Improving the Food Environment in Native Communities

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Topics

- Marla and Joel: Collaboration
- Food Environment in Native Communities
- Strategies for Changing the Food Environment
- Previous and ongoing work in Native communities
- Summary

Twenty years of collaboration...

- Pathways study, 1991–2000
- Navajo Healthy Stores, 2005–2011



• OPREVENT, 2010-2014

OPREVENT2, 2015–Present

Many forms of collaboration

- Figuring out how to communicate with communities
- Presentations to communities
- Obtaining letters of support, tribal resolutions
- Navigating tribal and IHS IRBs

Scholarly productivity: 7 papers as coauthors



The Journal of Nutrition Community and International Nutrition

A Food Store–Based Environmental Intervention Is Associated with Reduced BMI and Improved Psychosocial Factors and Food-Related Behaviors on the Navajo Nation^{1–3}

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High levels of household food insecurity on the Navajo Nation.

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High levels of household food insecurity on the Navajo Nation

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Abstract

Objective: To assess levels of and identify factors associated with food insecurity on the Navajo Nation.



Food Environment and Obesity

- Fewer supermarkets = more obesity (Morland et al 2006)
- Greater distance to grocery store = more obesity (Inagami et al 2006)
- More conveniences stores = more overweight (Morland et al 2006)
- More fast-food outlets = more obesity (Maddock, 2004; Sturm and Datar 2005)

Disadvantaged minority populations have the least access to hearing foods

Food Environment in Native Communities

- Rural and remote communities
- Little or no public transportation
- Low access to supermarkets on reservation
 → food deserts
- ▶ High access to gas station stores, trading posts, fast food restaurants → food swamps

Emphasis and valuation of traditional foods











Ways to Change the Food Environment (1)

- Changing access to foods <u>within stores</u> by:
 - Decreasing availability of less healthy foods
 - Increasing availability of healthy foods in small stores
 - Changing the physical location of foods within stores (store layout), renovations
 - Manipulating price
- Changing access to foods <u>within</u> <u>neighborhoods</u> by:
 - Building new supermarkets
 - Developing farmer's markets

Ways to Change the Food Environment (2)

- Changing setting for provision of information (POP promotions)
- Many other ways:
 - Improving food networks (distributors, producers, retailers)
 - Improving local production
 - Increasing nutrient content of foods
 - Work with restaurants
- Influencing policy
 - Worksite policies, tribal legislation
 - Empowering community members to work with food sources

History of the Healthy Stores Programs in Native Populations



2001-2005

- Apache Healthy Stores
 - Changing the food environment
 - Partnering with communities from planning to evaluation





Apache Healthy Stores Goals

 To implement a store-centered nutrition program on the White Mountain and San Carlos Apache reservations



- 2. To increase sales of healthy foods
- 3. To increase healthy food purchasing, preparation and diets of community members

Community Approaches Development Workshop



Vastine A, et al (2005) Am J Health Behavior

Apache Healthy Stores Program Phases (June 2003 – June 2004)

Phase	Theme
0	Teasers
1	Kickoff/Eating Healthy Snacks
2	Start the Day with a Healthy Breakfast
3	Cooking and Eating with Less Fat
4	Quick and Healthy Dinners
5	Drinking Healthy Beverages
6	Healthy Lunches and Snacks

Look for the Apache Healthy Stores logo when you shop

APACHE HEALTHY STORES

helping you make healthy food choices

Apache Mealth Frores



A collisionnics lansaut du Sac Galus Apadie Tribu, die White Mountain Apache Tribu, die John Highlim Linkenity Cancer for Human Nachfors and Bairsh's Supermaters

Posters

Look for the APACHE HEALTHY STORES

shelf labels









Cooking Demos/Taste Tests



End-Cap Displays



Newspaper cartoons





Culturally themed radio announcements



Evaluation

- Study Design: Quasi-experimental
 - WMAT Intervention areas: 4
 - SCAT Intervention areas: 2
 - WMAT Comparison areas: 4
 - SCAT Comparison area: 1

Consumer Sample:

- Main food shopper/preparer of the household
- Baseline: 270 household respondents
- Post-intervention: 176 of the same respondents

Apache Healthy Stores: Results

Process

- Individual: high dose
- Store: high dose and reach, moderate fidelity
- Community: moderate fidelity and reach
- Curran S, et al (2005) <u>Health Education Research</u>

Exposure

- Intervention area respondents significantly more exposed to almost all intervention
 - components



Impact on promoted foods: Number of times purchased in past month, n=184 *



Impact on diet, grams consumed/day



Summary Apache Healthy Stores Results

- Food store environmental intervention associated with modest improvements in:
 - Food-related knowledge
 - Healthy food purchasing
 - Daily gram consumption of healthier food options
 - Increased unit sales of promoted healthy food options
- First food store intervention to show impact on diet

2006-2010

- Navajo Healthy Stores
 - Changing food sources in a large American Indian reservation
 - Enhancing sustainability



Expanding and sustaining a successful food-based program to improve diet and reduce risk for obesity and other chronic diseases in American Indians.





Navajo Healthy Stores Goals

- To reduce risk for obesity and other dietrelated chronic disease by increasing the availability, purchase, and consumption of healthy foods on the Navajo Nation
- To implement a <u>self-sustained</u> healthy food store program on the Navajo Nation <u>in</u> <u>collaboration with local Navajo stakeholders</u> <u>and others</u>

To evaluate the program's impact on obesity and other outcomes
12 Planning Workshops

- Participants ranged in age from 18 to 89 years old
- > 212 volunteers participated
- Group size averaged about 15-25 persons
- Provided a free meal and incentive pay (gift card) for participation
- Participants: elderly, local chapter officials and staff, tribal council representatives, I.H.S. and tribal health care workers, community health representatives, grocery
 store staff, and others





Navajo Healthy Stores Phases

Ph #	Phase Name	Months	Activities
1	Store recruitment	Nov 07 - Jan 08	Store recruitment
1	Healthy Beverage & Breads	Feb 08 - Apr 08	Soda taste test
2	Healthy Cooking Methods; better potatoes	May 08 - Jun 08	Cooking eggs & potatoes taste test
3	Healthier Luncheon Meats; Eat in Moderation	Jul 08 - Sep 08	Cooking with spray
4	Better; Healthier Meals	Oct 08 - Dec 08	Low fat meats rinse & drain
5	Healthier Snacks & Dessert	Jan 09 - Feb 09	Low fat, low salt snacks – chips
6	Planning Ahead; Healthy & Affordable Meals	Mar 09 – May 09	Taste veggie& fruit snacks, low fat dip

Navajo Healthy Stores

Implemented by the Navajo Special Diabetes Program





xpanding and sustaining a successful food-based rogram to improve diet and reduce risk for obesity and other chronic diseases in American Indians.



 Training, materials, evaluation provided by the JHSPH team

Goal: Sustainable and



Working with Stores

- Encouraged to stock 3-4 healthy foods/ beverages per phase (provided lists)
- Shelf labeling
- Interactive sessions in stores



Navajo Healthy Stores Materials





Interventionist MOP





Educational display



Shelf labels

Flyers, Radio Announcements, Promotional items



Evaluation

- Process
 - Interventionist logs
 - In-depth interviews/brief survey with key stakeholders (n=39), program documents
- Impact (assessed pre- and post-)
 - Store environment checklists
 - Store impact questionnaires
 - Consumer impact data
 - Adult Impact Questionnaire, Food Frequency Questionnaire, Intervention Exposure Form, BMI

Table 1. Psychosocial, behavioral, and anthropometricIndividual Impact by Treatment Group (n=145)

	Change from baseline to post-intervention				
Scores	Intervention (n=98)	Comparison (n=47)	P-value		
	a				
Knowledge score, mean (SD)	2.25 (2.51)	2.24 (2.33)	0.99		
Self-efficacy score	5.28 (10.79)	5.60 (11.19)	0.87		
Intention score	2.47 (4.54)	1.27 (5.36)	0.19		
Label reading score	0.19 (2.07)	0.62 (2.27)	0.27		
Healthy cooking score	1.11 (3.45)	1.76 (3.19)	0.29		
Healthy food getting freq	-5.67 (47.83)	-12.13 (51.60)	0.47		
Unhealthy food getting freq	-9.67 (18.82)	-11.89 (25.84)	<mark>0.61</mark>		
Perception of healthy foods score	1.45 (7.05)	-0.37 (6.57)	0.16		
Shelf label-driven healthy food purchasing score	5.08 (5.06)	4.55 (5.50)	0.57		
BMI (raw score)	-0.55 (3.26)	0.56 (3.07)	0.06		
Obese (BMI>50)	-7.49	4.35	0.16		

Table 2. Exposure to Intervention Components byTreatment Group

Score ^a	Intervention	Comparison	p-value ^b
(mean,SD)	(n=98)	(n=47)	
Logo score	0.55 (0.29)	0.47 (0.31)	0.20
Shelf label score	0.20 (0.18)	0.12 (0.14)	0.01
Taste test score	0.25 (0.29)	0.13 (0.21)	0.01
Poster score	0.39 (0.35)	0.31 (0.31)	0.15
Education display	0.40 (0.35)	0.33 (0.36)	0.29
score			
Flyer score	0.29 (0.29)	0.20 (0.27)	0.06
Giveaway score	0.20 (0.25)	0.12 (0.20)	0.08
Overall Exposure	2.28 (1.60)	1.69 (1.47)	0.04

Table 3. Individual Impact by 4 Exposure Categories

	Very low	Low	Medium	_	p-
Exposure categories ^a	(25%ile)	(50%ile)	(75%ile)	High	value
	(1)	(2)	(3)	(4)	tor ANOVA
Ν	36	36	37	36	
Number of intervention	3.69	6.47	9.43	11.94	<.0001
store visits in last 30 days (mean, SD)					
Change in food intention score	0.14	1.43	3.35	3.32	0.02
Shelf label-driven healthy food purchasing score	0.17	2.06	7.03	10.33	<.0001
Change in BMI	-0.09	1.03	-0.00	-1.76	0.01
Change in Overweight OR obese (%)	0.00	5.79	5.40	-22.22	.0002
Change in Obesity (%)	0.00	1.51	0.00	-17.68	0.02

Impact of Navajo Healthy Stores on diet-related psychosocial factors, behaviors and BMI



Outcome variables ^a	Food intention score	Healthy Cooking score	Healthy food getting score	Shelf label- driven healthy food purchasing score	BMI
ß of exposure score	0.59	0.41	10.22	2.51	-0.67
P-value of Exposure score	0.02	0.02	<.0001	<.0001	0.002
Adjusted R ²	0.27	0.13	0.26	0.63	0.68

a. Adjusted for baseline value (except for shelf label-driven healthy food purchasing score), sex, age, education level, household size, and material style of life.

Conclusions

- Healthy stores program on the Navajo Nation was:
 - Successfully implemented by SDP staff with JHSPH support
 - Associated with improved BMI, psychosocial factors and behaviors among those who were most exposed to the program

2009-2014

- OPREVENT
- Enhanced, multi-institutional program





Goal: To develop an effective obesity prevention program operating at multiple community institutions

What was OPREVENT?

- OPREVENT stands for Obesity Prevention Research and Evaluation of InterVention Effectiveness in NaTive North Americans
- OPREVENT was a program that combines communications, family, food store and worksite components for obesity and diabetes prevention for American Indian communities

OPREVENT Program Rationale

- It is better to:
- Engage community members in program planning and implementation
- Work in multiple places to reinforce healthy messages and increase exposure
- Change environment to increase access to food and physical activity
- Reach people at the point of decision
- Plan for sustainability from the beginning





To'Hajiilee Navajo Chapter

Mescalero Apache



Keweenaw Bay Indian Community





Community Workshops









Phases

Pha	se 1	May – June 2012	CHOOSE WISELY
Pha	se 2	July – Sept. 2012	SET A GOAL, MAKE A PLAN
Pha	se 3	Oct – Dec 2012	ONE STEP AT A TIME
Pha	se 4	Jan – March 2013	MAKE IT COUNT, MAKE IT LAST
Pha	se 5/6	April – May 2013	LIVE LIFE IN A GOOD WAY & CELEBRATING THE NEW YOU!



Cooking Demos / Taste Tests







School/Family Component

- Centered around 2nd 6th grade curriculum
- Focus on family habits:
 - Healthy food shopping/ preparation
 - Healthy eating habits
 - Physical activity
 - Silversmith storybook
 - Activities and games
 - Exercise breaks and physical activity



Family packs w/ activities to take the messages

Grade 4 Storybook



"Whaa!" said Missy, bent over and hands on her knees. "I feel like I am going to fall over! I'm breathing hard and my heart is beating fast, too. You know, like when you run? That's what it feels like."

"Yes, me too!" joined Sally. "I'm all hot and sweaty. And, I'm huffing and puffing. Look Missy, my shirt is wet."

Aunt Gladys smiled behind them. She wiped the sweat from her forehead. "Girls, girls, you two are okay. You and Sally are just feeling some *body clues*. These are clues that your body gives you to let you know that you are doing physical activities that will make your body strong," explained Aunt Gladys. words more loudly and more slowly, like she wanted them to remember them. "People were healthy."

"Wait. Aunt Gladys, what do you mean? That everyone walked the good path?" asked Sally.

"We respected all the things around us. We lived life in a good way," said Grandpa Hastiin Chee. "In the old days, food was precious. Each person ate just the right amount. We didn't eat so much that we'd feel too full." He puffed up his cheeks and pushed out his stomach like a squirrel with too many nuts in his mouth and a full belly. Sally giggled.

"The foods were healthy, too. We drank lots of water, not soda. We helped our parents and grandparents work the land. We learned how to plant foods, take care of animals and haul water. We worked hard."

Grandma agreed, "Yes, living in a good way, walking the good path, we helped one another, chose water to drink, and ate fresh vegetables that grew from our fields."

Aunt Gladys spoke up, "Dad, tell them the story about healthy recipes from the harvest!"

"All right", Grandpa Hastiin answered, "But, let us wait for Nanibaa". She should be here soon. But, children, when I start, pay close attention. There are important lessons to hear!" Grandpa winked.



Worksites



Wolcomo to the Reach for Wellness Walking Trails

It has been our goal here at the Department of Health and Human Services to promote Wellness—Body, Mind, and Spirit, Along the journey we have strived to provide the most variety in programming possible in order to find the best file or your personal needs. If there is one thing that is common to everyone, it's that we can walk. With that in mind we have created walking traits with distances noted, and for your comminence a map of these traits.

he Reach for Wellness Walking Trails are highlighted with markers every all mile, along with four direction signs that have colors and what they present. You can also learn some of the history of Hannahville.

en out enloying this trail remember that it took a lot of hands, both m within and outside of Hannahville, to make this trail possible, use take care of it so many generations will enjoy it.

our honor to offer you an opportunity to get healthy at your own while enjoying the beautiful landscape that we call home.

ok forward to seeing you on the trails. Megwetth.











Community Media / Giveaways







The "Big Idea"

- Reinforcing programs that happen at the same time
- Example.
 - Children learn about healthy snacks (school program)
 - Children encourage parents to purchase healthy snacks
 - Adults see signs for healthy snacks in stores and taste test during interactive sessions (store program)
 - Adult workers hear about healthy snacks on the job (worksite program)
 - All family members hear messages (community media)

Results: Process

Table 1: Average OPREVENT interventionists contacts in stores, worksites, and schools per phase							
	No. of visits	No. of brief participant s (≤1 min.)	No. of long participant s (>1 min.)	No. of food samples given	No. of flyers given	No. of give– aways passed out	
Mean/ phase	162.8	522.8	955.4	477.2	1148.6	1004.4	

OPREVENT1 Preliminary Results: Impact

- No impact on BMI, weight for intervention vs comparison
 - When analyzed by sex, BMI of men showed a trend towards significance – reduction of 1.5 points (p=0.076)
- Reduction in WC for intervention versus comparison communities (p<0.05)
 - Participants in intervention communities showing greater reductions (-20.5 \pm 27.7 cm in intervention vs. -12.5 \pm 22.0 cm in comparison)

OPREVENT1 Results: WC Impact

- WC change was strongly associated with decreases in % body fat (p=0.001)
- Those highly exposed to the intervention showed a 16.6 cm greater decrease in WC compared to those with low exposure (p=0.0009)

OPREVENT1 Results: Impact

- No impact on physical activity
- Further impact analyses support positive trends (p=0.10) in improvement of knowledge, self– efficacy and intentions comparing pre and post data
- Dietary analyses underway

Some Lessons Learned

- Expensive: More stakeholders = more time and more costs
- Sustainability is a major issue no single entity can take this on
- Need to increase intensity
- Need to focus more on physical activity

Need to work at the tribal policy level



2015-Onwards

OPREVENT2

- Refine and repeat school, food store, worksite and community media interventions in 6 new Al communities in New Mexico and Wisconsin
- New Features: Policy, Social Media
- Enhance: PA component
- Working with tribal policy makers to support, develop, implement and enforce policy at the tribal and institutional levels

OPREVENT2 Policy Component

- Variation from community to community
- Possibilities:
 - Capacity-building workshops for local policy makers
 - Training local stakeholders to implement OP2 program components
 - Institutionalization
 - Identification of policy champions
 - Use of simulation modeling as a tool to engage and work with policy makers
Community Member, Teacher and Policymaker Workshops are underway...

Shelf Label S3-1 Reactions



Sample Comments from Participants:

- Good idea, I think this idea really works for me when I'm at grocery store. I believe it helps draw your eye to better "healthier" products
- yes! But maybe a re-design
- I really like the idea of the labels/ also the colors make it pop so Id most likely be one to stop and look
- I think should be a wheat character instead of a heart guy

Logo L3 Reactions



Comments from Participants:

- Change colors, soften feathers
- Clustered. Colors hard to see. Feathers are bent?
- Jicarilla are basket makers need to show traditional basket. Like family is doing something together
- Medicine wheel, 4 quarters needed, bolder colors- red not orange

Summary

- Multiple challenges to working in the Native American food environment
- Multi-level, multi-component interventions needed in these settings
- Interventions to improve the food environment have been successful in improving access and consumption of healthy foods, and reduced obesity

Community engagement, at multiple levels has been key, and needs to be expanded

Summary

- We need to be flexible and work with various institutions and media (including social media)
- To enhance sustainability, we need to work with policymakers

Thank you, any questions?

www.healthystores.org

Twitter, Instagram, Facebook: OPREVENT, globalfoodman