical Events</td>
</tr>
<tr>
<td>6 <strong>Well-child visit</strong></td>
<td>Cerner Clinical Events</td>
</tr>
<tr>
<td>7 <strong>Child injury prevention</strong></td>
<td>Cerner Clinical Events</td>
</tr>
<tr>
<td>8 Parent-child interaction</td>
<td>Cerner Clinical Events</td>
</tr>
<tr>
<td>9 <strong>Developmental screening</strong></td>
<td>Cerner Clinical Events</td>
</tr>
<tr>
<td>10 <strong>Intimate Partner Violence screening</strong></td>
<td>Cerner Clinical Events</td>
</tr>
<tr>
<td>11 <strong>Screening for economic strain</strong></td>
<td>Cerner Clinical Events</td>
</tr>
<tr>
<td>12 Completed developmental referrals</td>
<td>Cerner Clinical Events</td>
</tr>
</tbody>
</table>
Dashboard in Progress

Tribal Home Visit Internal for All
Total Customers: 216 Total Qualifying Home Visits: 1,666 Data as of 8/24/19

Graph showing customer active months and percent qualifying HVE from August 2018 to August 2019.
2. Prepopulate the list of referred women with Medicaid and pregnancy status to facilitate pre-screening and enrollment process

3. Operational display of metrics related to home visits
   - Time between referral and scheduling of first visit
   - Length of time at visit
   - Time between visits
   - Time spent charting

4. Nurse task list and actions needed
   - Scheduling of visits
   - Screenings due (linked to the performance benchmark data)
Next Steps

- Continue to balance to nomenclature and visualizations
- FHR/iQualify/Bluemark
  - Continue to review elements for completeness and confirm methodologies
  - Identify way to indicate application submitted.
- Add additional prioritized internal data elements and external data into pilot tables and visualizations.
- Consolidate identified programmatic uses
- Identify hypotheses or additional programmatic uses through community engagement
Questions?
Thank You!

Qa̱gaa̱sakung   Aleut
Mahsi'         Gwich’in Athabascan
Quyanaa        Alutiiq
Igamsiqanaghalek   Siberian Yupik
Quyanaq        Inupiaq
Awa'ahdah      Eyak
Háw'aa         Haida
Quyanaa        Yup’ik
T’oyaxsm       Tsimshian
Gunalchééesh   Tlingit
Tsin’aen        Ahtna Athabascan
Chin’an         Dena’ina Athabascan
Cultural Resilience Scale for Alaska Native Peoples