Despite Hawai‘i’s relatively low rates of obesity and chronic disease, disparities exist among certain groups. Native Hawaiians (38.7%) and other Pacific Islanders (38.3%) have higher obesity rates than the state average (22.1%). Other Pacific Islander (14.8%) and Japanese adults (13.6%) have higher rates of diabetes than the state average (9.7%).

Hawai‘i State Physical Activity and Nutrition (PAN) Plan 2013-2020
- 22 policy and environmental strategies to increase physical activity and access to healthy foods by 2020, to reduce Hawai‘i residents’ burden of disease and reduce health disparities.
- In 2013, stakeholders formed a workgroup around the three nutrition access related objectives.

PAN Plan Nutrition Access Objectives
Objective 6: Increase the number of farmer’s markets that accept Supplemental Nutrition Assistance Program Electronic Benefit Transfer (EBT) transactions

Objective 7: Enact at least two statewide policies to increase access to healthy food and decrease access to unhealthy food/drinks

Objective 8: Identify issues related to access and consumption of healthy food in each county and develop strategies to address them.

STUDY OBJECTIVE
The purpose of this study was to use social network analysis to assess communication and collaboration among nutrition access workgroup partners at the mid-point of the plan’s implementation.

METHODS
Sample & Survey
- 29 key organizations identified by key informants and workgroup member lists.
- An online survey was sent to each organization’s representative in June 2017.

Network questions
- Frequency of communication around nutrition access issues
- What best describes their organization’s relationship with other network organizations

Response Rate
- All 29 organizations responded to the survey, a 100% overall response rate.

Data Analysis
- Extreme differences in responses were reconciled through follow-up calls to both organizations.
- Dyads were averaged to create a mirror matrix.
- Pakijak Social Network Analysis Software version 5.3, with the Fruchterman–Reingold energy protocol, was used for network mapping.

RESULTS

Workgroup Communication (monthly or more often)*

<table>
<thead>
<tr>
<th>Network Measures (Definitions)</th>
<th>Communication Network</th>
<th>Collaboration Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>0.1401</td>
<td>0.1625</td>
</tr>
<tr>
<td>Diameter</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Betweenness Centralization</td>
<td>0.1799</td>
<td>0.1550</td>
</tr>
</tbody>
</table>

Betweenness Centralization – Organizations with Highest Scores
(The role individual organizations play in linking other organizations into the network. Range: 0-1. The organizations with the highest scores are noted.)

|          | Com. PH 1 0.2140 | State Gov. 1 0.1834 | Healthcare 1 0.1458 | State Gov. 1 0.1418 | Com. PH 1 0.1253 |

Workgroup Collaboration and Formal Partnerships*

Organizations Working on Increasing EBT access in Farmers Markets and Level of Alignment with their Priorities

<table>
<thead>
<tr>
<th>Organizations with Highest Betweenness Centrality</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Gov. 1</td>
</tr>
</tbody>
</table>

| Network mapping is a valuable tool for gauging intermediate progress on policy and systems changes, and guiding workgroup efforts. |

ACKNOWLEDGEMENTS
This evaluation research study was funded by the Hawai‘i State Department of Health’s Chronic Disease Prevention and Health Promotion Division.

DISCUSSION
Communication Map
- The communication map is dense. Partners are communicating monthly, but not much more often. For information to travel through the entire network, it needs to pass through at least five organizations.

Collaboration Map
- The collaboration map is slightly denser than the communication map. Only a few organizations have established formal or informal partnerships to accomplish the workgroup objectives.

CONCLUSIONS
- At the PAN Plan’s mid-point, collaboration and communication among workgroup partners is low.
- Achieving policy and environmental changes to reduce health disparities requires collaboration and communication among a variety of diverse partners. However, partnerships are difficult to sustain over time. Organizations have competing priorities and lack time needed to maintain these strong connections.
- Organizations with dedicated staff and resources to share are better connected than others. These organizations should be leveraged to enhance workgroup efforts.
- Network mapping is a valuable tool for gauging intermediate progress on policy and systems changes, and guiding workgroup efforts.

* Larger nodes indicate higher Betweenness Centrality (in the core group, they may balance or connect organizations)