

NPI Brown Bag Seminar Series

A Community-based Participatory Approach to Developing Affordable, Healthy Menus

Karen Jetter PHD

UC Agricultural Issues Center

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University of California
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A Community-based Participatory Approach to Developing Affordable, Healthy Menus.

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Background

- The original project started more than 10 years ago in response to a RFP from the NIH for grants to build research capacity with Native American Communities for public health related research.
- Developed a multidisciplinary/multi-institutional team lead by Dr. Dennis Styne, a UCDMC pediatric endocrinologist.
- Team consisted of researchers from the UC Davis School of Medicine, the UC Davis Department of Public Health Sciences, UC Agricultural Issues Center, Indian Health Clinics (Northern Valley Indian Health, Round Valley Indian Health Center), and Native American Tribes (Grindstone Indian Rancheria of Wintun-Wailaki Indians, Mechoopda Indian Tribe of Chico Rancheria, the Round Valley Indian Tribes: A Sovereign Nation of Confederated Tribes)



Background

- Project based on two key concepts
 - Training based on community-based Participatory Research model
 - Learning by doing approach.



Community-based Participatory Research

- Community based participatory research is a collaboration between a community and university.
- It gives each partner a seat at the table to collaboratively develop and implement a research project.
- CBPR uses the strengths of each partner to conduct research relevant to the community.
- It meets the standards of peer-reviewed research and focuses on the community's priorities to improve the community's quality of life.



Community-based Participatory Research

- It is similar to economists collaborating with public health advocates to evaluate the costs and benefits of a health promotion program.
- It is more than University researchers developing a project after soliciting input from the community.



Learning by doing

- Model of effective adult education.
- Consists of actively engaging in the subject being taught rather than passive learning through lectures, etc.
- For this project it meant learning how to do a research project by doing a research project.

Training consisted of:

- Workshops to discuss CBPR concepts
- Workshops for training in research ethnics and human subjects research
 - CITI module was developed for Native American community researchers.
 - Took core social science module, removed international research, research with prisoners, and added group harms.
 - See Jetter et al. Building research capacity in members of underserved American Indian/Native American communities: Training in research ethics and the Protection of Human Subjects. Health Promotion Practice.
- Implementation of a project

Original concept.

- Originally planned on each community tweaking a market basket study based on menus developed for the Thrifty Food Plan (TFP).
- The USDA publishes monthly 4 different food cost plans: Liberal, moderate, low and thrifty. The cost of the thrifty plan is used to estimate food assistance benefits.
- In response to criticisms that the TFP too low to eat healthy, menus were developed to demonstrate that it was possible.
- We were going to tweak those menus.

REALITY

- Each community developed their own separate project.
- Based on some aspect to access and affordability of healthy food items.
- Focus on the project by the Mechoopda Indian Tribe of Chico Rancheria (MIT).



Mechoopda Indian Tribe of Chico Rancheria

- One of the 150 federally recognized Native American tribes in California.
- Ancestral home located on Little Butte Creek about 4 miles of the current downtown area in Chico, California.
- The tribal diaspora is about 560 members.
- About half live in the greater Chico area.



Final concept at MIT

- Question posed: **Why do we eat the way we do?**
- As the project progressed more specific questions were developed relating to the food environment and how that affects healthy eating.
- These questions included:
 - What are we eating now?
 - How can we eat healthy within our household budgets?
 - Why do we shop as we do and how does that affect our consumption of healthy food, in particular fruits and vegetables?
 - How did we learn to eat and how does that affect our consumption of healthy food, in particular fruits and vegetables?



How can we eat healthy within our household budgets?

- Instead of tweaking existing menus the MIT community researchers wanted to develop menus based on foods commonly consumed within the Mechoopda Community.
- It was critical to the community members that the menus reflected their budgetary constraints as 88% of the community lived in a household with less than \$35,000 in income a year.
- Meal plans were developed for the representative family of four that was used in the 1999 Thrifty Food Plan Menus:
 - An adult male, an adult female, and two children aged 7 and 10.



How can we eat healthy within our household budgets?

- From the CBPR meetings the community researchers developed the following criteria:
 - 1) Menus based on foods that members of the MIT community like to eat
 - 2) Menus need to meet the USDA guidelines for healthy eating
 - 3) Portions should be realistic
 - 4) Reduced processed food, to reduce the amount of fat and salt in their diets
 - 5) Time friendly as nobody has time to cook multiple hot meals every day
 - 6) Lots of options so that people will not get bored eating the same healthy foods
 - 7) Affordable – everyone is on a budget.



Developing menus

- To develop the menus the community researchers each brought in a meal plans that they considered healthy, would eat themselves and serve to their family.
- The plans were mixed and matched to develop the daily menus.
- Two weeks of menus were developed including breakfasts, lunches, dinners and snacks.
- The menus were developed through a collaboration between the community researchers and collaborators with Northern Valley Indian Health, Inc.



Developing menus

- No nutrition education was provided. We relied on existing knowledge based on previous nutrition education programs.
- For meals that needed recipes, low-fat versions were searched for online.



Developing menus

- Sample menu for day 12.
- Breakfast: Oatmeal, banana, milk
- Lunch: Chicken quesadilla, salsa, canned corn, apple
- Dinner: Cheeseburger, mixed green salad with dressing, **Baked French Fries**, canned peaches.
- Snacks: Baby carrots, yogurt, English muffin with jam.

Developing menus

- The University researcher developed an Excel program to calculate servings of different food items and calories. The program then compared servings consumed to the recommendations in the 2010 (and 2015) Dietary Guidelines for Americans (DGA).
- The DGA provides recommendations by gender, age and activity level.
- We choose a moderate activity level because the MIT community wanted to cost out menus that would support a healthy lifestyle.
- Quantities tweaked for each person until the guidelines were met on average for the two weeks. Didn't worry about meeting the guidelines everyday.

Developing menus

Table 1. Recommended servings and calorie levels for each person in the representative household assuming a moderate level of activity.

	Adult Male	Adult Female	10 year old child	7 year old child
Grains* (oz)	9	6	6	5
Whole grains	4.5	3	3	3
Vegetables (servings)	7	6	5	4
Fruits (servings)	4	4	3	3
Dairy (servings)	3	3	3	3
Meat, nuts and beans (oz)	8.5	5.5	5	5
Oils and fats (teaspoons)	8	6	5	5
Calories consumed	2600	2000	1800	1600
Discretionary calories	380	270	170	130

Source: Dietary Guidelines for Americans 2015-2020, Tables A2-1 and A3-1.

Table 3. Total quantities as calculated from menus compared to quantities recommended over two weeks for the USDA representative family of four.

	Adult Male	Adult Female	10 Year Old	7 Year Old
<u>Quantities from menus</u>				
Grains (oz)	126	95	91	82
Whole grains	73	55	53	47
Vegetables (servings)	106	84	70	60
Fruits (servings)	64	58	45	42
Milk (servings)	64	52	51	44
Meat, nuts and beans (oz)	120	90	81	72
Oils and fats (teaspoons)	110	81	70	66
Calories consumed	36345	27954	25166	22442
<u>Quantities recommended in the Dietary Guidelines*</u>				
Grains (oz)	126	84	84	70
Whole grains	63	42	42	42
Vegetables (servings)	98	84	70	56
Fruits (servings)	56	56	42	42
Milk (servings)	42	42	42	42
Meat, nuts and beans (oz)	119	77	70	70
Oils and fats (teaspoons)	112	84	70	70
Calories consumed	36400	28000	25200	22400

*For Grains, Vegetables, Fruits, Milk, and Meat, nuts and beans the recommendations are minimum recommendations. For Oils and Fats, the recommendations are maximum recommendations. Source: Dietary Guidelines for Americans 2010²⁴.



Surveying stores

- Once the menus were developed stores were surveyed to collect local prices for the foods in the menus.
- All 13 food stores in the Chico area were surveyed.
- These stores included bulk supermarkets such as Food 4 Less, traditional supermarkets such as Ralph's, discount markets such as Grocery Outlet, and specialty markets such as the food coop or Trader Joe's.

Surveying stores

- Based on a community survey 50% of the community members live within a 5 minute car ride of the grocery store, and 76% live within a 10 minute car ride.
- Chico has a population of about 88,000. The next largest city is over 75 miles away.
- This makes Chico a “Central Place” where the community members did all of their shopping.

Surveying stores

- Community researchers surveyed each store in teams of two.
- Training was provided beforehand.
- Prices reflected the lowest price *per unit*, not the lowest price.
- The prices were then checked by a separate two person team.
- Where prices differed the lowest price per unit was used.

Putting it all together

- Before the prices could be used to cost the menus they had to be converted from a price per unit purchased into a price per serving.
- In some cases, such as fresh milk, this was simply a matter of using cups instead of gallons.
- For fresh fruit and meats with bone it was more complicated as part of the food is discarded and not consumed.
- Used the USDA food purchasing guidelines for schools for conversions.

Putting it all together

- The store survey results and formulas for converting prices were inputted into the same Excel program as the menus.
- Prices averaged over store type.
- Result was a tool linking menus to guidelines to prices.
- Tweaking a survey then would automatically update everything.
- Once the final tweaking was done to the menus the costs were tallied up.



Putting it all together

- The University researcher at that point expected that there would probably be further tweaking once the community saw the cost results.
- The community researchers were prepared accordingly.

Putting it all together

BUT

- The MIT community researchers looked at the results, looked at each other and said,
- “Looks good”. “We did it”. “Yes we can”.
- That is how the article got its name.

Results

Day	Bulk Supermarket	Discount Supermarket	General Market	Specialty Market
1	25	21	32	40
2	24	24	28	37
3	22	28	27	37
4	25	25	29	41
5	19	19	24	32
6	24	24	27	38
7	28	28	34	37
8	26	23	30	43
9	23	22	27	34
10	27	28	31	41
11	26	23	31	43
12	25	26	30	35
13	22	21	25	33
14	31	34	35	60
Total	347	346	410	552
Mean^a	24.79*	24.71*	29.29	38.36**
	(2.914)	(3.872)	(3.197)	(6.902)

Discussion

- The menus developed by the community researchers show that achieving the recommendations for protein, fat, carbohydrates, sugar, fiber, fruits and vegetables is frequently not done by substituting items such as low-fat ground beef for higher-fat ground beef, but by shifting food between groups.
- For example, beans instead of higher fat proteins, or oatmeal and corn products (such as tortillas) instead of whole wheat breads

Discussion


- These menus also show that achieving a healthy diet was done by balancing out the daily targets over two weeks, not every day.
- The menus that meet the USDA dietary guidelines can be within the range of the USDA low-cost food plan for a family of four, but only if people do all of their shopping at a bulk supermarket.

Discussion

- The diet developed as a part of this project is a diet consistent with the costs of the USDA low-income food plan, not the TFP diet
- Using the average daily cost from the bulk supermarket of \$25, the monthly cost of the healthy menus would be \$750 for a 30-day month.
- In comparison, the USDA low-cost meal plan was \$756 in October 2010, or about the same cost as the community menus.
- In comparison, SNAP benefits at the time the survey was completed in October 2010 were \$668 for a family of four.

Discussion

- Since the survey was completed food prices have increased.
- In 2015 dollars the cost of the menus developed by the community researchers is equal to about \$27.95 a day, or \$838 a month.
- This represents an increase of 11.8% in the cost of food.
- In contrast the maximum SNAP benefits in 2015 were \$639 a month for a representative family of four.
- This represents a decline of 4.3% in benefits while food prices are increasing, making it harder for the most economically vulnerable to consume a diet that nourishes a healthy lifestyle.



Did this project change anything?

- The objective of the project was to train community researchers in research methodology.
- Assessment of what community learned.

What we learned about healthy eating.

- Making healthier choices often means that you can eat more food and a greater variety.
- Increasing variety of fresh produce and produce packaging allows for greater choices to eat healthier, but also makes it more difficult to comparison shop.
- It is possible to eat healthy on a limited budget without spending a lot of time cooking.
- Concerned about quality, price, safety, and having enough food to last a month

What we learned about CBPR.

- **Learned to work as a community to address community issues.**
- **Working with CBPR versus traditional research leads to greater input by the community.**
- **Working together leads to more relevant research and better research for all parties.**
- **Improved community acceptance of participating in research and taking surveys.**
- **Built trust between all parties**