

# How is Food Insecurity related to Obesity?



Lucia Kaiser, PhD, RD  
Community Nutrition Specialist  
Dept. of Nutrition, UC Davis  
Sept 23, 2012

























# Today's topics

- ▶ How and why is food insecurity monitored in the US?
- ▶ What are the relationships between food insecurity, diet quality, and health risks?

# Definition of Terms (AIN, 1990)

- ▶ **Food security:** Food security for a household means access by all members at all times to enough food for an active, healthy life. Includes at a minimum:
  - The ready availability of nutritionally adequate and safe foods.
  - Assured ability to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies).





# History

- ▶ 1984--President's Task Force report: "evidence of hunger in U.S. but unable to estimate extent of the problem"
- ▶ 1987--UC Berkeley conference: lack of problem definition a major impediment
- ▶ 1990--Am Institute of Nutr. publishes definitions of food security/food insecurity/hunger
- ▶ 1991-1992--Several groups publish research on food security instruments (Radimer et. al.; Wehler et. al.; Briefel)
- ▶ 1995--18-item Food Security Supplement administered in US
- ▶ 2006--National Research Council recommends that new methods for measuring hunger be developed

# Food Insecurity as a “Managed Process”

(Radimer et. al, J. Nutr. 120: 1544, 1990)

**Food Secure**

**Household Food  
Insecure**

Low Food Security=

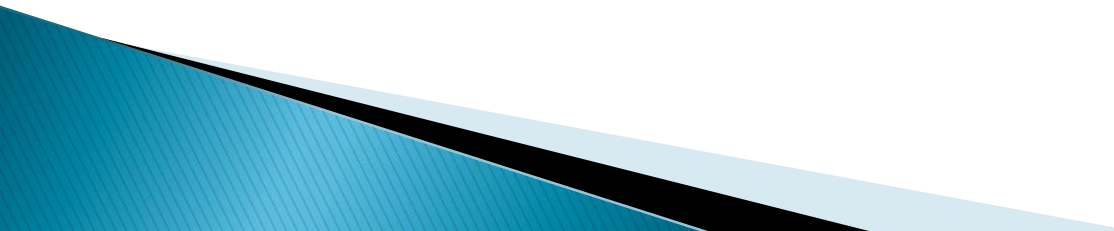
**Adult Hunger  
(Moderate)**

Very Low Food Security=

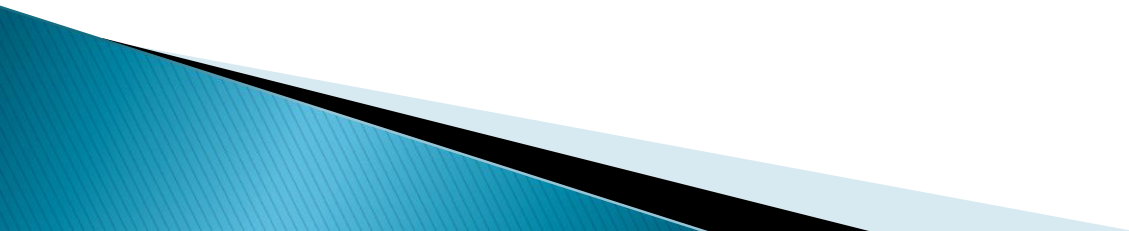
**Child Hunger  
(Severe)**



# Sample items:

- ▶ **Marginal level:** We were worried whether our food would run out before we got money to buy more: often true, sometimes true, or never true
  - ▶ **Low food security** Did you ever eat less than you felt you should because there wasn't enough money for food?: yes, no
  - ▶ **Very low food security:** Did any of your children not eat for a whole day because there wasn't enough money for food?: yes, no
- 

**Important caveat: Only poverty-linked food insecurity and hunger are meant to be captured by food security instruments**



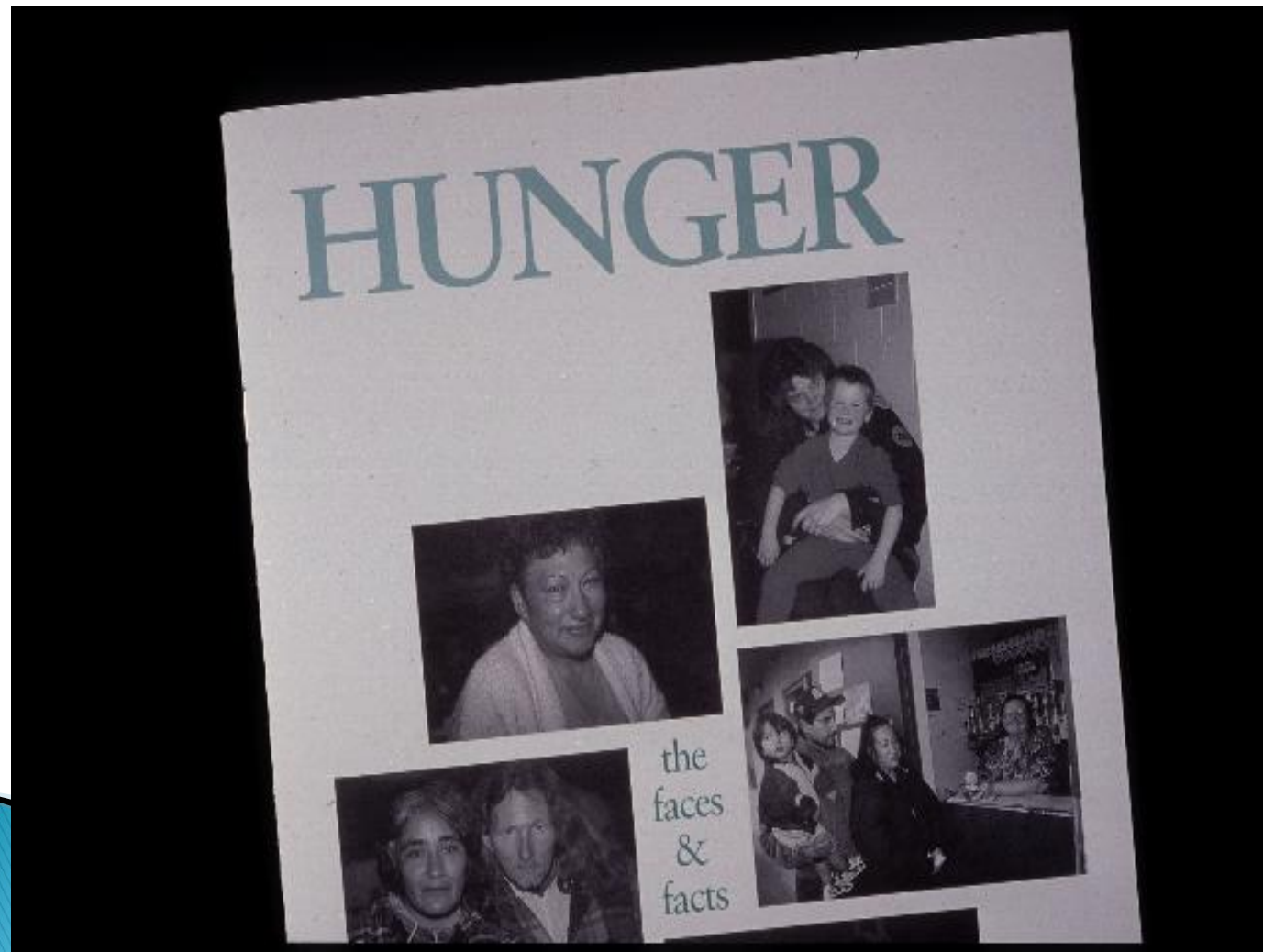


# Current Definitions:

## 18-item Food Security Supplement

- ▶ **High food security**= 0 positive responses:  
Means no problems
- ▶ **Marginal food security**= 1–2 positive responses: Means anxiety but diet quality, quantity or variety not substantially affected
- ▶ **Low food security**= 3–7 positive: Means low quality & variety of diet but little evidence of reduced intake
- ▶ **Very low food security** 8–18 positive responses: Means multiple indications of disrupted food patterns and reduced intake

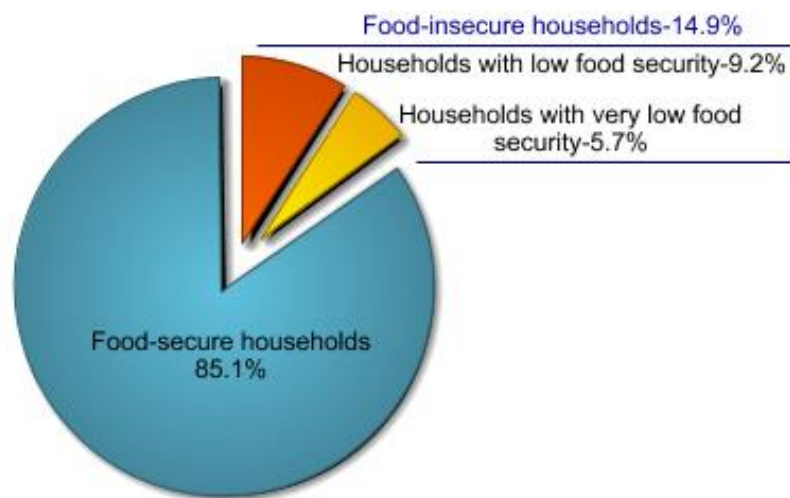
# *Partner Activity: Using the 18-item Food Security Instrument*





# Food insecurity in the US :Current Population Survey, 2011

U.S. households by food security status, 2011

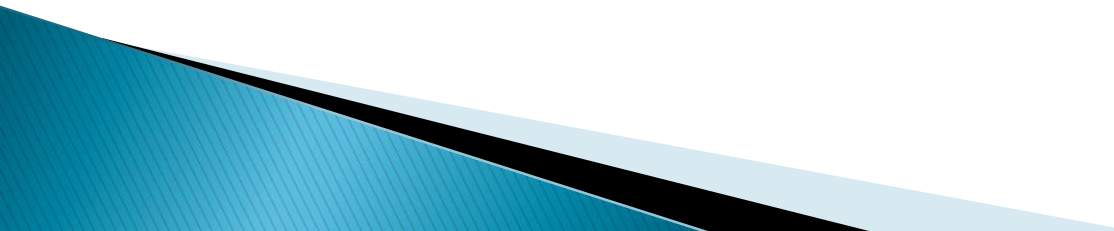


**14.9% Food Insecure (Low and Very Low Food Security)**

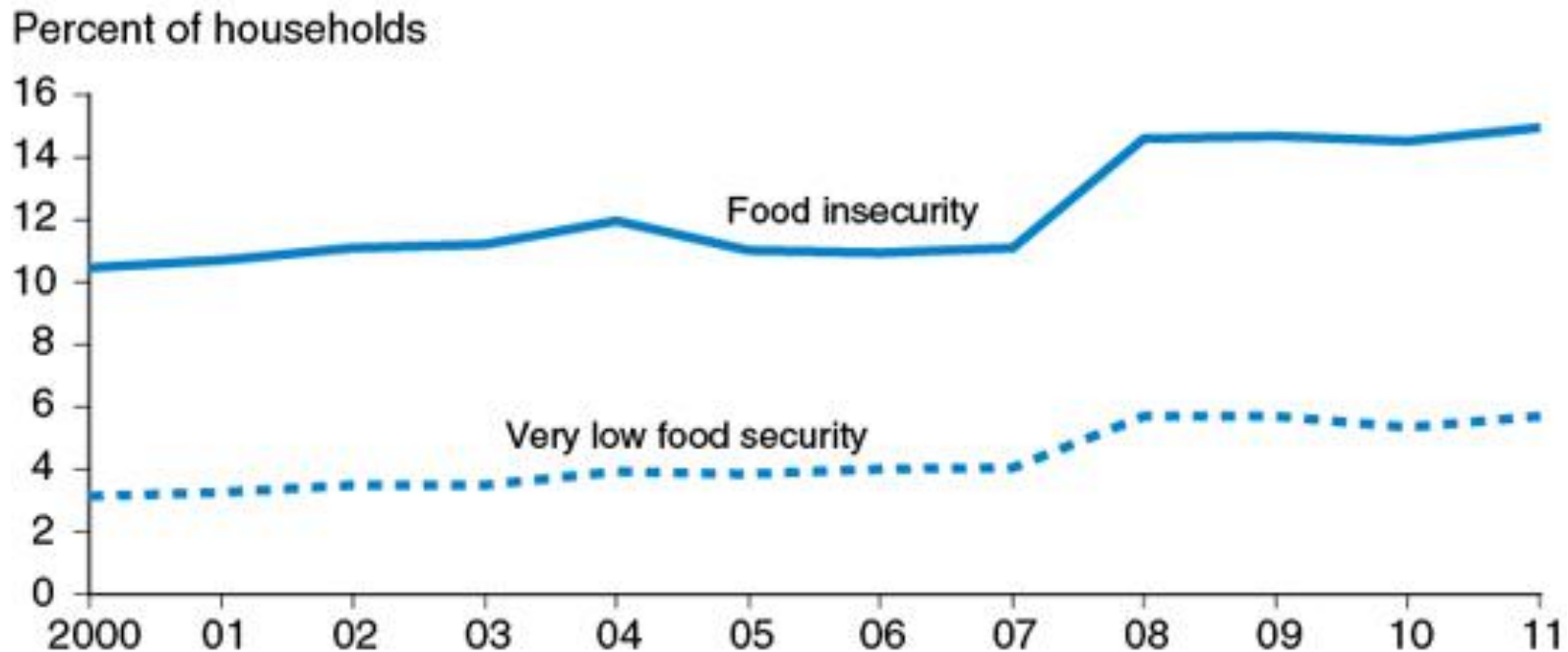
Source: Calculated by ERS using data from the December 2011 Current Population Survey Food Security Supplement.



# Why monitor food insecurity?

- ▶ Poverty and income measures do not account for local differences in housing and food costs
  - ▶ Recent changes in the household (divorce, illness, etc) that affect food insecurity but are not reflected in yearly income
- 

# Food insecurity increased during the recession 2007–08

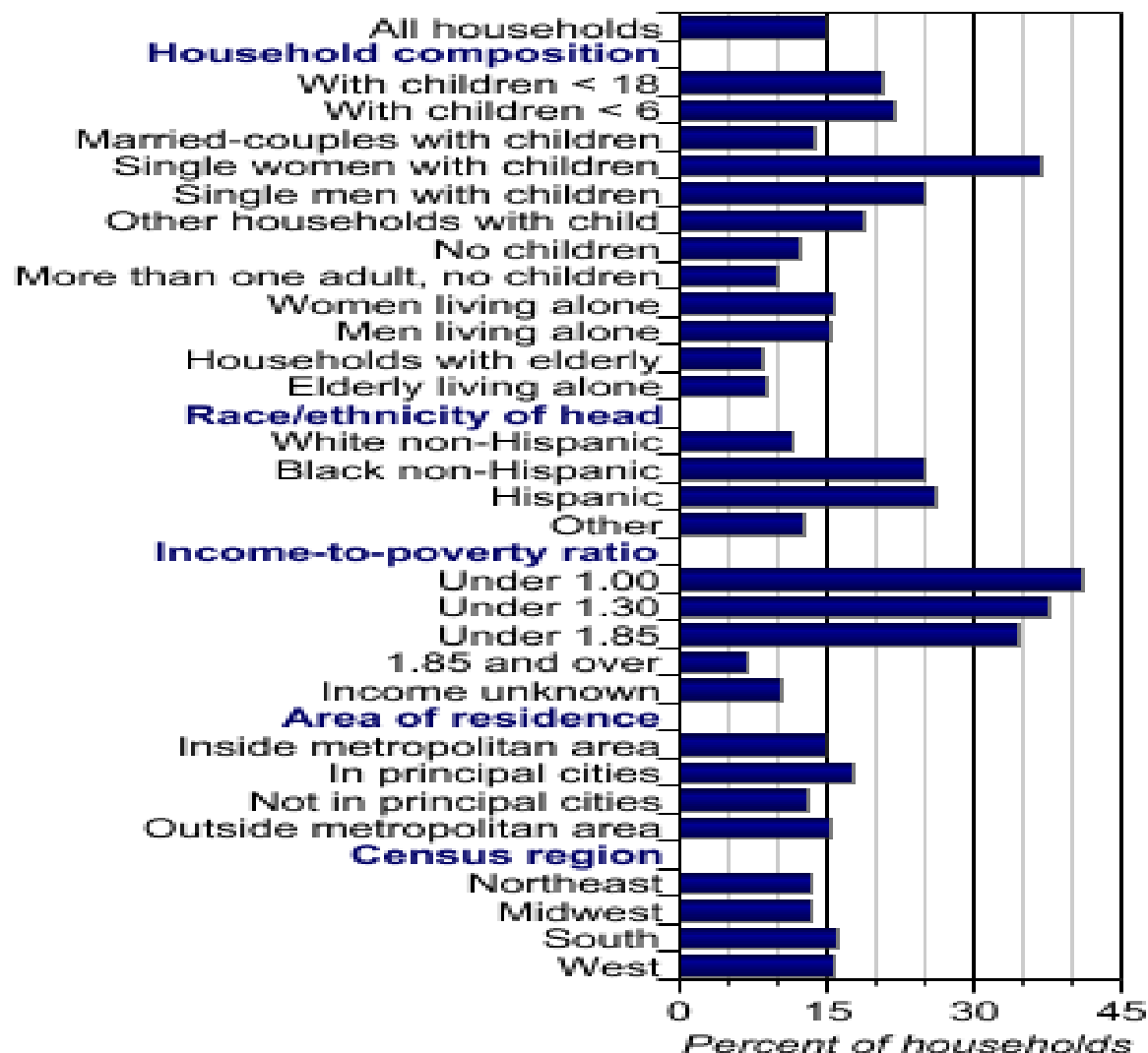


Source: Calculated by USDA, Economic Research Service based on Current Population Survey Food Security Supplement data.

Economic Research Service, Available at: <http://www.ers.usda.gov>



## Prevalence of food insecurity, 2011



Source: Calculated by ERS using data from the December 2011 Current Population Survey Food Security Supplement.

# A Global Nutrition Index among 192 countries:

- ▶ Top 5 countries with both high nutrient deficiencies & obesity:
  - #1 Mauritania
  - #2 South Africa
  - #3 Samoa
  - #4 Lesotho
  - #5 Fiji



Rosenbloom JI et al Food and Nutrition Bulletin 2008; 29 (4): 266-277

# Access to food assistance can improve food security in the poor





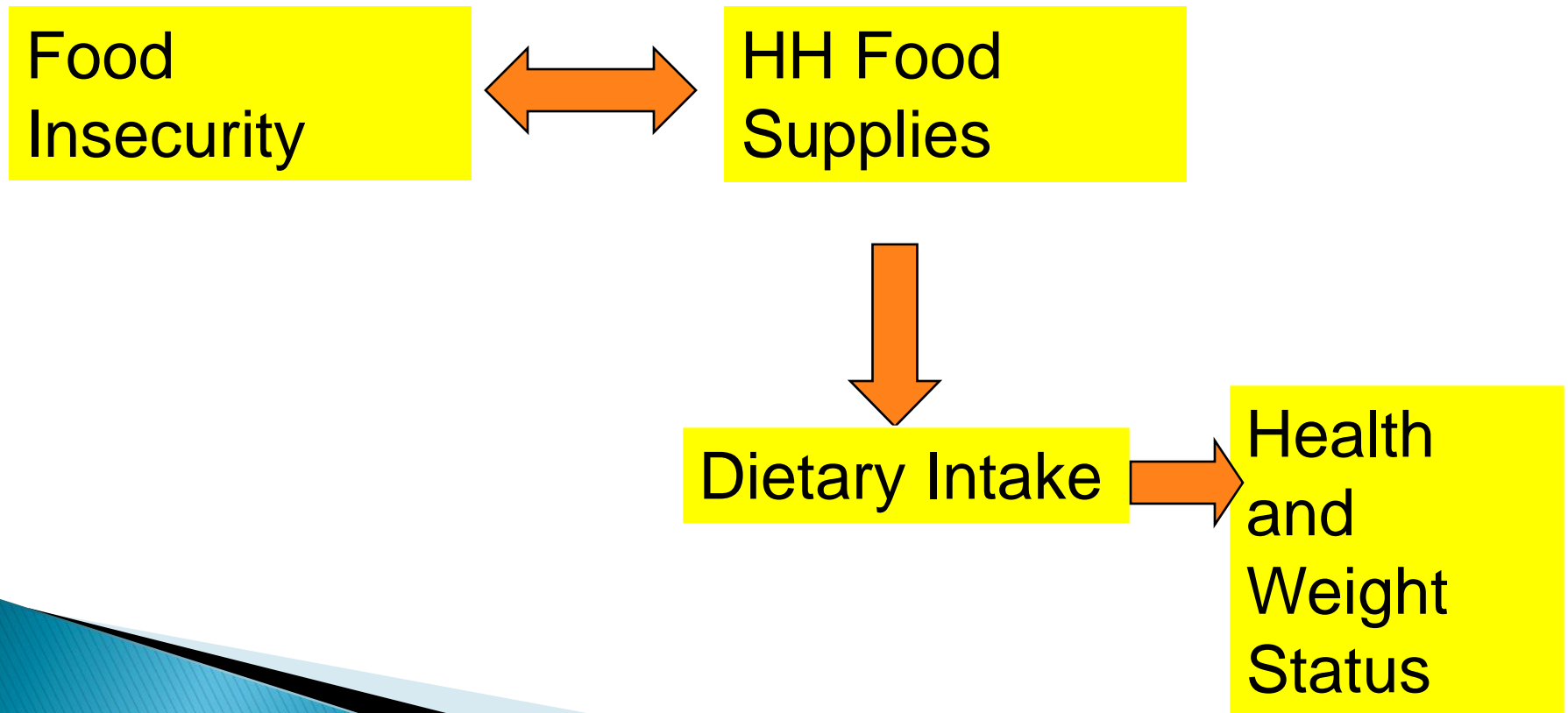
# Food Security of SNAP Recipients Improved Following the 2009 Stimulus Package

- ▶ Stimulus package of 2009 increased SNAP benefits & expanded eligibility
- ▶ SNAP participation & food spending increased
- ▶ Food insecurity dropped 2.2% in low-income hh



<http://www.ers.usda.gov/AmberWaves/June11/Features/FoodSecuritySNAP.htm>

# How is food insecurity related to nutrition/health outcomes?



# *Food insecurity lowers quality of the diet in immigrant populations*

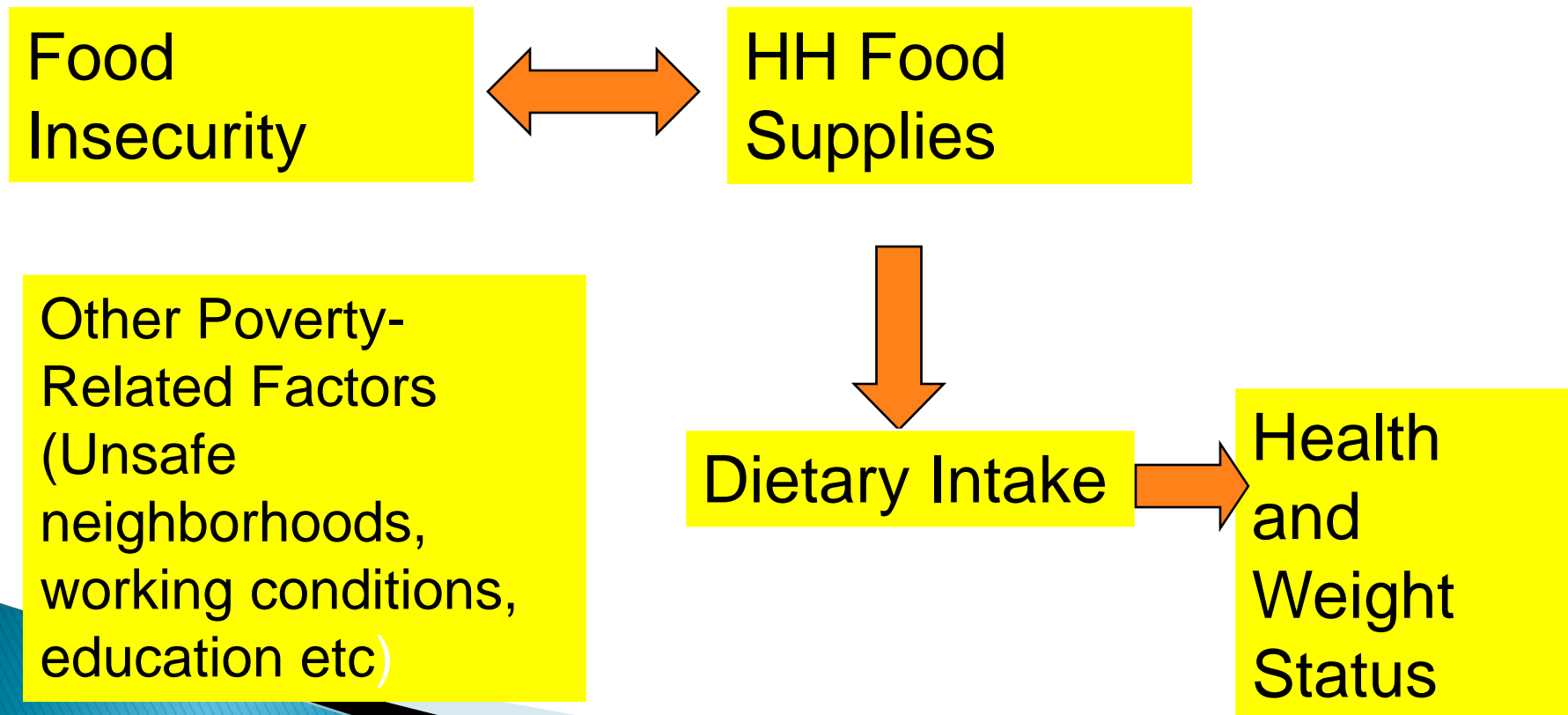
- ▶ Food insecurity in CA
  - Lower household supplies of fruit and vegetables—associated with lower intakes of these foods in children
  - Higher intake of fat, saturated fat, sweets, fried snacks among immigrant children

Kaiser et al JNEB 2003

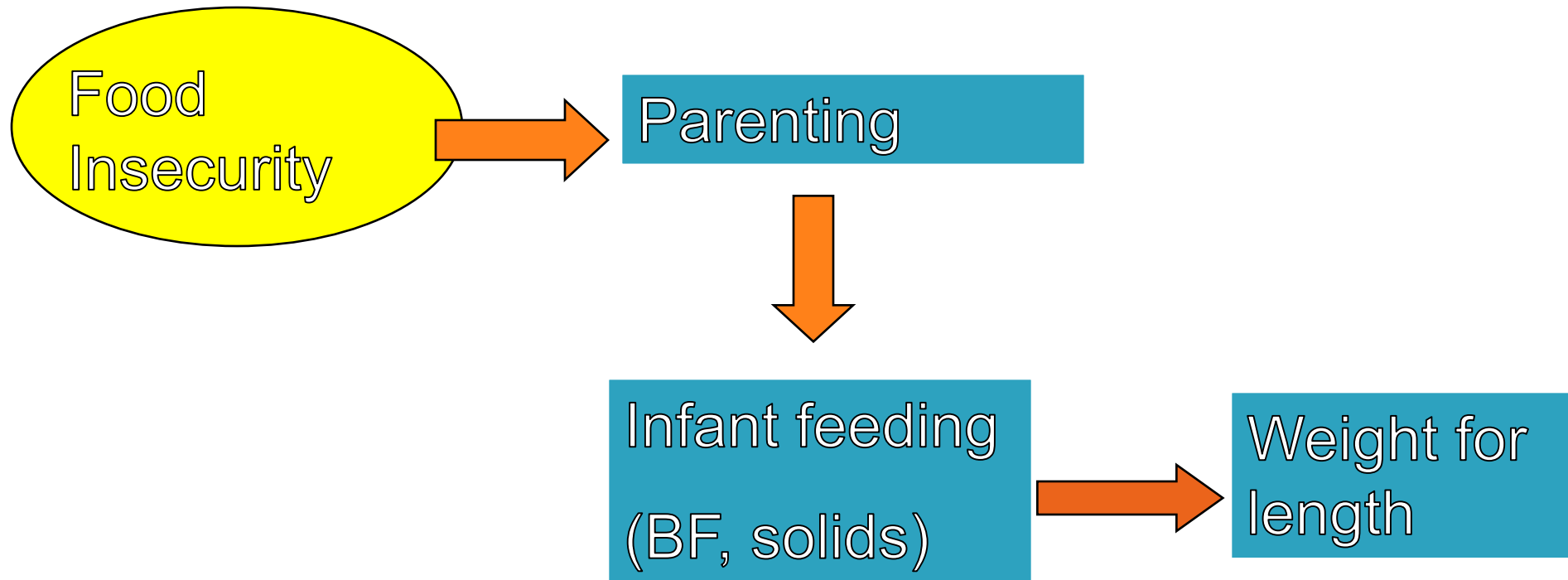
Rosas et al. JADA 2009; 109:2001



# How is food insecurity related to nutrition/health outcomes?



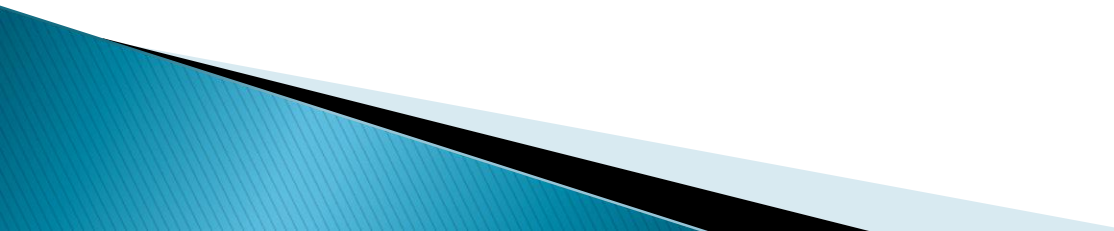
# Other pathways connecting food security and health outcomes



Bronte-Tinkew et al, J Nutr 2007: 137: 2160-2165

Early Childhood Longitudinal Birth Cohort, n=8693

# Food insecurity in the U.S. is associated with:

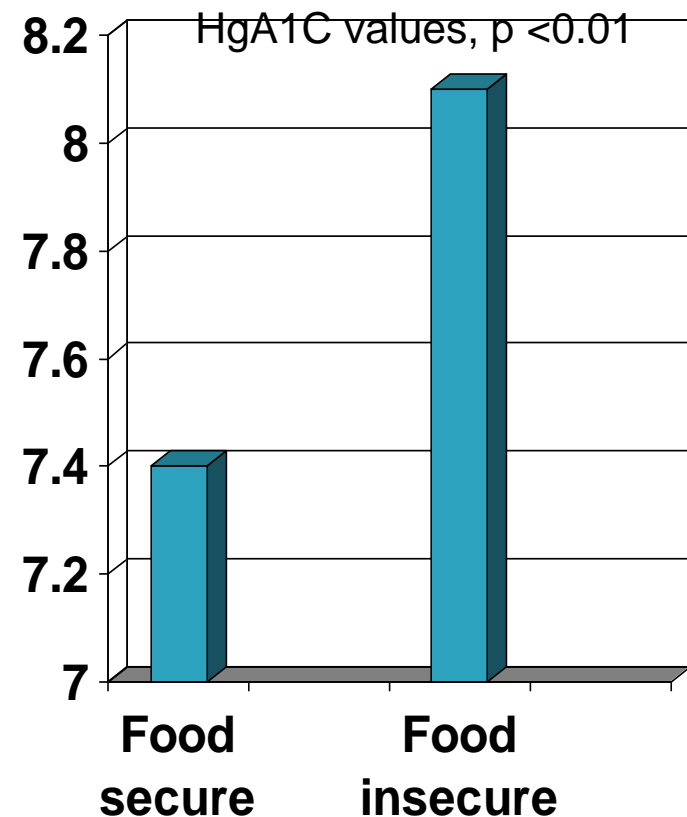
- ▶ Lower nutrient intakes/dietary quality—especially in adult women
  - ▶ Psychosocial problems in children and youth
  - ▶ Disordered eating patterns in women
  - ▶ Self-reported “poor or fair” health
  - ▶ Poor mental health/ depressive symptoms
  - ▶ Obesity in adults, mainly women
  - ▶ Overweight and obesity in children ????
- 



# Food insecurity: increases risk of chronic disease

- ▶ 21% more hypertension
- ▶ 64% more diabetes\*

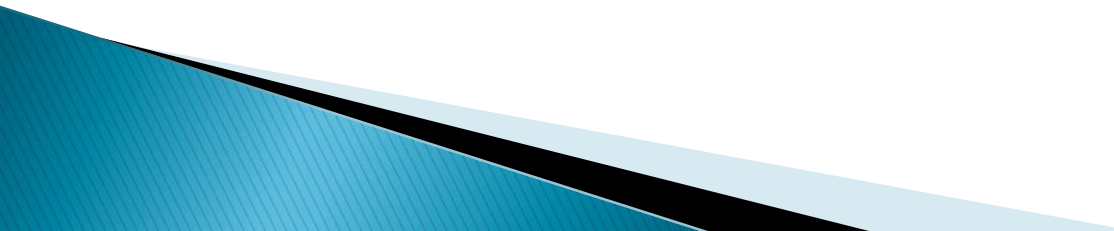
\*after accounting for race, age, gender, income, education and body weight





# *The food insecurity—obesity link*

## *Possible explanations*

- ▶ Periods without enough food cause overeating when food is available
  - ▶ Fluctuations in eating habits result in greater efficiency in use of energy
  - ▶ Food insecure eat cheaper energy-dense foods
- 







# Price of sweetened beverages (\$ /energy content in MJ)

- ▶ Tampico: \$0.25
- ▶ Safeway Cola: \$0.32
- ▶ Coke Classic: \$0.44
- ▶ Welch's Juice: \$0.82
- ▶ Minute Maid OJ: \$0.94
- ▶ Tropicana OJ: \$1.08
- ▶ V8 Fusion: \$1.49

# Dependency on Imported Foods in the Territories

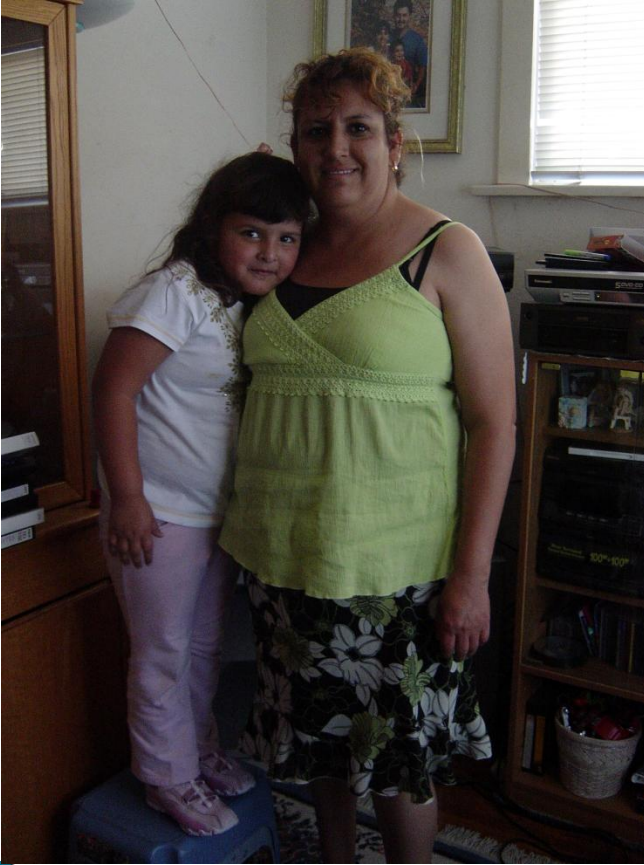


# Why is it harder to find a link between food insecurity and childhood obesity?

- ▶ Children are relatively protected
- ▶ May be a problem with the way we measure food insecurity
- ▶ May take a long time for obesity due to food insecurity to emerge



# *How does past food insecurity influence nutrition?*



- ▶ About 40% experienced some degree of hunger during childhood
- ▶ At least half expressed the desire to give their children more food, better quality food, foods they lacked in Mexico
- ▶ People may eat less or reject foods they had to eat all the time
- ▶ Some eat compulsively or go out to eat all the time



# Comment from focus groups

“When people didn’t have enough to eat in their childhood, practically on looking at food, one automatically goes back to the time he didn’t. He feels the anxiety, the hunger, and says, ‘I didn’t have enough to eat, I am going to serve this child a huge plate’”

# Summary

- ▶ Food insecurity is associated with obesity in US adults—but hard to say if there is a “causal relationship”
- ▶ May be more important to research ways to improve food security and local access to a healthy diet

