Understanding access to healthy food in Navajo Nation using GIS mapping

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Setting: Navajo Nation

Roughly 173,000 Navajo live on reservation of 27,000 sq mi\(^1\)

Unemployment rate is 52\(^2\)

Individual income\(^2\)
- 57% earn less than $10,000/yr
- 2% earn more than $100,000/yr

Utilities\(^2\)
- 56% of homes have running water
- 83% of homes have electricity
- 51% of homes lack complete plumbing facilities

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2-*Phase II housing needs assessment and demographic analysis: Prepared for Navajo Housing Authority,* (2011).
Problems
- Majority of community faces barriers to healthy eating
  - **Structural** barriers (*Distance, income, utilities*) > **individual** barriers (*Knowledge, taste*)

**Structural barriers** = High rates of food insecurity
Food Access Report

Community priorities:
- Food tradition and culture
- Connection of food traditions to language
- Agricultural revitalization
- Food sovereignty and community development
- Important role of elders & youth
COPE: Mission

Our vision: Eliminate health disparities & improve the wellbeing of American Indians and Alaska Natives

Our mission: We believe that the power to overturn long-standing, historical health inequalities lies inherently in Native communities themselves. By investing in existing community resources and aligning our work with the vision of tribal leadership, we hope to help catalyze this transformation within our lifetime.
“Increasing access to food will not only improve long-term health outcomes but also strengthen the deep connection of Native communities to their food, environment and culture.”
COPE: Access to Healthy Foods

Assessment
- Community perspective
- Food access collaboration

Community engagement around:
- Policy (Regional Food Councils)
- Diné connection to food
  - Spiritual, historical, agriculture
  - How our consumer choices impact health & economy

Healthy food in local stores
COPE: Three Areas of Strategic Focus

- Strengthening Community-Based Accompaniment
- Increasing Access to Healthy Food
- Building Local Capacity & Partnerships

System-Level Change

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CDC REACH Grant

- Food access in local Navajo stores
- Strengthen clinic-community linkages to increase access to chronic disease prevention for families
REACH-NCHO and Communications

DINÉ COMMUNITY

- Raise awareness and encourage community engagement in local food issues and food decisions:
  - Buy local: keep your dollars on the reservation
  - Support Diné agriculture
  - Profile REACH success stories, including families, stores and CHRs

- Increase food literacy and communications skills
- Connect with mentors to understand Diné Food issues at the community level
- Involve high school students as agents of change

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Clinic-Community Linkages

- Develop Community Health Teams (clinic and outreach teams working together)
- Shared documentation: CHRs on EHR
- NM CHW Certification
- Enroll families into chronic disease prevention curricula + FVRx
Increased access to healthy food & beverages

**DINÉ COMMUNITY**

- Offer more healthy food & beverage options
- Accept Fruits & Vegetable Vouchers (FVRX)
- Sell more local Diné food

**Promote understanding of Diné food traditions**
- Development of the Diné Policy Toolkit & Diné Food Traditions Curriculum

**Educational campaigns on local Diné Food Policy**

**Help form Regional Food Councils**

- Give families monthly FVRx vouchers to use at local stores and a local Diné Mobile Farmer’s Market
Preliminary Analysis

We utilized GIS data to examine two novel dimensions of food security for Navajo:

- Access to **healthy** food stores:
  - Food stores carrying 6 or more healthy foods such as fruits and vegetables
  - Access to food stores that accept WIC, government-subsidized products for low-income individuals

Methods

- **Geocode** chapter houses
- Extract healthy food stores from CDC healthy food index list
- Distance calculated from chapter houses to healthiest food stores using **Point distance tool in ArcGIS**
Findings

- In total, **84** food stores were identified for this study in Navajo Nation.

- Among these, **43 (51%)** qualified as “healthiest”

**Health Criteria:**

- **Healthiest (3)** = Stores with 6 or above fresh vegetables and fruits

- **Healthier (2)** = Stores with 3 to 5 Fresh vegetables and fruits

- **Least Healthy (1)** = Stores with less than 3 fresh vegetables and fruits
Mean distance to food stores accepting WIC was **15 miles**.
Mean distance to a healthy food store was **24 miles**
Next steps: Food app for community

- Using mobile application, identify food stores that:
  - Have healthy/unhealthy options
  - Accept/don’t accept WIC

- Data cleaning/analysis/use
  - Import final data for app creation

- COPE will utilize the data for ongoing intervention
  - Target support toward unhealthy stores
Limitations

- **Distance**
  - Calculated from chapter houses to healthy food stores
  - Not representative of the whole chapter
  - Not normalized by population density

- **Sampling**
  - Some stores located in same building
Ahéhee’
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CDC: Division of nutrition, physical activity and obesity