

# The Abuela Project: A Community Based Food Safety Intervention involving *Queso Fresco*, a Raw-Milk Cheese

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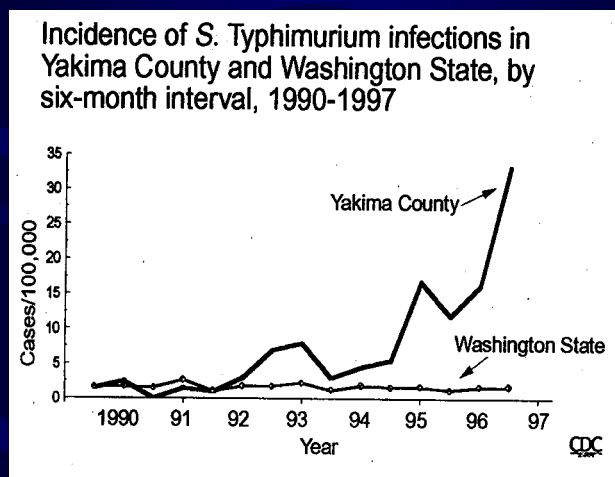
## Project Background

- In 1997, over 90 cases of *Salmonella* Typhimurium DT 104 were reported in Yakima County, Washington.
- Symptoms included diarrhea, fever, abdominal pain, bloody stool, vomiting.
- Median age was 4 years old.

## Project Background

- Majority of cases involved children of Hispanic heritage.
- A CDC study implicated unpasteurized-milk *queso fresco* as the source of the *Salmonella* infections.
- Centers for Disease Control and Prevention (CDC) emphasized the need for an intervention.

## Pre-Intervention Salmonellosis Cases



## Intervention Goals

- Decrease consumption/production of unpasteurized-milk *queso fresco*
- Increase knowledge of hazards associated with raw milk
- Maintain/Promote a nutritious food in the Hispanic diet
- Maintain a traditional food custom

## Intervention Team

- Washington State University food science and nutrition faculty and an M.S. student
  - Developed intervention and materials; conducted the program evaluation
  - Technical assistance to enable unlicensed vendors of queso fresco to develop safe product, get licensed
- WSU/Yakima County Cooperative Extension
  - Implemented the consumer intervention
  - Newsletters to dairy farmers re risks of raw milk leaving their farm

## Intervention Team

- Yakima County Health Department
  - Publicity about risks of raw milk and assistance in distribution of materials
- Washington Migrant Council
  - Recruited people to participate in the intervention
- Washington Dept. of Agriculture
  - Removed raw milk cheese from commerce
  - Encouraged dairy farmers to guard against raw milk leaving the farm
- Washington Dept. of Health
  - Provided encouragement, technical assistance

## Pre-Intervention

- Collection of preliminary data via survey
- Design of a safer, pasteurized-milk *queso fresco* recipe
- Design of a flyer to illustrate the recipe
- Acquisition of funding
- Design of a program to introduce the new recipe

## Pre-intervention Survey Data

- ~ 50% got *queso fresco* from family member, neighbor, vendor.
- ~ 50% did not know if *queso fresco* was made from raw milk.
- ~ 40% did not believe raw-milk *queso fresco* could cause illness (~25% unsure).
- ~ 60% had not heard of *Salmonella*.

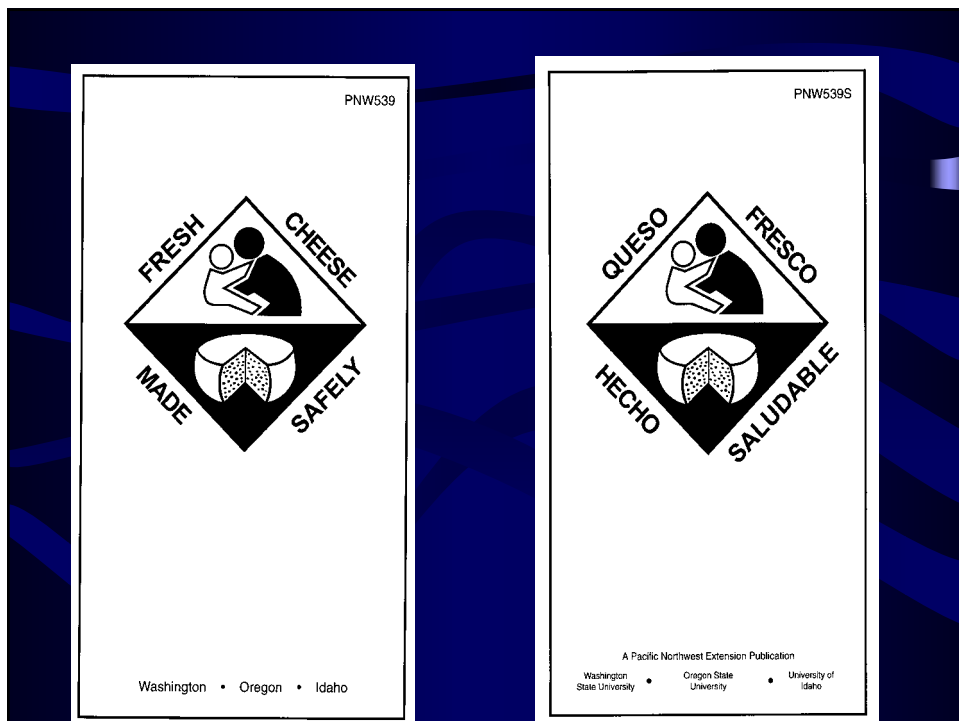
## Safe Queso Fresco Recipe

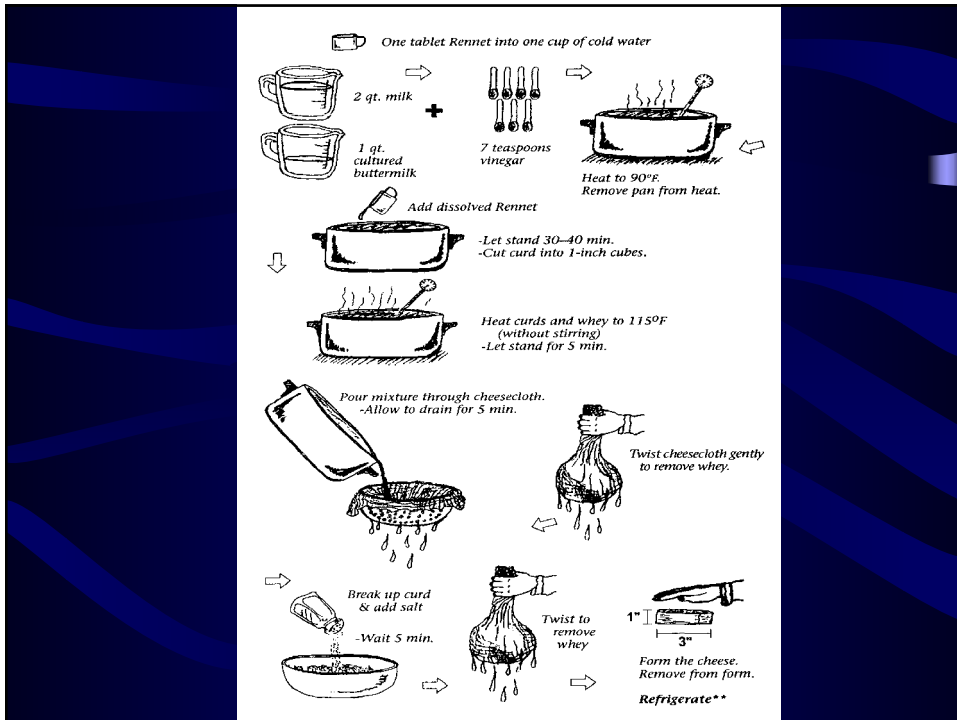
- Preliminary pasteurized-milk recipe was obtained from Julia Herrera, a Mexican-American woman from Yakima, WA\*
- WSU dairy scientists Lloyd Luedecke and Mike Costello modified the recipe to:
  - Decrease pH
  - Improve ease-of-preparation
  - Increase shelf-life
  - Maintain acceptable taste/texture

(\*The idea of modifying a recipe obtained from the local community was borrowed from a presentation re chitterlings by EA Peterson, 1997.)

## Safe *Queso Fresco* Pamphlet

- Developed by Ryan Bell, M.S. student in human nutrition
- Topics covered by the flyer:
  - Heat treatment of unpasteurized milk
  - Sanitization of cheese-making implements
  - Step-by-step instructions in Spanish and English
  - Has graphical illustrations for low literacy audience





## Project Funding

- \$5,000 gift obtained from the Washington State Dairy Products Commission for Yakima County intervention.
  - Used to purchase Abuela Educator incentive package
- Later, received \$22,500 from USDA (EFSF-04800) to expand intervention to other counties in WA.
- Abuela project received several awards, which included \$6000 in award money. We used these funds to continue the intervention.

## Trained “*Abuela*” Educators

- Older Hispanic “grandmothers”

- > respected
- > hold positions of authority
- > carry on traditions

*(We borrowed this idea from Colorado State University who trained Abuelas as nutrition educators.)*

## *Abuela* Educators

- Original group - 15 people from Yakima County
- Later, *Abuelas* were trained in 6 other counties
- Training consisted of
  - How to make *queso fresco* with pasteurized milk
  - Hazards of raw milk
  - How to sanitize equipment
- Each *Abuela* agreed to teach 15 others.



## Incentive Packages

### Abuela Educators (15)

- Colander
- 5-quart mixing bowl
- Thermometer
- Cheese cloth
- Apron
- Tote bag
- 8-cup mixing bowl
- 6-quart stock pot

### Participants (225)

- Tote bag
- Thermometer
- Cheese cloth
- Measuring spoons
- 8-cup mixing bowl

## Training *Abuela* Educators

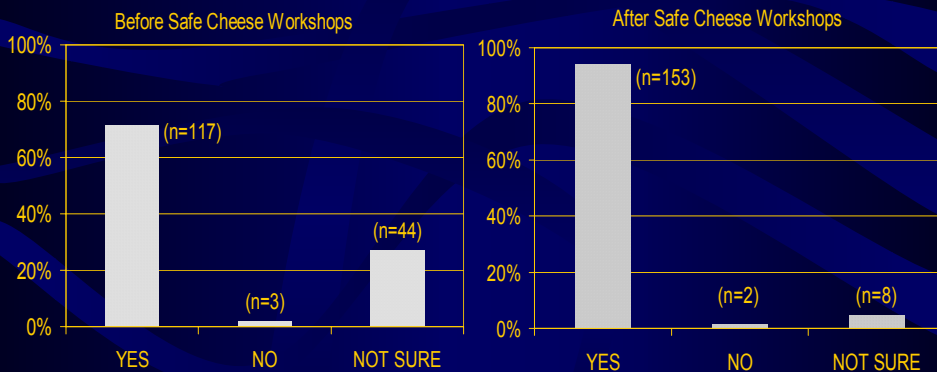


## Safe Cheese Workshop Results

- Data was gathered from *Abuela* educators and participants in workshops.
  - Pre-test was administered just before the workshops.
  - Post-test was given at conclusion of the workshops.
  - Six-month follow-up interview was conducted via telephone by bilingual interviewers.

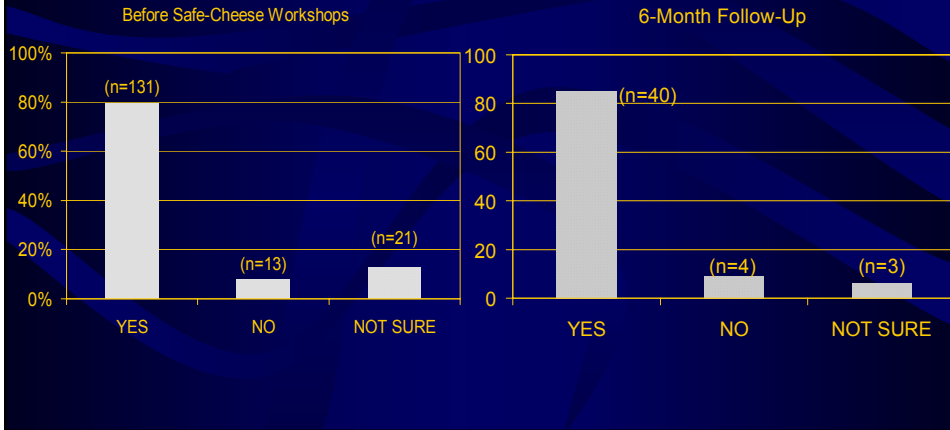
## Will People in the Community Eat Pasteurized-Milk *Queso Fresco*?

$\chi^2 = 29.9$  (significant/ $p < .01$ )



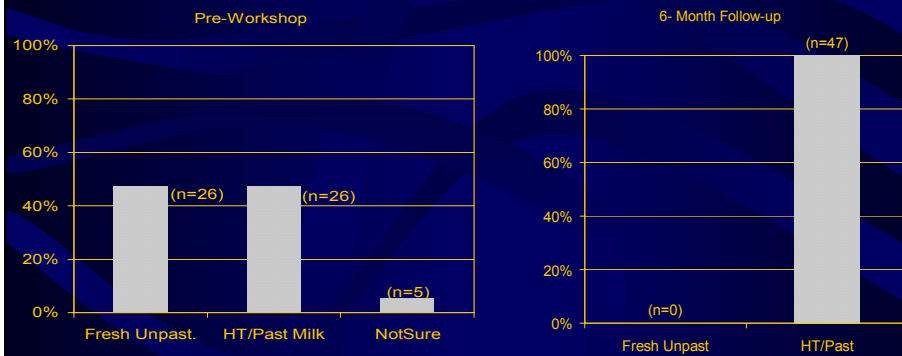
## Are there Health Risks Associated with Eating Unpasteurized Milk and Cheese?

$X^2 = 1.5$  (no significant change)



## What Kind of Milk do You Use to Make Queso Fresco?

$X^2 = 19.3$  (significant/ $p < .01$ )



## Conclusions

- Making *queso fresco* at home is a strongly held custom within the Mexican-American community.
- Many people were aware of the risks of raw milk. However, they continued to make raw-milk *queso fresco* to preserve their cultural heritage.
- Behavior change was prompted by availability of a safer recipe that yielded an acceptable product.

## Conclusions

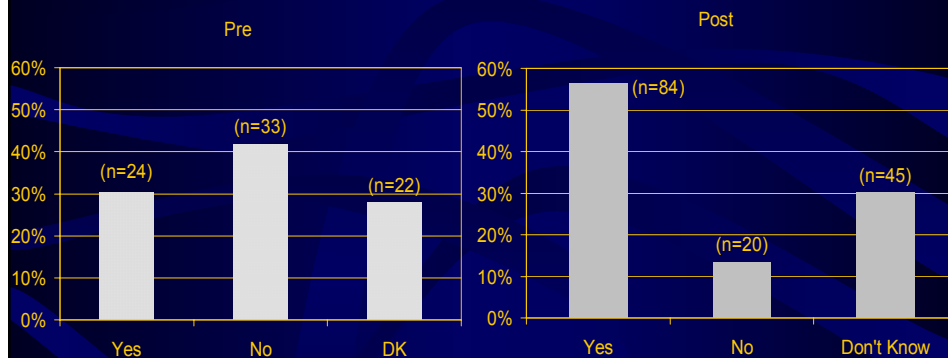
- Mexican-Americans were very receptive to using the recipe for pasteurized milk *queso fresco* because:
  - The pasteurized milk cheese was safer to eat.
  - The recipe was easier to make than the traditional recipe.
  - The recipe produced a good tasting cheese.
  - We modified a recipe developed by a respected women in the community, which encouraged acceptance of the recipe.
- The incentives encouraged participation in the safe cheese workshops.

## Pre and Post Intervention Community Surveys

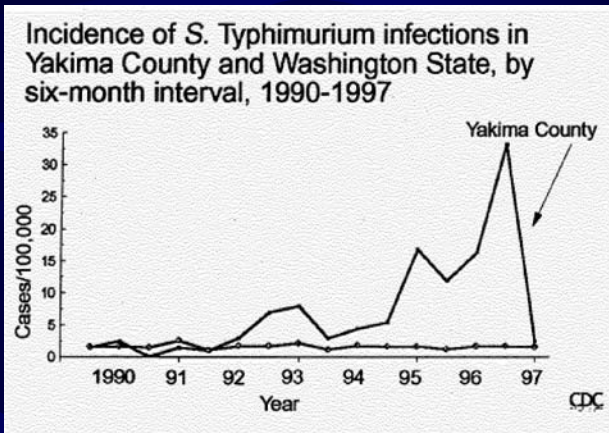
- We surveyed people who did not participate in safe cheese workshops to see if the publicity had increased awareness of risks of raw milk *queso fresco*.

### Does Raw-Milk *Queso Fresco* Cause Illness?

$\chi^2 = 25.3$  (significant/ $p < .01$ )



## Post Intervention Salmonella Cases



## The Intervention was Successful!

- Incidence of *Salmonella* infections dropped rapidly during the intervention.
  - Avoiding illness of the children appears to have been a prime motivator.
- The cultural tradition of home preparation of *queso fresco* was preserved.
- Some of the unlicensed small vendors who were formerly selling raw-milk *queso fresco* are now licensed and sell pasteurized-milk *queso fresco*.

## Reflections

- Many food safety educational campaigns focus on avoiding certain risky foods.
- Encouraging people to abandon a food custom accelerates cultural decomposition and may be nutritionally deleterious.
- If possible, interventions should encourage modification rather than elimination of traditional cultural foods.

## Reflections

- Food safety interventions that use the expertise of nutrition educators, microbiologists, food scientists and community-based educators are most likely to be effective at reducing microbial risks, maintaining the traditional taste of foods, and preserving cultural food patterns.

## Current Status of Project

- Safe cheese workshops continue to be held in dairy farming areas of Washington.
  - In Yakima County, rates of *Salmonella* infections rise without continued intervention.
- Video showing the process of making *queso fresco* was developed to use when hands-on training was not feasible.

## Sharing of materials

- More than 10,000 copies of the brochure have been distributed by WSU.
- Brochure was reprinted by FDA for distribution at Health Fairs in major US cities.
- Food safety educators in about 20 other countries have requested copies.
  - Home production of raw-milk fresh cheese is common in many countries.
  - Educators have revised the procedures as needed to produce the cheese made in their locality.



## Directions for Making *Queso Fresco*

- Available from Washington State University Bulletins Office (800-723-1763 or [pubs.wsu.edu](http://pubs.wsu.edu))
  - Fresh Cheese Made Safely
    - Brochure (PNW539)
    - Video and brochure (VT108)
  - *Queso Fresco Hecho Saludable*
    - Brochure (PNW539S)
    - Video and brochure (VT108S)

## For Additional Information about the Abuela Project

- Bell, Hillers and Thomas. The Abuela Project: Safe cheese workshops to reduce the incidence of *Salmonella* Typhimurium from consumption of raw-milk fresh cheese. *Amer. J Public Health* 1999; 89:1421-1424.
- Bell, Hillers and Thomas. Hispanic grandmothers preserve cultural traditions and reduce foodborne illness by conducting safe cheese workshops. *J Amer. Dietetics Assoc.* 1999; 99:1114-1116.